



Automatic Sprinklers: Sprinklers Beneath Mezzanines

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Learning Objective: The student shall be able to identify conditions requiring sprinkler protection beneath mezzanines.

Today's photo illustrates a common problem found on inspections: a sprinklered storage space with high ceilings where someone has increased storage capacity by erecting a combustible mezzanine.

The construction has created a "continuous" obstruction that would interrupt water flow from the ceiling sprinklers, preventing it from reaching the products stored on the floor. The National Fire Protection Association (NFPA) 13, *Standard for the Installation of Sprinkler Systems*, requires that additional sprinklers be installed beneath obstructions that interrupt the water discharge in a horizontal plane more than 18 in (457 mm) below the sprinkler deflector when the obstruction prevents adequate coverage.

Flexible couplings are often an overlooked condition for installing drops for hoselines, rack sprinklers, and beneath mezzanines. Regardless of pipe size, NFPA 13 requires flexible couplings within 24 in (610 mm):

- of the top of the drop;
- above the uppermost drop support attachment, where drop supports are provided to the structure, rack, or mezzanine; and
- above the bottom of the drop where no additional drop support is provided.

A closer look at this picture reveals another issue that may be a concern for the fire inspector: plastic materials stored beneath the mezzanine. While the quantity in the photograph may not be sufficient to affect the sprinkler system hazard class, a complete analysis of the storage configuration should be considered. Coffee Break Trainings 2008-25 through 2008-29 discussed the impact of plastics on fire protection system design.

For additional information, refer to NFPA 13.



This "add on" mezzanine increases storage capacity, but requires automatic sprinkler protection beneath it. Photo courtesy of Martin M. King, West Allis, WI.

