

## **STANDARD MATERIAL FOR WATER MAIN CONSTRUCTION**

### GENERAL

The standard materials set forth are the current Water Department requirements for water main construction and shall be subject to review and change periodically by the Commissioners.

### WATER MAIN MATERIALS

All pipe, fittings, and accessories shall conform to the requirements of the latest edition of the following standard specifications as applicable:

#### **AMERICAN NATIONAL STANDARDS INSTITUTE STANDARDS**

- A21.4 Cement-Mortar Lining for Cast-Iron and Ductile-Iron Pipe and Fittings for Water
- A21.11 Rubber-Gasket Joints for Cast-Iron and Ductile-Iron Pressure Pipe and Fittings
- A21.51 Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids
- A21.53 Ductile-Iron Compact Fittings, 3-in. through 16-in. for Water and Other Liquids

### PIPE

Unless otherwise indicated or specified, ductile-iron pipe shall be at least thickness Class 52 for pipe 12-in. and smaller and at least thickness Class 51 for pipe 14-in. and larger. Pressure class pipe will not be accepted. Pipe shall be U.S. Pipe, Griffin, American Cast Iron Pipe Co., or McWane Ductile Iron Pipe.

Fittings. Fittings shall conform to the requirements of the above-mentioned ANSI A21.53 and shall have a pressure rating of 350 pounds per square inch. All fittings will be cast of ductile iron and shall be mechanical joint. They will be restrained with the Mega-Lug retainer gland.

Joints. Joints for push-on and mechanical-joint pipe shall conform to ANSI A21.11. Ring-type gaskets, suitable for exposure to the liquid within the pipe, shall be used. Bolts for any joint shall be of the high-strength low-alloy steel type, except as otherwise noted. All mechanical-joints shall be formed using a restrained mechanical gland.

Restrained Mechanical Gland. Restrained Mechanical Gland shall be EBAA Iron's Mega-Lug<sup>®</sup> retainer gland or other non-set-screw type retainer gland that will not void the warrantee of the pipe manufacturer.

Couplings. Couplings shall be HYMAX. The couplings shall be provided with high strength, low alloy, corrosion resistant bolts and nuts.

Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.

Lining and Coating. The inside of pipe and fittings shall be given a cement lining and bituminous seal coat in accordance with ANSI A21.4. Particular care shall be used to insure proper bonding of the seal coat. Lining shall be double thickness.

The outside of buried pipe and fittings shall be coated with the standard bituminous coating specified under the appropriate ANSI Standard Specification for the pipe and fittings.

Joint Lubrication. Joint lubrication for gaskets shall be suitable for lubricating the parts of the joint assembly. The lubricant shall be non-toxic, shall not support the growth of bacteria, and shall have no deteriorating effects on the gasket material. It shall not impart taste or odor to water in the pipe. The lubricant containers shall be labeled with the trade name or trademark and the pipe manufacturer's name. The lubrication shall be only that recommended by the pipe and fitting manufacturers. No other lubricant is acceptable.

#### VALVE, HYDRANT AND SERVICE CONNECTIONS

Gate Valves. Gate valves shall be 150-lb. nonrising stem, iron-body, bronze-mounted, resilient-seated wedge type gate valves having mechanical-joint ends, and shall conform to the AWWA Standard for Gate Valves for Water and Other Liquids, Designation C509. Gate valves shall open right (clockwise) and be M&H, American Flow Control, Clow or U.S. Pipe.

Hydrants. Hydrants shall conform in design and manufacture to the latest issue of AWWA Standard C502 "Dry Barrel Fire Hydrants". Hydrants shall be M&H 929.

Hydrants shall comply with the following:

- a. Main Valve Opening: 5.25 inches
- b. Outlets: 2 – 2.50 inch hose connections  
1 – 4.50 inch steamer connection
- c. Operating Nut Size: Pentagon 1.50 inches point to flat
- d. Direction of Opening: Clockwise (OPEN RIGHT)
- e. Bury Length: 5.5 feet
- f. Sub-Seat Material: Bronze
- g. Model: Traffic (breakaway design)
- h. Color: Match Service Zone Fire Hydrant Standards

Valve Boxes. Valve boxes shall be of rough, even-grained cast-iron and of the adjustable, slip, heavy-pattern Buffalo 64 type. The boxes shall be adjustable through at least 6-in. vertically without reduction of the lap between sections to less than 4-in. Valve boxes shall be of North American origin. Valve box covers shall be labeled “WATER”.

#### Service Connections

The corporation stop shall be all bronze construction 1” with a Teflon coated ball and AWWA-type (CC) inlet threads with compression outlet. 200 PSI working pressure. Corporations shall be Mueller, Ford, Red Hed or McDonald T Compression.

The curb stop without drain shall be all bronze construction 1” with a Teflon coated ball suitable for PE tubing compression connections. 200 PSI working pressure. Curb Stops shall be Mueller, Ford, Red Hed or McDonald T Compression.

The curb box shall be of the telescoping type and be of North American origin. Curb box covers shall be labeled “WATER”.

Plastic tubing shall be CTS PE Type, rated for a minimum of 200 PSI working pressure.

The service saddle shall be enamel coated ductile iron or bronze with double band stainless steel straps. Saddle shall have an NBR gasket for use with potable water. Saddles shall be Dresser, Smith Blair, Mueller, Romac or Ford.

Meter Pit shall conform to AWWA Standard C800 (ASTM B-62) and shall include a Cast Iron double lid cover with an asphalt black paint conforming to ASTM A48-92, Class 25 as manufactured by the Ford Meter Box Company or an approved equal.

#### Application Process for Review/Addition

For any component listed above by a specific manufacturer that is not currently listed on the specification sheet to be considered for addition, a written submission can be made for the Board of Water Commissioner’s to review during a regular scheduled meeting as a posted agenda item. It should contain proof that the component meets or exceeds all specified criteria listed above, and should have references of it’s acceptable application within another public water supply system. Acceptability is based on the Commission’s decision after review of the supplied documentation.

#### Emergency Use of Non-Listed Component

In the event of an emergency situation whereas a listed component is not available in a timely manner to eliminate an otherwise undesirable situation, a non-listed component may be used at the discretion of the Superintendent, or the system Primary Operator in direct charge at an absence of the Superintendent, as long as it meets the above specified criteria, and only for the sole purpose of rectifying the emergency undesirable situation. A description of the event and the component utilized is to be presented to the Board of Water Commissioner’s at the next scheduled meeting within the Superintendents Update.