

CPVC HANGERS

Vertical and Horizontal Restraint

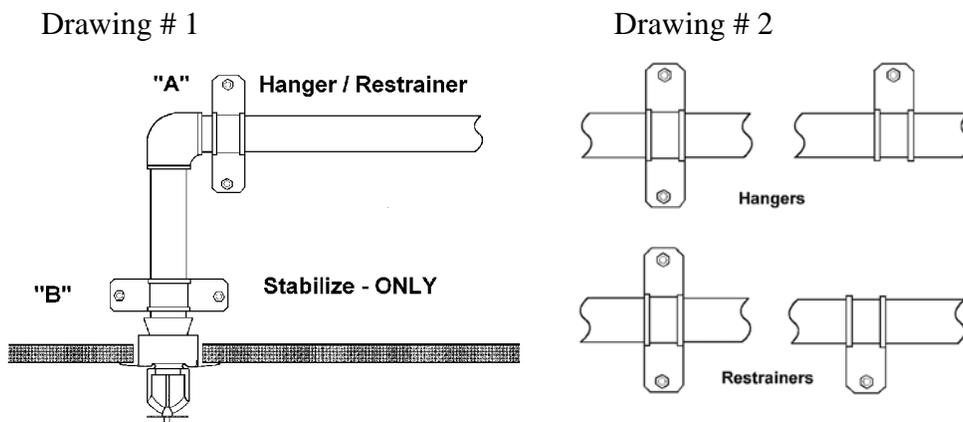
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AFCON

This article is written to highlight a hanger misapplication prevalent on CPVC piping installed per NFPA 13, 13R and 13D systems. Some contractors are omitting the hanger that must be installed on the upper adjacent horizontal piping near a sprinkler drop, which is identified as location A in drawing 1. NFPA standards and CPVC manufacturers' listings require a hanger and possibly also a restrainer at this location.

Then, those contractors incorrectly identify the lower installation (illustrated as location B in Drawing 1) on the sprinkler drop as a hanger or restrainer. The hanger installed on the sprinkler drop is not providing support or vertical restraint. It only stabilizes the drop at its installed location by providing horizontal restraint. When locating hangers, it's important to know that:

- The installation located at "B" is used to secure position against horizontal movement.
- The installation at "B" does not support the weight of the pipe.
- Vertical movement of the sprinkler head is limited by the hanger providing vertical restraint installed close to the sprinkler drop on horizontal piping as shown on drawing 1 at location A.
- The installation at "B" does not maintain sprinkler head finished fit. That is performed by a hanger installed on the horizontal piping at location A.

CPVC Hangers are designed and listed to support or restrain pipe installed in the horizontal position. Generally hangers are used to support pipe, while restrainers are used to prevent vertical pipe movement. NFPA does not use the word "restraint" when referring to a load – bearing capacity. It addresses restrainers as a method to prevent horizontal or vertical movement of pipe. Some devices can be either a hanger and/or a restrainer depending on their listing and their orientation of attachment. Drawing 2 shows some examples of listed hangers and restrainers including their installation orientations.



Contractors may eliminate hanger A and incorrectly identify location B on drawings because they misunderstand listing criteria and hanger installation rules. Some may willingly misuse the criteria so as to:

- Simplify problems locating sprinkler drop finish fit elevation during pipe installation.
- Allow adjusting the head up or down for correct finished fit dimension after ceiling installation.

A contractor intentionally misusing the criteria is depending on the AHJ's lack of experience regarding hanger listings.

This shortcut can jeopardize the important life safety function of fire sprinkler systems. Its problematic if a sprinkler head deflector moves above the surface of the ceiling due to sprinkler activation. This phenomenon can completely disrupt the discharge pattern of the fire sprinkler impairing its ability to control the fire. Remember that proper hanger installation guarantees the reliability and function of a system by durably maintaining installed distances and locations.