



Automatic Sprinklers: Large Opening Protection

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Learning Objective: The student shall be able to describe the requirements for sprinkler protection around large vertical openings.

Code officials often are confronted with architectural features that may influence fire spread such as large openings between floor levels. Care must be taken to minimize the risk of fire spread through these openings.

When a building is protected by automatic sprinklers, the National Fire Protection Association (NFPA) 13, *Standard for the Installation of Sprinkler Systems*, provides guidance where moving stairways (escalators), staircases, or similar floor openings are unenclosed and where sprinkler protection is serving as the alternative to enclosure of the vertical opening.

Draft stops—to slow the spread of products of combustion—and closely spaced sprinklers should be installed around the opening. Draft stops should be immediately adjacent to the opening and be at least 18-in. (457 mm) deep. The draft stops should be constructed of some material that is noncombustible or limited combustible, and be installed so they remain in place when the sprinklers operate.

Sprinklers of the type and temperature rating found throughout the rest of the building should be installed so they are no more than 6 ft (1.8 m) apart and placed 6 to 12 in. (152 to 305 mm) from the draft stop on the side away from the opening. If sprinklers are closer than 6 ft (1.8 m) to one another, cross baffles should be installed to prevent cold soldering (See Coffee Break Training 2008-45 for an explanation of cold soldering).

Closely spaced sprinklers and draft stops are not required around large openings such as those found in shopping malls, atrium buildings, and similar structures where all adjoining levels and spaces are protected by automatic sprinklers in accordance with NFPA 13 and where the openings have all horizontal dimensions between opposite edges of 20 ft (6 m) or greater and an area of 1,000 ft² (93 m²) or greater. Remember that all three conditions (sprinklers, dimensions, and area) must exist to omit this special protection around openings.

For additional information, refer to NFPA 13.



This vertical opening in this shopping mall is protected by closely spaced sprinklers and a limited combustible draft stop.

