**Section 653.111 Polyvinyl Chloride Pipe**

Polyvinyl chloride (PVC) and chlorinated polyvinyl chloride (CPVC) pipe may be used for water mains in accordance with the AWWA Standards or the following:

a) Basic Material Standards:

1) National Sanitation Foundation (NSF) Standard 14.

2) American Society for Testing and Materials (ASTM) Standard D1784-81.

3) Piping materials designated Class 12454B (PVC 1120), Class 12454C (PVC 1220) and Class 23447B (CPVC 4120) are acceptable in pressure ratings indicated in (b) below.

b) Pressure Rating Standards:

1) Schedule Ratings shall be in accordance with ASTM Standards D1785-83 (PVC) and F441-77 (CPVC).

2) Standard Dimension Ratio - Pressure Rated (SDR-PR) shall be in accordance with ASTM Standards D2241-83 (PVC) and ASTM F442-77(CPVC).

3) Pipe shall be rated at 160 psi or greater at 73.4°F. Schedule 40 shall be required for 8-inch diameter or less in grades PVC 1120, PVC 1220 and CPVC 4120. Schedule 80 shall be required for larger sizes. Pipe to be threaded shall be at least Schedule 80 for 4 inch diameter or less, or Schedule 120 for sizes greater than 4 inch diameter.

4) SDR rating shall be limited to a minimum pressure rating of 160 psi at 73.4°F. An SDR rating of 26 or less shall be required for PVC 1120, PVC 1220, and CPVC 4120.

c) General Requirements:

1) PVC and CPVC fittings, where used, shall be of the same material as the pipe and shall comply with ASTM Standards:

A) D2466-78 for PVC Schedule 40,

B) D2467-76a for PVC Schedule 80,

C) D2464-76 for threaded PVC Schedule 80,

D) F438-77 for CPVC Schedule 40,

E) F439-77 for CPVC Schedule 80,

F) F437-77 for threaded CPVC Schedule 80.

2) Solvent cement shall be specific for the piping material and shall comply with ASTM Standard D2564-80 (PVC) and F493-80 (CPVC).

3) Elastomeric seals (gaskets) used for push-on joints shall comply with ASTM Standard F477-76.

4) All piping, fittings and solvent cement shall bear the NSF seal of approval. The piping shall be visibly marked with the specific schedule number or SDR rating number.

5) Jointing shall be solvent welded, heat welded, pressure slip jointed, flanged or threaded joint. Special precautions shall be taken to insure clean, dry contact surfaces when making solvent or heat welded joints. Adequate setting time shall be allowed for maximum strength.

6) Plastic pipe shall be supported in accordance with the manufacturer's recommendations. Support intervals shall not be further apart than one-fourth of those allowed for steel pipe of equivalent size.

7) Compensation for expansion of buried PVC and CPVC piping shall be made by snaking in the trench or by installing offset expansion loops.

8) Disinfection of plastic piping shall be as specified in AWWA Standard C601.