

Restraint of Branch Lines

Most Use Hanger Assemblies

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AFCON

NFPA 13-9.3.6 defines restraint as a lesser degree of resisting seismic force than bracing. The NFPA 13 restraint protocol does not specifically quantify seismic force nor system weight similar to sway bracing. NFPA 13 branch line restraint specifies spacing relative to pipe size and the seismic coefficient (C_p) per 9.3.6.4 and referenced Tables.

Realizing the practicality of providing restraint by installing a hanger as prescribed in NFPA 13 A9.3.6.1(5)(a) or (b), most contractors choose this methodology. They realize that a rod body hanger using all thread rod (ATR) is a simple and economical solution that is also common to their inventory.

The majority of branch line restraint can be accomplished by installing an additional 3/8" hanger assembly at minimum 45° angle, which conforms to the NFPA 13 restraint analogy as follows:

Using an ATR hanger; 9.3.6.1(5) limits its length ratio (L/R) to 400.

Next, calculating 400 L/R of 3/8" ATR per Table 9.3.5.11.8 results in:

28" length @ 45° equates to a 19" branch line hanger rod dimension

Hanger assemblies using ATR are consistent for both NFPA 13 support and restraint.

Why deviate from the simplicity of the NFPA 13 hanger as restraint specification only to increase complexity? When contractors choose to use listed restraint fittings they must realize that these components have only this one use, and may also prompt the AHJ to require load calculations to confirm their proper application. More importantly, listed restraint fittings do not improve the L/R of the rod nor the ability of the restraint assembly. Why needlessly increase the complexity and cost of Branch Line Restraint by including listed restraint fittings when NFPA 13 does not require them.



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