



QUICK RESPONSE

Saving life and property through effective licensing, plan review, and inspection of fire protection systems.

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Fire Department Connections

The **Fire Department Connection (FDC)**, also known as the **Siamese Connection**, is an important component found on most sprinkler and standpipe systems. When a sprinkler system activates, the fire department connects hose lines from a pumper truck to the fire department connection. This connection allows the fire department to supplement the fire protection system in the event of a fire. In a recent Comment on Proposal, the NFPA 13 technical committee stated, *"The purpose of the Fire Department Connection is to supplement the water supply, but not necessarily provide the entire sprinkler system demand. Fire Department Connections are not intended to deliver a specific volume of water."*



The fire department connection can be thought of as only consisting of the inlet body, however, the FDC is actually made up of the inlet, check valve, and piping connecting to the sprinkler system riser or main. **13(99) Figure 13:5-15.2.1** illustrates an FDC from the inlet to a system header. **13(99) 5-15.2.3.1** says that the FDC shall be on the system side of the water supply check valve. This provision refers to the inlet, piping, check valve, etc. as being one unit. The sizing of all these components from the connection to the sprinkler system to the inlet shall be determined by **13(99) 5-15.2.2**. It is important to note that **13(99) 10-2.2.3** states that the piping between the exterior FDC and the check valve be hydrostatically tested in the same manner as the balance of the system. The test is to confirm that the piping is properly installed and will not leak or come apart.



The required number of inlet connections varies depending on the type and demand of the system being served. For fire sprinkler systems, **NFPA 13(99) 5-15.2.2** requires a 4" pipe size for fire engine connections. **Exception #2** allows a single-outlet FDC where piped to a 3" or smaller riser. These criteria indicate that unless the riser of the sprinkler system is 3" or smaller, the FDC must have a minimum of two connections. There is no other criterion in NFPA 13 requiring more than two connections. For standpipe systems, **NFPA 14(00) 2-8.2** requires each FDC to have at least two 2-1/2" internal threaded swivel fittings. Further **14(00) 5-7** requires standpipe systems to be designed so that the system demand can be supplied by both the attached water supply, where required, and fire department connections. There is no explicit requirement for an FDC to have a 4-way connection. However, if the standpipe demand is such that it cannot be adequately supplied through a 2-way FDC, **14(00) 5-7** provides a basis for requiring additional connections.



Siamese connections are most commonly located on the side of buildings, but may also be located remote from the building. These are known as "freestanding" or "sidewalk" FDCs. NFPA 13 requires the fire department connection to be located on the street side of buildings and the Minnesota State Fire Marshal policy FP-03 further clarifies the location as the address side of buildings. There are situations where locating the FDC in these locations is impractical (i.e. large shopping malls). It is important that the fire department connection be provided at a location approved by the local fire official.



A less common type of FDC that is utilized is known as a "Storz" type fire department connection. These are typically used for large diameter hose connections. This connection features two to three lugs for "quick" connection of the fitting, depending on hose diameter. Storz connections are currently not listed for use in fire protection systems. It is important that the hose lines between the pumper truck and the Storz connection are properly rated for the higher pressures produced by the pumper truck.

Siamese connections are to be equipped with plugs or caps. This is to prevent dirt and other foreign objects from entering the piping, which would inhibit water flow or prevent the connection from being used during an emergency. It is important to replace broken or missing caps to maintain the connections in working order.

To prevent water from collecting in the piping between the check valve and the inlet body, an automatic drip is to be installed at the lowest point of the FDC piping. Without the automatic drip any collected water could freeze and prevent use of the fire department connection under fire conditions.



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