**Section 604.1415 System Design**

a) Pressure

1) The system must be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow.

2) The normal working pressure on all transmission mains for finished water must be at least 20 psi. All other water mains must have a normal working pressure of at least 35 psi.

3) When static pressures exceed 100 psi, pressure reducing devices must be provided on water mains or on individual service lines.

4) All water mains, including those not designed to provide fire protection, must be sized after a hydraulic analysis based on flow demands and pressure requirements.

b) Diameter of Water Mains

1) The minimum size of water main that provides for fire protection and serving fire hydrants must be of 6-inch diameter. Larger size mains will be required if necessary to allow the withdrawal of the required fire flow while maintaining the minimum residual pressure specified in subsection (a).

2) The minimum size of water main must be 4-inch nominal diameter in distribution systems serving incorporated areas, subdivisions or other closely situated housing or commercial units.

3) The minimum size of water main must be 3-inch nominal diameter in distribution systems serving rural areas where service connections are widely spaced, water usage per service is low, and rates of flow are slow.

c) Dead Ends

1) Dead ends must be minimized.

2) Dead end mains must be equipped with a means to provide adequate flushing as provided in Section 604.1425(b)(1).