

SECTION 15 RELATED TECHNICAL STANDARDS - WATER

15.1 Water Mains

Water mains shall be cement lined ductile iron. All fittings shall be cast iron.

15.2 Ductile Iron Pipe and Fittings

Ductile iron pipe shall conform to the requirements of the ANSI Specification A-21.51 as amended and revised to date. Unless otherwise specified herein, ductile iron pipe shall be thickness Class 52. "Tyton" joints shall conform to the ANSI Specification A-21.11 as amended and revised to date.

Cement mortar lining for ductile iron pipe and fittings shall conform to the requirements of the ANSI Specification A-21.4 as amended and revised to date.

Fittings shall be cast or ductile iron.

15.3 C-909 Pipe and Fittings

C-909 pipe shall to AWWA C-909 and shall be UL and FM approved for all sizes. PVC pressure pipe shall be P.W. Eagle, Ultra Blue, AWWA-C909, CL150 and shall be factory made with rubber gaskets installed in the ring groove. All polyvinyl chloride pipe shall conform to ASTM D2241 and AWWA. In all pressure zones the pipe must be Pressure Class 150. PVC pressure pipe shall be made from white or blue virgin materials whose cell classifications are either Class 1245A or 1245B and shall be furnished in length of 20 feet. Lesser lengths will be accepted to allow the proper placement of fittings, valves, etc. Pipe shall be furnished in cast Iron pipe equivalent outside diameters with rubber gasketed joints.

1. All PVC water mains shall have a suitable electronic locator tape buried over the water main approximately one foot below grade with the locator tape being wrapped around the fire hydrants. The tape shall be continuous between valves and secured to each valve. The tape shall be at least 4.5 mils thick, 2-inch minimum width and made with an aluminum material sandwiched between 2 layers of polyethylene. It shall have imprinted in permanent black ink with 1- inch letters "CAUTION WATER MAIN BURIED BELOW" on blue background.
2. Unless otherwise approved by the Authority, all fittings for PVC piping 3 inches and larger shall be M.J. cast or ductile iron fittings with a transition gasket for use with PVC pipe.
3. Water Pipe: PVC pressure pipe (4 inches through 12 inches in diameter) shall conform to the requirements of AWWA C909. It shall have the same O.D. as ductile iron pipe and be compatible for use with ductile iron fittings. The pipe shall conform to these standards: working pressure of 150 psi, and laying length of 20 feet.
4. All PVC not buried shall be formulated for sunlight exposure and shall pass the impact strength test as described by ASTM D2444, latest revision, using TUP A with impact level of 94 ft.-lbs.

5. Fittings for PVC pipe (4 inches through 12 inches) shall be ductile iron mechanical joint with a minimum pressure rating of 250 psi and shall conform to the requirements of ANSI/AWWA A21.10/C110 or A21.53/C153. All pipe fittings shall bear the approval seal of the National Sanitation Foundation (NSF) for potable water pipe. Solvent weld PVC fittings will not be acceptable.
6. Joints: All PVC pipe shall have provisions for expansion and contraction provided in the joints. All joints shall be designed for push-on makeup connection. A push-on joint may be an elastomeric gasket ball end coupling manufactured as an integral part of the pipe barrel consisting of a thickened section with an expanded bell with a groove to retain a rubber sealing ring of uniform cross-section. See Appendix 11 for approved materials / products.

15.4 Gate Valves

Valves shall conform to the requirements of the American Water Works Association Specification therefore, as amended and revised to date.

Valves shall be inside screw, parallel seat, double disc gate type. They shall be designed for 200 psi working water pressure and have mechanical joint ends. Valve stems shall be the nonrising type unless otherwise specified. Valves shall be operated by a 2-inch square wrench nut and shall open in the counter-clockwise direction. The direction of opening shall be marked on the nut by an arrow and the work "OPEN".

All cast iron surfaces of the valves shall be painted with three coats of asphaltum paint.

Valves shall be Model A2380-20 as manufactured by the Mueller Company or approved equal.

15.5 Valve Boxes

Valve boxes shall be Buffalo Type, 3 piece cast iron, 5-1/4", sliding or screw type or approved equal.

Valve boxes shall be complete with covers and both valve box and cover shall be of ample strength and dimension to fully sustain the shocks of heavy vehicular traffic and to maintain the upper section and cover at proper grade under heavy vehicular traffic.

Covers shall have the word "WATER", an arrow showing the opening direction, and the word "OPEN" clearly cast thereon.

15.6 House Connections

Materials for house service connections from the main to one (1) foot inside of the curb line shall be copper Type K or approved equal with a minimum size of 1". The curb stop and box shall be installed and be of a type approved by the Authority.

15.7 Fire Hydrants

Fire hydrants shall conform to the requirements of the AWWA Specifications C502 therefore, as amended and revised to date.

Hydrants shall be cast iron bronze mounted, compression type with 5-1/4" valve opening; 6" inlet connection styled to accomplish approved joint assembly with a 6" branch; two - 2-1/2" hose and one 5" Storz connection with blind cap and chain: Operating nut (National Standard Details); stuffing box to incorporate "O" Ring Seals, asphaltum coating on interior water passageways, exterior below ground line, two (2) finishing coats of paint on above ground line exterior, the final enamel coat to be the color as directed by the Engineer; hydrant shall have breakable body flange and stem coupling and be suitable for a working pressure of 150 psi. Hydrants shall be of a suitable length for a trench 4-1/2 feet deep, measured from the surface of the ground to the bottom of the connecting pipe.

Hydrants shall be equipped with a two piece outer casing which will permit its extension without excavating in case of future grade changes. The casing shall have a free vertical travel of not less than four (4) inches.

Fire hydrants shall be the 5-1/4" A-423 Centurion by Mueller Company or approved equal.