

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Standpipe Express Drains

Learning objective: The student shall be able to explain the purpose of a standpipe system express drain.

Standpipe systems are an important fire fighting tool for manual suppression. They must deliver a minimum flow at a specific pressure so fire fighters can have confidence their nozzles will operate properly and there is enough water to control and extinguish a fire.

Where higher than normal operating pressures (175 psi or 12 bar) are expected, standpipe systems may be equipped with pressure regulating devices. Class I and III standpipe systems that have pressure regulating device on the hose outlets must have a means for conducting flow tests every five years* to verify the pressure regulating device is operating properly and the minimum required flows are available.

According to the National Fire Protection Association (NFPA) 14, *Standard for the Installation of Standpipes and Hose Systems*, the drain must have a 3-inch (76 mm) minimum inside diameter to accommodate the required flow. At every other floor level or intermediate landing where the hose outlet is located, the drain should have a 3-in. x 2-1/2-in. (76 mm x 65 mm) tee with a female-threaded, swivel fitting having National Hose Standard threads and a plug.

In the illustrated arrangement, the person conducting the test can connect a hose to the pressure control valve hose outlet (right) and discharge it to the drain at the left hand side of the picture. Each pressure regulating device can be tested to assure it is operational within its design limits.

The drain should have a means for measuring the required flow of 500 gallons per minute (1893 Lpm). The flow can be measured through a flow meter or at the point of discharge using a pitot gauge.

Each drain riser should have a full-size elbow at the bottom that discharges to the ground or a receiving tank so the flow can be tested without causing property damage.

For additional information, refer to NFPA 14, *Standard for the Installation of Standpipes and Hose Systems* and NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*.

*Hose valves must be opened and closed annually, but flow tests are required every five years.



The threaded inlet connection on the left provides a drain for testing the pressure regulating hose outlet.