# 2.01 Fire Alarm and Signaling Systems Submittals (2025)

**Reference:** 2025 San Francisco Fire Code (SFFC) Chapter 9, Section 907; 2025 NFPA 72; 2022 NFPA 1225

**Purpose:** The following information shall be provided when plans are submitted for a building permit to install or modify a fire alarm system or signaling system.

The San Francisco Building Code (SFBC) Section 1.11.1 requires that all fire alarm system installations, repairs, alterations, and upgrades of existing systems be approved by the San Francisco Fire Department (SFFD). Detailed plans shall be submitted to the SFFD plan check section. Effective 1/1/2026, the 2025 edition of NFPA 72 shall be the applicable edition of this code, as adopted by the 2025 SFFC and 2025 SFBC. The 2025 SFFD Administrative Bulletins mentioned shall also be the applicable edition for this bulletin.

**Signaling Systems:** For the purpose of this bulletin, signaling systems are defined as all other Emergency/Life-Safety Communication Systems indicated in NFPA 72 Chapter 24 (not fire alarm systems), such as Two-Way Emergency Communications System (ECS), Emergency Responder Communications Enhancement System (ERCES/ERRCS), Mass Notification System (MNS), etc.

**Fire Alarm Systems:** This bulletin applies for both Building Fire Alarm Systems (which include a notification system) and are governed by SFFC Section 907, and to Dedicated Function(s) Fire Alarm Systems which are provided where a Building Fire Alarm system is not required. Dedicated Function(s) Fire Alarm Systems could be dedicated to one or more specific function(s) such as for sprinkler waterflow and supervisory (sprinkler monitoring system), Elevator Recall and supervisory, HVAC/ Mechanical shutdown, ERCES/ERRCS, etc.

**Note on Approved References:**

1. **New Fire Alarm System Plan Submittals.** Approved reference architectural and mechanical plans must be provided.
2. **Fire Alarm System Plan Submittals for Tenant Improvements with Mechanical Work (such as fans and fire smoke dampers).** Approved reference mechanical plans must be provided.
3. **New Signaling System Plan Submittals.** Approved reference architectural plans must be provided.

**Other Notes:**

1. **Scale and Documentation.** Plans shall be drawn to an indicated scale (not smaller than 1/8" = 1') with a graphic scale indication. All fonts on all sheets shall be a minimum 1/8" font size. All plans shall be of uniform size (11" x 17" minimum), with a plan of each floor. Plans must be clear with legible text and symbols so they could be electronically scanned. The scope of work must be indicated in detail and the reason for providing the system must be indicated (e.g. new system required by code, voluntary / non-required system at the owner's request, etc.). All applicable codes and standards used must be referenced (e.g. NFPA 72, SFBC, SFFC, SFEC). The submittal plans must comply with all applicable sections of NFPA 72 Chapter 7 "Documentation" and all applicable SFFD Administrative Bulletins requirements. For Electronic Plan Review (EPR) via Bluebeam: The applicant shall follow all DBI specific requirements for EPR submission and shall provide all the required information included in this section in electronic format. The requirements of this bulletin shall apply to both paper plans and EPR submittals.

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2. **Verbatim Notes.** The following notes shall be incorporated as verbatim notes on the plans:

   *"The fire alarm and/or signaling system shall be designed and installed in accordance with the City and County of San Francisco Fire Department requirements, Specific SFFD applicable administrative bulletins, 2025 NFPA 72, 2022 NFPA 1225 and other applicable NFPA Standards as adopted in the SFBC and SFFC."*

   *"The primary power source for the Fire Alarm Control Unit (FACU) or Signaling System Control Unit (SSCU), and remote power supplies shall be from a dedicated circuit. This circuit shall be labeled at both the electrical sub panel and on the inside of the FACU / SSCU / power supply door and be provided with a circuit lock (if it is not installed in a locked room)."*

3. **Applicable Codes for FIRE Only Permits.** FIRE Only permits shall utilize the applicable code requirements from the date of "RECEIVED" stamp of the 1st submission of the FIRE Only permit. This includes FIRE Only permits under an addenda schedule.

   Revisions based on SFFD comments that have been submitted after the original permit expired (not issued) may require to comply with more recent applicable codes on a case-by-case basis, as required by SFFD.

   **Exception:** FIRE Only as-built plans and revisions under a new Fire Only permit number submitted after the original permit was issued, must reference the original FIRE Only permit number and shall comply with the same applicable codes as per the original permit.

   *Example 1: A fire alarm permit under an addenda is received by plan check on 1/2/2026, but the addenda permit number is from 1/2/2024. Since the fire alarm is a FIRE Only permit, even though it is under an addenda, the effective applicable code requirements would be the 2025 San Francisco Fire Code (SFFC) and 2025 NFPA 72, rather than the 2022 SFFC and 2022 NFPA 72.*

   *Example 2: A fire alarm permit is received by plan check on 12/30/2024 (under 2022 SFFC and 2022 NFPA 72). Comments were given and the permit was not issued. The applicant addresses the comments on 1/2/2026. However, this permit expired and an action is required by the applicant to reopen that same permit. Since the fire alarm permit is a FIRE Only permit and this is a revision based on comments of the original submission, this may require the new permit to comply with the most recent applicable code, 2025 SFFC and 2025 NFPA 72.*

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## FIRE ALARM PLAN SUBMITTAL

**I. GENERAL REQUIREMENTS (THE FOLLOWING ITEMS MUST BE INCLUDED IN THE PLANS)**

A. **Owner/Occupant Information.** Name(s) and Phone Number(s) of Owner and Occupant / Tenant.

B. **Address Information.** Address of Building, Including Assessor's Block and Lot Number.

C. **Contractor Information.** Contractor's Name, Address, Telephone Number, and License Number.

D. **Stamp and Signature.** For paper plan submittals: 2 sets of plans with the wet signature and stamp of the engineer, or C-10 design-build contractor (Reference DBI Information Sheet G-01). Designer's full name and all other applicable information per 2025 NFPA 72 Chapter 7, must be clearly indicated. New or replacement fire alarm systems for high-rise buildings require an electrical engineer's stamp and signatures on all sheets. For Electronic Plan Review (EPR) via Bluebeam: The applicant shall follow all DBI specific requirements for EPR submission and shall provide all the required information included in this section in electronic format. The requirements of this bulletin shall apply to both paper plans and EPR submittals.

E. **Smoke Control.** Engineers' signatures and stamps on fire alarm plans associated with smoke control shall comply with all requirements set forth in DBI AB-047. All fire alarm plans including the smoke control interface shall include the following features from the approved mechanical permit plans:

1. Final smoke control report stamped by all required engineers.
2. Third party smoke control review letter signed and stamped by a SFFD approved third-party smoke control reviewer (if applicable).
3. Smoke control sequence of operation matrix (could be a part of the final smoke control report).
4. Complete mechanical fans and dampers matrix for the entire building.
5. Layout of the Firefighters' Smoke Control Panel (FSCP) - shall be stamped and signed by the mechanical engineer and coordinated with the Fire Alarm system designer.
6. All the required reference smoke control sheets from the approved mechanical permit plans shall be incorporated as "FOR REFERENCE ONLY" sheets within the Fire Alarm permit plans submittal.
7. All reference smoke control sheets shall have a review statement and/or stamp by the Smoke Control report author for smoke control system compliance with a REVIEW stamp indicating: "NO EXCEPTION TAKEN.

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8. The Electrical Engineer of Record (EEOR) and Mechanical Engineer of Record (MEOR) shall stamp and sign every fire alarm permit plan sheet with a smoke control review statement (not a Professional Engineer [PE] round stamp). They shall indicate that they have reviewed the fire alarm plans designed by the fire alarm system designer / electrical engineer to be in conformance with the smoke control report authored by the smoke control engineer, indicating the final date of the approved smoke control report, and they have “NO EXCEPTIONS TAKEN”.

F. **Symbols.** Symbol list combined with equipment list specified in item N below.

G. **Street, Main Entrance, Cross Section.** Point of compass, surrounding street names, location of main entrance / SFFD response point to the building, and full-height cross section of the building, if required for clarity, include ceiling construction and height, with indication of ceiling beams and beam pockets.

H. **FACU Location.** The FACU shall be located in an approved location within the building in a secured manner to prevent access by the general public to the FACU controls. (For acceptable SSCU locations, refer to Addendum H below).

1. **Fire Command Center (FCC).** If the building has an FCC, the FACU shall be installed in it.

2. **No Fire Command Center.** The following conditions shall apply for buildings without FCC:

   a. **Not in Egress Path/Component.** The FACU shall not be permitted to be installed in any egress pathway or egress system component (such as stair enclosure, exit passageway, egress corridor, etc.)

   b. **Only Ground Floor Or One Floor/Level Below The Ground Floor/Basement Level.** The SFFD requires that the FACU shall only be permitted to be installed on the ground floor or one floor below the ground floor / basement.

   c. **3 Feet Clearance.** There must be at least 3 feet of clearance in front of the FACU and on each side of the FACU.

   d. **Permitted Areas.** The FACU may be permitted to be installed in the following areas:

      (1) At a secure and approved room (such as an electrical room, engineer’s office, etc.). There must not be locked access to this location by responding firefighters. If the room/space is locked, a lockbox key access per SFFD AB #5.09 must be provided in an approved location.

      (2) At the main entrance / lobby to the building in an approved location within a secured locked cabinet with an associated SFFD approved lockbox key access per SFFD AB #5.09, for responding firefighters to gain access to the FACU controls.

      (3) Outside the building in a secured and approved weatherproof location on a case-by-case basis, with an associated SFFD approved lockbox key access per SFFD AB #5.09.

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e. **Main Entrance Annunciator.** Where the FACU for a building fire alarm system is not installed at the main entrance to the building (SFFD Response Point), an associated LCD or LED annunciator shall be required at the main entrance to the building per item Z below.

f. **Smoke Detector.** A single smoke detector shall be provided at the location of each FACU (see NFPA 72 Section 17.4.8 for location where the ceiling height exceeds 15 feet).

**Exception:** The FACU shall not be required to have an associated smoke detector if it is located in a constantly attended location within the building (24 hours a day / 7 days a week). The SFFD considers a constantly attended location only where a minimum of two (2) trained personnels are present.

3. **Additional Nodes.** Additional networked fire alarm system control units (or nodes) shall be permitted to be installed in other approved and secured locations within the building.

4. **One (1) Building Fire Alarm System.** Only one (1) building fire alarm system shall be permitted for a specific building. Main FACU and additional sub panels/nodes shall be acceptable when arranged to operate as one building fire alarm system. Where the building is not provided with a building fire alarm system, it is permitted to have multiple and separate dedicated function fire alarm systems which are not interconnected to serve as one system. It is also permitted to interconnect separate dedicated function fire alarm systems to be one combined dedicated system with multiple functions such as a dedicated functions fire alarm system for sprinkler waterflow and supervisory and for elevator recall and supervisory and for HVAC shut down, etc.

I. **Visible Sign (Key Map).** For all building fire alarm systems and dedicated function(s) fire alarm systems, a readily visible sign shall identify the location of the FACU indicating: "Fire Alarm Control Unit". This sign shall be mounted on the door or other access means to the FACU area or space. In addition, another approved readily visible sign (or a key-map) identifying the location of the FACU within the building, shall be provided at the SFFD main response point to the building in an approved location. The owner shall be responsible for providing these required signs.

J. **Partition and Walls.** Locations of partitions and walls, indicating which ones extend through concealed spaces.

K. **Occupancy Separation.** In low-rise buildings only having mixed occupancies, where one occupancy is sleeping occupancy which is required to have a building fire alarm system and the other occupancy is a non-sleeping occupancy (such as R-1 or R-2 sleeping occupancy over a M/B/A non-sleeping occupancy) it shall not be required to have a fire alarm system initiating devices and notification appliances in the non-sleeping occupancy, provided the following conditions apply in accordance with 2025 CBC Section 508.4.1:

1. Fire-rated occupancy separation between the sleeping and non-sleeping occupancies (1-HR for fully sprinklered building or 2-HR for non-sprinklered or partially sprinklered building).

2. Separate egress system (not shared) for each occupancy with separate entrance(s) and exit(s) doors.

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3. A waterflow switch (in fully or partially sprinklered buildings) shall be located in the non-sleeping occupancy and it shall activate the alarm signal throughout the sleeping occupancy upon sprinkler activation in the non-sleeping occupancy.

L. **Audible and Visual Requirements.** Visual and/or audible protection provided by fire alarm or signaling system visual appliances (strobes) and/or audible appliances (speakers, horns, chimes, sounders etc.) shall comply with 2025 CFC Section 907.5.2.3 and NFPA 72 coverage and installation requirements, and with the following specific SFFD requirements:

1. **Defining Rooms.** The architect shall specifically label on the architectural permit plans each room/space/area, regardless its size, per its specific use/function, and with a specific indication stating if it is:

   a. **Public Use.** Normally occupied and used by member(s) of the general public (such as wellness/mother's room, phone/quiet room, restrooms, toilet rooms, conference / huddle / meeting rooms with general public access, etc.)

   b. **Common Use.** Normally occupied and used by more than one (1) building employee. Typically, these are enclosed rooms shared by two or more employees and have more than one workstation/ computer, work desk, etc. or other shared function (such as shared office room, breakroom, security room, engineers room, copy room, conference / huddle / meeting rooms for building employees use only)

   c. **Private Office.** Normally occupied and used by one (1) specific building employee only for office work purposes (such as a large private office with a large meeting/conference table, and it is not considered as a conference / meeting room).

   d. **Private Room/Space.** Normally occupied and used by one (1) specific building employee only for other than office work purposes (such as prayer room, phone room, phone booth, focus/quiet room, etc.)

2. **Visual Appliance Locations.** The fire alarm contractor shall be required to submit reference approved architectural plans with the above room/spaces/areas labeling and designations. The fire alarm contractor shall design and submit visual appliances coverage on the fire alarm or signaling system permit plans per the specific requirements of this section.

   a. **Public Use** rooms/areas/spaces, regardless their size and labeling, shall be provided with visual appliance(s) in accordance with NFPA 72.

   b. **Common Use** rooms/areas/spaces, regardless their size and labeling, shall be provided with visual appliance(s) in accordance with NFPA 72.

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c. **Private Offices** shall not be required to be provided with visual appliance(s) unless the employee occupying that office is deaf or hard-of-hearing (hearing-impaired). The building owner shall be responsible for providing visual appliance(s) as required. It shall be permitted to provide visual appliance(s) in Private Office(s) on a voluntary / non-required basis at the owner's request.

d. **Private Rooms/Spaces** shall not be required to be provided with visual appliance(s) unless any employee who potentially could occupy that room / space is deaf or hard-of-hearing. The building owner shall be responsible for providing visual appliance(s) as required. It shall be permitted to provide visual appliance(s) in Private Rooms/Spaces on a voluntary / non-required basis at the owner's request

e. **Medical Exam** rooms in any building/occupancy shall be provided with visual appliance(s) in accordance with NFPA 72.

f. **Phone/Privacy Booths/Pods.** The following conditions shall apply for Phone/Privacy Booths / Pods:

(1) **General Public Use.** If the phone/privacy booths/pods are to be used for general public use, it shall be provided with visual appliance(s), even if it is for only one (1) person to use at a time.

(2) **Employees Only.** If the phone/privacy booths/pods are used only for employees (not used for general public use) and none of the employees are deaf or hard-of-hearing based on a written statement from the owner/tenant/manager, visual appliance(s) shall not be required.

(3) **Private Mode Audibility.** Phone/Privacy Booths/Pods shall be permitted to use private mode audibility within the booth/pod (10 dBA above the average ambient sound level) – refer to 2025 NFPA 72 Table A.18.4.4 "Average Ambient Sound Level According to Location" regarding SFFD acceptable average ambient sounds levels. The values in this table shall be the minimum required average sound levels acceptable to SFFD unless a 24 hour ambient sound test per NFPA 72 is conducted by qualified persons, and the results are approved by SFFD.

g. **Normally Non-Occupied** rooms/areas/ spaces (such as mechanical rooms, electrical rooms, IT rooms, server rooms, telephone rooms, janitor closet/rooms, elevator machine or control rooms, fire pump rooms, etc.) shall not be required to be provided with visual appliance(s). However, an audible alarm signal of minimum 15dBA above the ambient sound level, is still required in these rooms/areas/spaces which shall be provided by audible appliances located inside or outside these rooms/areas/spaces.

**Exception:** Where the ambient sound level is greater than 95 dBA, visual appliance(s) shall be provided in accordance with NFPA 72, and audible appliance(s) shall not be required.

h. **Private Use Storage Room/Space/Closet** used by only one (1) specific person / tenant / employee shall not be required to be provided with visual appliance(s).

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i. **Common/Public Use and Normally Occupied Storage Rooms/Areas/Spaces** shall be provided with visual appliance(s) in accordance with NFPA 72.

j. **Fire Command Centers (FCC)** shall be prohibited from having visual and audible notification appliance(s).

k. **FACU/SSCU/Two-Way ECS Call Box/Remote Annunciator Location.** Where any of the following control units: FACU, SSCU (ex. Two-Way ECS MCU), or a two-way ECS call box, or a remote annunciator is located in the areas specified in (1 ) or (2) below, the following conditions shall apply:

(1) **Enclosed Room/Space.** In an enclosed room/space, such as FCC, electrical room, storage room, etc., it shall be prohibited to provide visual and/or audible notification appliance(s) in that room/space.

a. **Call Boxes in Enclosed Elevator Lobbies.** Enclosed elevator lobbies with two-way ECS call boxes shall be prohibited from having audible notification appliances. Visual notification appliances shall still be required on the opposite wall from the call box location or on the ceiling.

(2) **Open Space/Area.** In an open space/area, including elevator landings for two-way ECS call boxes, the fire alarm system audible and visual appliance(s) at that space shall be located on the wall or ceiling in accordance with NFPA 72 and at least 20 feet away, measured horizontally from the center of the FACU, SSCU, two-way ECS call box, or each remote annunciator.

**Exception:** If the 20 feet distance is not feasible, either a closer distance may be approved or the notification appliance may be exempt from the area/space on a case-by-case basis.

(3) **Coordination with Two-Way ECS Designer.** The fire alarm system designer shall coordinate the fire alarm system design with the two-way ECS designer so that the fire alarm system notification appliances do not interfere with the effective use (live voice communication) of the two-way ECS call boxes and MCU, and an intelligible live voice communication is maintained.

l. **Enclosed Interior/Exterior Stairways and Exit Passageways** shall be prohibited from having visual/audible notification appliance(s). Speakers shall be required to be installed in enclosed stairways (on every 4th level in each stairway) of high-rise buildings for manual paging only. Each enclosed stairway shall be a separate paging zone on the fire alarm voice paging panel.

M. **Device Location.** Location of each device/appliance and any system components such as control units, power supplies and remote annunciator(s) shall be specifically identified on the associated permit plans.

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N. **Mounting Heights.** Mounting heights of manual fire alarm boxes, visual notification appliances, and all other fire alarm system equipment and control units (such as FACU, SSCU, remote power supplies, annunciators, etc.). Refer to 2025 NFPA 72 regarding control units mounting height on a best practices basis. The centerline of the LCD display of the FACU/SSCU shall be located at 60”- 66” above the finished floor (average eye level). Refer to 2025 NFPA 72 Section 10.4.4 regarding the acceptable control units mounting height.

O. **Equipment List.** Equipment list showing quantity, make, model, and current California State Fire Marshal (CSFM) listing number for each device. Differentiate between new and existing devices on the equipment list with “E” and “N” notations as applicable (when new devices are added to an existing system).

P. **Cut Sheets and CSFM Listing Sheets.** Manufacturer's specification sheets (cut sheets) and current CSFM listing sheets (may be loose leaf). Highlight all specific proposed parts on those sheets.

Q. **Wires/Cables/Conduit**. Type and size of wire, cable, and conduit. Include conduit fill ratio. Specify wire types, sizes and number of conductors between all devices / components on all shop drawings floor plans. All fire alarm system wiring and all signaling systems specified in 2025 NFPA 72 Chapter 24 shall be installed in metallic raceways per the SF Electrical Code Article 760. Armored cables are not permitted per SF Electrical Inspection Department (EID).

R. **Riser Diagram.** The single line riser diagram shall show all wire types, sizes and number of conductors coordinated with the floor plans and comply with 2025 NFPA 72 Chapter 7 requirements.

S. **Wiring Diagram: Point-to-Point.** Point-to-point wiring diagrams shall be included on all floor plans between all devices, panels, control units, communicators and annunciators. A typical point-to-point diagram shall be provided between all control units, annunciators, typical devices, modules and appliances.

T. **Wiring Diagram: Connections.** Wiring diagram showing the connection to primary power source and system communicator(s) shall be provided with dedicated circuits and breakers. Plug-in connection to electrical outlets is prohibited.

U. **Battery Calculations.** All standby and alarm currents used in the calculation shall be supported by catalog cut sheets or documentation from the manufacturer. Highlight all values of all standby and alarm currents used in the calculations.

V. **Speaker Power Calculations.** Speaker power calculations for emergency voice fire alarm systems. Indicate wattage tap per speaker, power per audio circuit, and total power for each amplifier.

W. **Voltage Drop Calculations.** Voltage drop calculations not to exceed 10% voltage drop per Notification Appliance Circuit (NAC) where the starting voltage is 85% of the nominal NAC voltage (20.4 VDC where nominal voltages 24 VDC). The use of nominal current (at 24 VDC) is acceptable for this 10% calculation where the voltage on the end-of-line (EOL) resistor shall not be lower than 18.36 VDC.

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**Exception:** As an alternative, it would be acceptable to use UL max current (at 16 VDC) with a starting voltage of 20.4 VDC and maximum drop of 20% per NAC where the voltage on the EOL resistor shall not be lower than 16.32 VDC. The term “UL Max Current” and the value of the alarm currents must be highlighted on the cut sheets.

X. **Sequence of Operations (SOOM).** Provide a Sequence of Operations Matrix (SOOM) using the format of 2025 NFPA 72 Figure A.14.6.1.1 (Refer to “Sample Matrix” in Addendum A below). Other SOOM formats may be approved on a case-by-case basis. All Fire Pump and ERCEC/ERRCS signals shall be supervisory signals only (including Fire Pump Running).

Y. **Type of Fire Alarm System**. Type of system such as: Supervising Station (Central, Remote or Proprietary) fire alarm system per NFPA 72 Chapter 26, or Protected Premises (local) fire alarm system per NFPA 72 Chapter 23. Indicate if the system is a code required fire alarm system, a non-required / voluntary fire alarm system provided at the owner’s request, or a replaced fire alarm system on a like-for-like basis per CSFM Code interpretation 12-001 and CSFM information bulletin dated 9/4/2008. Include these documents on the permit plans as applicable as the “applicable code reference”. Refer to SFFD AB # 3.08 for specific requirements for R-2 Occupancies.

Z. **Class Designation.** Assignment of class designation to device circuits and pathways per NFPA 72 Chapter 12. All new high-rise buildings shall comply with 2025 CFC Section 907.6.1.1.

AA. **Annunciation.** The following condition shall apply for annunciation (Exceptions under 2025 CFC Section 907.6.3 for initiating device identification are not permitted):

1. **Description.** Description of annunciation zones or list of device locations and their addresses.
2. **LED Annunciator Schematic Layout.** If LED style annunciator panel is required per SFFD Administrative Bulletin 3.02, provide schematic layout of this panel on the plans.
3. **LED Annunciator for High-Rise Buildings.** All high-rise buildings shall be provided with LED Matrix style annunciators complying with SFFD Administrative Bulletin 3.01 to be located inside the FCC. Graphic annunciators may be required by SFFD on a case-by-case basis.
4. **Comply with SFFD AB 3.01.** All LED and Graphic Annunciators and specific LED colors shall comply with SFFD Administrative Bulletin 3.01.
5. **Graphic Style Annunciators.** Graphic style annunciators may be required by SFFD on a case-by-case basis for buildings having large floor areas, unusual designs with area separation walls, or Graphic multiple buildings served by a single fire alarm system. The location and configuration/layout of the Graphic Annunciator shall be approved by SFFD on the fire alarm permit plans prior to fabrication and installation of the annunciator panel.
6. **Key Map/Sign.** A key map/sign shall be required to be mounted adjacent all LCD and LED Matrix style annunciators with a “You Are Here” symbol and the following features (the owner shall be responsible for providing this required key map):
   a. Location of FACU.

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b. Other buildings in the complex (if applicable).
c. Egress Stairs.
d. Elevators.
e. Exit Doors.
f. Horizontal Exits.
g. Fire Department Connections (FDCs).
h. Locations of Other Emergency Systems Control Units.
i. Other Required Features On a Case-By-Case Basis.

BB. **Voice Message Script.** Provide the script for the pre-recorded voice message content and languages used and all associated evacuation/relocation alert tones preceding and following the message per Addendum B and SFFD Administrative Bulletin 3.05. (Example: Steady tone 1-3 second, temporal 3 tone, in accordance with NFPA 72 Chapter 24).

CC. **Ancillary Features and Operations.** Description of ancillary features and operations (such as type of smoke control system, fire/smoke damper operation, fan shutdown, special extinguishing systems etc.) The required operation and shutdown of the mechanical systems and its associated components (such as AHUs and FSDs, etc.) upon smoke detection shall be specified by the mechanical engineer on the mechanical permit plans.

DD. **Fire Alarm Special Features.** Description of any special features (such as detector cross zoning, positive alarm sequence, etc.). Positive Alarm Sequence (PAS) shall require a specific operation and training description provided by the building owner and it shall be approved on a case-by-case basis with an associated approved AB-005 local equivalency form. All PAS shall be required to have specific approval by the Fire Marshal.

EE. **Prohibited Features.** It is prohibited to provide the “Alarm Verification Feature” and/or the “Pre-Signal Feature” for any fire alarm system under SFFD jurisdiction. Reference 2025 NFPA 72 Sections 3.3.17 and 23.8.5.4.1.

FF. **Alarm Service Company.** Name of Alarm Service Company (including UL listing number) which will be responsible initially for inspection, testing, and maintenance of the system after it is accepted. New and existing fire alarm systems shall be UL certificated in accordance with SFFD Administrative Bulletin 3.03.

GG. **Supervising Station Information.** If the fire alarm or a signaling system is to be monitored by an off-site supervising station: specify the type of supervising station on the plans per NFPA 72 Chapter 26 (Central; Remote or Proprietary station), supervising station name, address, contact information, and UL listing number.

HH. **Sprinkler Information.** Describe the degree the building is protected by automatic sprinklers:
1. Not Sprinklered.
2. Partially (Not Fully Sprinklered).
3. Fully (100%) Sprinklered.

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II. **Partial Evacuation/Relocation.** For high-rise buildings, indicate the fire alarm system evacuation / relocation method in conformance with SFFD Administrative Bulletin 3.05 (full evacuation, partial evacuation, or relocation/evacuation). The sequence of operation shall be consistent with the facility emergency plan. If relocation is required, provide a relocation/evacuation matrix on the plans (See example matrix in Addendum B). The facility emergency plan shall be current and shall include the relocation/evacuation procedure based on the approved fire alarm permit.

JJ. **Pathway Survivability for Partial Evacuation / Relocation.** If partial evacuation and/or relocation of occupants is provided, demonstrate how pathway survivability is achieved per NFPA 72 Chapter 12 (via approved / listed 2-hour circuit integrity cable; 2-hour enclosure; etc.) Comply with NFPA 72 Chapter 12 & 24 requirements for pathway survivability. Provide a separate "Survivability Riser" on the plans showing the 2-hour pathways protection (See sample riser diagram in Addendum C).

KK. **One (1) Manual Fire Alarm Box (Pull Station).** If only one (1) manual fire alarm box is provided for a fully sprinklered building or for a sprinkler waterflow and supervisory system, the following conditions shall apply:

1. **Adjacent to FACU.** The manual fire alarm box shall be installed adjacent to the FACU.
2. **Total Evacuation.** Where a building fire alarm system is installed in a fully sprinklered building, the single manual fire alarm box shall generate a full building general alarm (total evacuation).
3. **Alarm Signal.** The single manual fire alarm box shall generate an alarm signal at the FACU and transmit an alarm signal to the supervising station.
4. **No Activation of the Exterior Devices For Waterflow.** The manual fire alarm box shall not activate the exterior sprinkler devices (bell/strobe) that only activate upon waterflow of sprinklers. See Item MM for more information about exterior devices only for waterflow.
5. **Test Mode.** The manual fire alarm box shall be required to be connected to a separate zone or circuit on the FACU that shall not be placed on TEST mode when the building fire alarm system, or the sprinkler waterflow and supervisory system are placed on TEST mode, during testing and/or inspection of the system.

LL. **Dedicated Function(s) Fire Alarm Systems.** If the building has a dedicated function fire alarm system, the following shall apply:

1. **Multiple Functions.** Dedicated function(s) fire alarm systems (such as sprinkler waterflow and supervisory system, elevator recall and supervisory systems, etc.) are permitted to incorporate multiple functions in 1 FACU.

   *Example: Elevator recall smoke detectors and/or duct smoke detectors may be tied into a sprinkler waterflow and supervisory system control unit for supervision purposes, if an existing fire alarm system is not already installed in the building. A separate dedicated control panel for each function is not required in this case.*

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2. **Sign.** A sign indicating all system functions shall be provided adjacent to the FACU.

   *Example: "Sprinkler waterflow and elevator recall and supervisory control unit". (See SFFD Administrative Bulletin 4.11 for specific requirements for Sprinkler Waterflow and Supervisory systems.)*

3. **Smoke Detector At The FACU Location.** A single smoke detector shall be provided at the location of each FACU (see NFPA 72 Section 17.4.8 for location where the ceiling height exceeds 15 feet).

   **Exceptions:**

   a. The FACU shall not be required to have an associated smoke detector if it is located in a constantly attended location within the building (24 hours a day / 7 days a week). The SFFD considers a constantly attended location only where a minimum of two (2) trained personnels are present.

   b. Dedicated function(s) fire alarm systems which are not required to be supervised off-site by a supervising station, such as an elevator recall and supervisory system, are not required to be provided with a smoke detector at the FACU location.

MM. **Elevators.** Buildings with at least 1 elevator shall clearly show all elevator location(s) and must include on the plans all relevant associated elevator information per the "Elevator Checklist" (shown in Addendum F below) for reference. All associated elevator information must be obtained from the elevator service company, elevator vendor, and/or the elevator consultant associated with the project.

1. Compliance with Addendum E below is required regarding the "Flashing Hat" feature for all new Group IV elevators and retroactively for all existing Group IV* elevators upgrades. A copy of Addendum E shall be incorporated on all fire alarm permit plans having Group IV elevators adjacent to the fire alarm system sequence of operation matrix.

   **Group IV Elevators: Any contract to install an elevator that was signed on or after May 1, 2008 mandates that the elevator comply with all Group IV Elevator requirements per California Title 8 (Elevator Safety Order, Chapter 4, Sub-Chapter 6 which adopts ASME A17.1- 2004 edition).*

2. Compliance with Addendum E will also be required when observed during annual fire alarm system inspections.

NN. **Sprinkler Bell/Visual Notification for Sprinkler System Monitoring.** The following shall apply for sprinkler bell/visual notification for sprinkler system monitoring, either by a building fire alarm system or dedicated function(s) fire alarm system for sprinkler monitoring and supervisory (sprinkler monitoring system):

1. **Buildings with One Sprinkler Riser.** Building or dedicated function(s) fire alarm systems that require to monitor the sprinkler system in accordance with CFC Section 903.4.3 and SFFD AB 4.11, shall be required to have one exterior audible sprinkler bell in accordance with SFFD AB 4.11. Exterior horns, speakers, and strobes shall be prohibited.

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2. **Buildings with More Than One Sprinkler Riser.** Building or dedicated function(s) fire alarm systems that require to monitor the sprinkler system in accordance with CFC Section 903.4.3 and SFFD AB 4.11, shall be required to have one exterior audible sprinkler bell and visual exterior strobe associated with each bell in accordance with CFC Section 903.4.3 and SFFD AB 4.11. Exterior horns and speakers shall be prohibited.

3. **High Voltage Sprinkler Bell Prohibited.** The exterior sprinkler bell/visual notification shall be provided, designed, and installed by the C-10 fire alarm contractor and be required to be connected to the fire alarm control unit. These devices are prohibited to be high voltage 120VAC (which are supplied and installed by the electrical contractor).

OO. **Group E Private Schools, Group E Child-care, and I-4 Child-care.** The following conditions shall apply for Group E Private Schools, Group E Child-care, and I-4 Child-care occupancies:

1. **Requirements For Fire Alarm.** An automatic fire alarm system utilizing automatic smoke detection, that initiates the occupant notification signal utilizing an emergency voice/alarm communication system (EVACS) meeting the requirements of 2025 CFC Section 907.5.2.2 and installed in accordance with 2025 CFC Section 907.6 shall be installed in Group E occupancies or Group I-4 Child-care occupancies.

   **Exceptions:**

   (1) Occupant notification by an emergency voice/alarm communication system (EVACS) is not required for occupant loads of 100 or less where audible notification in accordance with 2025 CFC Section 907.5.2.1 and visual notification in accordance with 2025 CFC Section 907.5.2.3 are provided.

   (2) Smoke detectors are not required where an approved automatic sprinkler system is installed in accordance with 2025 CFC Section 903.3.1.1 and the occupant notification appliances will activate upon sprinkler water flow. This exception does not apply for sleeping/napping areas and smoke detectors shall still be required in sleeping/napping areas.

   *Note: EVACS shall not be required with an occupant load of 50 or more persons (up to 100 persons) or containing more than one classroom or one or more rooms used for Group E Private Schools, Group E Child-care, or Group I-4 Child-care purposes.*

2. **Sleeping/Napping Areas.** The following shall apply for sleeping/napping areas of Group E Child-care, and I-4 Child-care occupancies:

   a. Each sleeping and napping area shall be required to be provided with a notification appliance(s) and a smoke detector(s), even when the building is fully sprinklered, but shall not be required to be provided with low frequency audible notification.

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b. The sleeping/napping areas shall be permitted to be provided with private mode notification per NFPA 72 Chapter 18 and shall be permitted to have chimes audible notification (in lieu of horns or speakers notifications) in the sleeping/napping areas only, where custodial care is provided.

PP. **Pathway Survivability Level 1.** Pathway survivability Level 1 shall consist of one of the following:

1. Pathways in buildings that are fully protected by an automatic sprinkler system in accordance with NFPA 13 with any interconnecting conductors, cables, or other physical pathways protected by metal raceways.

2. Pathways in buildings that are protected by an automatic sprinkler system in accordance with NFPA 13R with any interconnecting conductors, cables, or other physical pathways protected by metal raceway and are installed in sprinkler protected areas only (not in non-sprinklered attic spaces).

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## II. MODIFICATION OF FIRE ALARM SYSTEMS (FIRE ALARM SYSTEM TENANT IMPROVEMENTS)

A. **FACU Information.** Indicate make, model number, and CSFM listing sheet of the existing FACU.

B. **Battery Information.** Indicate make, model number, and size of existing batteries, include battery calculations for new devices (provide larger capacity batteries if required).

C. **Device Information.** Indicate make and model number of existing initiating devices (to ensure California State Fire Marshal [CSFM] compatibility) with the new FACU if provided (backwards compatible).

D. **Cut Sheets and CSFM Listing Sheets.** Provide manufacturer's specification sheets (cut sheets) and current CSFM listing sheets for all new devices and components (may be loose leaf). Current CSFM listing is not required for existing devices.

E. **New vs Existing Devices.** Address all items for new submittal with regard for new or existing devices.

F. **Voltage Drop Calculations.** Voltage drop calculations shall be provided for all new and altered NACs.

> **Exception:** With regard to minor alterations to a system (three or less new devices or appliances in general), voltage drop calculations may not be required if an existing NAC is maintaining building standards and is less than 200 feet from the FACU or remote power supply (following the path of the wire).

G. **Additional Minimum Requirements.** At a minimum, the additional following must be included with associated plans for each fire alarm and/or signaling system permit submittal (This minimum submittal requirement shall also apply for like-for-like system and/or emergency fire alarm control unit replacement permits):
   1. Detailed Scope of Work.
   2. An Equipment List For All New And Existing Devices/Components.
   3. Sequence of Operations Matrix.
   4. Riser Diagram.
   5. Copy of the approved fire alarm system plans for reference as applicable. If a copy of the previously approved fire alarm/signaling system submittal is not available, the minimum submittal requirements in this section must be followed. Floor plans to scale will not be required in that case.

H. **Plan Reference Copy.** Provide a reference copy of the approved architectural and mechanical plans associated with the fire alarm T.I (tenant improvement) scope of work. (Note: At the discretion of the plan reviewer, reference plans can be waived.)

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## 2.01 Fire Alarm and Signaling Systems Submittals (2025)

I. **CPU and/or Motherboard Replacement Requirement.** Central Processing Unit (CPU) and/or Motherboard replacements require permit application and plans submittal:

1. The plans shall indicate that a 100% test of all of the fire alarm system functions plus 10% of all existing devices is required per the approved SOOM

2. This test (100% functions + 10% initiating devices) shall also be required for a FACU / CPU / motherboard replacement project when the existing initiating devices are not replaced.

3. Compatibility listing (backwards compatibility) between the new FACU and the existing initiating devices must be provided by the applicant and be placed on the permit plans. All new fire alarm system devices and components (if provided) must be tested.

4. The minimum submittal requirements in item G above must be followed.

J. **Supervising Station Requirement.** Any FACU/CPU or Motherboard replacement work shall require the new or modified FACU to be supervised off-site by an approved supervising station via a wireless communicator per Section VIII of this document.

**Exception:** If the fire alarm system is not required by current code and is installed on a non- required / voluntary basis, it shall not be required to be supervised off-site by an approved supervising station.

K. **LED Annunciator Requirement.** Any FACU/CPU or Motherboard replacement work in buildings having more than 4 levels shall be required to provide an approved LED annunciator per SFFD Administrative Bulletin 3.01 and 3.02.

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## III. LOW-POWER RADIO (WIRELESS) FIRE ALARM SYSTEM REQUIREMENTS

The use of a Low-Power Radio (Wireless) Fire Alarm System (AKA: Wireless Fire Alarm System) shall be approved only under all of the following conditions:

A. **Approved by SFFD.** All Low-Power Radio (Wireless) fire alarm systems' components, design and installation, must be approved by SFFD as a "Fire Only" permit and must have associated fire inspection and electrical inspection per the approved permit.

B. **Not Permitted in New Buildings.** Low-Power Radio (Wireless) fire alarm systems shall be permitted to be installed in existing buildings only (low-rise and high-rise buildings).

C. **Not Permitted with EVACS.** Low-Power Radio (Wireless) fire alarm systems shall not be permitted to be installed in existing buildings having an existing Emergency Voice Alarm Communications System (EVACS).

D. **Not Permitted with Smoke Control.** Low-Power Radio (Wireless) fire alarm systems shall not be permitted to be installed in existing buildings having existing smoke control systems in accordance with 2025 SFBC Section 909 (or Section 905).

E. **Supervising Station Requirement.** The installation of Low-Power Radio (Wireless) fire alarm systems shall be monitored by an approved off-site supervising station with a runner service (Central or Proprietary service only). Remote supervising station shall not be permitted due to lack of runner service. See Section VIII for the required means of communications between the fire alarm system and the off-site supervising station.

F. **UL Certification.** All Low-Power Radio (Wireless) fire alarm systems shall be UL certificated and shall meet SFFD Administrative Bulletin 3.03 requirements for a new fire alarm system.

G. **Accordance to NFPA 72.** The Low-Power Radio (Wireless) fire alarm system shall be designed, installed, and maintained per NFPA 72: National Fire Alarm and Signaling Code.

H. **CSFM Listing.** All Low-Power Radio (Wireless) fire alarm system components shall be listed for the purpose for which they are installed by Underwriters Laboratory Inc. (UL) or other approved listing and testing laboratory. They also shall have a current California State Fire Marshal (CSFM) listing.

I. **Fire Alarm System Connection.** Low-Power Radio (Wireless) fire alarm systems are permitted to serve as the only Fire Alarm system for the building or they could be connected or combined with the existing building Fire Alarm system as approved by SFFD on a case-by-case basis.

J. **Site Survey Record Sheet.** Low-Power Radio (Wireless) fire alarm systems shall include on the fire alarm permit plans a "Site Survey Record Sheet" showing all required repeater and antennas signal readings and proposed locations. The site survey is not required for a meshed-network Low-Power Radio (Wireless) CSFM listed system.

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## IV. ELEVATOR INTERFACE WITH FIRE ALARM SYSTEM

Buildings with elevators shall clearly show the elevator location and Elevator Machine Room (EMR) or Elevator Control Room (ECR) on the associated permit plans. The elevator checklist from SFFD Administrative Bulletin 2.01 Addendum F must be completed by the elevator contractor / vendor / consultant company and incorporated onto the plans. Requirements for elevators shall comply with all the specific applicable requirements.

A. **Existing Elevators.** The following shall apply for existing elevators:

1. **New Sprinklers.** If new sprinklers are installed in an elevator machine room/hoistway, a shunt trip function and all its associated components shall be provided. New sprinklers are prohibited to be installed in the hoistway pit for all elevators.

2. **Existing Sprinklers in Freight Elevators.** Existing sprinklers shall not be removed from the top of freight elevator hoistways that are not fully enclosed and/or have manually operated doors. New shunt trip function shall be provided if shunt trip is not already provided.

3. **Existing Sprinklers in Elevator Without Shunt Trip.** If the existing elevator was not provided with the shunt trip function and existing sprinklers are located in the elevator machine room/hoistway, one of the following must occur:

   a. These sprinklers shall be removed per SFFD Administrative Bulletin 2.01 Addendum D.

   b. Shunt trip function shall be provided with smoke and heat detection at the sprinkler location. If detection devices are provided in the hoistway, they must be accessible from outside the hoistway per 2025 NFPA 72 Section 21.3.7.

   **Exception:** Shunt trip is prohibited if the elevator does not have any Firefighter Emergency Operations (FEO), such as Phase 1 recall. A letter from the elevator contractor / vendor / consultant stating that there is no FEO, shall be provided. If FEO is not provided, the elevator checklist is not required.

4. **Existing Shunt Trip Function.** If the existing elevator was provided with a shunt trip function, the fire alarm system shall maintain this function.

   **Exception:** Shunt trip function shall be removed if the SFFD procedure for sprinklers removal was performed under separate permit (see SFFD AB 2.01 Addendum D). Sprinkler removal from EMRs/hoistways is permitted on a case-by-case basis.

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B. **New/Modernized/Upgraded/Altered Elevators.** A fire alarm system upgrade does not generate an existing elevator system (or controller) upgrade. If an existing elevator is upgraded, modernized, or altered (elevator modernization or controller replacement, etc.) the requirements of CA Title 8 Elevator Safety Orders, ASME A17.1, NFPA 72, and items below shall apply:

1. **Hydraulic Elevators.** The following shall apply for hydraulic elevators:

   a. **Prohibited Spaces for Sprinklers.** Sprinklers shall prohibited to be installed in the following associated spaces in all hydraulic elevators per SFFD Administrative Bulletin 2.04:
      (1) Hoistway Pits
      (2) Top of Hoistways (for Passenger and Fully Enclosed Freight Elevators without Manually Operated Doors)

   b. **Prohibited Hydraulic Elevators.** Hydraulic elevators are prohibited to serve as Machine Room-Less (MRL) type elevators, Fire Service Access Elevators (FSAEs), or Occupant Evacuation Elevators (OEEs) per CA Title 8 Elevator Safety Orders and SFFD Administrative Bulletin 5.08.

   c. **Sprinklers in the Elevator Machine Room.** Sprinklers shall be installed in every hydraulic elevator machine room. A shunt trip function associated with the EMR sprinkler shall be installed in buildings that are fully or partially sprinklered. Shunt trip function is not required for new or modernized hydraulic elevators in non-sprinklered buildings.

      (1) Sprinklers installed in hydraulic elevators' machine rooms shall not be Quick Response (QR) type sprinklers per 2025 NFPA 13. They must have a higher Response Time Index (RTI) than their associated heat detector, which is required to be installed within 24 inches of each EMR sprinkler.

      (2) If a new shunt trip function is required upon installation of sprinklers in elevator machine rooms or top of hoistway, the shunt trip equipment shall be acceptable to and approved by the California State Elevator Inspector (location and equipment type). The shunt trip equipment may be installed in the EMR and may be combined with the elevator mainline disconnect switch as a single listed combination device as approved by the California State Elevator Inspector.

   d. **Freight Hydraulic Elevators.** Freight hydraulic elevators that are not fully enclosed and/or have manually operated doors shall have sprinklers at top of the hoistway with associated smoke detection and shunt trip function in buildings that are fully or partially sprinklered. Shunt trip function is not required for new or modernized hydraulic elevators in non-sprinklered buildings.

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2. **Traction (Electric) Elevators.** The following shall apply for traction (electric) elevators:

   a. **Prohibited Spaces for Sprinklers.** Sprinklers shall prohibited to be installed in the following associated spaces in traction elevators per SFFD Administrative Bulletin 2.04:
      (1) Elevator Machine/Control Rooms.
      (2) Elevator Machinery Spaces.
      (3) Hoistway Pits.
      (4) Top of Hoistways (for Passenger and Fully Enclosed Freight Elevators without Manually Operated Doors).

   b. **No Shunt Trip.** If there are no sprinklers in the associated spaces mentioned above, shunt trip function shall not be provided.

   c. **Freight Traction Elevators.** Freight traction elevators that are not fully enclosed and/or have manually operated doors shall have sprinklers at top of the hoistway with associated smoke detection and shunt trip function in buildings that are fully or partially sprinklered. Shunt trip function is not required for new or modernized traction freight elevators in non-sprinklered buildings.

   d. **No Control Spaces.** Control spaces for traction MRL elevators are prohibited per 2025 SFEC.

   e. **FT-1 Rated Belts.** All traction elevators having steel-coated-belts shall have FT-1 rated belts. Combustible belts (without FT-1 rating) are prohibited. A signed letter/document from the elevator manufacturer for the required FT-1 rating must be provided on the plans for all traction elevators having steel-coated-belts. The letter document shall indicate the specific building address and specific elevator ID.

3. **Special Use Elevators.** The following conditions shall apply for special use elevators:

   a. If a special use elevator is not capable of Phase I Emergency Recall Operation, then the shunt trip function shall not be provided. An elevator checklist filled by the elevator contractor / vendor / consultant showing that there is no FEO shall be provided. See SFFD Administrative Bulletin 2.01 Addendum F for more information.

      *Examples of Special Use Elevators:*
      1. *Private Residence Elevators (ASME A17.1 Section 5.3).*
      2. *Limited Use Limited Application Elevators [LULA] (ASME A17.1 Section 5.2).*
      3. *Limited Use Limited Access Elevators (CA Title 8 ESO Article 15).*

   b. If the special use elevator is hydraulic type, sprinklers shall be installed in the associated elevator machine room (EMR). Shunt trip function shall only be installed if the elevator is provided with Phase 1 Emergency Recall Operation.

      **Exception:** Sprinklers shall not be required to be installed in the EMR of hydraulic elevators installed in R-3 Occupancies protected by an NFPA 13D system.

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4. **FSAE and OEE.** New high-rise buildings provided with Fire Service Access Elevators (FSAEs) and/or Occupant Evacuation Elevators (OEEs) having Occupant Evacuation Operation (OEO) shall comply with SFFD Administrative Bulletin 5.08. Sprinklers shall be prohibited to be installed in any FSAEs/OEEs elevator associated spaces (EMR/ECR/hoistway). A specific temperature monitoring system and FSAE/OEE status panel shall be provided in the Fire Command Center. Refer to 2025 NFPA 72 Section 21.5, A.21.5 and 21.6 for the design of the temperature monitoring panel.

C. **Detection at the Top of the Hoistway.** The following conditions shall apply for detection at the top of the hoistway:

1. **Smoke Detection in Hoistway.** Requirements for smoke detection in the hoistway are listed below:

a. **When Required for Elevators.** The following shall apply for when smoke detection in the hoistway is required or prohibited for different elevators:

(1) **Standard Passenger Elevators (non-MRL).** Standard passenger elevators shall be prohibited from having a smoke detector in their associated hoistway, unless it is used to generate hoistway venting per 2025 NFPA 72.

(2) **MRL Elevators.** MRL elevators must be provided with smoke detection at the top of their hoistways at their machinery space containing the driving machine.

(3) **Freight Elevators.** Freight elevators that require sprinklers at the top of the hoistway must be provided with smoke detection at the top of their hoistway.

b. **Recall Operation.** Any smoke detector installed in an elevator hoistway, shall be required to generate Phase I Emergency Recall Operation.

c. **Smoke Detection Accessibility.** The smoke detection device at the top of the hoistway must be accessible for repair testing and maintenance from outside the hoistway in accordance with 2025 NFPA Section 21.3.7 and A.21.3.7, through one of the following:

(1) **Spot-Type Smoke Detector.** A spot-type smoke detector installed on a metal shelf within a metal protective cage combined with a 90-minute fire rated and listed (i.e., UL) access hatch door provided at the top (ceiling or wall) of the elevator hoistway. An approved (by DBI and SFFD) detailed architectural plan must be submitted showing access hatch details with an approval letter from the elevator contractor for compliance with all required hoistway clearances.

(2) **Air-Sampling Smoke Detector.** An air-sampling type smoke detector installed outside the hoistway in an approved location. This method shall not require associated architectural plans. This option must be in accordance with DOSH memo for Air-Sampling smoke detection in elevator hoistways and machine/control rooms (See Figure 1 below).

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**The Division will allow the detection device to be mounted in the machine or control room if the device is used only for the purpose of detecting smoke in the machine room, control room or hoistway. If the device is used to detect smoke from other areas of a building, the detection device cannot reside in the machine or control space.**

**The Division will not require the use of copper pipe. Properly installed CPVC (orange) pipe will be allowed.**

**Piping installed in or through machine or control spaces cannot constitute a tripping hazard and overhead clearances must be maintained.**

**All elements of the hoistway detection systems must be serviced, cleaned and tested from outside the hoistway.**

**The piping for hoistway systems must be run outside the hoistway.**

**Detection and test pipes protruding into the hoistway must present a reasonably flush surface on the hoistway side.**

***Figure 1:*** *Experts from DOSH Memo on Air-Sampling Type Smoke Detectors Dated March 20, 2017*

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2. **Heat Detection in Hoistway.** If it is required to have heat detection at the top of the hoistway for shunt trip, the heat detection device (heat tape or linear heat detector) must be accessible for repair testing and maintenance from outside the hoistway through one of the following:

   a. **Spot-Type Heat Detector.** A spot-type heat detector installed on a metal shelf within a metal protective cage combined with a 90-minute fire rated and listed (i.e., UL) access hatch door provided at the top (ceiling or wall) of the elevator hoistway within 24 inches of each hoistway sprinkler per 2025 NFPA 72 Section 21.4. An approved (by DBI and SFFD) detailed architectural plan must be submitted showing access hatch details with an approval letter from the elevator contractor for compliance with all required hoistway clearances.

   b. **Linear Heat Detector.** A linear (line) heat detector (CSFM listed heat tape or wire) installed outside the hoistway in an approved location. This method shall not require associated architectural plans.

## V. RESIDENTIAL OCCUPANCIES - SPECIFIC REQUIREMENTS

A. **Building Occupancy.** Indicate on the plans the specific residential occupancy for the building (R-1, R-2, R-2.1, SRO, etc.)

B. **Hearing Impaired Notification for R-1 Buildings.** If the building is classified as R-1 (Tourist Hotel), the fire alarm plans shall show the required fire alarm visual notification appliances and sequence of operation in specific units based on the number of units indicated in 2025 CFC Table 907.5.2.3.2. The specific hearing impaired unit numbers shall be specified by the owner and identified on the fire alarm plans as hearing impaired units.

C. **Hearing Impaired Notification for R-2 Buildings.** If the building is classified as R-2, incorporate CFC Section 907.5.2.3.3 as a verbatim note onto the plans. (It is not required to provide all dwelling units with visual notification appliances). Fire alarm plans for R-2 occupancies having hearing impaired and/or communication units specified by the owner, shall have the specific hearing impaired and/or communication unit numbers identified on the plans.

D. **Low-Frequency Audible Appliances.** Low-Frequency audible appliances must be provided in “R” occupancies per 2025 NFPA 72 Section 18.4.6.3.

E. **SFFC 1103.7.6.1 Compliance.** Compliance with the SFFC Section 1103.7.6.1 and SFFD Administrative Bulletin 3.08 is required for existing R-2 occupancies as applicable.

F. **520 Hz in Sleeping Areas.** Per 2025 NFPA 72 Section A.18.4.6.1, SFFD requires 520 Hz Low-Frequency audible appliances to be installed in all sleeping areas in residential occupancies and sleeping areas in all other occupancies which are required to be provided with a building fire alarm system.

**Exception:** Napping and sleeping areas in Group E and I-4 Child-care occupancies.

G. **Sleeping Areas (SFFD Definition).** Sleeping areas shall include all areas intended for sleeping and also areas that could be potentially used for sleeping as included in NFPA 72 Section A.18.4.6.1 Items (1) through (6).

H. **Low Frequency Sounder Base.** Addressable fire alarm system smoke detectors with Low-Frequency sounder bases shall be permitted to be installed inside sleeping units in lieu of the required single or multiple stations smoke alarms. These system detectors shall be required to transmit supervisory signal to the FACU.

*Note: Per 2025 CFC Section 907.5.2.1.3.2, In sleeping rooms of Group R-1, R-2, and I-1 occupancies that are required by Section 907.2.8 or 907.2.9 to have a fire alarm system, the audible alarm signal activated by single- or multiple-station smoke alarms in the dwelling unit or sleeping unit shall be a 520-Hz signal complying NFPA 72. Where a sleeping room smoke alarm is unable to produce a 520-Hz signal, the 520-Hz alarm signal shall be provided by a listed notification appliance or a smoke detector with an integral 520-Hz sounder. Smoke alarms, if provided, are required to be UL 217 and CSFM listed. Smoke detectors, if provided, are required to be UL 268 and CSFM listed.*

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I. **Visual Notification in Hearing Impaired Units.** Where visual notification is required in a hearing impaired unit in existing R occupancies, it shall be permitted to have a CSFM listed combination single/multiple stations smoke alarm combined with a strobe for a local in-room audible and visual alarm notification. The strobe portion of this appliance shall not be required to have battery backup power as permitted by 2025 NFPA 72 Chapter 29. Fire alarm system audible and visual or combination audio/visual appliances shall also be permitted to be installed for this purpose.

J. **Prohibited Connection to FACU.** UL 217 listed smoke alarms and UL 539 listed heat alarms are prohibited to be connected to UL 864 FACU and activate the fire alarm system's notification appliances.

K. **520 Hz Sounder Bases.** When provided, UL 268 listed fire alarm system in-room smoke detectors having integral sounder bases, shall be required to produce 520 Hz Low-Frequency tone per 2025 NFPA 72 Section 18.4.6.3 if they are used to generate a general-building-evacuation alarm tone in addition to the local in-room audible alarm.

L. **In-Room Smoke Detection: Supervisory Signal.** When provided in lieu of single and multiple stations smoke alarms, all fire alarm system in-room UL 268 listed smoke detectors with integral sounder bases, shall be required to generate 520 Hz Low-Frequency tone with an associated supervisory signal on the FACU.

M. **Automatic Smoke Detection System.** New R-2 occupancies shall require an automatic smoke detection system that activates the occupant notification system in accordance with 2025 CFC Section 907.5. Automatic smoke detection shall be installed throughout all interior corridors serving sleeping units.

**Exceptions:**

1. An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

2. An automatic smoke detection system is not required in buildings when all of the following conditions are met:
   a. The building is equipped throughout with a supervised automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
   b. The notification appliances will activate upon sprinkler water flow; and
   c. At least one manual pull station is installed in an approved location.

N. **Minimum Audibility Level in Residential Occupancies (Not In Sleeping Areas).** A minimum of 50 dBA sound level (which is 15 dBA above the assumed 35 dBA average sound level per 2025 NFPA 72 Table A.18.4.4) shall be required in residential R-1 and R-2 occupancies outside sleeping areas. It shall not be required to have low-frequency audibility.

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O. **520 Hz Smoke Alarms.** When a fire alarm system 520 Hz Low-Frequency audible appliances are installed in each sleeping area and generate general-building-evacuation alarm tone, one of the following shall apply:

1. All UL 217 listed single and multiple stations in-room smoke alarms with integral sounder bases shall also be required to produce 520 Hz Low-Frequency tone per 2025 CFC Section 907.5.2.1.3.2.

2. If the UL 217 listed smoke alarms are unable to generate the 520 Hz Low-Frequency tone, they shall be replaced with UL 268 listed system smoke detectors with integral 520Hz Low-Frequency sounders. In that case the separate general alarm audible appliances shall not be required. The UL 268 listed system smoke detector shall provide both the in-unit local alarm with an associate supervisory signal on the FACU and its integral 520 Hz Low- Frequency sounder shall produce the building general alarm signal upon activation of any general alarm initiating device in the building.

3. If UL 268 listed system smoke detectors are provided in each unit without an associated integral sounder base, a fire alarm control relay and/or separate fire alarm NAC shall be provided for each unit to activate local alarm only in that unit upon the activation of any UL 268 in-unit smoke detector. In case of a general building alarm, all audible notification appliances throughout the building, including the in-unit appliances, shall activate.

4. When provided, addressable Low-Frequency notification appliances are permitted to provide local alarm upon activation of the in-unit UL 268 smoke detectors or general alarm upon activation of any general building fire alarm initiating device.

**Exceptions:**

1. This requirement is not retroactive for existing R-1 and R-2 occupancies with an existing building fire alarm system and existing UL 217 listed single/multiple stations in-room smoke alarms. It shall apply only for new R-1 and R-2 buildings with a site permit application date on or after 1/1/2023 which are required by SFFC to have a building fire alarm system.

2. If the new R-1 or R-2 building is not required to have a building fire alarm system per 2025 SFFC, but it is provided with a dedicated function(s) fire alarm system such as a sprinkler waterflow and supervisory system, the required UL 217 listed single and multiple stations in-room smoke alarms shall not be required to generate 520 Hz Low-Frequency signal and UL 268 listed system detectors with integral 520 Hz Low-Frequency sounders shall not be required.

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**VI. COMMUNICATION COVERAGE FOR EMERGENCY RESPONDER WITHIN BUILDINGS - (*See Addendum G*)**

**VII. TWO-WAY EMERGENCY COMMUNICATIONS SYSTEMS FOR RESCUE ASSISTANCE - (*See Addendum H*)**

## VIII. MEANS OF COMMUNICATIONS BETWEEN FIRE ALARM SYSTEMS AND SUPERVISING STATIONS

Due to the lack of support and service by the telephone industry for the existing Public Switched Telephone Network ('PSTN') and Plain-Old Telephone Service ('POTS') it is prohibited by the 2025 NFPA 72 Section 26.6.4 to provide a Digital Alarm Communicator Transmitter (DACT) employing either POTS or cable telephone lines as single transmission means of communication between the protected premises Fire Alarm system and the off-site supervising station.

Since other transmission means of communication employing single technologies are permitted by the 2025 NFPA 72 Section 26.6.3.5, the SFFD is prohibiting the use of either POTS or cable telephone lines with a Digital Alarm Communicator Transmitter (DACT) for all new communicator installations.

A. **New (or Replacement) Fire Alarm Systems.** All new fire alarm systems required by 2025 SFBC or fire alarm systems with a FACU replacement shall transmit the alarm, supervisory, and trouble signals to an approved supervising station in accordance with 2025 NFPA 72. The following conditions shall apply:

1. **Listed Supervising Station.** The supervising station shall be listed as either UUFX (Central Station) or UUJS (remote & proprietary) by the Underwriters Laboratory Inc. (UL) or other approved listing and testing laboratory or shall comply with the requirements of FM 3011.

2. **Cellular or RF Communicator.** All new communicators shall employ either GSM (Cellular) or Mesh Radio (RF) technology as their required single technology communications means. If additional (non-DACT) technology is requested to be provided on a non-required / voluntary basis, it may be approved by SFFD on a case-by-case basis.

3. **IP Communicators Prohibited.** The SFFD prohibits the use of IP-Based technology communicators as a single technology communication means due to their noncompliance with the 2025 NFPA 72 Section 26.6.3.13 for the required 24-hour secondary power.

4. **Monitored for Integrity.** All new communicators shall be monitored for integrity at the FACU and at the supervising station for any communication or other trouble conditions.

**Exception:** Dedicated function fire alarm system(s) for elevator recall and supervisory system or duct detection and supervisory system, and voluntary / non-required building fire alarm systems do not require an off-site supervising station.

B. **Existing Fire Alarm Systems.** It is recommended that building owners and/or fire alarm service companies be proactive and convert their existing fire alarm system's DACT communicators to a new Cellular or RF communicator prior to a potential catastrophic failure of the existing DACT telephone service. If an existing DACT communication means to the off-site supervising station is out of service due to a telephone service failure, a SFFD approved Fire Watch shall be provided until the required means of communications is restored.

The conversion process from an existing DACT to a new Cellular or RF communicator shall require a $1 Over the Counter "FIRE only" permit and an associated fire inspection.

The permit application shall include, as a minimum:

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## 2.01 Fire Alarm and Signaling Systems Submittals (2025)

1. **Scope of Work.** A scope of work indicating: “Converting communication to supervising station from existing Plain Old Telephone Service to a new Cellular / RF communicator – All existing fire alarm system components and sequence of operation shall remain unchanged.”

2. **Sequence of Operation.** The existing previously approved fire alarm system sequence of operation matrix shall be provided with an indication: “The existing fire alarm system sequence of operation shall remain unchanged.”

3. **Cut Sheets and CSFM Listing Sheets.** Current catalog cut sheets and CSFM listing sheets for the new proposed communicator.

4. **Battery Calculations.** Battery backup calculations for 24 hours standby plus 5 minutes of alarm (or 15 minutes of alarm for voice fire alarm systems).

5. **Floor Plan.** A floor plan or a diagram (not required to be to scale) showing the location of the new communicator as a new device.

6. **Smoke/Heat Detector.** All new communicators are considered as “Control Equipment” and they shall have smoke/heat detection at their installed location. If existing detection does not exist at the installed location of the new communicator, a new smoke or heat detector shall be provided.

7. **Monitored for Integrity.** All new communicators shall be monitored for integrity at the FACU and at the supervising station for any communication or power trouble condition.

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C. **Managed Facilities-Based Voice Network (MFVN) Versus Public Switched Telephone Network (PSTN).** The term Managed Facilities-Based Voice Network (MFVN) has replaced the term Public Switched Telephone Network (PSTN) and is used in the requirements for DACTs in 2025 NFPA 72 Section 26.6.4.2.

The NFPA 72 definition for MFVN is:

*3.3.168* Managed Facilities-Based Voice Network (MFVN): A physical facilities-based network capable of transmitting real-time signals with formats unchanged that is managed, operated, and maintained by the service provider to ensure service quality and reliability from the subscriber location to the interconnection point with other MFVN peer networks or the supervising station.*

A PSTN had traditionally been viewed as comprising the copper telephone lines and connected system of the local telephone company, sometimes referred to as the "Plain Old Telephone System (POTS)". Telephone (voice) service is now provided not only by the traditional telephone company but also by other service providers. The MFVN incorporates the current state of telephone service, which is provided by traditional telephone providers, as well as other non-traditional providers, such as cable providers. In accordance with the current definition of MFVN, a DACT is permitted to connect to equipment and systems of a telephone service provider using an MFVN. The annex text in A.3.3.168 provides insight into what constitutes an MFVN.

Equipment and means of transmission at the protected premises for new and existing fire alarm systems, which are required to be supervised by an approved supervising station per the 2025 California Fire Code Section 907.6.6, must comply with all applicable requirements in Chapter 26 of 2025 NFPA 72 for transmitting fire alarm signals to the supervising station.

The SFFD allows the use of existing PSTN for any fire alarm system with a DACT. However, **any change of an existing PSTN to a new MFVN equipment for existing and new fire alarm systems must be in compliance following the MFVN checklist in the next page.**

The required SFFD permit process from an existing PSTN to a new MFVN shall require a $1 Over-The-Counter "FIRE only" permit and an associated fire inspection.

The permit application shall include, as a minimum:

1. **Scope of Work.** A scope of work indicating: "Converting existing PSTN to a new MFVN. All existing fire alarm system components and sequence of operation shall remain unchanged."

2. **Sequence of Operation Matrix.** The existing previously approved fire alarm system sequence of operation matrix shall be provided with an indication: "The existing fire alarm system sequence of operation shall remain unchanged."

3. **MFVN Checklist.** A complete MFVN Checklist signed and dated by the applicant and/or owner with the required UL listing and information must be included on the permit submittal.

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## 2.01 Fire Alarm and Signaling Systems Submittals (2025)

**SFFD MFVN Checklist:**

- ☐ MFVN is listed to applicable UL standards.
- ☐ MFVN is equivalent in function to a public switched telephone network ("PSTN") associated with a traditional telecommunications carrier licensed by the state public utility commission and FCC to provide local exchange (e.g., dial tone) services and is considered part of the communication infrastructure, not the fire alarm system.
- ☐ Key question for premises owner: "Who is the carrier of record?"
  Note: The telecommunications carrier information can be found at one of the following:
  FCC: https://apps.fcc.gov/cgb/form499/499a.cfm
  CPUC: https://apps.cpuc.ca.gov/apex/f?p=102:1
- ☐ MFVN provides a loop start telephone circuit.
- ☐ MFVN loop start telephone circuit was tested according to the relevant Telcordia standards by an independent testing laboratory.
- ☐ The pathway reliability is assured by the MFVN provider using each of the following:
  - ☐ The MFVN uses multiple technologies for back-end transmission for redundancy—wireline (where available) and wireless are provided.
  - ☐ The MFVN can maintain a call when switching communication paths.
  - ☐ The MFVN Carrier has a disaster recovery plan available for review.
- ☐ The MFVN has 8 hours of standby power supply capacity located at the protected premises or field deployed, and 24 hours of standby power supply capacity at the communications service provider's central office.
- ☐ MFVN access safeguards are provided at the protected premises during installation (i.e. MFVN is in a locked telecom closet, signage is provided identifying the communication pathways on the telecom punch down (66) terminal block, etc.)
- ☐ The MFVN is connected through a fully managed network by the telecommunications carrier.
- ☐ Carrier responsible for all traffic up to PSTN handoff point (Cannot be just hardware - needs a carrier to be responsible for management of network).

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## IX. BATTERY TESTING FOR FA SYSTEMS BASED ON CSFM CODE INTERPRETATION (CI) 25-03

Per CSFM Code Interpretation (CI) 25-03, NFPA 72 does not require that power be disconnected from the fire alarm system for a full 24 hours for this battery test. The intent is that the required battery capacity for a secondary power supply is calculated by determining quiescent (standby) and alarm loads for the system. The manufacturer provides the current draw for a fire alarm system component in both the quiescent and alarm states. System documentation should include battery calculations that show the required capacity of any batteries providing the secondary power supply.

However, per CI 25-03, the fire code official is authorized to conduct these battery testing inspections if it is deemed necessary. The SFFD deems this testing as necessary and requires to conduct full 24 hour standby battery testing + 5 minutes (or 15 minutes for EVACS) of alarm after the 24 hour standby period.

*Note: All new batteries shall be calculated with at least 25% extra amp-hours (in excess of the required/calculated amp-hours), as required by NFPA 72. If the calculations are accurate and the batteries are listed as required by NFPA 72, the batteries should not be completely depleted and they could be fully recharged after the test is completed. The intent of SFFD to require the actual 24 hour standby + 5/15 minutes alarm battery test is to verify that the system performs as calculated.*

The following requirements shall apply for conducting a battery test:

A. **New Buildings.** Battery testing shall be conducted for fire alarm acceptance testing only for new buildings before occupancy/TCO is granted.

   *Note: In some cases, when the batteries do not operate as shown on the plans, such as that they are depleted before the 24 hours passed or depleted during the alarm test, the building is not yet occupied and the issue can be fixed (These failed cases could not be verified without the actual 24 hours standby test and 5/15 minutes alarm test).*

B. **Existing Buildings.** For existing occupied buildings, when a completely new fire alarm system is installed, including new notification appliances, the battery test shall be conducted with a fire watch in place (per SFFD Fire Watch Guidelines) when the building is occupied, and the FACU is disconnected from the main power. The fire watch shall remain in place until the new system and new batteries are fully restored (batteries are fully recharged) after the 24 hour standby + 5/15 minutes alarm battery test has passed.

C. **Case-by-Case Basis.** Battery testing other than specified in items A or B above may be required by SFFD on a case-by-case basis.

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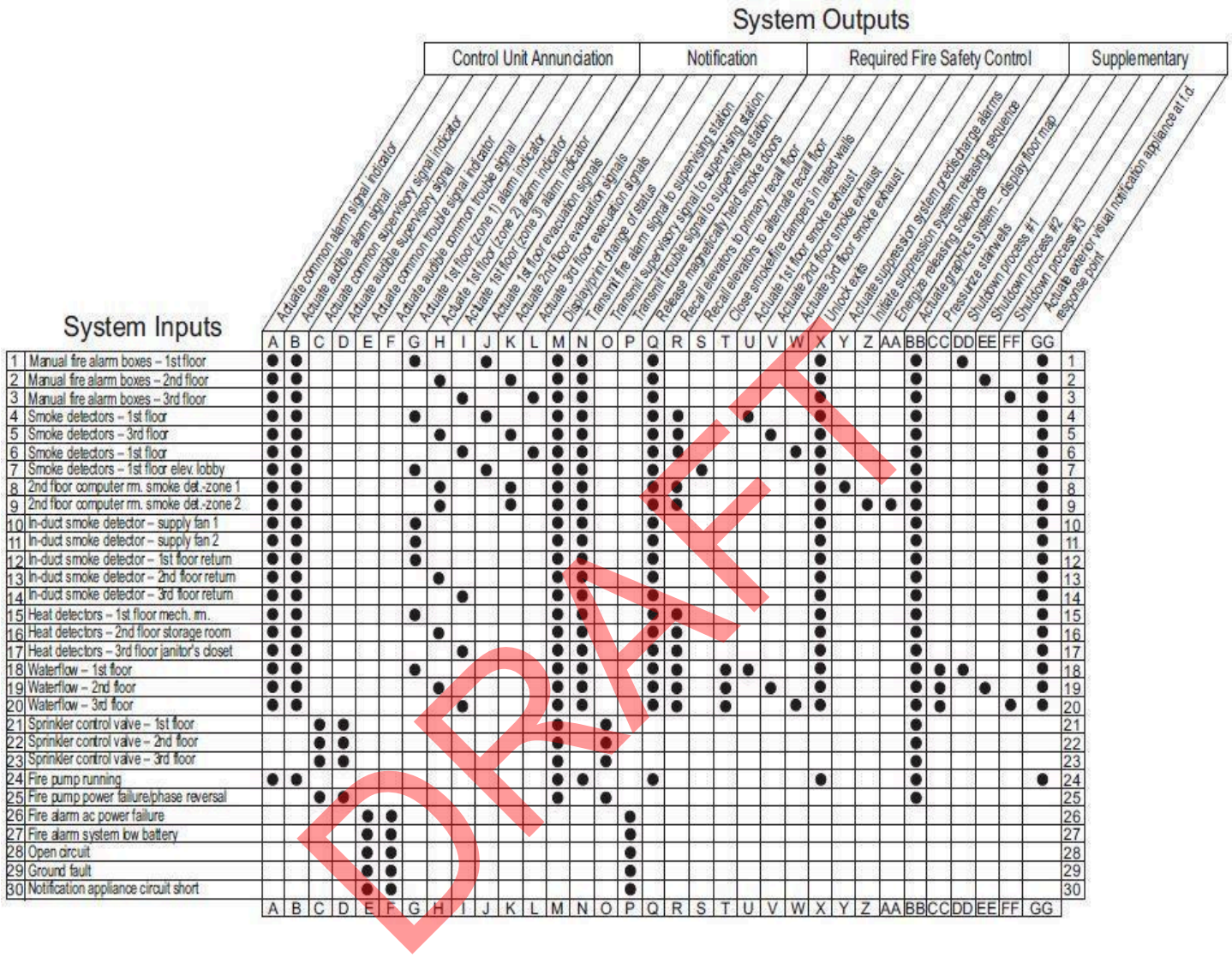
## ADDENDUM A: SEQUENCE OF OPERATIONS MATRIX (SAMPLE - FOR REFERENCE ONLY)

*The sample below is taken from 2025 NFPA 72 Figure A.14.6.1.1*

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*Note: All Fire Pump and ERCEC/ERRCS signals shall be supervisory signals only (including Fire Pump Running). Refer to Section I.X for specific SFFD SOOM requirements.*

## ADDENDUM B: RELOCATION/EVACUATION MATRIX (SAMPLE - FOR REFERENCE ONLY)

*The sample below is taken from SFFD Administrative Bulletin 3.05. See SFFD AB 3.05 for more information*

**EXAMPLE: SFFD Relocation - Evacuation Matrix 12/8/2019**
**Used only For: Full Life-Safety High-Rise Office Buildings**
**Specific Buildings may be evaluated on a Case-By-Case Basis**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROOF | | | | | | | | | | | RELOC | F.FLOOR | | | ROOF |
| Lvl 24 | | | | | | | | | | RELOC | F.FLOOR | RELOC | | | LVL 24 |
| Lvl 23 | | | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | | | LVL 23 |
| Lvl 22 | | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | | | | LVL 22 |
| Lvl 21 | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | | | LVL 21 |
| Lvl 20 | | | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | | | LVL 20 |
| Lvl 19 | | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | RECV | | | LVL 19 |
| Lvl 18 | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | RECV | | | | LVL 18 |
| Lvl 17 | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | RECV | | | | | LVL 17 |
| Lvl 16 | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | RECV | | | | | | LVL 16 |
| Lvl 15 | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | RECV | | | | | | | LVL 15 |
| Lvl 14 | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | RECV | | | | | | | RELOC | LVL 14 |
| Lvl 13 | RELOC | RELOC | RECV | RECV | RECV | RECV | | | | | | | RELOC | F.FLOOR | LVL 13 |
| Lvl 12 | RELOC | RECV | RECV | RECV | RECV | | | | | | | RELOC | F.FLOOR | RELOC | LVL 12 |
| Lvl 11 | RECV | RECV | RECV | RECV | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | LVL 11 |
| Lvl 10 | RECV | RECV | RECV | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | LVL 10 |
| Lvl 9 | RECV | RECV | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | LVL 9 |
| Lvl 8 | RECV | | | | | | | RELOC | F.FLOOR | RELOC | RELOC | RECV | RECV | RECV | LVL 8 |
| Lvl 7 | | | | | | | EVAC | F.FL/EV | EVAC | EVAC | RECV | RECV | RECV | RECV | LVL 7 |
| Lvl 6 | | | | | | EVAC | F.FL/EV | EVAC | EVAC | RECV | RECV | RECV | RECV | | LVL 6 |
| Lvl 5 | | | | | EVAC | F.FL/EV | EVAC | EVAC | RECV | RECV | RECV | RECV | | | LVL 5 |
| Lvl 4 | | | | EVAC | F.FL/EV | EVAC | EVAC | RECV | RECV | RECV | RECV | | | | LVL 4 |
| Lvl 3 | | | EVAC | F.FL/EV | EVAC | EVAC | | | | | | | | | LVL 3 |
| Lvl 2 | | EVAC | F.FL/EV | EVAC | EVAC | | | | | | | | | | LVL 2 |
| Lvl 1 | EVAC | F.FL/EV | EVAC | EVAC | | | | | | | | | | | LVL 1 |
| ***Bsmt*** | F.FL/EV | EVAC | EVAC | | | | | | | | | | | | ***Bsmt*** |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |

| | |
|---|---|
| F.FL/EV | **Fire Floor Receives an Evacuation Message** |
| F.FLOOR | **Fire Floor Receives a Relocation Message** |
| EVAC | **Evacuating Floor - Will receive an evacuation message** |
| RELOC | **Relocation Floor - Will receive a Relocation Message** |
| RECV | **Receiving Floor - Will receive a Receiving Message** |
| | **Stay in Place Floor - Does not receive any Message** |

Proposed symbols for Relocating and Receiving Floors at the Stairwell

**Evacuation Voice Pre-Recorded Message:**
Two rounds of temporal 3 Alert-Tone shall precede and follow the message – "May I have your attention, please? May I have your attention, please? A FIRE alarm has been activated in the building. Proceed to the nearest exit and exit the building. Do not use the elevators." The message and Alert-Tone sequence shall repeat until the FA system is silenced or reset by responding Firefighters

**Relocation Voice Pre-Recorded Message:**
A Steady Alert-Tone of 1 to 3 seconds in duration shall precede and follow the message – "May I have your attention, please? May I have your attention, please? A FIRE alarm has been activated on your floor. Proceed to the nearest stairwell and walk down to your pre-assigned floor and re-enter the building. Do not use the elevators." The message and Alert-Tone sequence shall repeat until the FA system is silenced or reset by responding Firefighters

**Receiving Voice Pre-Recorded Message:**
A Steady Alert-Tone of 1 to 3 seconds in duration shall precede and follow the message – "May I have your attention, please? May I have your attention, please ? A FIRE alarm has been activated on a floor above yours. Please stay in place and be prepared to receive personnel relocating to your floor". The message and Alert-Tone shall repeat until the FA system is silenced or reset by responding Firefighters.

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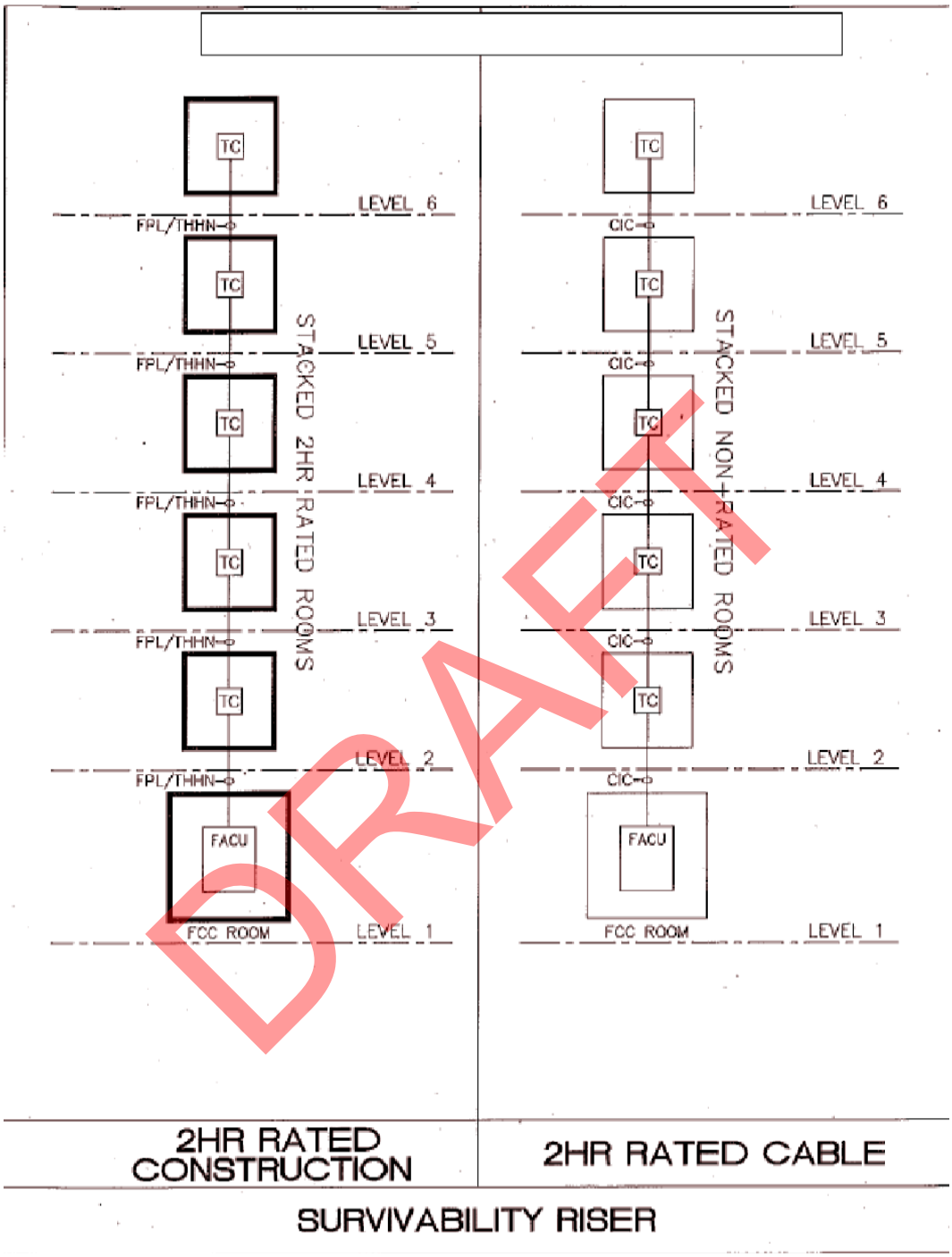
*Note: Visual fire alarm notification (strobes) shall flash anytime that a pre-recorded voice message is sound on any floor of the building (Evacuating/Relocating and Receiving Floors) to attract the attention of deaf and hard of hearing persons to seek help during emergencies. Also, it shall be required to have the strobes flash during LIVE Paging Messages when the Firefighters key (manually activate) the microphone. The strobes shall flash at the selected paging floors only and stop flashing when the firefighters un-key (deactivate) the microphone.*

**ADDENDUM C: SURVIVABILITY RISER (SAMPLE - FOR REFERENCE ONLY)**



## ADDENDUM D: PROCEDURES FOR REMOVING AUTOMATIC SPRINKLERS FROM ELEVATOR MACHINE ROOMS AND HOISTWAYS IN EXISTING BUILDINGS

1. Provide a letter to the San Francisco Fire Department requesting removal of automatic sprinklers from existing elevator's associated spaces. Address the letter to:

   **San Francisco Fire Department**
   **ATTN: Captain, Plan Review Section**
   **49 South Van Ness, Suite 560**
   **San Francisco, CA 94103**

2. Provide the required fee (check or credit card) made out to the San Francisco Fire Department for the review and process time of the request. Verify the required fee with the Plan Review Section.

3. The letter shall describe the following features of the elevators in the building. These features must be verified and provided by the elevator service company:
   a. Elevator Group indication for each existing elevator per CA Title 8 Elevator Safety Orders. (Group II / Group III / Group IV) and to which new group it is modernized/altered as applicable.
   b. Indicate the hoistway and elevators configuration: which elevator(s) installed in each hoistway(s).
   c. Elevator rise in feet for each elevator.
   d. Specific levels served by each elevator/group.
   e. Location of the machine room for each elevator/group.
   f. Indicate if each elevator/group is provided with Phase I Emergency Recall Operation to designated level and/or alternate level.
   g. Indicate if each elevator is provided with a Phase II in-car fire key switch.
   h. Indicate if each elevator/group is provided with a shunt trip function. **(Yes / No)**
   i. Sprinkler coverage in the machine room. **(Yes / No)**
   j. Sprinkler coverage at the top of each elevator hoistway **(Yes / No)**
   k. Sprinkler coverage in the elevator pit of each elevator. **(Yes / No)** – If yes, indicate the height of sprinklers in inches above the pit floor.
   l. Smoke detection at the machine room. **(Yes / No)** – If yes, indicate if the smoke detection generates Phase I Emergency Recall Operation.
   m. Smoke detection at the top of each elevator hoistway. **(Yes / No)** – If yes, indicate if the smoke detection generates Phase I Emergency Recall Operation.
   n. Smoke detection at the pit. **(Yes / No)** – If yes, indicate if the smoke detection generates Phase I Emergency Recall Operation.
   o. Heat detection in the machine room. **(Yes / No)** – If yes, indicate if the heat detection generates Phase I Emergency Recall Operation or shunt trip function.
   p. Heat detection at the top of each elevator hoistway. **(Yes / No)** – If yes, indicate if the heat detection generates Phase I Emergency Recall Operation or shunt trip function.
   q. Heat detection in the pit. **(Yes / No)** – If yes, indicate if the heat detection generates Phase I Emergency Recall Operation or shunt trip function.

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4. Requirements for Removing Sprinklers from Elevator Machine Rooms (Include confirmation of the following in the letter):

    a. The C-16 applicant must bring a copy of this approved letter to DBI at 49 South Van Ness, Suite 560, and obtain a permit to remove the sprinklers. Plans are recommended but not required. A description of the work to be done must be included on the permit application.
    b. Indicate that the elevator machine room must not be used for any type of storage.
    c. A durable sign must be placed in the room stating: “NO COMBUSTIBLE STORAGE ALLOWED IN ELEVATOR MACHINE ROOM”.
    d. The room must have a full coverage smoke detection installed and connected to the building fire alarm system.
    e. The room must be of minimum 1-hour construction with a 1-hour self-closing door.
    f. All piping, hangers, bracing, and all other components of the automatic sprinkler system in the machine room must be removed by the C-16 contractor.
    g. A job card will be issued which must be signed off by the Building Department and the SFFD.
    h. The work must be performed by a licensed C-16 contractor as appropriate for the scope of work.
    i. Additional fire alarm permit may be required by a C-10 contractor to remove the shunt trip function, its associated components, and heat detection (If shunt trip function is provided).

5. Requirements For Removing Sprinklers from The Top of Elevator Hoistways:

    a. The hoistway must be constructed of non-combustible materials.
    b. The elevator car enclosure materials must meet the requirements of ASME A17.1, the Safety Code for Elevators and Escalators.
    c. All components of the sprinkler system must be removed from the hoistway by the C-16 contractor.
    d. Sprinkler removal is not permitted from top of freight elevator’s hoistway if the freight elevator is not fully enclosed and/or have manually operated doors.
    e. If sprinklers are located anywhere at the pit, the pit floor, they shall be removed.
    f. If provided, the smoke and heat detection must be removed from the hoistway upon the hoistway sprinklers removal – smoke and/or heat detection removal must be performed by a C-10 contractor under separate fire alarm permit.

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## ADDENDUM E: FLASHING HELMET FOR GROUP IV ELEVATORS

### ASME A17.1, 2004, Rule 2.27.3.2.6 ("Flashing Helmet")
### SFFD Requirements for Fire Alarm Permit Plans

1. All Fire Alarm permit plans having interface with GROUP IV elevators (contracted on or after May 1st, 2008) must have this memo scanned on the plans.

2. Flashing helmet requirements for GROUP IV Elevators shall comply with ASME A17.1-2004 Section 2.27.3.2.6 as adopted by CCR Title 8 –Elevator Safety Orders.

3. The fire alarm control relays shall be installed within three (3) feet of the elevator controller(s) and shall be labeled as follows:
   a. **"Designated (primary) Level Recall - FA Control Relay"**
   b. **"Alternate Level Recall - FA Control Relay"**
   c. If the elevator is a standard overhead traction elevator or a hydraulic elevator with an Elevator Machine Room (EMR) - the FA control relay shall be labeled: **"EMR Smoke Detector - FA Control Relay"**
   d. If the elevator is a Machine-Room-Less (MRL) elevator with an Elevator Control Room (ECR)– the FA control relay shall be labeled: **"ECR/Hoistway Smoke Detector - FA Control Relay"**

4. The Fire Alarm system sequence of operation matrix shall have corresponding inputs and output conforming to ASME A17.1-2004 Section 2.27.3.2.6.

5. A SFFD field inspection is required to verify this required operation, based on the approved Fire Alarm permit.

6. NOTE: Per 2016, 2019, 2022, and 2025 California Electrical Code: Elevator Control Spaces are prohibited for MRL Elevators. Only Elevator Control Rooms (ECR) are acceptable.

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## ADDENDUM F: ELEVATOR CHECKLIST

1. **Completion.** The Elevator Checklist is to be completed by the elevator contractor / consultant / vendor.

2. **No FEO.** The Elevator Checklist does not need to be filled for fire alarm plans if the existing elevator does not have any Firefighter Emergency Operation (FEO), such as elevator phase I recall operation. A signed letter would need to be provided by the elevator contractor/consultant/vendor on the plans stating that the elevator does not have FEO. The letter must be placed on the fire alarm plans.

3. **Separate Checklist.** A separate checklist shall be provided for each simplex elevator or for each group of elevators that have group automatic operation.
   A. **Simplex Elevator.** A single elevator with associated controls for that elevator only.
   B. **Group Automatic Operation.** Apply to two or more elevators that have common controls as defined ASME A17.1 Safety Code for Elevators and Escalators

| Required Information | Fill in Information[a] |
|---|---|
| **1. Elevator Contractor/Vendor/Consultant Information** | |
| **A. Elevator Contractor/Vendor/Consultant - Company** | |
| **B. Elevator Contractor/Vendor/Consultant - Name** | |
| **C. Elevator Contractor/Vendor/Consultant - Job Title** | |
| **D. Elevator Contractor/Vendor/Consultant - Date the Checklist was Filled:** *[MM/DD/YYYY]* | |
| **E. Elevator Contractor/Vendor/Consultant - Signature** | |
| **2. Building Information** | |
| **A. Building Address** | |
| **B. New or Existing Building:** *[New/Existing]* | |
| **C. Building Occupancy based on CBC Chapter 3** | |
| **D. Low-Rise or High-Rise and Number of Stories:** *[LR/HR, # stories]* | |
| **E. Building Height (in Feet)** | |
| **3. Elevator Information (Simplex or Group)** | |
| **A. New or Existing Elevator(s):** *[New/Existing]* | |
| **B. Elevator Manufacturer/Brand/Model(s)** | |
| **C. Elevator Identification(s)** | |
| **D. Simplex or Group Automatic Operation (Identify all elevators in the group) and all elevators per each hoistway:** *[Hoistway 1: Elevators A, B, C \| Hoistway 2: Elevators D, E, F]* | |
| **E. Levels Served for Each Elevator** | |
| **F. Each Elevator Rise (in Feet)** | |
| **G. Each Elevator Speed (in Feet/Minute)** | |

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| | |
|---|---|
| **H. Each Elevator Car Platform Dimensions (in Inches) and Platform Area (in Square Feet):** *[Length x Width, # sqft]* | |
| **I. Elevator(s) accommodate ambulance stretcher 24" X 84":** *[Yes/No]* | |
| **J. Elevator Types** | *(Do Not Need to Fill Box)* |
| **1) Passenger Elevator:** *[Yes/No]* | |
| **2) Freight Elevator:** *[Yes/No]* | |
| **(a) Freight Car(s) is Fully Enclosed (No Wire Mesh Enclosure):** *[Yes/No]* | |
| **(b) Freight Car(s) have Manually Operated Doors:** *[Yes/No]* | |
| **(c) Freight Elevator is Permitted to Carry Passengers per ASME A17.1:** *[Yes/No]* | |
| **3) Hydraulic Elevator:** *[Yes/No]* | |
| **4) Traction Elevator:** *[Yes/No]* | |
| **(a) Traction Suspension Means – Steel Ropes or Steel Coated Belts (Only FT-1 Rated Belts steel coated belts are permitted in SF):** *[Steel Ropes / Steel Coated Belts* or *"NA, Not Traction"]* | |
| **5) Elevator is Machine Room-less Type (MRL, Hydraulic Elevators are prohibited to be MRL):** *[Yes/No]* | |
| **6) Fire Service Access Elevator - CBC 3007 (Required for New High-Rise Buildings over 120 feet in height):** *[Yes/No]* | |
| **7) Occupant Evacuation Elevator - CBC 3008:** *[Yes/No]* | |
| **8) Service Passenger Elevator:** *[Yes/No]* | |
| **9) Limited Use Limited Application Elevator (LULA) - ASME A17.1 Section 5.2:** *[Yes/No]* | |
| **10) Limited Use Limited Access Elevator - CA Title 8 Article 15:** *[Yes/No]* | |
| **11) Private Residence Elevator - ASME A17.1 Section 5.3:** *[Yes/No]* | |
| **K. Elevator(s) has a Battery Lowering Device:** *[Yes/No]* | |
| ***L.* Elevator(s) has its Motion Control Upgraded or Replaced (applicable for hydraulic elevator modernization only):** *[Upgraded/Replaced/No]* | |
| **M. Elevator is Provided with Shunt Trip Function:** *[Yes/No]* | |
| **N. Date when Elevator Contract was signed for Installation or Modernization of Elevator (Do Not include Repairs):** *[MM/DD/YYYY]* | |
| **O. Elevator Group per CA Title 8 Elevator Safety Order[b]:** *[Group II / Group III / Group IV]* | |
| **P. Elevator(s) has Firefighter Emergency Operation (FEO)[c]:** *[Yes/No]* | |
| **1) Elevator(s) is provided with Phase 1 Automatic Recall Function:** *[Yes/No]* | |
| **2) Elevator(s) is provided with Phase 1 Recall Keyed Switch:** *[Yes/No]* | |
| **3) Location of Phase 1 Recall Keyed Switch:** *[Location/Level/Floor* or *"NA, No FEO"]* | |

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| | |
|---|---|
| 4) **Identify writing on Phase 1 Recall Keyed Switch:** *[Bypass/Off/On* or *Reset/Off/On* or *"NA, No FEO"]* | |
| 5) **Elevator(s) is provided with Phase 1 Automatic Recall to designated Primary Level:** *[Yes/No]* | |
| 6) **Location of designated Primary Level:** *[Level/Floor* or *"NA, No Designated Recall"]* | |
| 7) **Elevator(s) is provided with Phase 1 Automatic Recall to Alternate Level:** *[Yes/No]* | |
| 8) **Location of Alternate Level:** *[Level/Floor* or *"NA, No Alternate Recall"]* | |
| 9) **Elevator Car(s) is provided with Phase 2 Keyed Switch (inside Car):** *[Yes/No]* | |
| 10) **Identify writing on Phase 2 Keyed Switch (inside Car):** *[Off/On or Hold/Off/On* or *"NA, No FEO"]* | |
| 11) **Elevator Car(s) Keyed Switch is Behind Locked Door (inside Car):** *[Yes/No]* | |
| 12) **Elevator Car(s) is provided with Firefighter's Visual Symbol (inside Car):** *[Yes/No]* | |
| **4. Machine Room, Control Room/Space, Machinery Space, and Hoistway** | |
| **A. Elevator(s) Has Machine Room:** *[Yes/No]* | |
| 1) **Location of Machine Room:** *[Location/Level/Floor* or *"NA, No Machine Room"]* | |
| 2) **Elevator(s) Machine Room Construction:** *[Combustible / Non-Combustible 1-HR / Non-Combustible 2-HR* or *"NA, No Machine Room"]* | |
| 3) **Machine Room has Sprinklers Protection:** *[Yes/No]* | |
| 4) **Machine Room has Smoke Detection Protection:** *[Yes/No]* | |
| 5) **Machine Room has Heat Detection Protection:** *[Yes/No]* | |
| **B. Elevator(s) Has Control Room:** *[Yes/No]* | |
| 1) **Location of Control Room:** *[Location/Level/Floor* or *"NA, No Control Room"]* | |
| 2) **Elevator(s) Control Room Construction:** *[Combustible / Non-Combustible 1-HR / Non-Combustible 2-HR* or *"NA, No Control Room"]* | |
| 3) **Control Room has Sprinklers Protection:** *[Yes/No]* | |
| 4) **Control Room has Smoke Detection Protection:** *[Yes/No]* | |
| 5) **Control Room has Heat Detection Protection:** *[Yes/No]* | |
| **C. Elevator(s) Has Control Space (New ECS are prohibited):** *[Yes/No]* | |
| 1) **Location of Control Space:** *[Location/Level/Floor* or *"NA, No Control Space"]* | |
| 2) **Control Space has Sprinklers Protection:** *[Yes/No]* | |

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|---|---|
| **3) Control Space has Smoke Detection Protection:** *[Yes/No]* | |
| **4) Control Space has Heat Detection Protection:** *[Yes/No]* | |
| **D. Elevator(s) Hoistway** | *(Do Not Need to Fill Box)* |
| **1) Elevator(s) has Machinery Space inside the Top of the Hoistway:** *[Yes/No]* | |
| **2) Elevator(s) Hoistway Construction:** *[Combustible / Non-Combustible 1-HR / Non-Combustible 2-HR]* | |
| **3) Top of Hoistway has Sprinklers Protection:** *[Yes/No]* | |
| **4) Top of Hoistway has Smoke Detection Protection:** *[Yes/No]* | |
| **(a) Smoke Detector Accessibility from Outside the Hoistway:** *[Access Hatch / Air-Sampling Smoke Detector / None* or *"NA, No Smoke Detection on Top of Hoistway"]* | |
| **5) Top of Hoistway has Heat Detection Protection:** *[Yes/No]* | |
| **(a) Heat Detector Accessibility from Outside the Hoistway:** *[Access Hatch / Linear (Line) Heat Detector / None* or *"NA, No Heat Detection on Top of Hoistway"]* | |
| **6) Bottom of Hoistway (Elevator Pit) has Sprinklers Protection at or more than 24" above the Pit Floor:** *[Yes/No]* | |
| **7) Bottom of Hoistway (Elevator Pit) has Smoke Detection Protection at or more than 24" above the Pit Floor:** *[Yes/No]* | |
| **8) Bottom of Hoistway (Elevator Pit) has Heat Detection Protection at or more than 24" above the Pit Floor:** *[Yes/No]* | |
| **9) Bottom of Hoistway (Elevator Pit) has Sprinklers Protection less than 24" above the Pit Floor:** *[Yes/No]* | |
| **10) Bottom of Hoistway (Elevator Pit) has Smoke Detection Protection less than 24" above the Pit Floor:** *[Yes/No]* | |
| **11) Bottom of Hoistway (Elevator Pit) has Heat Detection Protection less than 24" above the Pit Floor:** *[Yes/No]* | |

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a. *If a group of elevators are part of the Group Automatic Operation, list down information of each elevator in the checklist.*

b. *Group II: Contract before 10/25/1998 (has designated recall or no FEO);*
*Group III: Contract on or between 10/25/1998 - 04/30/2008 (has designated recall and alternate recall);*
*Group IV: Contract on or after 05/01/2008 (has designated recall, alternate recall, and flashing hat function).*

c. *Phase I Emergency Recall Operation: Automatically or manually recalled to the recall level and removed from normal service because of activation of firefighters' emergency operation.*
*Phase II Emergency In-Car Operation: The operation of an elevator by firefighters where the elevator is under their control.*

## ADDENDUM G: COMMUNICATION COVERAGE FOR EMERGENCY RESPONDERS WITHIN BUILDINGS / EMERGENCY RESPONDERS RADIO COVERAGE SYSTEMS (ERCES/ERRCS)

Effective 1/1/2023, per 2025 SFFC Sections 510.6.1.1 and 510.6.1.2, all ERCES shall be required to be certificated. All ERCES vendors must comply with SFFD Administrative Bulletin 3.04 for ERCES Certification Program.

Effective 1/1/2023, per 2025 CFC Section 510.4, all new ERCES equipment shall be listed per UL 2524. The specific UL 2524 listing shall be provided on all ERCES (fire only) permit plans submittals.

### I. REQUIREMENTS

A. **New Low-Rise Buildings.** Per 2025 SFFC Sections 510.1 and 510.1.1, all new buildings shall have approved communication coverage for emergency responders within the building. Upon completion of the building construction, a communication coverage test shall be conducted for new low-rise buildings per the specific requirements of 2025 SFFC Section 510, 2025 NFPA 72, and 2022 NFPA 1225 Chapter 18, and, if the test fails, an Emergency Responder Communications Enhancement System (ERCES) shall be installed.

> **Exception:** One-story buildings not exceeding 12,000 square feet with no below ground (basement) areas are not required to have a communication coverage test or ERCES.

B. **New High-Rise Buildings.** All new high-rise buildings must be provided with an Emergency Responder Communications Enhancement System (ERCES). A wired phone-jack Two-Way ECS shall not be permitted to be installed in new high-rise buildings in lieu of the required ERCES.

C. **Existing Buildings with Change of Occupancy.** Existing buildings which require to have building permits for change of occupancy shall be required to have communication coverage per CFC Section 510.2 and Section 1103.2. A communication coverage test shall be required to be conducted per the requirements in item E. A communication test shall not be required if the building has an existing operational wired phone-jack system.

> **Exception:** One-story buildings not exceeding 12,000 square feet with no below ground (basement) areas are not required to have a communication coverage test or ERCES.

D. **Existing High-Rise Buildings.** Per 2025 CFC Section 1103.7.9.8, existing high-rise buildings without an existing wired fire department communication system (phone-jack system) are required to conduct a communication test to verify acceptable communication coverage. If the test fails, an ERCES shall be installed within maximum three (3) years of the test date.

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E. **Radio Communication Coverage Test.** All successful radio communication coverage tests for buildings shall be certified by a licensed FCC General Radio Operator or an approved third-party testing agency. The coverage test certificate and test results must be documented either on the fire alarm permit plans (if it has not been issued yet) or on a separate permit dedicated to the test documentation. An associated inspection shall be required to verify the results of the test after a San Francisco Department of Technology (SFDT) inspection was conducted with a sign-off signature on the job card. All communication tests shall include a grid test per 2025 CFC and 2022 NFPA 1225 requirements with both signal strength and DAQ indications in each test grid.

## II. DESIGN AND INSTALLATION

F. **Applicable Codes**. All ERCES must be designed, installed, and tested in accordance with 2022 NFPA 1225 Chapter 18 and Chapter 13 (wiring), 2025 CEC, and 2025 SFFC.

G. **BDA Location.** The BDA and its associated UPS shall be installed in a 2-HR rated room, within the building, regardless of the type of construction. The BDA and its associated UPS shall not be installed inside the Fire Command Center (FCC).

**Exception:** The BDA and its associated UPS are permitted to be installed in a NEMA-4 weatherproof rated enclosure located on the roof of the building with an associated AC cooling system.

H. **Smoke Detector Requirement.** A smoke detector connected to the building fire alarm system (or to a dedicated function(s) fire alarm system) shall be installed inside each BDA room/enclosure, and at any other active/powered system component (such as Remote Radio Units (RRU) equipment room/space/enclosure).

I. **Fire Alarm System Monitoring.** The ERCES shall be monitored by the building fire alarm system or by a dedicated function fire alarm system in accordance with 2025 CFC Section 510.4.2.5 and 2022 NFPA 1225 Section 18.14, unless the BDA is installed in an approved constantly attended location within the building.

J. **ERCES Monitoring Panel (LED ERCES Annunciator).** An approved dedicated monitoring panel shall be provided by the ERCES or fire alarm contractor in accordance with the requirements of 2025 CFC Section 510.4.2.5 and 2022 NFPA 1225 Section 18.14.2. It shall monitor all ERCES conditions including passive indoor antennas and pathways. The ERCES contractor and fire alarm contractor shall coordinate the location of the FACU and ERCES dedicated monitoring panel. Both components shall be shown on the fire alarm plans and the ERCES plans.

K. **ERCES Monitoring Panel Location.** The dedicated monitoring panel shall be installed in the Fire Command Center (FCC), or adjacent the FACU for buildings without FCC.

L. **Monitored for Integrity.** All ERCES components including the donor antenna and the in-building distributed indoor passive antennas and all system wiring and cables shall be monitored for integrity for trouble conditions at the building fire alarm control unit or at the dedicated function(s) fire alarm control unit, if provided, and on the required dedicated monitoring panel (LED ERCES Annunciator).

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1. **System Monitoring.** The following eight (8) points shall be monitored on the LED ERCES annunciator in accordance with 2025 CFC Section 510.4.2.5 (System Monitoring):

   *Provide a Green LED for all dedicated ERCES annunciators indicating normal AC power on.
   *Provide a lamp/LED test button for all dedicated ERCES annunciators to test all lamps/LEDs.
   a. Loss of Normal AC Power Supply - Yellow LED
   b. System Battery Charger(s) Failure - Yellow LED
   c. Signal Source Malfunction - Yellow LED
   d. Failure of Active RF-Emitting Device(s) - Yellow LED
   e. Low-battery Capacity At 70 Percent of the 12-hour Operating Capacity Has Been Depleted - Yellow LED
   f. Failure of critical system components, including the Donor Antenna Malfunction and the in-building distributed antennas and all ERCES wires and cables - Yellow LED
   g. The Communications Link Between The Fire Alarm System And The In-building Emergency Responder Communications enhancement system - Yellow LED
   h. Oscillation of Active RF-Emitting Devices - Yellow LED

2. **Rough-In Inspection.** Before the walls and ceiling are closed, the installation of this cable per its specific listing shall be inspected by SFFD fire and DBI electrical inspectors during the rough-in inspection.

3. **Monitored for Integrity Inspection.** After the walls and ceiling are closed, the ERCES acceptance test conducted by SFFD fire and DBI electrical inspectors shall verify that all portions of the installed CIC coaxial cables are monitored for integrity via the associated ERCES monitoring system per 2022 NFPA 1225 Section 18.14 and additionally “system component malfunction” (which includes all passive indoor antennas).

M. **Pathway Survivability Requirements.**

1. **Construction Type.** All ERCES wires and cables (coax, fiber optic, etc.) shall comply with the required pathway survivability level based on the building’s type of construction:

   a. **Building Portions/Areas Having 2-HR Construction.** Pathway Survivability Level 2 or 3 shall be required for building portions/areas having 2-HR construction (such as Type IA or IB construction AND 2-HR rated vertical enclosures such as stairways or shafts in Type III and Type V buildings or portions of buildings).

   b. **Building Portions/Areas Having Less Than 2-HR Construction.** Pathway Survivability Level 1 shall be permitted for building portions/areas having less than 2-HR construction (such as Type III or V construction).

2. **NFPA 72 Compliance.** Pathway Survivability shall comply with 2025 NFPA 72 Section 12.4. Where a Pathway Survivability Level 2 or 3 is required, it shall comply with any of the options listed in 2025 NFPA 72 Section 12.4.3 and 12.4.4.

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3. **Fire Resistive Cable Requirements.** If Pathway Survivability Level 2 or 3 is proposed with "2-HR fire rated circuit integrity (CI) or fire-resistive Cable", the following items shall be provided on the ERCES (fire only) permit plans submittal:

   a. **Cut Sheets.** Scanned copy of the cable manufacturer's cut sheets showing the specific UL 2196 (or other approved equivalent) listing for the proposed cable as a 2-HR fire resistive cable.

   b. **UL Fire-Resistive Cable Category.** Scanned copy of the associated UL Fire-Resistive Cable Category-FHIT System 1250 (or other approved equivalent) including all specific manufacturer's installation instructions for the proposed cable and its attachments to the building structure.

   c. **CSFM Listing Sheet.** Scanned current copy of the CSFM listing sheet for the proposed cable as applicable.

   d. **Metallic Raceway.** Statement of Compliance with 2025 CEC Article 820 from the cable manufacturer, with specific indication for the UL listing (or other approved equivalent) of this cable as a "Plenum Rated Cable Assembly". All 2-HR fire resistive cables shall be required to be installed in metallic raceways for additional mechanical protection. The metallic raceways shall be required to be specifically listed with the specific CI Cable. This will require a specific CIC listing (Circuit integrity in Conduit).

      **Exception:** Metallic raceways shall not be required to be provided for listed "Plenum Rated Cable Assemblies" 2-HR CI coaxial cables installed inside walls.

4. **Pathways (Cable Runs) Locations.** The associated ERCES permit plans shall indicate all specific pathways (cable runs) locations utilizing the 2-HR fire-resistive coaxial CI and/or CIC cables on all associated floor plans and on the riser diagram.

N. **Remote Connection for Uplink Deactivation Requirement.** Each signal booster (BDA) installed, per CFC Section 510.4.2.4, and connected to a donor antenna (which can transmit RF energy into the outdoor macro environment) shall be required to have a remote (off-site) accessible connection directly to the BDA itself, which has the capability to remotely disable, deactivate, or shut-down the uplink output of the BDA from the approved off-site location. The following shall also apply:

1. **Another Remote Accessible Connection.** Another acceptable remote (off-site) accessible connection shall be with a separate device with the capability to interrupt the BDA's connection to the donor antenna cable and terminate the uplink output of the BDA such that no RF energy is transmitted into the outdoor macro environment.

2. **Reverse Action Remotely.** The BDA shall have the capability to reverse that action remotely from the approved off-site location by turning back on the BDA, reactivating/enabling the uplink output, or by means of a separate device, otherwise completely restore the BDA and its uplink output connection back to normal operating conditions.

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3. **SFDT Remote Access.** The connection shall be configured to permit the San Francisco Department of Technology (SFDT) - Radio Shop remote access to use the deactivation and activation features. The method of remote connection access and deactivation and reactivation shall be specifically approved by the SFDT.

4. **Secure and Reliable Connection.** To ensure the connection is secure and reliable, the remote connection shall meet any speed, bitrate, latency, reliability, compatibility, cybersecurity and other requirements set by SFDT.

O. **Emergency Power-Off (EPO).** An approved Emergency Power-Off (EPO) means shall be provided for all ERCES. In buildings with a Fire Command Center (FCC), the required EPO means shall be installed inside the FCC. In buildings not provided with an FCC, the required EPO means shall be installed adjacent to the Bi-Directional Amplifier (BDA or Signal Booster) in an approved location.

P. **Radio Frequencies.** A CCSF and SFDT approved radio frequencies and BDA management form (latest version) shall be obtained (and completed) from the CCSF SFDT and provided on all ERCES permit plans.

Q. **Signal Strength.** The signal strength shall meet the requirements of 2025 CFC and 2022 NFPA 1225.

R. **Signal Coverage.** The emergency communications signal (strength and DAQ) with 99% coverage is required in all critical areas, including all elevator cars, in the building per 2022 NFPA 1225 Section 18.8.3.

S. **Backup Power Requirements.** The ERCES backup power requirement shall be in accordance with 2025 CFC Section 510.4.2.3.

T. **ERCES Verbatim Notes.** The following general notes shall be provided as verbatim notes on all ERCES permit plans, with blanks filled out:

*"This system shall comply with the applicable ERCES requirements in 2025 SFFC, 2022 NFPA 1225 Chapter 18, 2025 NFPA 72, and 2025 SFFD AB # 2.01 Addendum G.*

*Secondary power supply to be provided by integral batteries. The system shall provide at least 12 hours of 100 percent system operation capacity, per 2025 CFC Section 510.4.2.3*

*The emergency responder communications enhancement system shall be monitored by a dedicated LED monitoring panel that shall be connected to the building fire alarm control unit or to a dedicated function fire alarm control unit where provided. The emergency responder radio coverage system shall be monitored for the following conditions:*

**Provide a Green LED for all dedicated ERCES annunciators indicating normal AC power on.*
**Provide a lamp/LED test button for all dedicated ERCES annunciators to test all lamps/LEDs.*
*1) Loss of Normal AC Power Supply - Yellow LED*
*2) System Battery Charger(s) Failure - Yellow LED*
*3) Signal Source Malfunction - Yellow LED*
*4) Failure of Active RF-Emitting Device(s) - Yellow LED*

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5) *Low-battery Capacity At 70 Percent of the 12-hour Operating Capacity Has Been Depleted - Yellow LED*
6) *Failure of critical system components, including the Donor Antenna Malfunction and the in-building distributed antennas and all ERCES wires and cables - Yellow LED*
7) *The Communications Link Between The Fire Alarm System And The In-building Emergency Responder Communications enhancement system - Yellow LED*
8) *Oscillation of Active RF-Emitting Devices - Yellow LED*

*The owner of the facility shall be responsible for maintaining required utilities so as to provide for the continuous operation of the protection system. This shall include dedicated primary power supply by means of dedicated branch circuit.*

*The devices and conduit locations shown on these drawings are approximate. Locations may need to be adjusted slightly during installation to accommodate building construction features.*

*This system was designed by and shall be installed by:*
*FCC General Radio/Telephone Operators License #_____*
*Contact Info for FCC Contractor: _____*
*UL (Or Other OSHA Approved) Vendor Certification per 2025 SFFC Sections 510.6.1.1 and 510.6.1.2*

*The ERCES contractor shall contact the SF City Radio Service Division (SFDT) at the start of the ERCES work prior to the donor antenna positioning and ERCES installation.*

*CONTACT INFORMATION:*
*Department of Technology,*
*City and County of San Francisco*
*Radio Engineer Manager*
*Office: (628)-652-5429*
*radio@sfgov.org*

*The ERCES contractor shall provide an FCC test certificate and a test report to the SFFD fire district inspector prior to scheduling of system inspection.*

*The ERCES contractor shall coordinate the ERCES testing with the SF Radio Service Division system watch at 415-558-3884 and the SFFD fire inspector at 415-554-8927.*

*The ERCES contractor shall provide an electronic PDF copy of the approved ERCES permit plans to the SF City Radio Service Division for their records via radio@sfgov.org email."*

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U. **Signage.** The ERCES contractor shall provide the following signage in each building provided with an ERCES per the following requirements:

1. **Building Entrance.** This sign shall be provided at each building entrance at 60”-70” elevation on the exterior of the building above ground level in an approved location.

2. **Above Lockbox.** Where a SFFD approved lockbox is provided (See SFFD AB #5.09 for SFFD approved lockbox requirements), this sign shall be mounted adjacent or above the lockbox.

3. **Additional Locations.** Additional sign(s) shall be provided on the exterior side of the door leading into the room/space containing the BDA and on any other door leading into room(s)/space(s) containing active/powered Remote Radio Units (RRU) at 60”-70” elevation above finished floor. If the BDA/RRU is installed in a closet or in another approved enclosure, the sign shall be provided on the exterior door of that enclosure.

4. **Exterior Door to FCC.** Additional sign(s) shall be provided on the exterior door leading to the Fire Command Center (FCC) on each high-rise building provided with FCC and ERCES.

5. **Size and Symbol.** The sign shall be plastic or metal, 4” X 4” in size, with white ERCES letters and radio-tower symbol on red background. The ERCES letters shall be 1” in height.


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## ADDENDUM H: TWO-WAY EMERGENCY COMMUNICATIONS SYSTEMS (TWO-WAY ECS) FOR RESCUE ASSISTANCE - REQUIREMENTS FOR PLAN SUBMITTAL, DESIGN, AND INSTALLATION

### I. REQUIREMENTS

A. **UL 2525 Certified.** The provisions contained in the 2025 CBC Sections 403.5.3.1, 1009.6.5 and 1009.8, 1010.1.9.12, and 3008.6.6 are to be followed. Installation and performance requirements shall comply with the currently published standard: 2025 NFPA 72 Section 24.10 - All Two-Way Emergency Communications Systems (Two-Way ECS) shall be certified per UL 2525 effective 1/1/2023 by UL or by any other CSFM approved Nationally Recognized Testing Laboratory (NRTL). The UL 2525 certificate of compliance must be included on the permit plans submittal (Two-Way ECS equipment is not required to be CSFM listed).

### II. PERMITS

B. **Plan Submittal.** Two-Way ECS for stairway communication, areas of refuge and/or elevator landings require a plan submittal. They may be submitted as part of the site permit addenda schedule as a separate addendum, or combined with the fire alarm system addendum, or as a deferred submittal. This plan submittal shall be a SFFD permit only and shall not require DBI review. The information required herein shall be provided without regard to the method of permit obtained.

1. **Architectural Reference for Call Box Locations.** A reference copy of the approved architectural permit plans showing the required Two-Way ECS (location of control unit(s) and call boxes).

   a. **Horizontal Exits.** If the building contains a horizontal exit, the architectural plans shall include call boxes on both sides of the horizontal exits in approved locations. Call boxes are not required at the discharge level (ground floor).

   b. **Elevators on Both Sides of Horizontal Exit.** If elevators are provided on both sides of the horizontal exit, call boxes shall be installed at each elevator landing on every floor except on the discharge level.

   c. **Elevator on One Side of Horizontal Exit.** If only one elevator is provided on one side of the horizontal exit, call boxes shall be installed at the elevator landings on that side of the horizontal exit. An additional call box shall be required to be installed at the other side of the horizontal exit, in an approved location, on each floor, except on the discharge level.

2. **MCU Location.** The Master Control Unit (MCU) must be installed in the Fire Command Center (FCC) and be monitored off-site by an approved supervising station. Additional remote-control stations are permitted to be installed in other approved locations in the building. In buildings without an FCC, the MCU shall be installed adjacent to the FACU or in another approved location if a fire system is not provided in the building.

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3. **Call Box Location.** The two-way ECS designer shall coordinate with the fire alarm designer so that the notification appliances do not interfere with the effective use of the two-way ECS call boxes (as well as the MCU). See Section I.L.k above for more information.

4. **Local Equivalency / Pre-Application Meeting Minutes.** A signed copy of any approved "Local Equivalency" (AB-005), "Alternate Methods", or Pre-Application Meeting Minutes (if it is relevant to the system) shall be placed on the plans. Check with the architect or general contractor if a" Local Equivalency" (AB-005) form, or the Pre-Application Meeting Minutes, was submitted to and approved by the City of San Francisco.

5. **Submittal Plan Set and Cut Sheets.** 2 sets of submittal plans and 1 material (cut sheets) packet for the proposed two-way communications system (See fire alarm EPR submittal requirements above, as applicable).

C. **Two-Way with Fire Alarm Permit.** For Two-Way ECSs submitted with a fire alarm system permit, the same C-10 contractor will be responsible for the design and installation of both systems.

D. **Under the Addenda Schedule.** When submitted under the site permit addenda schedule, fees will be included in the total site permit fee. If a separate permit is submitted for the two-way communications systems, the fee will be obtained from the DBI cost schedule located on the DBI website.

E. **C-10 Contractor / Engineer.** It is recommended that the applicant be the installing contractor. All installing contractors shall have a current California electrical (C-10) contractor's license and be familiar with the design and installation of these systems. When the design and plans are produced by a party other than the contractor, the plans shall be stamped by a professional engineer.

F. **Approval of Plans.** Installation, alteration, or demolition of a system shall not commence prior to the approval of plans and the issuance of a fire permit.

G. **Plans at Project Site.** The entire permit card and a San Francisco Fire Department approved set of plans shall be kept at the project site until final approval of the permit, after which they shall remain in the possession of the owner.

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## III. PLANS

### H. General Requirements.

1. **Labeled and Legible.** Plans and attachments shall be clearly labeled and legible. All fonts on all plans shall be minimum 1/8" font size.

2. **Revisions.** Plans and all revisions to the plans shall be dated. If utilizing an existing drawing or portion of a drawing, the area of work shall be highlighted and clouded with an appropriate symbol (delta). Provide a revision list with a symbol, date, description, and initials.

3. **Alterations, Additions, Deletions.** When making alterations, additions, or deletions to an existing system, all existing devices and equipment shall be shown and properly identified on the floor plan and system riser (single line) diagram.

4. **Include on Plans.** Plans shall include a title sheet, an equipment list, a sequence of operation matrix, a floor plan, a system riser diagram, and secondary power and voltage drop calculations.

5. **Cut Sheets and CSFM Listing.** Attachments for all products and equipment shall include the manufacturer's specification sheets indicating the products proposed are IBC, NFPA and ADAAG Code Compliant. California State Fire Marshal (CSFM) listing sheets, as applicable, shall also be provided. Two-Way ECS equipment is not required to be CSFM listed.

I. **Title Sheet.** The title sheet shall include the following information:

1. **Project Name/Address.** Project name and address of the project.

2. **Designer Name/Signature.** The designer's full name (no initials, pseudonyms, acronyms, or aliases) and signature. The designer of record shall be responsible for the entire system being installed.

3. **Business Information.** Business name, address, and California contractor's license number of the installing contractor. If the designer of the system is not the installing contractor, the following shall be clearly indicated/printed on the plans:

   a. **"Designed By"** - Followed by the designer's business name, address, designer of record's full name and wet signature.

   b. **"Installing Contractor"** - Followed by the installing contractor's business name, address and California contractor's license number.

4. **Type of System.** Type of system provided.

5. **Supervising Station Information.** The supervising station name, address, contact information, and UL number.

6. **Building Information.** Occupancy group(s) of building or area as defined by the California Building Code. Number of stories, building height, and construction type. Provide architectural plans for reference.

7. **Scope of Work.** Scope of work and why the system is being installed, i.e. required by the San Francisco Building Code or San Francisco Fire Code, required due to a variance, or a voluntary / non-required system at the owner's request.

8. **Compliance.** A note stating that the design and installation complies with all currently adopted codes and standards.

9. **Other Notes.** All other pertinent notes.

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10. **Key Plan.** A key plan of the building and/or complex indicating the street location and the area of work within the building shall be provided.

J. **Equipment List.** Provide the model number, manufacturer's name, description, quantity, CSFM listing number (if applicable), and symbols to be used (legend) for each device, equipment, and conductors proposed to be installed. The symbols used on the plans shall match the legend. Strike out any "typical" symbols that do not pertain. (Note: The Fire Department reserves the right to disallow any listed product due to past performance).

K. **Sequence of Operation.** A written description in a matrix format shall be provided to define the events that occur when initiating the Two-Way ECS. The description shall include details relating to annunciation, remote signaling, and activation of control functions, as applicable. Also provide programming descriptions.

L. **Floor Plan.** The floor plan shall include scale used and a graphical representation of the scale. The minimum scale for plans is 1/8" = 1'-0". Metric scale shall not be accepted. The floor plan shall also include location of all system components.

M. **Riser Diagram**. The riser diagram shall include the following information:

1. **Interconnection.** Single line wiring diagram (riser diagram) that shows the interconnection of each device and equipment of the whole system.

2. **Number of Conductors.** Number of conductors in each wiring segment and the type and size of wire or conductor to be used.

3. **Class.** The class for initiating, signaling line and notification device circuits. Including circuit number or identification.

4. **Survivability Riser Diagram.** Survivability riser diagram showing the specific protection of the system wiring.

N. **Calculations.** The calculations shall include the following:

1. **Power Transfer and Operation Time.** The means of two-way communications systems normally connected to the building power supply shall automatically transfer to a source of emergency power within ten (10) seconds after the normal supply fails. The power source shall be capable of providing for the operation of the system (including annunciators) and the means of two-way conversation for four (4) hours.

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2. **Secondary Power Calculation.** Provide calculations to verify that standby batteries or other approved secondary power source has 24 hours of battery backup plus 4 hours of talk time at full system capacity.

   **Exception:** If an emergency generator is provided as a backup power source, stamped calculations shall be shown by a CA licensed electrical engineer showing sufficient power and fuel capacity of the generator to support all emergency loads combined for 24 hours standby + 4 hours of talk time (when all call stations are calculated in talk mode). In that case, the required standby battery capacity shall be permitted to be reduced to 4 hours of standby + 2 hours of talk time.

3. **Voltage Drop Calculation.** Provide calculations to verify that the voltage drops in the Two-Way ECS circuits do not exceed 10 percent of the starting voltage power per circuit (use 85% of nominal voltage as the starting voltage per circuit). Provide voltage drop calculations for each circuit.

O. **Attachments (Materials-Submittal).** The materials submittal shall include the following information:

1. **Cut Sheets.** Manufacturer's specification sheets (cut sheets) for all equipment and materials to be used shall be submitted, including the transponder to the supervising station. The device or equipment is being used, the listing information, and the application per listing.

2. **CSFM Listing Sheets.** Submit copies of the CSFM listing number sheets for all devices and equipment requiring listing.

## IV. DESIGN AND INSTALLATION

P. **Two-Way ECS Requirement.** Refer to CBC Sections 403.5.3.1, 1009.6.5 and 1009.8, 1010.1.9.12, or 3008.6.6 to determine when a Two-Way ECS is required.

Q. **Design and Installation.** Two-Way ECSs shall be designed and installed in accordance with 2025 NFPA 72 Section 24.10.

R. **Pathway Survivability.** Two-Way ECSs shall have a pathway survivability of Level 2 or 3 per 2025 NFPA 72 Sections 24.3.14.3.3 and 24.3.14.4, which is further explained in Section 12.4 for the required elements.

S. **Central Control Point (CCP).** The following shall be required for the central control point (or FCC if applicable):

1. **Communication to FCC/CCP.** Two-Way ECSs shall provide communication between each required location and the Fire Command Center (FCC), or a central control point (CCP) location as approved by the fire department for buildings without a Fire Command Center.

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2. **Supervising Station.** Where the central control point is not constantly attended, a Two-Way ECS shall have an automatic voice dial-out capability to a central monitoring location providing 24-hour service. An approved central, proprietary, or remote service, which will provide effective means of conversation for immediately summoning assistance at all times in case of emergency, shall monitor the Two-Way ECS.

T. **Communication Means.** When adding a wired or wireless communication means (such as VOIP or cellular communicator) to the Two-Way ECS to provide live voice off-site communication, the following conditions shall apply:

1. **Acceptance and Compatibility.** The communication means shall be acceptable to the Two-Way ECS's manufacturer, compatible with the specific system, and shall not void the UL 2525 for the system itself. This must be verified with the manufacturer and a letter must be submitted to SFFD indicating so.

2. **Backup/Standby Power.** The communication means shall have backup/standby power for 24 hours standby + 4 hours talk time. Must be verified. The following shall apply for backup/standby power:

a. **IP Communicator.** If the communication means includes an IP communicator that is shared by the building IT/Server system, the backup power must be provided and verified for that IP or VOIP communication means.

b. **Wireless Communicator.** If a separate communicator panel, such as a cellular communicator is provided, the required backup power shall be provided for that separate communicator.

3. **Supervision for Trouble Conditions.** The communication means shall be fully supervised for trouble conditions. Any power trouble and loss of communication shall result in a trouble signal on the master control unit. If a fire alarm system is installed in the building and it monitors the two-way ECS, these trouble conditions shall be reported as supervisory signals on the FACU and sent as supervisory signals to the fire alarm system supervising station.

U. **Supervising Station Service For Two-Way ECS.** Supervising station service for two-way ECS shall be approved by SFFD. It shall provide all the required services and comply with all the requirements delineated in 2025 NFPA 72 Section 26.3. The two-way ECS contractor shall indicate the specific supervising station information on the permit plans.

V. **Audible/Visible Signals.** The Two-Way ECS shall include both audible and visible signals.

1. A button complying with the 2025 CBC Section 1138A or 11-B-205 and 11B-308 in the area of refuge and/or elevator landings/stairway shall activate both:
   a. A light in the area of refuge and/or elevator landings/stairway indicating that rescue has been requested, and
   b. A light at the central control point indicating that rescue is being requested.

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2. A button at the central control point shall activate both:
   a. A light at the central control point, and
   b. A light in the area of refuge and/or elevator landings/stairway communication system call box indicating that the request has been received.

W. **Call Box to MCU.** Each Two-Way ECS initiating device (call box) shall indicate its location on the MCU. It shall indicate the building address to the central monitoring service via a pre-recorded message or Caller ID feature or other approved means. It is not required to indicate the specific call box location to the off-site monitoring service. The pre-recorded message verbiage shall be included on the permit plans.

X. **Directions of Use.** Directions for the use of the Two-Way ECS, instructions for summoning assistance via the Two-Way ECS, and written identification of the location shall be posted adjacent to the Two-Way ECS MCU. Adjacent to each call box the signage shall be 12" wide by 16" tall sign with font size of minimum 5/8" letters.

Y. **Signage.** Comply with 2025 CBC Section 1009.9 for the required signage.

Z. **Monitoring Integrity.** Monitoring the integrity of all system components and wiring shall comply with 2025 NFPA 72. All system components shall be monitored for integrity and shall be supervised by the building fire alarm system. Monitoring the integrity of the Two-Way ECS by an off-site supervising station, via the building fire alarm system, shall not be required if the central control unit is located in an approved constantly attended location within low-rise buildings. The building fire alarm system shall supervise the Two-Way ECS via two addressable monitor modules:

1. One address shall be indicated as a "General Two-Way ECS Trouble" (open, short, communication trouble, etc.).

2. The other address shall be indicated as "Power Two-Way ECS Trouble" (Loss of AC power, battery charger trouble, power supply trouble, low-battery trouble, etc.).

AA. **Protective Covers.** Protective covers for call boxes – All call boxes may be provided with approved clear protective covers to prevent unwanted activation of the Two-Way ECS.

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