# TOPIC #9 STATIC AND FLOW TESTING

## TESTING A FIRE HYDRANT FOR STATIC PRESSURE:

Equipment needed: Pressure gauge, spanner, and any necessary adapters.

1. Remove the cap from the smallest discharge and tighten all other discharges with a spanner.

2. Connect the pressure gauge to the discharge, hand tight, with the bleeder valve closed. If an adapter is needed, connect the adapter to the discharge first.

3. Stand to rear of the hydrant and turn the hydrant on halfway.

4. Open the bleeder valve on the pressure gauge until all trapped air is exhausted and water flows in a steady stream from the exhaust port.

5. Close the bleeder valve and read the gauge for static pressure. If the gauge needle fluctuates, take a reading halfway between the high and low fluctuation points.

6. Turn the hydrant off.

7. Open the bleeder valve to relieve the residual pressure on the hydrant.

8. Remove the gauge and any adapters that may have been used.

9. Replace the discharge cap.

## NOTES:

- A reading of 100 psi. or more denotes a high pressure hydrant. High pressure hydrant bonnets are painted black.

- The bonnets of hydrants with a static pressure of below 100 psi. are painted yellow.

**Static Flow Testing (left)**

## TESTING A FIRE HYDRANT FOR FLOW PRESSURE:

Equipment needed: Pitot Gauge, spanner

1. Remove the cap from the largest discharge and tighten all others with a spanner.
2. Stand in the rear of hydrant and turn the hydrant on slowly, all the way.
3. Hold the Pitot Gauge so that the orifice of the blade is in the center of the flow.
4. Keep the orifice of the gauge away from the discharge opening, a distance of one half the diameter of the discharge being used. (Support the hand holding the gauge using the discharge, if necessary).

5. Take a reading. If the needle fluctuation points.

6. Turn the hydrant off and replace the discharge cap.

**Notes:**

- Before beginning this operation; observe all traffic, street, and property conditions, so that your safety is assured and no damage will occur when taking the reading.
- A flow pressure reading should be obtained from all hydrants, if possible. If a reading cannot be obtained due to low pressure, use a smaller discharge. If a reading still cannot be obtained, use the playpipe tips, starting with the largest and reducing until a reading is obtained.
- If high pressure prevents taking a reading from the largest discharge, use the side discharge. If the side discharge can not be used, connect a section of 2-1/2" hose to the outlet and obtain a reading from the open end or connect a 2 1/2" playpipe and use the appropriate tip for the reading.
- To figure the GPM of a hydrant, use the following formula:

**$GPM = 30 \times D^2 \times \sqrt{FP}$**

(gallons per minute = 30 x Diameter squared x the square root of the flow pressure)

D = Diameter of opening

FP = Flow pressure (the reading on the pitot gauge)