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PART 1 - GENERAL**1.1 GENERAL**

- .1 All drawings and all sections of the specifications shall apply to and form an integral part of this section.

1.2 REFERENCE

- .1 ANSI B16.18-1984, Cast Copper Alloy Solder Joint Pressure Fittings.
- .2 ANSI B16.22-1980, Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.
- .3 ANSI B16.24-1979, Bronze Pipe Flanges and Fittings, Class 150 and 300.
- .4 MSS-SP-80-1979, Bronze Gate, Globe, Angle and Check Valves.
- .5 ASTM B32-89, Specification for Solder Metal.
- .6 ASTM B306-88, Specification for Copper Drainage Tube (DWV).
- .7 CAN/CSA-B125-M89, Plumbing Fittings.
- .8 CAN/CSA-B45 Series-88, CSA Standards on Plumbing Fixtures.
- .9 CAN3-B79-M79, Floor Drains and Trench Drains.
- .10 PDI-WH201-77, Water Hammer Arrestors.

1.3 WORK INCLUDED

- .1 Modify existing natural gas piping system to suit new connected load c/w new gas meter.
- .2 Condensate drip to cooling coil.

1.4 RELATED WORK SPECIFIED ELSEWHERE

- .1 Mechanical General Provisions: Section 15010
- .2 Insulation: Section 15100
- .3 Electrical General Provisions: Section 16000

PART 2 - PRODUCTS**2.1 PIPE AND FITTING**

- .1 General: Pipe and fittings shall conform to the standard listed in the applicable Building Code (latest Revision).
- .2 Drains and Vents:
 - .1 Drains and vent pipes shall be in accordance with local or provincial regulations with the following exceptions, unless otherwise specified.
 - .1 Effluent Gravity:
 - .1 Piping:
 - .1 All cast iron soil pipe shall be class 4000:
 - .1 CAN3-B70
 - .2 Fittings/Joints:
 - .1 Gaskets:
 - .1 ASTM C564
 - .2 Mechanical joint couplings shall have a corrugated stainless steel sleeve over the joint with stainless steel worm drive securing bands tack welded to the sleeve were exposed.
 - .1 Titan, St. Croix
 - .3 Wrought copper vent type DWV:
 - .1 ASTM B 306.
 - .4 Cast Brass:
 - .1 CAN/CSA B 125.
 - .5 Wrought copper:
 - .1 CAN/CSA B 125.
 - .2 Drip to be 1 ½ times deep to the negative pressure (+/- 5") first leg down with (2 ½") second leg up as part of the trap.
 - .2 Natural Gas:
 - .1 In accordance with CAN1-B149.1 M- Latest Edition.
 - .2 Piping:
 - .1 Steel to ASTM A120 Sch. 40 seamless as follows:
 - .1 Up to 50 mm Ø (2"Ø) screwed
 - .2 63 mm Ø (2 ½"Ø) and up plain end
 - .3 Fittings:
 - .1 Screwed: CGA approved gas tape on joints.
 - .2 Welded fittings: to CSA W47.1
 - .1 Malleable iron screwed fittings (banded): Class 150 to ANSI B16.3
 - .2 Steel butt-welding fittings: to ANSI B16.9
 - .3 Unions, malleable iron, brass to iron, ground seat: to ANSI B16.3
 - .4 Bolts and nuts: to ANSI B18.2.1 and ANSI B18.2.2
 - .5 Nipples, Schedule 40: to ASTM A53
 - .3 Purge after pressure test in accordance with CAN1-B149.1-M – Latest Edition.

2.2 VALVES

- .1 General:
 - .1 Valve parts must be of a material recommended for the service. All valves must be installed with the stems upright or horizontal, not inverted. Any valves not specifically covered herein shall be of comparable quality to those specified.
- .2 Natural Gas:
 - .1 Manual shut-off of the plug, ball or eccentric type.
 - .1 Shall not be subjected to either a temperature or pressure greater than is certified rating.

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- .2 Pressure reducing: Confirm with supplier pressure system will operate at as well as where reduction may be introduced into the system.
 - .1 Tight shut off is a requirement of all regulators.
 - .2 Sized for maximum of 60% of full rated capacity.
 - .3 Regulator connections shall be no smaller than half the pipe size serving the regulator.
 - .4 Pressure relief to protect each regulator from an over pressure condition.
 - .5 Relief valves may be throttling type or pop relief unless otherwise dictated by Code.
 - .6 Internal relief casing vents must be piped separately to outdoors.
 - .7 Materials:
 - .1 Bodies: Cast iron, bronze and steel.
 - .2 Diaphragm: Nitrile, neoprene and stainless
 - .3 Packing: TFE where applicable.
 - .1 Fisher, Canadian Meter.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

- .1 All pipe shall be cut accurately to measurements taken at the site and shall be installed without springing or forcing. All changes in direction shall be made with fittings.
- .2 All connections to equipment shall be made with unions or flanges.
- .3 Valve working parts shall be removed during installation to prevent damage from heat where brazing, soldering or welding is used.
- .4 Comply with C.S.A. Standard W117.2 "Code for Safety in Welding and Cutting".
- .5 All piping in accessible pipe spaces shall be run in such a way that it does not interfere with free access into the pipe space.

3.2 JOINTS

- .1 All joints shall be made in accordance with manufacturer's recommendations.

3.3 TESTING

- .1 All piping systems shall be pressure tested as follows:
 - .1 Natural gas system (*new + existing*) - in accordance with Code regulations.
- .2 General:
 - .1 All systems and equipment will be subject to operating tests to verify that they operate properly as directed by the Contract Administrator.
 - .2 The Contract Administrator's representative shall witness tests. Give 48 hours notice in advance of all tests. All tests shall be witnessed by the Contractor with written confirmation.