

PART 1 - GENERAL**1.1 RELATED SECTIONS**

- .1 Section 23 05 05 - Installation Pipework.
- .2 Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.

1.2 REFERENCE

- .1 Unless otherwise indicated, all of the works will be done in accordance with the in force edition of the National Building Code.
- .2 Furthermore, the works will be done in accordance to any other code or standard having jurisdiction, as per the latest edition, notably including, but not limited to:
 - .1 American Society of Mechanical Engineers (ASME).
 - .1 ASME B16.1-98, Cast Iron Pipe Flanges and Flanged Fittings.
 - .2 ASME B16.3-2011, Malleable Iron Threaded Fittings.
 - .3 ASME B16.5-03, Pipe Flanges and Flanged Fittings.
 - .4 ASME B16.9-01, Factory-Made Wrought Butt welding Fittings.
 - .5 ASME B18.2.1-03, Square and Hex Bolts and Screws (Inch Series).
 - .6 ASME B18.2.2-87(R1999), Square and Hex Nuts (Inch Series).
 - .2 American Water Works Association (AWWA).
 - .1 AWWA C111-00, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - .3 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM A47/A47M-99, Standard Specification for Ferritic Malleable Iron Castings.
 - .2 ASTM A53/A53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless.
 - .3 ASTM A536-84(1999)e1, Standard Specification for Ductile Iron Castings.
 - .4 ASTM B61-02, Standard Specification for Steam or Valve Bronze Castings.

HYDRONIC SYSTEMS STEEL

- .5 ASTM B62-02, Standard Specification for Composition Bronze or Ounce Metal Castings.
- .6 ASTM E202-00, Standard Test Method for Analysis of Ethylene Glycols and Propylene Glycols.
- .4 Canadian Standards Association (CSA International).
 - .1 CSA B242-M1980(R1998), Groove and Shoulder Type Mechanical Pipe Couplings.
 - .2 CAN/CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding (Developed in cooperation with the Canadian Welding Bureau).
- .5 Manufacturer's Standardization of the Valve and Fittings Industry (MSS).
 - .1 MSS-SP-67-02, Butterfly Valves.
 - .2 MSS-SP-70-98, Cast Iron Gate Valves, Flanged and Threaded Ends.
 - .3 MSS-SP-71-97, Cast Iron Swing Check Valves Flanged and Threaded Ends.
 - .4 MSS-SP-80-03, Bronze Gate, Globe, Angle and Check Valves.
 - .5 MSS-SP-85-02, Cast Iron Globe and Angle Valves, Flanged and Threaded Ends.

1.3 SUBMITTALS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Closeout Submittals.
 - .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

PART 2 - PRODUCTS**2.1 BLACK STEEL PIPE**

- .1 Steel Pipe for Heating: Complying with ASTM A53/A53M Standard, Grade B, Schedule 40.

2.2 PIPE JOINTS FOR BLACK STEEL

- .1 NPS 2 and under: Screwed fittings with PTFE tape or lead-free pipe dope in accordance to ASTM.

HYDRONIC SYSTEMS STEEL

- .2 Pipe Thread: Taper.

2.3 FITTINGS FOR BLACK STEEL

- .1 Screwed Fittings: Malleable iron, to ASME B16.3 Standard, Class 150.
- .2 Unions: Malleable iron, to ASTM A47/A47M and ASME B16.3.

PART 3 - EXECUTION**3.1 PIPING INSTALLATION**

- .1 Install pipe work in accordance with Section 23 05 05 - Installation of Pipework.
- .2 Temporary relocation and relocation work on the initial location of the liquid cooler (glycol) shall be coordinated with the Contractor. The glycol piping between the temporary site and the building must be installed in a manner that will not interfere with the Contractor's operations and be protected from accidental breakage during the repair of the building's envelope.

3.2 TESTING

- .1 Test system in accordance with Section 23 05 05.

END OF SECTION