

## MEMORANDUM

To: Architects, Engineers  
Licensed Sprinkler Contractors  
Licensed Fire Alarm Contractors  
Plan Review  
Pat Slaughter, Licensing/Inspections Administrator  
Pat Day, Health Care Inspections Supervisor

From: Jerry W. Jones  
Deputy Assistant Secretary/Chief Architect

Date: March 22, 1999

Re: 1. Acceptable Methods for Elevator Power Shut Off and Releasing Water to Sprinklers  
Protecting Elevator Shafts, Elevator Machine Rooms, and Elevator Machinery  
Spaces  
2. Question and Answer Session: LA Fire Sprinkler Association Meeting, 3-19-99

On June 18, 1993, this office published a memorandum addressing "Sprinkler Protection in Elevator Machine Rooms". We have attached a copy of this memorandum, for reference. As a follow-up to the 6-18-93 memorandum, we are providing further clarification to the referenced topic. Please understand that this memorandum does not diminish any of the requirements as denoted in the 6-18-93 memorandum.

As per the NFPA 13:A-4-13.5.2, "The ASME A17.1 Safety Code For Elevators And Escalators, Rule 102.2 (c) (3), requires the shutdown of power to the elevator prior to the application of water in the elevator machine room or hoistway. This can be accomplished by a detection system with sufficient sensitivity to operate prior to the activation of the sprinklers (see also NFPA 72)." Noted below are two methods, which satisfy Rule 102.2 (c) (3), and are acceptable to this office:

Method 1. Provide and coordinate a rate-of-rise or thermal heat detector to signal protection at the referenced areas.

A dedicated heat detection system is provided for the referenced areas. The heat detectors are "normal temperature" type, which will activate at 135 degrees. Activation of a heat detector would signal and energize a shunt trip circuit breaker to disconnect the main line power supply to the affected elevator. (The elevator power shut down is subsequent to the dedicated smoke detection system in the referenced areas. Initially, an

activated smoke detector will trigger the Phase I Emergency Recall Operation, which will deliver the elevator to an appropriate designated level.) The sprinkler heads in the referenced areas are "high temperature" type, rated to discharge at 212 or 286 degrees. The delayed action of sprinkler discharge (as compared to the 135 degree heat detector) is intended to allow time for the elevator power to disconnect, prior to the sprinkler discharge.

Method 2. Provide a preaction system to signal protection at the referenced areas.

With a preaction system, actuation of a system heat detector would open a solenoid valve, thereby activating the preaction valve to open and fill this system piping with water. Activation of the heat detector or solenoid valve would simultaneously energize a shunt trip circuit breaker to disconnect the main line power supply to the elevator sprinkler activate, and cause a shunt trip circuit breaker to disconnect the main line power to the affected elevator. Sprinkler piping would then be charged and ready to flow water through the sprinkler head(s), upon actuation.

Please understand that a solenoid valve, on its own, is not listed for fire protection use, and not acceptable to this office, as a "stand alone" water valve. U. L. listing of a solenoid valve is only recognized as an integral tested part of a preaction trim package assembly. These preaction assemblies have been tested and approved by Factory Mutual, and are acceptable to this office.

Requirements for existing elevators vary, as governed by earlier editions of NFPA 101 Life Safety Code, which reference earlier editions of the ASME A17.1 Elevator Code. Please denote the following excerpt, from 1997 NFPA 101: Supplement 4, Paragraph 211.3a:

"211.3a Phase I Emergency Call Operation. As of A17.1b-1992 all elevators must be equipped with Phase I so that they are recalled in the event of a fire. Also, if sprinklers are provided in the hoistway or machine room, a means of automatically recalling the elevator should be provided when smoke is present. This requirement will reduce the possibility of trapping passengers due to sprinkler activation.

A17.1b-1989 through a17.1b-1992 required Phase I for an elevator with a travel of 25 feet or more. Under earlier sections of the Code, an elevator could have nearly 50 feet of travel (25 ft. above the designated landing, through 25 ft. below the designated landing), and still not be required to have Phase I ... operations."

Method 3. With respect to all elevators constructed or substantially remodeled prior to 9-1-86 (see table below), an alternate method is acceptable to this office: Per NFPA 13: A-4.13.5.2, "As an alternative, the system can be arranged using devices or sprinklers capable of effecting power shutdown immediately upon sprinkler activation, such as a waterflow

switch without a time delay. This is intended to interrupt power before significant sprinkler discharge."

To correlate and summarize the information above, please note the following table:

Elevators Constructed / Substantially Remodeled Between:	Applicable Edition of NFPA 101 Life Safety Code	Referenced Edition of ASME A17.1 Elevator Code per NFPA 101	Elevator Travel Distance Mandating Phase I Emergency Call Per ASME A17. Elevator Code:	Acceptable Method for Releasing Water to Sprinklers Protecting Elevator Shafts, Elevator Machine Rooms, and Elevator Machine Spaces
6-1-98 to present	1997	1993	Phase I required for <u>all</u> elevators regardless of travel (per A17.1-1993:211.3a)	Method 1. Method 2. (both satisfy A17.1:102.2 c 4)
1-5-95 to 5-31-98	1994	1993	Phase I required for <u>all</u> elevators regardless of travel (per A17.1-1993:211.3a)	Method 1. Method 2. (both satisfy A17.1:102.2 c 4)
6-1-92 to 1-4-95	1991	1990	25 ft. or greater travel (per A17.1b-1990)	Method 1. Method 2. (both satisfy A17.1:102.2 c 4)
2-19-89 to 5-31-92	1988	1987	25 ft. above through 25 ft. below designated landing (per A17.1-1987)	Method 1. Method 2. (both satisfy A17.1:102.2 c 4)
9-1-86 to 2-19-89	1985	1984	25 ft. above through 25 ft. below designated landing (per A17.1-1984)	Method 1. Method 2. (both satisfy A17.1:102.2 c 4)
9-1-81 to 9-1-86	1981	1978	25 ft. or greater travel (per A17.1-1978)	Method 1. Method 2. Method 3.
1-1-80 to 9-1-81	1976	1971	Not available	Method 1. Method 2. Method 3.
1-1-75 to 1-1-80	1973	Non available	Not available	Method 1. Method 2. Method 3.
1-1-75 and earlier	1967	Non available	Not available	Method 1. Method 2. Method 3.

With respect to all three methods, the activation of the sprinkler system dedicated to these elevator areas shall not be triggered by any smoke detector. (Signaling water flow from a smoke detector could cause the sprinkler heads to activate, prior to the power shut off. Sprinkler discharge could also wet the elevator

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smoke detection system and render it useless as the signaling mechanism for the Phase I Emergency Recall Operation.)

Also attached to this memorandum, is the question and answer session from the LA Fire Sprinkler Association meeting of March 19, 1999. Because most of this session dealt with elevator fire alarm, fire protection, and coordination of the two, we deemed it appropriate to include this information, as a supplement to this memorandum.

Cc: Marc Reech