

1.1 INTRODUCTION

This section specifies the material standards with which developers and their contractors shall conform for construction projects for the Holyoke Water Works. This section covers specifications for pipe, pipe joints, fittings, tapping sleeves, couplings, gate valves, tapping valves, valve boxes, hydrants, hydrant tees, service piping and connections, and service location.

1.2 PIPE

Distribution system pipe shall be at least 8-inches in diameter, shall be Class 52 ductile iron pipe, double cement lined and seal coated with a bituminous outside coating per AWWA Specifications. All ductile iron pipe shall be from a single manufacturer and shall be manufactured in the United States. The pipe shall be manufactured by U. S. Pipe & Foundry Company or Griffin Manufacturing. Private service connections, whether for fire protection or domestic service, shall be determined by the Holyoke Water Works at the time of preliminary plan review.

If the Holyoke Water Works determines that a pipe diameter larger than 8-inches will be needed to supply the Development, then the size shall be determined by the Board of Water Commissioners and the pipe will be furnished and installed at the developer's expense.

Pipe used for hydrant branches and sprinkler lines shall be at least 6-inches in diameter and shall meet the above-mentioned specifications.

On all water pipe and fittings, the contractor shall make provisions for the electrical continuity of the pipeline by inserting two bronze wedges into the joint. Wedges shall be placed as close to the 3 o'clock and 9 o'clock positions as possible.

The contractor shall furnish and install a polyethylene encasement over the ductile iron pipe in accordance with AWWA Specifications and revision thereof in areas deemed by the Holyoke Water Works to have corrosive soils. Polyethylene shall be manufactured in accordance with the requirements of ASTM Standard Specification D-1248, Polyethylene Plastics Molding and Extrusion Materials and shall be in the form of a tube. Installation of wrap shall be in accordance with method "A" of AWWA Specification C105 and shall encase all pipe, fittings, valves, and all other appurtenances.

1.3 PIPE JOINTS

Push-on type joints are recommended on straight runs of pipe. Gaskets shall be standard for pipe used and approved by the Holyoke Water Works, shall be manufactured in the United States, and shall comply with applicable AWWA Specifications.

The Holyoke Water Works may require under certain terrain conditions that restrained type joints be used. The method of restraint may either be an interlocking type or mechanical joint with restrainer gland as specified by the Holyoke Water Works.

All fittings, bends, valves, sleeves, or other mechanical type joints shall be restrained with the use of retainer glands. Concrete thrust blocks shall also be used at all tees, bends (regardless of the deflection angle or direction), hydrants, caps, and plugs.

Mechanical joint retainer glands shall be installed on all fittings. Retainer glands shall be specifically designed to fit standard mechanical joint bells with corrosion resistant, low-alloy T-head bolts conforming to AWWA Specifications. Retainer glands shall be EBAA MEGA-Lug or equal.

These devices shall have a minimum 350 psi pressure rating with a minimum safety factor of 2:1. Glands shall be listed with Underwriters Laboratories and/or approved by Factory Mutual. Set screws shall be of hardened ductile iron and require the same torque in all sizes. Steel set screws are not permitted.

1.4 FITTINGS

Ductile iron fittings must be used and shall be cement-lined. Fittings are required to be equipped with mechanical joints and retainer glands unless otherwise specified by the Holyoke Water Works. Mechanical joint fittings in sizes 4-inch through 12-inch shall be ductile iron compact fittings and rated for 350 psi working pressure. All nuts and bolts shall be of a type equal to ductile iron or KOR-10 steel T-bolts and nuts.

1.5 TAPPING SLEEVES

Tapping sleeves shall only be allowed for private service connections as determined by the Holyoke Water Works. The sleeve shall be of a type equal to the Ford Style FTSC manufactured by the Ford Meter Box Company, Inc. The body shall be **heavy welded steel and epoxy coated with a minimum of 10 mils of fused epoxy coating**. The flange shall be steel-flat faced, recessed for the tapping valve, AWWA C207 Class D-ANSI 150 Lb. Drilling. Nuts and bolts shall be 18-8 Stainless Steel. The gasket shall be Buna-N (Nitrile) ASTM D2000 BA508, resistant to water, oil and hydrocarbon fluids with a maximum 212 degree F continuous service. The sleeve shall be provided with a 3/4" test plug to ensure proper seal before tapping.

1.6 COUPLINGS

Couplings shall only be allowed when connecting standard outside diameter pipe to oversized or pit cast pipe. The coupling shall be of a type equal to Dresser Style 153, Romac Style 501, or an approved equal. Couplings shall be provided with plain, Grade 27 rubber gaskets and with black, steel, track-head bolts with nuts.

1.7 GATE VALVES/TAPPING VALVES

Gate valves sizes 4 through 12-inch shall be of a resilient wedge design with cast ferrous components made of ductile iron and the valves shall be in compliance with AWWA C515. All valves shall be a Mueller Resilient Wedge Gate Valve manufactured by Mueller Company or Series 2500 Resilient Wedge Gate Valve manufactured by American Flow

Control. **The valves shall open RIGHT, clockwise.** Gate valves shall be equipped with mechanical joints and retainer glands, unless otherwise specified by the Holyoke Water Works.

The valves shall be designed for a safe working pressure of 250 psi. Valves shall be fusion-bonded epoxy coated on the interior surface unless otherwise specified by the Holyoke Water Works.

1.8 VALVE BOXES

Valve boxes shall be round, two-piece, sliding type, cast iron. The cover of the valve box shall be close fitting, substantially dirt tight and flush with the top of box rim. The cover shall include the word "WATER" prominently cast in the top. The top section of the gate box shall be without a top flange. The lower section of the box shall be 4½-inch I.D., and shall have a bell-shaped bottom designed to enclose the operating nut and stuffing box of the valve without bearing on the valve bonnet. The boxes shall have at least 6-inches adjustment and when in the fully extended position, shall have a 4-inch lap. Valve boxes shall be installed for each buried valve.

1.9 HYDRANTS

Hydrants shall be as manufactured by American Flow Control B62-B. Pressure ratings shall not be less than 150 psi. **They shall open LEFT, counterclockwise,** and shall have one steamer connection, 4½-inch diameter NST and two 2½-inch diameter NST hose connections. The valve opening at the base of the hydrant shall be 5¼-inch minimum. Hydrant operating nut shall be 1½-inch, flat to point, pentagonal.

The length of the hydrant barrel shall be such that when installed with the proper depth of cover on the branch pipeline, the hydrant will be set with the normal ground line of the barrel within 3-inches of the actual finished ground grade surface elevation. For the most part, minimum bury length shall be 5½ feet.

All hydrants shall be painted in accordance to Holyoke Water Works code. HWW hydrant colors are designated as follows:

High Service:	Red with silver bonnet and cap
West Heights:	Red with yellow bonnet and cap
West Holyoke:	Red with silver bonnet and cap
Low Service:	Red with red bonnet and cap

Furthermore, all hydrants served from a main greater than 12-inches in diameter shall have a white pumper cap.

Connecting pipe and pipe nipples between the main line tee and hydrant shall be 6-inch ductile iron conforming to the requirements for ductile iron pipe hereinbefore.

Hydrant tees shall have line bells conforming to the requirements of the main pipe. The hydrant outlet shall be of 6-inch mechanical joint.

Hydrant valve and valve box shall be a standard Holyoke Water Works, 6-inch gate valve, opening right (clockwise), one end for the hydrant anchoring tee and mechanical joint opposite end.

1.10 HYDRANT TEES (ANCHORING TEES)

Anchoring tees shall have main run ends as required for the installation. The branch shall have a plain end with an integral gland and rotating mechanical joint gland to provide a restrained connection with the adjacent valve.

1.11 SERVICE PIPING & CONNECTIONS

Service pipe shall be Type "K" copper tubing, 1-inch minimum. Service pipe fittings shall be brass and of compression type. All service fittings shall be extra heavy brass, manufactured by either Red Hed Supply or Mueller Water Distribution Products.

Corporations shall be either Red Hed Figure 438 Gripp or Mueller Model No. H-15008 and H-15013. All corporations shall have a C.C. thread (reinforced AWWA) inlet and compression connection outlet.

Curb stops shall be either Red Hed Figure B415 Gripp or Mueller Model No. H-1504-2 Oriseal III. Compression ends shall be standard on both the inlet and outlet.

The service box shall have a 2½ inch shaft and of a slide design equal to the Buffalo Pipe & Foundry Corp. Model B-2000, No. 95E. The top and base shall be made of extra heavy cast iron. The section of the service boxes shall be supplied in 24-inch lengths. The bottom section of the service boxes shall be supplied in 47-inch lengths. The base of the service boxes shall have the minimum opening dimensions: 2-15/16-inch height x 2-15/16-inch width.

The service boxes shall have a lock type cover. The cover shall fit flush with the top of the service box, and shall have a brass pentagon nut to lock the cover. The word "WATER" shall be cast on the cover.

No electrical grounds shall be made on water service pipes where a driven ground rod can provide the needed grounding service, as determined by the Holyoke Water Works.

1.12 SERVICE LOCATION

The service piping shall be laid at right angle to the distribution main from a point directly in front of the foundation of each planned building and each owner-occupied family unit shall have its own service connection with meter unless otherwise specified by the Holyoke Water Works.