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Attaching Longitudinal Sway Braces to Lateral Sway Braces

Violates NFPA 13

Some hanger manufacturers have promoted the attachment of their longitudinal sway brace assembly to their lateral sway brace assembly for fire sprinkler systems. They have created specialized fittings to promote this installation configuration. This is in violation of NFPA 13.

The fire sprinkler contractor has the onerous to construct and install a fire sprinkler system that conforms to NFPA 13. However, many contractors are unaware that the listing criteria of all sway brace fittings is dictated by the tenets of NFPA 13 Chapter 9. This is evident by the fact that we see too many longitudinal sway braces incorrectly attached to lateral sway braces. Logically it is intuitive that each sway brace assembly needs to be an independent structure to isolate, enhance and insure its ability.

In the above subject configuration, the load rating of the longitudinal sway brace is unknown because its ability is interdependent on the structure of the lateral sway brace. Then worse still the non-axial force that will be imparted by the longitudinal sway brace totally jeopardizes the lateral sway brace assembly including all of its component parts from its brace fitting to its brace attachment fastener. In this case, comingling the function of one structure with the function of another guarantees that you jeopardize, default and invalidate the structural ability of both.

The above described sway brace configuration directly conflicts with 2010 NFPA 13 Chapter 9 -

9.3.5.8.4	"…straight line to avoid eccentric loadings…"
9.3.5.10.1	"…listed for a maximum load…"
9.3.5.10.2.1	"…shall be listed."
9.3.5.11.1	"…attached directly…mains."

An accredited laboratory is testing sway brace components for conformity to NFPA 13 Chapter 9 to define its subsequent listing. The listing will direct that this product shall be installed per NFPA 13 Chapter 9. The listing test protocol will include minimum acceptable load rating by fitting pipe size, product orientation on correct axis for proper assembly, strength characteristics with safety factors and additional important criteria.

Since 2007 the tenets of NFPA 13 Chapter 9 sway bracing have necessarily become more conservative and thorough as is typical of an evolving standard for an emergency system. The Chapter 9 sway brace protocol prescribes strict tenets and methodology for sway brace design by rigorously defining why, when, how and sway brace mechanics.

Accordingly, the following is a quality control statement proposed for 2013 NFPA 13 Chapter 9.

"*Sway brace design and installation requires attention to detail. Proper design is critical to sway brace performance. Sway Brace design parameters are dynamic and interdependent. Accordingly, force is influenced by geography, brace location is impacted by system design and brace geometry is relative to the building structure. Proper sway brace installation will evidence good craftsmanship with appropriate brace angle corresponding to correct perpendicular and parallel planes, adhere to fitting manufacturers' protocol and include installation conforming to approved plans and drawings.*"

Kraig Kirschner is a third generation fire sprinkler contractor and a journeyman fitter. He is a Principal Member of NFPA 13 - Hanging and Bracing Technical Committee and serves on Standard Technical Panels of UL 203, UL 203A and FM 1950. Kraig is a Life Member of the National Fire Protection Association and was named Person of the Year in 2009 Fire Protection Contractor Magazine. He holds dozens of patents that enhance the installation and application of hangers and sway braces.