

## SECTION 1416

### COPPER SERVICE LINE MATERIALS

#### 1416.0100 GENERAL

**1416.0101 Description of Work.** The work under this section shall consist of furnishings all labor, materials, and equipment required for the installation of Copper Service Materials in accordance with details shown on the plans and requirements of these specifications.

**1416.0103 Submittals.** In order to be accepted for incorporation into the work, the manufacturers make and model of Copper Service Materials shall appear on the list of agency approved products found in Appendix "A" to these standard specifications.

**1416.0104 Delivery, Storage and Handling.** Delivery, storage and handling all Copper Service Materials shall be delivered to the site and stored properly.

#### 1416.0200 PRODUCTS

##### 1416.0201 Materials.

(A) This technical provision covers 3/4" to 2" fittings and pipe for working pressures of 300 pounds per square inch.

(B) Fittings and connections directly to copper pipe shall be either flared or compression.

(C) Copper pipe shall be annealed and meet ASTM Specification B-88 Type K. No copper pipe of foreign manufacture will be accepted, nor shall the copper used in the fabrication of the pipe be of foreign manufacture.

(D) Corporation stops, sizes 3/4" to 2" inclusive, shall be ball valve full opening with o-ring seal and all bronze ball. Corporation stops shall have two male ends, with the inlet threaded "Mueller" tapered threads and the outlet having "copper" thread, complete with straight coupling nut designed to be used with flared or compression copper joint. Quality and workmanship must be comparable to the Mueller B-15000 design. "Mueller" and "copper" threads are described in AWWA Specification No. C800-84.

Corporation stops shall contain a bond breaker to prevent electrolysis and decay on dissimilar metal connection.

(E) Splice unions shall be flared or compression, three part design or equal, for use with type "K" copper service piping, sized 3/4" to 2", inclusive. One three-piece splice union may be used for each one hundred foot roll of copper tubing, sizes 3/4" and 1", or for each forty-foot length of copper tubing, sizes 1- 1/2" and 2". They may also be used in extending existing copper services to a new required length, and for repair sections.

(F) Straight adapter couplings copper to iron pipe thread, are to be Ford C-21-xx or approved equal.

Bronze fittings and materials shall comply with AWWA C-800 Specifications.

## SECTION 1416

### (G) Angle Meter Stops.

#### (1) Sizes 3/4" and 1"

Angle meter stops for 3/4" through 2" services shall be all bronze ball type angle stops with the inlet equipped with copper service pipe connection compression joint with copper pipe. These angle stops shall be Jones J-1694W or J-1525W, or equal. Curb stops are to have lock wings. Reduced or full port will be acceptable.

#### (2) Sizes 1-1/2" and 2"

Curb stops for 1-1/2 " and 2" services shall be ball type angle meter stops having oval type water meter flange outlet and copper service pipe inlet end connection. These angle stops shall be Ford FV-23-XXXW, or equal. Curb stops are to have lock wings.

(H) Service clamps with bails and rubber neoprene gaskets shall be either single or double strap, with Mueller tapered thread, of corrosion-resistant materials, described as follows:

#### (1) Saddles

Acceptable materials for use in clamp saddles are: (a) all bronze saddle with silicone bronze straps (single strap for 3/4" and 1" taps and double straps for 1-1/2" and 2" taps); (b) Ductile iron, meeting ASTM Spec. No. A-339, coated externally with not less than 8 mils of fused epoxy (holiday tested). Any other coating proposed to be furnished must be of similar durability and thickness and must be approved by the Engineer prior to award; (c) Malleable iron, meeting ASTM Spec. No. 35018, coated as described under ductile iron.

#### (2) Straps or Bails

Straps and nuts shall be silicone bronze or fabricated from stainless steel (AISI 18-8 Type 304). Each strap shall be designed to include a flattened surface suitable for tightening against the circular pipe exterior with evenly distributed bearing area.

Single-strap clamps may be used for 3/4" and 1" installations provided that the gasket to be furnished shall provide a taper "o"-ring or ribbed seal to surround the tap and compresses uniformly when the strap nuts are tightened, avoiding eccentric loading problems.

Double strap clamps shall be used for all 1-1/2" and 2" installations. The gasket provided shall surround the tap and seal by tapered gasket, o-ring, or ribbed gasket. Compression shall be uniform as the strap nuts are tightened, avoiding eccentric loading.