3.05 New and Replacement Fire Alarm Systems- High-Rise Evacuation/Relocation Policy (2016)

Reference: 2016 S.F.B.C. Section 907.5.2.2, 2016 S.F.F.C. & 2016 Edition of NFPA 72

SCOPE. This bulletin applies only to fire alarm systems in new high-rise buildings or replacement fire alarm systems in existing high-rise buildings.

PURPOSE. The purpose of this bulletin is to provide direction to the design community about how the San Francisco Fire Department expects notification/evacuation zones to be designed for new or replacement fire alarm systems.

ALTERNATE PROPOSALS: The Fire Department recognizes that the procedures outlined below will not accommodate every situation. Variations to the evacuation/relocation schemes outlined below will be evaluated and approved on a **case-by-case basis** by the San Francisco Fire Department's plan review staff.

1. NEW HIGH-RISE OFFICE BUILDINGS

A. New high-rise office buildings (B occupancy) > 150 ft. in height. It is the policy of the San Francisco Fire Department that when the fire alarm system is installed in a new high- rise office building, the following relocation procedure shall be followed. The activation of any fire alarm initiating device will cause four floors to go into alarm: the fire floor (floor of alarm initiating device activation), two floors below the fire floor and the floor above the fire floor, except that the activation of any alarm initiating device on the 7th floor or below will cause an evacuation signal on the 7th floor and below (See Example Relocation Matrix Addendum A below). ALL stairway doors in the building shall automatically unlock under any alarm condition to allow access for relocated building occupants.

B. New high-rise office buildings (B Occupancy) 150 ft. in height or less. New high-rise office buildings that are 150 ft. or less in height may elect to use partial evacuation (a four floor zone evacuates the building) or relocation as stated above. The partial evacuation zone will include the fire floor (floor of alarm initiating device), two floors below, and the one above.

2. NEW HIGH-RISE TOURIST HOTELS AND RESIDENTIAL BUILDINGS

New high-rise tourist hotels and residential buildings (R-1 and R-2 Occupancies). When a fire alarm system is installed in a new high-rise R-1 tourist hotel or an R-2 residential building, the following procedure shall be followed. Any initiating device will cause four floors to go into alarm: The fire floor (floor of alarm initiating device), two floors below and one floor above. The occupants on those four floors will be instructed to evacuate the building. **Relocation of occupants is not permitted in R-1 and R-2 high-rise buildings.**

3. EXISTING HIGH-RISE OFFICE BUILDINGS (B OCCUPANCIES) OVER 150 FT. IN HEIGHT

When a new code compliant fire alarm system is installed in an existing high-rise office building that is greater than 150 ft. in height, an Emergency Voice/Alarm Communications System shall be installed and the same relocation procedure as that for new high-rise office buildings OR, alternatively, partial evacuation (four floors) shall be followed if the building is equipped with the following:

1. An automatic sprinkler system throughout,
2. Two code complying enclosed exit stairs,
3. Emergency Voice Alarm Communication System (EVACS)
4. A smoke control system that was code compliant at the time of installation,
5. Vertical shafts that are enclosed per Chapter 7 of the California Building Code.

4. EXISTING HIGH-RISE TOURIST HOTELS AND RESIDENTIAL BUILDINGS (R-1 AND R-2 OCCUPANCIES) OVER 150 FT. IN HEIGHT

When a new code compliant fire alarm system is installed in an existing tourist hotel or in an existing residential building that is greater than 150 ft. in height, an Emergency Voice/Alarm Communications System shall be installed, and the same partial evacuation procedure as that for new high-rise tourist hotel and residential buildings shall be followed if the building is equipped with the following:

1. An automatic sprinkler system throughout,
2. Two code complying enclosed exit stairs,
3. Emergency Voice Alarm Communication System (EVACS)
4. A smoke control system that was code compliant at the time of installation,
5. Vertical shafts that are enclosed per Chapter 7 of the California Building Code.

Relocation of occupants is not permitted in R-1 and R-2 high-rise buildings

5. ALL OTHER EXISTING HIGH-RISE BUILDINGS

All other high-rise buildings shall be evaluated on a case-by-case basis. Generally, these buildings will require complete evacuation unless the Fire Marshal determines life safety would be better served with an alternative plan of action.

FACILITY EMERGENCY PLANS. Facility Emergency Plans (FEP's) shall be consistent with the fire alarm sequence of operation. Proposed FEP's for new high-rise buildings shall be submitted with the fire alarm plans submittal for review and approval by plan review staff. For existing buildings, the approved FEP must be submitted as a reference, unless it must be revised to be consistent with the new fire alarm sequence of operation. In that case, the proposed FEP shall be submitted for review with the fire alarm plans as for new buildings.

RELOCATION AND PARTIAL EVACUATION BUILDINGS. Buildings with relocation or partial evacuation are required to meet NFPA 72 requirements for Level 2 or 3 survivability.

WARNING: DO NOT USE THIS BULLETIN WHEN DESIGNING FACILITY EMERGENCY PLANS FOR EXISTING BUILDINGS WITH EXISTING FIRE ALARM SYSTEMS. EXISTING FIRE ALARM SYSTEMS WITH VARYING NOTIFICATION ZONES MAY HAVE BEEN APPROVED. THE EXISTING SYSTEM CONFIGURATION MUST BE USED UNLESS THE ENIRE SYTSTEM IS REPROGRAMMED UNDER A BUILDING PERMIT AND ALL REQUIRED TESTING IS PERFORMED AND GRANTED FINAL SIGN-OFF/APPROVAL.

ANY EXISTING HIGH-RISE BUILDING WITH A PARTIAL EVACUATION OR RELOCATION POLICY THAT IS NOT FULLY SPRINKLERED SHOULD BE BROUGHT TO THE ATTENTION OF THE FIRE MARSHAL IMMEDIATELY.

Addendum A: Example Relocation Matrix

Example: Fire Alarm Relocation / Evacuation Plan

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	RECV			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				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.FL/RE	RELOC	RELOC	RECV	RECV	RECV	LVL 8
Lvl 7	EVAC	EVAC	EVAC	EVAC	EVAC	EVAC	EVAC	F.FL/EV	EVAC	EVAC	RECV	RECV	RECV	RECV	LVL 7
Lvl 6	EVAC	EVAC	EVAC	EVAC	EVAC	EVAC	F.FLOOR	EVAC	EVAC	RECV	RECV	RECV	RECV		LVL 6
Lvl 5	EVAC	EVAC	EVAC	EVAC	EVAC	F.FLOOR	EVAC	EVAC	RECV	RECV	RECV	RECV			LVL 5
Lvl 4	EVAC	EVAC	EVAC	EVAC	F.FLOOR	EVAC	EVAC	RECV	RECV	RECV	RECV				LVL 4
Lvl 3	EVAC	EVAC	EVAC	F.FLOOR	EVAC	EVAC	EVAC								LVL 3
Lvl 2	EVAC	EVAC	F.FLOOR	EVAC	EVAC	EVAC	EVAC								LVL 2
Lvl 1	EVAC	F.FLOOR	EVAC	EVAC	EVAC	EVAC	EVAC								LVL 1
Bsmt	F.FLOOR	EVAC	EVAC	EVAC	EVAC	EVAC	EVAC								Bsmt

F.FLOOR = Fire Floor -- On the 8th floor and above, the fire floor will receive a relocation message, below, an evacuation message.
EVAC = An evacuation message will be broadcast on this floor.
RELOC = A relocation message will be broadcast on this floor.
RECV = A receiving floor message will be broadcast on this floor.

Evacuation Voice Message:
Two rounds of temporal 3 horn tones 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. Please proceed to the stairways and exit the building. Do not use the elevators."

Relocation Voice Message:
An alert steady tone of 1 to 3 seconds in duration followed by – "Your attention please. A FIRE emergency has been reported on your floor. Proceed to the nearest stairwell, walk down 4 floors and reenter the building." - Shall be automatic and repeated at least three times.

Receiving Voice Message:
An alert steady tone of 1 to 3 seconds in duration followed by – "Attention, Attention, a FIRE emergency has been reported on a floor above yours. Please be prepared to receive personnel relocating to your floor" - Shall be automatic and repeated at least three times