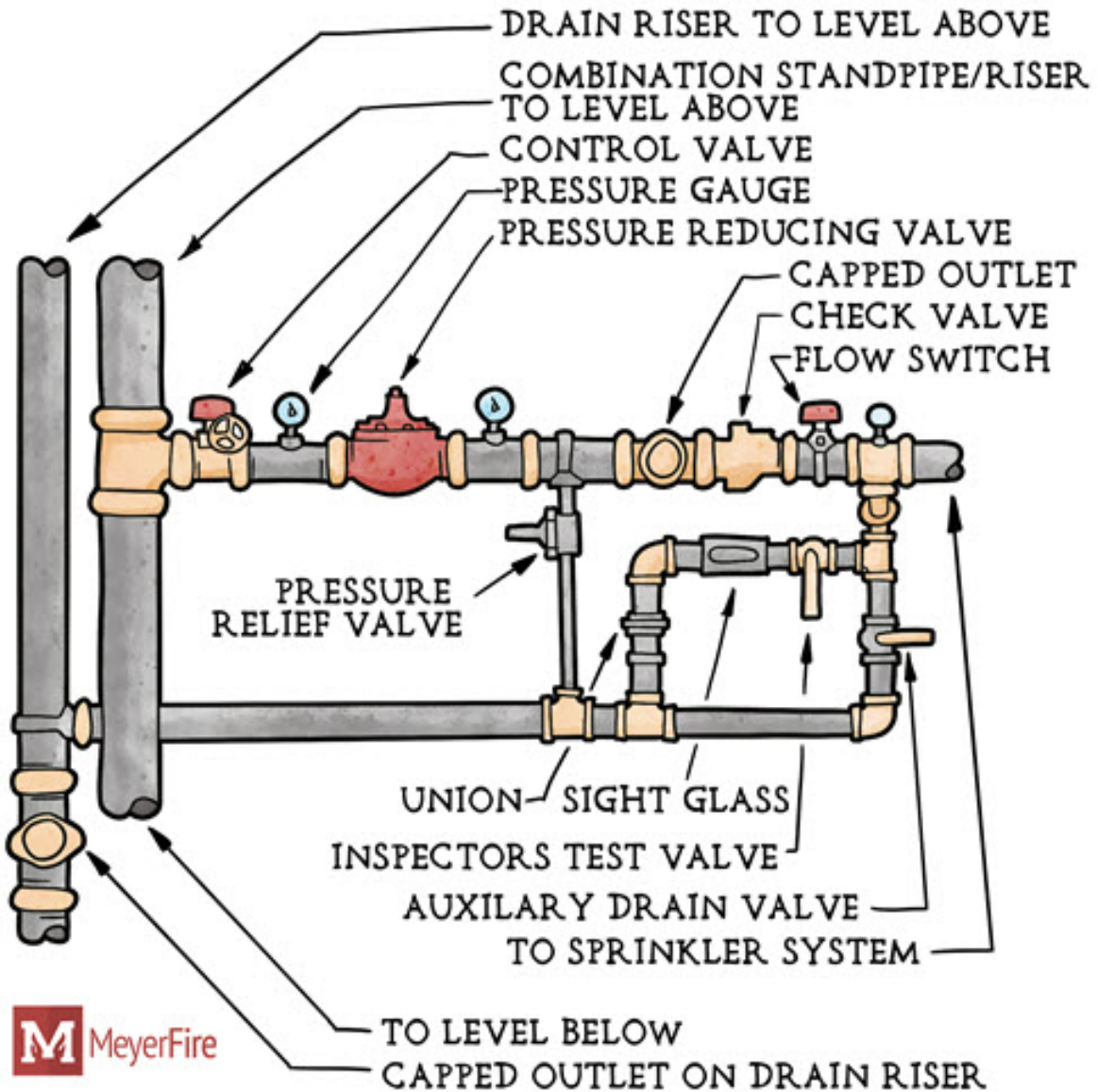


FLOOR CONTROL ASSEMBLY BREAKOUT

REQUIREMENTS FROM NFPA 13 & NFPA 14, 2007-2019 EDITIONS

Here's a breakout of a floor control assembly that's shown as part of a combination standpipe/sprinkler riser. Not all of these components are required for every project, but each can play an important role.

This cheatsheet is a starting point for floor control valve components that stem from NFPA 13. For more fire protection resources, including cheatsheets like this, visit www.meyerfire.com/subscribe.



Topic	Description	Reference
Auxiliary / Main Drain	<p>Purpose: Allows faster draining of the system (as opposed to only draining through an inspector's test with a smaller orifice). The inspector's test and main drain can also be combined as an Inspector's Test & Drain.</p> <p>Size: Minimum 3/4-inch for 5 to 50 gallon system, minimum 1-inch for system over 50 gallons.</p> <p>Requirement: Main drain is always required for a system.</p>	NFPA 13: 2002 8.15.2.5.2, 2007-2016 8.16.2.5.2, 2019 16.10.5.2
Capped Outlet on Drain Riser	<p>Purpose: Helps facilitate testing of Pressure Reducing Valves.</p> <p>Requirements: Required where PRVs are provided at least on every other floor level.</p>	NFPA 14: 2007-2013 7.11.1.1, 2016 7.11.1.1.1
Check Valve	<p>Purpose: Maintains consistent pressure within sprinkler system, avoids withdrawing pressure and flow from the sprinkler system when standpipe is being used, can help reduce false waterflow alarms due to pressure variation.</p> <p>Requirements: Required for combination standpipe/sprinkler risers.</p>	NFPA 13: 2007-2016 A.8.17.1.6, 2019 A.16.11.10 NFPA 13: 2007-2016 8.17.5.2.2(1), 2019 16.15.2.2
Control Valve	<p>Purpose: Isolate a system for maintenance or repair.</p> <p>Location: Must be Accessible.</p> <p>Requirements: Must be electrically supervised or locked. Signage must be provided, and must be tested annually.</p>	NFPA 13 2002 A.8.15.1.1.1, 8.16.5.2.2, 2007-2016 A.8.16.1.1.1, 8.17.5.2.2, 2019 A.16.9.3.1, 16.15.2.2 NFPA 25 2014 13.3.1.4, 13.3.1, 13.3.3.1
Drain	<p>Size: 3/4 inch for up to 2 inch system pipe, 1-1/4 inch for 2-1/2 to 3-1/2 inch system pipe, or 2 inch for 4 inch system pipe</p>	NFPA 13: 2002 T 8.15.2.4.2, 2007-2016 Table 8.16.2.4.2, 2019 Table 16.10.4.2
Drain Riser	<p>Discharge: must be to outside or drain capable of handling the flow</p> <p>Size: Must be at least one pipe size larger than the largest drain connection tying into it.</p> <p>Size (with PRV): When serving a Pressure Reducing Valve, the drain, drain connection, and drain piping shall be sized to permit the greatest system demand by the Pressure Reducing Valve</p>	NFPA 13: 2002 8.15.2.4.4, 2007-2016 8.16.2.4.4, 2019 16.10.4.4 NFPA 13: 2002 8.15.2.4.7, 2007-2013 8.16.2.4.7, 2016 8.16.2.4.8, 2019 16.10.4.8 NFPA 13: 2007 8.15.2.4.5, 2007-2016 8.16.2.4.5, 2019 16.10.4.5
Head Height	<p>Requirement: Objects cannot be more than 4 inches off of a wall unless they are more than 80 inches above the finished floor.</p>	ADA 2010 307.2
Inspector's Test	<p>Accessible: Must be accessible. Accessibility is not defined and typically up to the discretion of the Authority Having Jurisdiction.</p> <p>Discharge: Must discharge outside or to a drain capable of handling flow.</p> <p>Location: Downstream of waterflow alarm.</p> <p>Size of Orifice: Must have smooth bore, corrosion-resistant orifice with flow equal to or less than one sprinkler orifice on each system.</p>	NFPA 13: 2002 8.16.4, 2007-2016 8.17.4, 2019 16.14

<p>Pressure Gauge</p>	<p>Required: at each system main drain, and on the inlet and outlet side of each pressure-reducing valve.</p> <p>Limit: Must have a limit at least twice the system normal working pressure.</p>	<p>NFPA 13: 2002 8.16.3.1, 2007-2016 8.17.3.1, 2019 16.13.1</p> <p>NFPA 13: 2002 8.16.3.1, 2007-2016 8.17.3.3, 2019 16.13.1</p>
<p>Pressure Reducing Valve</p>	<p>Purpose: Provided to reduce the system pressure such that the working pressure will not exceed a standard 175 PSI listed pressure of the sprinklers, piping, and fittings. PRVs can also be used to limit the system pressure to higher amounts when pressures are allowed to exceed 175 PSI.</p> <p>Requirements: Not required by code, and some have found PRVs to be prone to failure and difficult to test.</p> <p>Inspected: must be quarterly (NFPA 25 2014 Section 13.5.1.1)</p> <p>Tested: must be partially tested annually and fully flowed every 5 years</p> <p>Full flow Testing: requires pressure gauge on inlet and outlet side of PRV, takes flow measurement using a pitot tube or flowmeter, discharging through the roof manifold on building exterior or through capped outlets provided for testing.</p>	<p>-</p> <p>-</p> <p>-</p> <p>NFPA 25 2014 13.5.1.1</p> <p>NFPA 25: 2014 5.1.3, 13.5.1.2</p> <p>NFPA 25: 2014 13.5.1.2</p>
<p>Pressure Relief Valve</p>	<p>Purpose: To protect the pipe, fittings and components by avoiding high pressure on a wet system.</p> <p>Required: On wet systems set to operate at 175 psi or 10 psi above the maximum system pressure.</p>	<p>NFPA 13 2002-2016 7.1.2.1, 2019 8.1.2.1</p>
<p>Riser</p>	<p>Control Valve (for entire riser): Required to permit isolating a riser without interrupting other systems.</p> <p>Size: Minimum 4 inch, unless hydraulically calculated to permit smaller size.</p>	<p>NFPA 13: 2002 8.16.5.2.2(3), 2007-2016 8.17.5.2.2(3), 2019 16.15.2.2(3)</p> <p>NFPA 13: 2002 8.16.5.2.2(2), 2007-2016 8.17.5.2.2(2), 2019 16.15.2.2(2)</p>
<p>Sight Glass</p>	<p>Purpose: Enables easy verification of water flow for inspector's test. Provided when water discharge cannot be viewed from the test location.</p>	<p>-</p>
<p>Union</p>	<p>Purpose: To restrict waterflow by using an orifice that matches the smallest fire sprinkler orifice for the system. This simulates the same flow from a fire sprinkler and helps verify that the waterflow switch will operate upon water flow from a single sprinkler.</p> <p>Requirement: This can also be accomplished with an inspector's test or combination inspector's test & drain.</p>	<p>-</p>
<p>Waterflow</p>	<p>Purpose: To notify building occupants and the supervising station that the sprinkler system is operating and a fire condition has occurred.</p> <p>Testing: Tested quarterly.</p>	<p>NFPA 13 2002 A.18.1, 2007-2010 T A.26.1, 2013-2016 T A.27.1, 2019 T A.31.1</p>