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Longitudinal Sway Bracing of CPVC

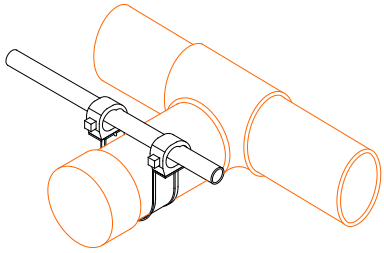
Using NFPA 13 Analogy

There are very few listed sway brace fittings for CPVC pipe. Listing criteria specified by the CPVC resin manufacturer's and recognized by Underwriters Laboratories (UL) define the mechanics required of listed CPVC sway brace fittings and their design.

Accordingly, UL listing requires strictly defined features of installed sway brace fitting fit and finish. The fitting product material must be smooth to eliminate possible surface abrasion to the CPVC pipe. Further and very important, the listed fitting when installed on the CPVC pipe shall not exert compressive force to the pipes circumference. Currently, these required CPVC sway brace fitting features eliminate the listing of most lateral brace fittings and virtually all longitudinal brace fittings.

The NFPA 13 - 9.3.5.6 requirement to longitudinally sway brace CPVC piping can be accomplished using only listed lateral sway brace fittings, such as the AFCON #035. Using the NFPA 13 – 9.3.5.5.8 analogy, which instructs lateral sway bracing placements and location, to accomplish longitudinal sway bracing is appropriate and conservative.

Since CPVC pipe has limited rigidity, and therefore a propensity for flexure, we must incorporate a conservative analogy in conformance to NFPA 13 – 9.3.5.5.8. Accordingly, factor the dimensions of NFPA 13 – 9.3.5.5.8 specific to the characteristics of CPVC pipe. This conservative analogy, will greatly restrict the maximum 24" lateral sway bracing installation dimension and limit pipe on pipe size relative to the diameter of the main piping.



A conservative solution – see above drawing

1. Install size on size T in main piping
2. Side outlet size on size nip and cap
3. Install lateral sway brace on outlet nipple at closest possible dimension relative to the main piping

This analogy has been discussed and agreed by the members of the NPFA13 AUT-HBS.

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.