## 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 preassigned 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 6<sup>th</sup> floor or below will cause an evacuation signal on the 7<sup>th</sup> floor and below (See Example Relocation Matrix Addendum A below). When the fire floor is the 7<sup>th</sup> floor the 8<sup>th</sup> floor shall relocate down to the 4<sup>th</sup> 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

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 stainwell 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			_												1000
m has been -Tone															
m 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	The messa	elevators."	not use the e	uilding. Do r	enter the bu	floor and re-	e-assigned tighters	n to your pre inding Firefi	d walk down	stairwell and	activated on your floor. Proceed to the nearest stairwell and walk down to your pre-assigned sequence shall repeat until the FA system is silenced or reset by responding Firefighters.	Proceed to the fill the FA sy	our floor. F	tivated on quence sh
	A FIRE alar	please?	ur attention	lay I have yo	please? M	ur attention.	ay I have you	ssage - "Ma	llow the me	ede and fo	n shall prec	s in duration	to 3 second	rt-Tone of 1	Steady Ale
												essage	Relocation Voice Pre-Recorded Message:	oice Pre-R	location \
															,
i leser by	tell is sileliced of Teset by	r A system	at mini nic	dis bilbuig. Proced to dis licates, ext and exit dis building. Do not ase dis elevators, The message and Alert-Todie sequence shall repeat unit dis FA systems. The first sequence shall repeat unit dis FA systems.	ile sequelle	and Aleit-10	illessage a	valois. The	nac nic cic	ig. Do not	I nic buildii	eyr gild eyr	nic licalcat	refighters	responding Firefighters
activated in	alarm has been activated in	FIRE alan	please? A	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 the halders of the proceded to the page of the shall repeat until the EA are the followed to the page of the page	ay I have yo	please? Ma	ir attention, i	y I have you	sage – "May	ow the mes	de and folk	essage: shall prece	Voice Pre-Recorded Message: of temporal 3 Alert-Tone shall pro-	f temporal	Evacuation Two rounds
à							stairwell	Proposed symbols for Relocating and Receiving Floors at the Stairwell	ceiving Flor	ng and Rec	r Relocati	symbols fo	Proposed	*	
		20							ssage	e any Me	ot receiv	Stay in Place Floor - Does not receive any Message	lace Floo	Stay in F	
316 1					0.22				ssage	iving Me	ve a Rece	Receiving Floor • Will receive a Receiving Message	g Floor -	Receivin	RECV
318						348			lessage	ocation N	IVE a Kel	Relocation Floor - Will receive a Relocation Message	on Floor -	Relocati	KELOC
100	546	202				Ba	300		message	denation	alve an ev	Evacuating Floor - Will receive an evacuation message	ing Floor	Evacuat	EVAC
32	100	200				800	300		MOSSON	oouye	dia on ou	Will roce	Elogy	Evacuation	EVAC
8	7.0	01					98			99698	ation Me	Fire Floor Receives a Relocation Message	Receive	Fire Floo	BLOOM IN
	100	C)					98			essage	uation M	Fire Floor Receives an Evacuation Message	r Receive	Fire Floo	F.FL/EV
	14	13	12	=	10	9	00	7	o	5	4	w	2	_	
Bsmt												EVAC	EVAC	F.FL/EV	Bsmt
LVL1							8				EVAC	EVAC	F.FL/EV	EVAC	LW1
LVL 2		****					2000	5772		EVAC	EVAC	F.FL/EV	EVAC		Lvl 2
LVL3									EVAC	EVAC	F.FL/EV	EVAC			LVI 3
LVL4		200	The same of	m r	RECV	RECV	RECV	EVAC	EVAC	F.FL/EV	EVAC				LWI 4
LAT 0		NEW	NECV	NECV	NECV	EVAC	EVAC	F./AC	E EI JEV	E//AC					LVIO
LVL	KECV	RECV	NECV	KECV	EVAC	EVAC	F.FUEV	EFFEV	EVAC.						LVI
	RECV	RECV	RECV	RELOC	RELOC	FFLOOR	RELOC							RECV	LVI 8
LVL9	<	RECV	RELOC	RELOC	FFLOOR	RELOC							RECV	RECV	LVI 9
TAT 10 ¥	~	RELOC	RELOC	F.FLOOR	RELOC							RECV	RECV	RECV	Lvl 10
LVL 11		RELOC	FFLOOR	RELOC			3000				RECV	RECV	RECV	RECV	Lvi 11
LVI 12	REIOO	THE POOR	REIOO						MENT	RECV	BECV Y	RECV	RECV	REIOC	LW 13
LVL 14	KELOC	REIOC						NECY	DECV	RECV	DEC/	RECV	RELOC	REIOC	LVI 14
LVL 15							RECV	RECV	RECV	RECV	RELOC	RELOC	FFLOOR	RELOC	LVI 15
LVL 16 🛑						RECV	RECV	RECV	RECV	RELOC	RELOC	F.FLOOR	RELOC	The second second	Lvl 16
LVL 17		8000			RECV	RECV	RECV	RECV	RELOC	RELOC	F.FLOOR	RELOC			Lvl 17
LVL 18				RECV	RECV	RECV	RECV	RELOC	RELOC	F.FLOOR	RELOC				Lvl 18
64 TAT			RECV	RECV	RECV	RECV	RELOC	RELOC	FFLOOR	RELOC					Lv/ 19
UC IVI			RECV.	RECV	RECV	RELOC	REIOC	FROOP	REIOC						I w 20
LVL 22			S D D	KELOC	RELOC	REIOC	KELOC	REIOC							LW 22
LVL 23		500	RELOC	RELOC	FFLOOR	RELOC	0				200				Lvl 23
LVL 24 🛑			RELOC	FFLOOR	RELOC										Lvl 24
ROOF			FFLOOR	RELOC	-										ROOF
		-			1		,								