U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Clearance from Noncontinuous Obstructions

Learning Objective: *The student shall be able to explain the sprinkler spacing rules from noncontinuous obstructions.*

Today's photograph illustrates a common challenge for fire sprinkler installers: positioning sprinklers away from potential obstructions to the water discharge pattern.

This truss web is defined by NFPA 13, *Standard for the Installation of Sprinkler Systems* as a "noncontinuous obstruction": where "beams, trusses, or other members may impede heat flow or water distribution in a manner that materially affects the ability of sprinklers to control or suppress a fire."

In order to ensure that the sprinkler is located far enough from the structural element to minimize discharge interference, NFPA 13 establishes distance "rules" based on the sprinkler type and size of the obstruction. For standard spray and large-drop sprinklers, the "three times" rule applies; for extended coverage and residential sprinklers, use the "four times" rule.

For this standard spray upright (SSU) example, the sprinkler must be located at least three times the width or depth away from the obstruction, whichever

This sprinkler should be located at least 10.5 inches (270 mm) from the truss web.

is greater. Given a "standard 2 × 4" with the actual dimensions of 1-1/2 (depth) by 3-1/2 (width) inches (38 × 90 mm), how far away should the sprinkler be located from the web? Since the value for the width is the greater of the two dimensions, it should be used in the formula.

$$3\text{-}1/2 \times 3 = 10\text{-}1/2 \text{ inches minimum clearance}$$
$$(90 \times 3 = 270 \text{ mm minimum clearance})$$

Remember this answer applies to *standard spray* and *large-drop* sprinklers only. Other sprinkler types must comply with other spacing rules. For standard spray sprinklers, the maximum distance the sprinkler must be from a noncontinuous obstruction is 24 inches (610 mm).

For additional information, refer to NFPA 13, Chapter 8.