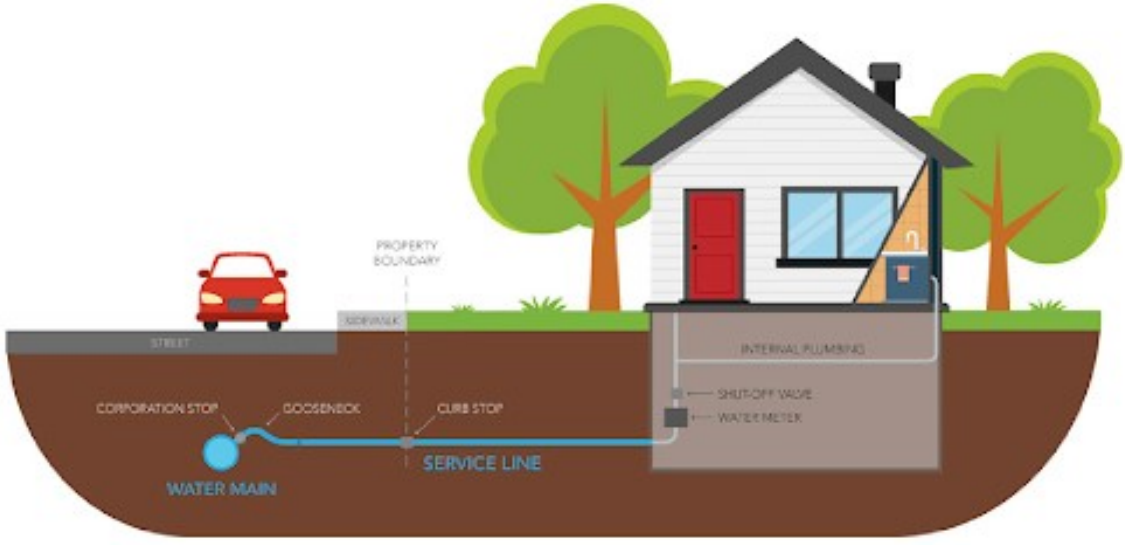
Operator Quiz Corner
Service Lines
Dan Laprade, Training Coordinator
(dlaprade@masswaterworks.org 413-883-7030)

"Service line" is the general term used to describe the pipe connecting the utility's water main on the street to the customer's building plumbing. The size of the service line depends on the water demand expected and accounting for any unique pressure conditions. Generally, residential service lines are ¾ inch and long lines, or high water demand buildings, will require 1 inch lines or larger. The service line material is typically copper or plastic (polyethylene tubing).

The service line is connected to the water main using what is known as a 'corporation stop' or corporation valve. In most cases, a special tapping machine drills a hole in the water main and inserts the threaded corporation into the main. The body of the corporation has a shut off valve that is closed until the service line is installed. The corporation valve is normally only operated at the time of installation and is then buried and not accessible after the service line installation is complete.

Between the corporation and the customer's building another buried valve is usually installed to provide a means of shutting off water to the customer. This is commonly referred to as the curb stop. Opening and closing the curb stop is done using a special tool (curb box 'key') that is lowered into the curb box and fits on the operating nut of the valve. There are many different styles and manufacturers of curb stops, curb boxes and curb box keys. The diagram below shows a typical service line connection:



1) Which of the following is <u>not</u> likely an important consideration when it comes to selecting the proper size of a service line?
   a) Water demand
   b) Distance between the water main and the building
   c) Water pressure in the area

d) Corrosiveness of the water

2) One reason to avoid making a service line connection near the bottom of the water main is _____?
   a) To minimize customer problems of dirty water from sediment that may build up at the bottom of the main.
   b) To minimized service line movement
   c) To minimize problems with soil corrosion
   d) To minimize the accumulation of air bubbles that will cause customer complaints of cloudy water.

3) Which of the following types of valves is most often not accessible one installation is complete?
   a) Curb stop
   b) Corporation
   c) Auxiliary valve
   d) Service saddle

4) One reason that copper and plastic service line pipe material is preferred is because….
   a) They will never leak
   b) They come in many different diameters and lengths
   c) They are cheaper than other materials
   d) They are flexible and allow some movement of soil due to settling or frost.

5) During peak demand periods the pressure in the water main on the street drops to 32 psi. Estimate the expected water pressure (psi) on the 4th floor of a building that is 45 feet above the water main if there is friction loss of 5 psi in the service line to the building?
   a) 7.52
   b) 12.5
   c) 19.4
   d) 27.0

Solution: Pressure on 4th Floor = Water main pressure (psi) – Friction Loss (psi) – 4th Floor Elev (psi)
Where: 4th Floor Elev (psi) = 45ft X (1psi/2.31ft) = 19.48 psi
Pressure on 4th Floor = 32psi - 5psi – 19.48 psi = **7.52 psi**