Sprinkler System – Dry-Pipe Valves, Flow and Trip Test Procedure

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, published by the National Fire Protection Association (NFPA), requires that a partial-flow trip test of a dry-pipe system be conducted annually. Additionally, at least every three years, a full-flow trip test should be performed. This handout provides the steps required to perform these tests.

Partial-Flow Trip Test Performed
Yes ____ No ____

To limit the amount of water that enters the system when a partial-flow trip test is conducted, the incoming water supply valve should be partially closed. By reducing the amount of water in the system, the time required to drain and reset the system can be greatly reduced. The following steps can be used to conduct a partial-flow trip test:

1. Fully open the main drain valve - this will remove any scale or foreign materials from the supply water piping.
2. Close the incoming water supply valve to the point where a full stream of water is not coming out of the main drain outlet.
3. Slowly open the water supply valve until full flow from the main drain is established.
4. Close the feed line to the quick-opening device, if one is installed.
5. Record the system air (or nitrogen) pressure and the supply water pressure.

   Air or Nitrogen Pressure ______

   Supply Water Pressure ______

6. Open the priming-water test valve slowly.
7. Record the air (or nitrogen) pressure and supply water pressure when the dry-pipe valve trips.

   Air or Nitrogen Pressure ______

   Supply Water Pressure ______
8. Close the water supply valve and open the main drain valve - this will minimize the amount of water entering the system piping.

9. Perform a trip test on the quick-opening device, if installed.

10. Open all low-point drains; close drains when water flow stops.

11. Reset the dry-pipe valve and quick-opening device, if installed, in accordance with the manufacturer's instructions.

**Quick-Opening Device Trip Test**

When a partial-flow trip test is performed, the quick-opening device can be tested using the following steps:

1. Close the incoming water supply valve.
2. Open the main drain valve.
3. Verify that the valve for the quick-opening device feed line is open.
4. Open the inspector's test valve and record the time it takes to trip - a rush of air from the device indicates that it has tripped.
   
   Time ______

5. After tripping, close the inspector's test valve.
6. Return the device to service in accordance with the manufacturer's instructions and return the system to service.

**Full-Flow Trip Test Performed**

Yes ____ No ____

The following steps, using two persons, can be used to conduct a full-flow trip test:

1. Record all system's pressures, including air (or nitrogen) and water pressure.

   Air or Nitrogen Pressure ______

   Supply Water Pressure ______

2. Fully open the main drain valve - this will remove any scale or foreign materials from the supply water piping.

3. Open the inspector's test valve - time how long it takes from valve opening until the system valve trips.

   Time ______
4. When the dry-pipe valve trips, record the air (or nitrogen) pressure and the trip time (i.e., time from valve opening to system trip.)

Air or Nitrogen Pressure ______

Supply Water Pressure ______

Time ______

5. When water flows from the inspector’s test connection, record the time (i.e., the time from valve opening to water flow at the connections).

Time ______

6. Close the main water supply valve when clean water flows from the inspector’s test connection.

7. Open all low-point drains; close drains when water flow stops.

8. Reset the dry-pipe valve and quick-opening device, if installed, in accordance with the manufacturer’s instructions.

Test Conducted by: ___________________________   Date: _______________

PASSED: _________  FAILED:_________

Contact

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