

NORTH NAPLES FIRE CONTROL AND RESCUE DISTRICT

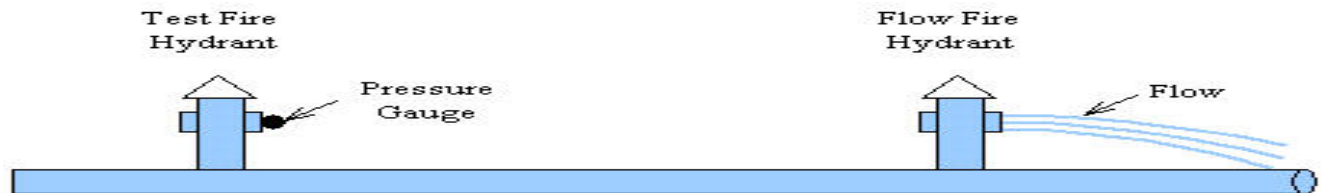
Hydrant Flow Testing

PURPOSE:

To provide requirements and guidelines for Fire Prevention Inspectors conducting fire flow tests for engineers, developers, and sprinkler design companies. The test provides actual pressures and flow data measured at specific hydrants within the fire district. This data is used in assessing the pressure and flow available for fire protection and sprinkler system design to ensure public safety.

PROCEDURE:

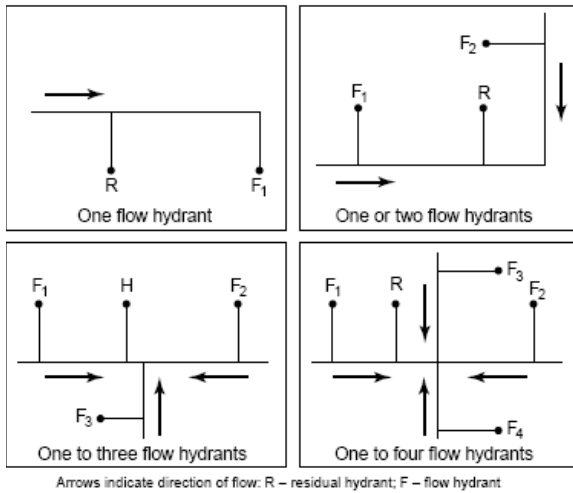
1. When requesting a flow test, the customer will provide the fire department with the project name, project address, site or hand drawn diagram indicating the location of hydrants that will be static and flowed.
2. The Inspector will make every effort to use the test hydrants requested by the customer. Any alterations will be marked on the customers diagram with an explanation why the deviation was necessary.
3. After flushing hydrants for Debris, the recorders will be connected to the static and flow hydrants and the test performed.
4. The inspector will return to the office and download recorded data on PC program.
5. The customer will be provided with a letter containing the following results: date, time, static reading, residual reading, pitot x number of ports, total flow, and flow @ 20 PSI. The original plot plan submitted by the customer will be returned so they can attach it with the Flow for Calculations Letter to the Fire Code Office.
6. A fee of \$100.00 will be billed to the customer to cover cost of the test



North Naples Fire Department uses the Telog recording system to perform automatic data collection. Contact <http://www.telog.com> for system or operational details.

Layout of test

1. The hydrant closest to the projected point of demand will be used for the residual hydrant.
2. The flow hydrant should be selected to allow for water to flow past the residual hydrant.
3. The residual hydrant should be on the same main as the flow hydrant as well as between the flow hydrant and main source of water.
4. The residual hydrant may be on either side of the hydrant on balanced grids.
5. When multiple hydrants are flowed on a grided system, the residual hydrant should be located between the flow hydrants



Procedure when using bourdon and pitot instruments.

1. The residual hydrant should be flushed of foreign matter prior to bourdon gauge being attached.
2. The petcock on the gauge is opened prior to the hydrant being fully opened.
3. When air is exhausted from the barrel, the petcock is closed.
4. A static pressure reading is taken when the needle stabilizes.
5. Flow hydrants are opened in succession, with discharge taking place from the open hydrant butts.
6. Hydrants are opened one at a time.
7. Hydrants are flowed for a sufficient time to clear all debris and foreign substances.
8. The pitot pressure is read at the same time as the residual pressure.
9. Pitot readings of less than 10 PSI should be avoided.
10. Final pressure drop is controlled by the number of hydrants and outlets.
11. Readings are taken and hydrants are shut down slowly one at a time.
12. Pitot Readings are measured from the 2½-in.hydrant butt.
13. Sufficient discharge should cause a drop in pressure at the residual hydrant of at least 25 percent.

The formula used to compute the discharge, Q, in gpm from these measurements is as follows:

$$Q=29.84cd^2\sqrt{P}$$

c = coefficient of discharge

d = diameter of the outlet in inches

p = pitot pressure (velocity head) in psi