

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 21 05 01: Mechanical General Requirements

1.2 REFERENCES

- .1 ASME B16.15-2013, Cast Bronze Threaded Fittings, Classes 125 and 250.
- .2 ANSI B16.18-2012, Cast Copper Alloy Solder Joint Pressure Fittings.
- .3 ANSI B16.22-2013, Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.
- .4 ANSI B16.24-2011, Bronze Pipe Flanges and Fittings, Class 150 and 300.
- .5 ANSI/AWWA C111/A21.11-2012, Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings.
- .6 ASTM A183-2014, Specification for Carbon Steel Track Bolts and Nuts.
- .7 ASTM A307-2014, Specification for Carbon Steel Bolts and Studs, 414 MPa Tensile Strength.
- .8 ASTM B32-08(R2014), Specification for Solder Metal.
- .9 ASTM B75-2011, Specification for Seamless Copper Tube.
- .10 ASTM B88M-2014, Specification for Seamless Copper Water Tube (Metric).
- .11 MSS SP-70-2011, Cast Iron Gate Valves, Flanged and Threaded Ends.
- .12 MSS SP-71-2011, Cast Iron Swing Check Valves, Flanged and Threaded Ends.
- .13 MSS SP-80-2013, Bronze Gate, Globe, Angle and Check Valves.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit data for following: valves.

1.4 MAINTENANCE DATA

- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 – Closeout Procedures.

PART 2 - PRODUCTS

2.1 PIPING

- .1 Domestic Cold Water (DCW); Trap Primer Piping (TP).
 - .1 Above ground: copper tube, hard drawn, type L: to ASTM B88M.
 - .2 Buried and embedded: copper tube, soft annealed, type K: to ASTM B88M, in long lengths and with no buried joints. "PEX", CSA approved potable water piping with no joints may be used under slab.

2.2 FITTINGS

- .1 Bronze pipe flanges and flanged fittings, Class 150 and 300: to ANSI B16.24.
- .2 Cast bronze threaded fittings, Class 125 and 250: to ANSI/ASME B16.15.
- .3 Cast copper, solder type: to ANSI B16.18. (Lead-free).
- .4 Wrought copper and copper alloy, solder type: to ANSI B16.22.
- .5 Piping NPS 2-1/2 and over: roll groove copper fittings to ASTM B75, alloy C12200. Victaulic "No-Sweat".

- .6 Mechanically formed Tee connections may be used on 25mm and above water pipe and where the branch line connection to the branch main is at least one pipe size smaller than the branch main.

2.3 JOINTS

- .1 Rubber gaskets, 3mm thick: to ANSI/AWWA C111/A21.11.
- .2 Bolts, nuts, hex head and washers: to ASTM A307, heavy series.
- .3 Solder/brazing: tin-antimony 95-5: to ASTM B32, or tin-silver 94-6. (Lead free.)
- .4 Teflon tape: for threaded joints.
- .5 Piping NPS 2-1/2 and over: roll groove couplings with ductile or malleable iron housings, grade E EPDM flush seal gaskets and heat treated carbon steel bolts/nuts to ASTM A183. Victaulic "No- Sweat".
- .6 Dielectric unions between dissimilar metals to ASTM F492, complete with thermoplastic liner.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Install in accordance with the 2010 Canadian Plumbing Code and the local authority having jurisdiction.
- .2 Cut square, ream and clean tubing and tube ends, clean recesses of fittings and assemble without binding.
- .3 Assemble all piping using fittings manufactured to ANSI standards.
- .4 Install tubing close to building structure to minimize furring, conserve headroom and space. Group exposed piping and run parallel to walls.
- .5 Connect to fixtures and equipment in accordance with manufacturers instructions unless otherwise indicated.
- .6 Buried tubing:
 - .1 Lay in well compacted washed sand in accordance with AWWA Class B bedding.
 - .2 Bend tubing without crimping or constriction. Minimize use of fittings.
- .7 Test piping systems in accordance with Section 21 05 01 – Mechanical General Requirements.

3.2 VALVES

- .1 Isolate equipment, fixtures and branches with ball valves and as indicated. Use ball valves for shut-off applications on piping up to and including NPS 2.

3.3 PRESSURE TESTS

- .1 Test pressure: greater of 1.5 times maximum system operating pressure or 860 kPa.

3.4 PRE-START-UP INSPECTIONS

- .1 Systems must be completely installed, prior to flushing, testing and start-up.
- .2 Verify the system can be completely drained.

3.5 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: establish circulation and confirm air is eliminated.
- .4 Rectify start-up deficiencies.

3.6 PERFORMANCE VERIFICATION

- .1 Timing:
 - .1 After pressure and leakage tests and disinfection completed, and certificate of completion has been issued by authority having jurisdiction.
- .2 Procedures: verify the flow rate and pressure meet Design Criteria.

END OF SECTION