

## Longitudinally Brace Large Branch Lines

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### *Per NFPA 13 Tenets*

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In my opinion, long 2 1/2 in. and larger branch lines should be longitudinally braced 80 foot on center to align with 2016 NFPA 13 - 9.3.5.1.1. Though Chapter 9 – 9.3.5.6.1 does not specifically address longitudinal sway brace spacing of these lines, I feel confident that best practice should recognize the proportionality of 40 foot lateral vs. 80 foot longitudinal spacing inherent in the NFPA 13 sway brace analogy.

2016 NFPA 13 defines sway brace theory in the following text:

**9.3.5.1.1** The system piping shall be braced to resist both lateral and longitudinal horizontal seismic loads and to prevent vertical motion resulting from seismic loads.

NFPA 13 states that **both** Lateral and Longitudinal sway bracing shall be installed to act appropriately to control seismic force. Seismic force does not recognize any difference between lateral and longitudinal nor does it distinguish between lines, cross mains or feed mains.

Large branch lines per NFPA 13 - 9.3.5.5.1 are sway braced laterally because they have significant mass. Accordingly, the mechanics of the lateral sway bracing on the adjacent cross main changes from including branch lines that are not sway braced to include branch lines that are sway braced. When this lateral cross main bracing is additionally assigned influence as longitudinal sway bracing of adjacent lines it shall be subject to the required limitation of 80 foot brace spacing.

Proper sway brace application enhances continuity of performance which dictates that longitudinal sway bracing be installed at required uniform intervals to correctly interact with lateral sway bracing as appropriate per NFPA 13 – 9.3.5.1.1.

To better clarify NFPA 13 intent, I think Chapter 9 - 9.3.5.6.1 text should be revised to include 2 1/2 in. and larger branch lines.



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.