	COMMUNITY RISK REDUCTION BUREAU MANUAL **FIRE EXTINGUISHING SYSTEMS** **429.3 FIRE SPRINKLERS IN ELEVATOR SHAFTS** **EFFECTIVE: APRIL 1, 2016** **AUTHORIZED:** *R. Pearce*

SCOPE

Fire sprinkler protection in elevator shafts.

PURPOSE

The purpose of this policy is to clarify conflicting requirements for elevator shaft fire sprinkler protection found in the National Fire Protection Association (NFPA) 13, California Building Code (CBC), California Elevator Safety Construction Code (enforced by Cal-OSHA Elevator Division), and American Society of Mechanical Engineers (ASME) A17.1, Safety Code for Elevators and Escalators.

BACKGROUND

NFPA 13 requires fire sprinkler protection at the top of elevator shafts, except where the following conditions are met for passenger elevators:

1. The passenger elevator car meets ASME fire resistive materials construction standards (ASME Rule 204.2a).

2. The elevator hoistway shaft is non-combustible.

If a fire sprinkler is installed at the top of the shaft, ASME A17.1 (as referenced by Cal-OSHA regulations) requires that a smoke and heat detector that operates an elevator car power shunt trip be installed within 24 inches of fire sprinklers provided at the top of the elevator shaft. An adjacent access panel must also be provided.

As currently required, this power shut-off will cut power when the car is in firefighter emergency use mode. For this reason, numerous fire departments currently prohibit the installation of a sprinkler head at the top of shaft.

Other sections of NFPA 13 define non-combustible construction as including the framing material. This is the same definition used by the California Building Code.

REQUIREMENTS

The State Fire Marshal has rendered an official interpretation on elevator hoistway construction and the requirement for a fire sprinkler at the top of the shaft. This interpretation is attached.

Provided the elevator passenger car meets ASME Rule 204.2a, a fire sprinkler head will no longer be required at the top of passenger elevator shafts meeting a minimum Building Code Fire rating of one-hour regardless of framing material or for a non-fire rated shaft (if allowed by CBC, Chapter 7) lined with material meeting a flame spread of 0-75 and a smoke development rating of 0-450 (gypsum wall board of any thickness would need this requirement).

Additional Cal-OSHA/ASME requirements not found in NFPA 13:

1. Branch lines supplying machinery room sprinklers or top of hoistway sprinklers (if applicable) must terminate at the sprinkler head; i.e., no returns to outside the shaft or room are allowed.

2. Head guards are required on sprinklers in the shaft and machinery room.

3. Pipe supplying elevator pit sprinklers cannot be run vertically on the shaft wall from a supply line above; i.e., the pipe must be dropped down within the shaft wall to the pit.

PROCEDURES

Until such time as documentation is published by ASME that all passenger elevators now manufactured meet Rule 204.2a, the fire sprinkler contractor shall obtain a copy of the elevator specifications from the elevator supplier or job superintendent and provide same with the fire sprinkler submittal for consideration of top-of-shaft fire sprinkler omission.

<u>Notes:</u>

1. Fire sprinkler omissions are not allowed for freight elevators, regardless of elevator car or elevator shaft construction.

2. Regarding the NFPA exception for hydraulic elevator pit sprinklers: hydraulic fluid is, in general, a Class III-B combustible liquid.

3. ASME/Cal-OSHA standards do not require shunt trip activation for the bottom of shaft/elevator pit sprinkler heads. An HSW should be provided at the bottom of cable-operated electric elevators due to potential trash accumulation at the bottom of all elevator hoist ways, regardless of power mode.

4. Fire sprinklers are required in the elevator machinery room

ATTACHMENT

California State Fire Marshal Code Interpretation 06-082, Sprinklers in Elevator Hoistways