MINNESOTA PUBLIC SAFETY
STATE FIRE MARSHAL
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QUICK RESPONSE

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

August 2010

DRY PIPE VALVE – TESTING

Dry system piping must undergo the same 2 hour, 200 psi hydrostatic test that all other systems are subject to. (This test should NOT be done against the dry valve clapper.) Additionally, **NFPA 13 (2002 edition)** requires that the dry system piping be air tested at 40 psi for 24 hours without losing more than 1½ psi of air pressure in that time period. Finally, **NFPA 13** requires that the dry pipe valve be "trip tested" alone without a quick-opening device, and then with the quick-opening device, if installed. The purpose of the last test is to measure the time it takes to "trip" (open) the dry pipe valve and the time for water to reach the most remote part of the system.

The focus here is on the "trip test" and the normal air pressure. The "trip test" must be conducted starting with the normal amount of air pressure that will be carried in the system. The common "differential-type" dry valve will require about ¼ air pressure to static water pressure to hold the dry pipe valve clapper shut. Newer "hydraulic assist-type" dry valves may require as little as 13 psi of air to operate properly. Always follow the manufacturer's recommendations for the air-to-water pressure ratio and be sure the "trip test" is performed starting at the recommended "normal" system air pressure. Allowing anything less than normal air pressure during the performance test might result in a successful 60-second delivery time to the test connection, but it would not be an accurate representation of how the system will perform when the normal, permanent air pressure is applied to the system.

Standard Differential-type Dry Valve

Low-differential, hydraulic assist type

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