3.05 New and Replacement Fire Alarm Systems- High-Rise Evacuation/Relocation Policy (2022)

REFERENCE: 2022 San Francisco Fire Code (SFFC) & 2022 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. (Reference 2022 CFC Sec. 907.5.2.2).

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 and to relocate to a lower pre-assigned floor (typically 4 floors down, unless otherwise approved): 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 6th floor or below will cause an evacuation signal on the 7th floor and below (See Example Relocation Matrix Addendum A below). When the fire floor is the 7th floor - the 8th floor shall relocate down to the 4th floor, floors 5, 6 and 7 shall evacuate and floors 1, 2, 3 and basement shall remain in place. The specific relocation/evacuation scheme may be changed due to different building configurations such as buildings with combined floors, atriums, etc. 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 building.

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 building.

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 and the evacuation/relocation matrix (if applicable). Proposed FEP's for new high-rise buildings shall be submitted with the fire alarm plans submittal for review and approval by SFFD 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. (Reference SFFC Section 404.1)

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 ENTIRE 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.

Example of Relocation/Evacuation Matrix

NEXT PAGE:

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.