



## Automatic Sprinklers: Sprinkler Riser Supports

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**Learning Objective:** The student will be able to identify the method of using an all-thread rod that is in compliance with national fire protection standards.

National Fire Protection Association (NFPA) 13, *Standard for the Installation of Sprinkler Systems* requires fire sprinkler systems to be securely attached to the buildings they protect. The attachment is accomplished through various pipe hangers and bracing devices that are designed and installed to enhance the sprinkler system's survival during a fire, earthquake, windstorm or other events that may threaten a building.

According to NFPA 13, "risers" are the vertical supply pipes that distribute water to the overhead pipe network of cross mains and branch lines. They must be supported by riser clamps or, if the riser has a portion that runs parallel to the floor, by hangers located on the horizontal connections within 24 inches (610 millimeters) of the centerline of the riser.

The method of anchoring the riser to the structure is important. As illustrated, so-called all-thread rods should not be used to accomplish the bracing. All-thread rods are hangers, and the entire rod is threaded on its exterior to allow for adjustments. In fact, any hanger used to support a pipe in horizontal runs should not be used to support vertical risers. NFPA 13 is very specific that "riser clamps anchored to walls using hanger rods in the horizontal position shall not be permitted to vertically support risers."<sup>1</sup>

According to NFPA 13, "hanger rods are intended only to be loaded axially (along the rod). Lateral loads can result in bending, weakening, and even breaking of the rod. Additional hangers or restraints could be necessary to minimize nonaxial [those that are at an angle] loads that could induce bending or deflection of the rods."

There are a variety of riser support methods available to the sprinkler contractor. The contractor should work with the system designer or a structural engineer to find a solution that meets national fire protection standards and protects the riser as intended.

For additional information, consider enrolling in the National Fire Academy (NFA) course "Water-based Fire Protection System Plans Review" (R0137). Information and applications can be obtained at <http://apps.usfa.fema.gov/nfacourses/catalog/details/10542>. The course is available at NFA in Emmitsburg, Maryland, or through each state's fire service training agency.



This use of an all-thread rod is a common but incorrect application for sprinkler and standpipe system bracing.

<sup>1</sup> Used with permission from NFPA 13, *Standard for the Installation of Sprinkler Systems*, Copyright © 2013, National Fire Protection Association.

