

**PART 1 GENERAL**

**1.1 Section Includes**

- .1 Materials and installation for copper domestic water service used in the following:
  - .1 Hard drawn copper domestic cold water services inside building.

**1.2 References**

- .1 American National Standards Institute (ANSI)/American Society of Mechanical Engineers International (ASME).
  - .1 ANSI/ASME B16.15-02, Cast Bronze Threaded Fittings, Classes 125 and 250.
  - .2 ANSI/ASME B16.18-01, Cast Copper Alloy Solder Joint Pressure Fittings.
  - .3 ANSI/ASME B16.22-01, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
  - .4 ANSI/ASME B16.24-01, Cast Copper Alloy Pipe Flanges and Flanged Fittings, Class 150, 300, 400, 600, 900, 1500 and 2500.
- .2 American Society for Testing and Materials International, (ASTM).
  - .1 ASTM A307-03, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .2 ASTM B88M-03, Standard Specification for Seamless Copper Water Tube (Metric).
  - .3 ASTM F492-95, Standard Specification for Propylene and Polypropylene (PP) Plastic-Lined Ferrous Metal Pipe and Fittings.
- .3 Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS).
  - .1 MSS-SP-80-03, Bronze Gate, Globe, Angle and Check Valves.
- .4 National Research Council (NRC)/Institute for Research in Construction.
  - .1 NRCC 38728, National Plumbing Code of Canada (NPC) - 1995.

**1.3 Submittals**

- .1 Submit product data for following: valves.
- .2 Provide maintenance data for incorporation into manual.

**PART 2 PRODUCTS**

**2.1 Piping**

- .1 Domestic cold, within building.
  - .1 Above ground: copper tube, hard drawn, type K, M: to ASTM B88M.

**2.2 Fittings**

- .1 Bronze pipe flanges and flanged fittings, Class 150: to ANSI/ASME B16.24.

- .2 Cast bronze threaded fittings, Class 125: to ANSI/ASME B16.15.
- .3 Cast copper, solder type: to ANSI/ASME B16.18.
- .4 Wrought copper and copper alloy, solder type: to ANSI/ASME B16.22.

### **2.3 Joints**

- .1 Rubber gaskets, 1.6 mm thick: to AWWA C111.
- .2 Bolts, nuts, hex head and washers: to ASTM A307, heavy series.
- .3 Solder: 95/5 tin copper alloy.
- .4 Teflon tape: for threaded joints.
- .5 Dielectric connections between dissimilar metals: dielectric fitting to ASTM F492, complete with thermoplastic liner.

### **2.4 Gate Valves**

- .1 NPS 2 and under, soldered:
  - .1 Rising stem: to MSS-SP-80, Class 125, 860 kPa, bronze body, screw-in bonnet, solid wedge disc..

### **2.5 Globe Valves**

- .1 NPS2 and under, soldered:
  - .1 To MSS-SP-80, Class 125, 860 kPa, bronze body, renewable composition disc, screwed over bonnet .
  - .2 Lockshield handles.

### **2.6 Swing Check Valves**

- .1 NPS 2 and under, soldered:
  - .1 To MSS-SP-80, Class 125, 860 kPa, bronze body, bronze swing disc, screw in cap, regrindable seat.

### **2.7 Ball Valves**

- .1 NPS 2 and under, screwed:
  - .1 Class 150.
  - .2 Bronze body, stainless steel ball, PTFE adjustable packing, brass gland and PTFE seat, steel lever handle.
- .2 NPS 2 and under, soldered:
  - .1 To ANSI/ASME B16.18, Class 150.
  - .2 Bronze body, stainless steel ball, PTFE adjustable packing, brass gland and PTFE seat, steel lever handle, with NPT to copper adaptors.

**PART 3 EXECUTION**

**3.1 Installation**

- .1 Install in accordance with NPC, Province(s) Plumbing Code and local authority having jurisdiction.
- .2 Assemble piping using fittings manufactured to ANSI standards.
- .3 Connect to fixtures and equipment in accordance with manufacturer's written instructions unless otherwise indicated.

**3.2 Valves**

- .1 Isolate equipment, fixtures and branches with Ball valves.

**3.3 Pressure Tests**

- .1 Test pressure: greater of 1 times maximum system operating pressure or 860 kPa.

**3.4 Flushing And Cleaning**

- .1 Flush entire system.

**3.5 Pre-start-up Inspections**

- .1 Systems to be complete, prior to flushing, testing and start-up.
- .2 Verify that system can be completely drained.

**3.6 Disinfection**

- .1 Flush out, disinfect and rinse system to requirements of authority having jurisdiction.
- .2 Upon completion, provide laboratory test reports on water quality for Contract Administrator approval.

**3.7 Start-up**

- .1 Timing: Start up after:
  - .1 Pressure tests have been completed.
  - .2 Disinfection procedures have been completed.
  - .3 Certificate of static completion has been issued.
- .2 Provide continuous supervision during start-up.
- .3 Start-up procedures:
  - .1 Establish circulation and ensure that air is eliminated.
  - .2 Check pressurization to ensure proper operation and to prevent water hammer, flashing and/or cavitation.
- .4 Rectify start-up deficiencies.

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Transit Department  
Paint Booth Breathing Air System  
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**DOMESTIC WATER PIPING COPPER**

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**END OF SECTION**