

Supplying Fire Sprinkler and Standpipe Systems

Purpose: To provide a rapid uninterrupted water supply to support building fire protection systems via the Fire Department Connection (FDC).

Operations:

1. First due engine will identify a water supply and support building systems as soon as possible after arrival.
2. Dependent upon the situation, the first due Engine may:
 - a. Forward lay from the hydrant to a position close to the FDC; or
 - b. Reverse lay from the FDC to the hydrant to establish their own water supply; or
 - c. Take a position on the hydrant to establish their own water supply and hand stretch supply hose to the FDC.
3. Establish water supply from the hydrant to the fire due engine.
4. Stretch dual hose lines to the FDC. The 3" hose is preferred for ease of deployment, ease of connection in reduced spaces, and higher test pressures.
5. Before connection to the FDC, inspect connections and swivels, remove blind caps, and check for debris inside.
6. Connect both hose lines to the FDC.
7. Charge one line at a time to supply water to the FDC. The FDC clapper prevents water backflowing from the uncharged side of the connection.
 - a. Sprinkler systems: 150psi at the connection
 - b. Standpipe systems: 150psi \pm 5psi per floor elevation up to 9 floors; 200psi for 10 floors and above
 - c. Minimum desired fire flow of 500gpm for any system.
8. Monitor pump panel gauges and radio traffic for adjustments to pump pressures or potential water supply issues.

Key Operational Considerations

- ❑ A forward lay places a supply engine at the hydrant in addition to the engine supplying the FDC. This offers some redundancy should a failure occur in one of the engines.
- ❑ A reverse lay may provide water to the FDC more quickly and in greater quantities as the pump is placed at the hydrant in a heavy water configuration.
- ❑ A working fire generally requires the deployment of at least three hand lines: primary, back-up, and rapid intervention lines. Assuming that the typical MCFRS hand line is set to flow a minimum of 150gpm, then approximately, a 500gpm water supply is needed to safely support a fire attack operation in an IDLH atmosphere.

- ❑ A single, 3-inch supply line will support 500gpm no farther than 600-feet without excessive friction loss and pump discharge pressures.
- ❑ A single, 4-inch supply line will support 800gpm no farther than 1,000-feet without excessive friction loss and pump discharge pressures.
- ❑ A successful supply to FDC may silence the water flow alarm and the drain may stop flowing water in some sprinkler systems.
- ❑ Buildings equipped with fire pumps require the Engine operator to remain especially vigilant for pump overheating as the system may not need to accept much water from the engine.
- ❑ When a decision must be made, supply the standpipe system first and then support the sprinkler system. Often the sprinkler system will have an adequate water supply to already be containing the fire, but the standpipe system is critical to firefighter safety.
- ❑ Poorly maintained FDC swivels may not rotate. Rather than twisting the hose repeatedly, install a double male adapter into the broken swivel and then a double female adapter to complete the connection.
- ❑ For standpipe systems, a damaged or blocked FDC may be overcome by bypassing the FDC and connecting a supply line to a riser outlet at the ground floor. Be sure to open the riser valve once the supply is charged.
- ❑ Always supply both inlets of the FDC to ensure adequate water supply and to add redundancy should a hose fail.
- ❑ For large complexes with multiple FDC multiple engine companies may be tasked with supporting the building systems.

Identifying the FDC

Buildings may have a variety of FDC and other types of connections that present the pump operator with decisions.

- Before connecting to an FDC be sure to identify what type of system it supplies and note if a building address or identity is posted. Sprinkler and standpipe systems may be supplied by the same FDC.
- If locating an FDC becomes difficult, keep in mind that FDC are normally located within 100 feet of a hydrant. The water gong for the sprinkler system is often located directly above the FDC for the sprinkler system.
- The pump operator must know which building or set of floors are supplied by the FDC being charged.
- Parking garages often have a separate FDC from the main building.
- Some FDC may be freestanding and not on the wall of a building
 - WMATA
 - Overpasses and highways



Sprinkler FDC



Standpipe FDC



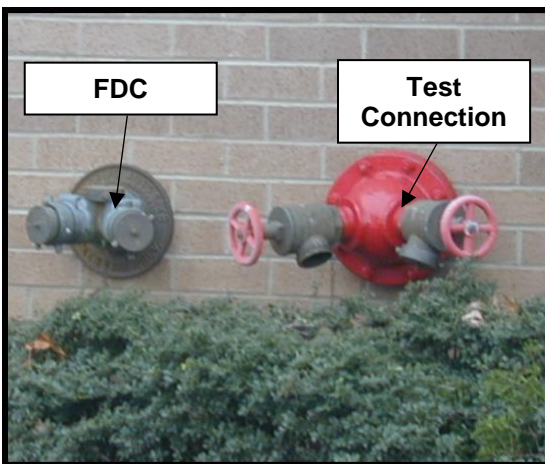
Adjacent, but Separate Sprinkler and Standpipe Connections



Combination FDC

Fire Pump Test Connection

Fire Pump Test Connections have a similar appearance to an FDC, however serve a completely different purpose in suppression systems. Fire Pump Test Connections are identifiable by the male threads on the outlets and usually have external valves. **These connections are not for fire department supply to the building systems. DO NOT connect a water supply to them.**



Fire Pump Test Header