



Coffee Break Training - Fire Protection Series

Automatic Sprinklers: Elevator Hoistways and Machine Rooms

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Learning Objective: The student will be able to identify the requirements for automatic sprinkler protection in elevator hoistways and machine rooms.

There has been a long-standing controversy between fire protection and elevator operation regarding the installation of automatic sprinklers in elevator hoistways and machine rooms.

National Fire Protection Association (NFPA) 13, *Standard for the Installation of Sprinkler Systems* requires that sprinklers be provided throughout the premises. However, certain provisions permit sprinklers to be omitted from certain spaces where specific conditions are satisfied. On the other hand, codes that cover elevator design, such as the American Society of Mechanical Engineers' A17.1, *Safety Code for Elevators and Escalators*, do not permit water discharge in elevator shafts until electrical power to the elevator cab has been shut down. This conflict has led to some complex and expensive solutions, such as the installation of preaction sprinkler systems or elevator shunt trip devices.

NFPA 13 allows sprinklers to be omitted from elevator machine rooms, elevator machinery spaces, control spaces, or hoistways of traction elevators installed in accordance with NFPA 101, *Life Safety Code*[®] or the locally adopted building code where **all** of the following conditions are met:

- The elevator machine room, machinery space, control room, control space, or hoistway of the traction elevator is dedicated to elevator equipment only.
- The elevator machine room, machinery space, control room, control space, or hoistway of the traction elevator is protected by smoke detectors, or other automatic fire detection, installed in accordance with NFPA 72, *National Fire Alarm and Signaling Code*.
- The elevator machinery space, control room, control space, or hoistway of the traction elevator is separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire resistance rating no less than that specified by the applicable building code.
- No materials unrelated to elevator equipment are permitted to be stored in elevator machine rooms, machinery spaces, control rooms, control spaces, or hoistways of traction elevators.
- The elevator machinery is not of the hydraulic type.¹

Sidewall spray sprinklers should be installed at the bottom of each elevator hoistway no more than 2 feet (0.61 meters) above the floor of the pit to protect from fires in combustibles that may accumulate there. The sprinkler required at the bottom of the elevator hoistway is not required for enclosed, noncombustible elevator shafts that do not contain combustible hydraulic fluids.

For more information, consider attending the new National Fire Academy course "Water-Based Fire Protection System Plans Review" (R0137) at <http://apps.usfa.fema.gov/nfacourses/catalog/search?page=4>.

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These two supervised, indicating valves control the water supply to sprinklers in the elevator hoistway and machine room of this building.

