

Proper Hanger Installation is Important

Hangers Durably Maintain System Geometry

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I am convinced; the title of this article provides a succinct definition of the intent of the NFPA 13 Hanging and Bracing Standard. Please read 2007 NFPA 13 Chapter 9 section A.9.2 on page 276 which states “***Proper hanger installation is important. Installation procedures should meet industry standards of practice and craftsmanship. Examples: hanger assemblies that are straight, perpendicular to the pipe, uniformly located, snug to the structure with fasteners fully engaged.***” The 2010 edition of NFPA 13 will revise the text of A.9.2 by adding: “***To Enhance permanence, proper hanger installation is important. Installation...***”

The tenets of proper hanger installation and substantial pipe support are of serious concern to the NFPA 13 Chapter 9 Technical Committee. Hangers are integral to sprinkler system performance. Section A.9.2 of Chapter 9 is a quality control statement added to the standard to emphasize and require good hanger craftsmanship. Accordingly, the standard promotes the use of hangers that are manufactured and listed specific to their application including correct pipe size, appropriate type for intended installation and proper dimension to fit installed construction geometry. Sprinkler system pipe shall be uniformly supported to permanently mount and retain its designed installation location. System pipe and fittings shall be installed on a common centerline to minimize stress on pipe, fittings, pipe threads, hangers and fasteners. Never deform a hanger to make it fit as this will compromise its listed design and thus its function and strength.

NFPA 13 Chapter 9 does not promote using oversized hangers or hangers that are bent to remediate pipe offset mounting dimensions. Hanger geometry is engineered to correspond to pipe size. Listing and approval is specific to pipe size and accordingly testing is conducted size on size. Installing an oversize hanger on a smaller diameter system pipe will increase compressive load on the hanger pipe bend radius. The geometry of the hanger may be adversely affected due to surface pressure against this smaller contact surface. Further, clearance within the hanger is increased, and this larger pipe gap dimension may negate NFPA 13 restraint. NFPA 13 requires restraint to address system pipe flexure, sprinkler orifice pressure, horizontal seismic force and vertical reactant seismic force.

Damage to the system pipe or its hanger during installation is unacceptable. Improper hanger installation may damage the pipe it supports and thus jeopardize sprinkler system performance. CPVC pipe, due to its fragile nature, requires hangers with specific features that are unique to its installation.

I want to specifically address surface mount hangers because there is some current controversy in our industry regarding their installation. Surface mount hangers are defined by the dimensional location of the installed pipe in relation to the hanger mounting surface. Surface mount hangers are available in two types of geometry:

Flush – pipe dimensionally against mounting surface.

Offset – pipe dimensionally remote from mounting surface.

When installing sprinkler pipe against a flat surface, the fitting will conflict with the installation of the flush mount hanger because, the fittings outside radius dimension exceed the flush mount hanger centerline dimension. The resulting dimensional difference must be remedied to relieve stress on the pipe, fitting and hanger assembly. Shimming or blocking of flush mount hangers to match the required corresponding dimension is common practice in NFPA 13 systems. Also, many contractors choose offset hangers to eliminate any dimensional conflict which compromises maintaining a uniform centerline.

Please remember, change not constrained by prudence may produce unpredictable consequences. Unpredictable consequences threaten orderly results and ultimately place at risk the very principals of permanence, robustness and reliability required of the hangers that support this emergency system.