Coffee Break Training - Fire Protection Series

Automatic Sprinkler Systems: Fire Department Connection Sizes

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Learning Objective: *The student will be able to list the fire department connection size recommendations from national standards.*

The sprinkler fire department connection in the illustration is located along a busy pedestrian sidewalk, and it is installed with one of its 2 1/2-inch (63.5-millimeter (mm)) inlets against a wall. This second inlet is unusable.

One has to ask the question: "Why is it installed in this fashion?"

There may be a number of explanations, including that it may be a temporary installation, it may have been vandalized, it may be arranged to prevent pedestrian accidents, it may not have been inspected and approved, or the code official may have approved it. The photograph alone cannot explain the anomaly.

The orientation of this fire department connection prevents the use of one of its inlets.

One possible solution to the question is that the fire sprinkler system riser is of a size that does not need to be supplemented by two inlets, and this arrangement is one way to satisfy the installation standard.

The National Fire Protection Association (NFPA) standards on the design and installation of fire sprinkler and standpipe systems provide minimum size requirements for fire department connection lines that supplement these systems. The following table provides a comparison.

National Fire Protection Association Standard	Fire Department Connection Size		Number of Hose Inlets
	inches	millimeters	
NFPA 13, *Standard for the Installation of Sprinkler Systems*			
a) Hydraulically calculated systems	May be < 4 inches but no less than the size of system riser	May be < 100 mm but no less than the size of system riser	One or two
b) Fire engine connections	4	100	Two
c) Fire engine connections (where system riser is ≤ 3 inches (75 mm)	See a) above	See a) above	One
d) Fire boat connections	6	150	One
NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*	At least 1 1/2 inches	38	One
NFPA 14, *Standard for the Installation of Standpipe and Hose Systems* (Class I and III only)	Based on the standpipe system demand	Based on the standpipe system demand	One 2 1/2-inch (63.5-mm) inlet per every 250 gallons per minute (946 liters per minute)

The use of threadless couplings, such as Storz®, is allowed where required by the code official and where listed for such use.

For more information, consider enrolling in the National Fire Academy (NFA) course "Water-based Fire Protection System Plans Review" (R/N0137). Information and applications can be obtained at http://apps.usfa.fema.gov/nfacourses/catalog/details/10562. This course is available at the NFA in Emmitsburg, Maryland, or through your state fire service training agency.