

NATURAL GAS PIPING

1. GENERAL

1.1 Scope

- .1 Gas meter change-out coordination.
- .2 Provide new gas service complete:
 - .1 Gas Piping
 - .2 Fittings and Valves
 - .3 Pressure Regulators
 - .4 Testing
 - .5 Service Connections

1.2 References

- .1 American Society of Mechanical Engineers (ASME)
 - .1 ASME B16.5, Pipe Flanges and Flanged Fittings.
 - .2 ASME B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
 - .3 ASME B16.22, Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.
 - .4 ASME B18.2.1, Square and Hex Bolts and Screws.
- .2 American Society for Testing and Materials (ASTM)
 - .1 ASTM A 47/A47M, Specification for Ferritic Malleable Iron Castings.
 - .2 ASTM A 53/A53M, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.
 - .3 ASTM B 32, Specification for Solder Metal.
 - .4 ASTM B 75M, Specification for Seamless Copper Tube Metric.
- .3 Canadian Standards Association (CSA)
 - .1 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.
 - .2 CAN/CSA B149.1, Natural Gas and Propane Installation Code.

1.3 Product Data

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

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1.4 Closeout Submittals

- .1 Provide maintenance data for incorporation into manual.

2. PRODUCTS

2.1 Pipe

- .1 Steel pipe: to ASTM A 53/A53M, Schedule 40, seamless as follows:
 - .1 NPS 1/2 to 2, screwed.
 - .2 NPS 2 1/2 and over, plain end.

2.2 Jointing Material

- .1 Screwed fittings: pulverized lead paste.
- .2 Welded fittings: to CSA W47.1.
- .3 Flange gaskets: non-metallic flat.
- .4 Soldered: to ASTM B 32, 50/50.

2.3 Fittings

- .1 Steel pipe fittings, screwed, flanged or welded:
- .2 Malleable iron: screwed, banded, Class 150.
- .3 Steel pipe flanges and flanged fittings: to ASME B16.5.
- .4 Welding: butt-welding fittings.
- .5 Unions: malleable iron, brass to iron, ground seat, to ASTM A 47/A47M.
- .6 Bolts and nuts: to ASME B18.2.1.
- .7 Nipples: Schedule 40, to ASTM A 53/A53M.

2.4 Valves

- .1 Conform to CGA Standard 3.16.
- .2 Provincial Code approved, lubricated plug type.

2.5 Pressure Regulator

- .1 Self-operated gas pressure regulator; malleable iron body. Size for full gas load to reduce gas pressure from 35 kPa (5 psig) to 2.7 kPa (0.4 psig). Manufacturer: shall be equal in accordance with B6 to Fisher.

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3. EXECUTION

3.1 Gas Meter

- .1 The existing gas meter needs to be changed to accommodate the new larger boilers. Coordinate date of gas meter change with Manitoba Hydro and Contract Administrator at first site meeting.

3.2 Piping

- .1 Install in accordance with Section 23 05 01 - Common Work Results for Mechanical, supplemented as specified herein.
- .2 Install in accordance with applicable Provincial/Territorial Codes.
- .3 Install in accordance with CAN/CSA B149.1.
- .4 Install vent piping for all pressure regulators.
- .5 Install drip points:
 - .1 At low points in piping system
 - .2 At connections to equipment

3.3 Valves

- .1 Install valves with stems upright or horizontal unless otherwise approved by Contract Administrator.
- .2 Install valves at branch take-offs to isolate pieces of equipment, and as indicated.

3.4 Pressure Regulator

- .1 Main gas service distribution piping from gas meter is 34.5 kPa (5 psi). Contractor shall provide regulators and vent piping at each piece of gas fired equipment.

3.5 Field Quality Control

- .1 Test system in accordance with CAN/CSA B149.1 and requirements of authorities having jurisdiction.

3.6 Purging

- .1 Purge after pressure test in accordance with CAN/CSA B149.1.

3.7 Pre-Start-Up Inspections

- .1 Check vents from regulators, control valves, terminate outside building in approved location, protected against blockage, damage.
- .2 Check gas trains, entire installation is approved by authority having jurisdiction.

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3.8 Cleaning and Start-Up

- .1 In accordance with Section 23 08 02 - Cleaning and Start-Up of Mechanical Piping Systems, supplemented as specified herein.
- .2 In accordance with requirements of CAN/CSA B149.1, supplemented as specified herein.

3.9 Performance Verification (P.V.)

- .1 Test as required by current edition of CAN/CGA 149.1, and authority having jurisdiction.

END OF SECTION