



BACKFLOW PREVENTER FORWARD FLOW TEST PROCEDURES

The backflow preventer forward flow test is required for new installations per NFPA 13 and at least annually thereafter per NFPA 25. This is one method for a typical Light Hazard or Ordinary Group I or II demand; there are other approved methods for conducting the test. This example is very similar to a Main Drain Test, only that flow rates must be calculated. For larger demand systems, other approved method shall be used.

Test Procedure:

1. The automatic fire sprinkler contractor must provide a test outlet in the system downstream of the backflow preventer. The test outlet provided must be large enough to flow a volume of water at least equal to the hydraulically calculated system demand, including inside hose stream demand where applicable. The test outlet from which you will be flowing should be located as close to the backflow preventer as possible to minimize pressure loss due to friction. There are many options available for providing a test outlet. Some examples are: using a bypass around the check valve in the fire department connection, providing a tee in the riser, or an adequately sized main drain. A 2 1/2" Standpipe hose connection or a fire pump test header may also be used to conduct the forward flow test.
2. Locate the pressure gauge on the supply side of the sprinkler riser, and record the static pressure.
3. Open the main drain valve slowly, and allow it to run until the water is clear. This may take several minutes.
4. Observe the supply side pressure gauge, and record the pressure displayed once the needle stabilizes. This number is your residual pressure.
5. Record the number of outlets flowed, the outlet size and the pitot pressure read from each outlet or hose stream.
6. Convert the pitot tube readings to gallons per minute (GPM).
7. Compare performance test results to the hydraulic calculations. This comparison will verify that the water supply is adequate for proper system operation. Verify the actual flow rate meets or exceeds the designed flow rate.
8. If the actual flow rate is less the designed flow rate then extra steps are needed. You must hydraulically calculate the friction loss from the test outlet being flowed (Point A) to the riser (Point B).

At the completion of the forward flow performance test, conduct the backflow performance test. When both performance tests have been completed and the test results indicate the backflow preventer has passed all test requirements, the system is ready to be placed into service.

Fill out City of Rockwall Backflow Prevention assembly Test Report. Record the Designed flow rate (GPM) and the Actual flow rate (GPM) obtained. Submit copy of form to Rockwall Fire Department in addition to the required City Department or, you may submit the forward flow test results on company letterhead directly to the fire department.

