



QUICK RESPONSE

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

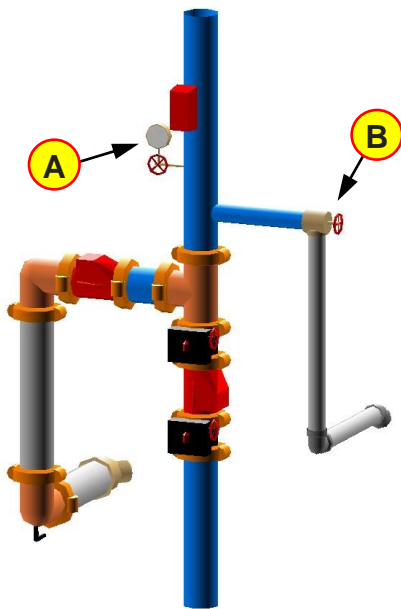
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Main Drain Test

The **main drain test** serves as a tool in evaluating the condition of the water supply to a fire sprinkler system. It is intended to reveal any deterioration of the water supply by comparing the test results to those of previous test results. Deterioration of the water supply could be caused by a major obstruction in the waterway, a control valve fully or partially closed, or the clapper of a check valve stuck to its valve seat. It is important to keep in mind that a **main drain test** is not intended to evaluate a water supply for hydraulic calculation purposes.

The **main drain test** is done when the system is commissioned (put into service), in order to establish the baseline of values. This initial test is commonly known as the “acceptance test.” The points of interest are the static pressure (no water flowing), and the residual pressure (with water flowing).

After the acceptance test a **main drain test** is required annually or any time the water supply control valve is closed, this includes any time a fire sprinkler system undergoes maintenance or repair. This test is essential to ensure that the water supply valve is fully open. Sprinkler systems perform exceptionally well, however, when they do fail the major cause of failure is because the water supply valve was closed, thus the verification of an open water supply valve cannot be over emphasized.



Typical Wet Pipe System Riser

The **main drain test** is conducted in the following manner:

1. Record the static pressure indicated on the supply gauge **(A)**.
2. Slowly open the main drain valve **(B)** to the fully open position and allow the water to flow until it runs clear and is stabilized.
3. Record the residual pressure indicated on the supply gauge.
4. Slowly close the main drain valve.
5. Record the time taken for the supply water pressure to return to the original static pressure.

Compare the results of the **main drain test** to those of previous tests, including the original acceptance test, to identify any deterioration of the water supply. When there is a 10% reduction in full flow pressure when compared to previously performed tests, the cause of the reduction shall be identified and corrected.

Quick Response is presented monthly by the
Minnesota State Fire Marshal – Fire Protection Section

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