

**SECTION 22 10 00
DISTRIBUTION PIPING (GAS)**

PART 1 GENERAL

1.01 REFERENCE STANDARDS

- A. ASME B1.20.1 - Pipe Threads, General Purpose, Inch; 2013 (Reaffirmed 2018).
- B. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2021.
- C. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 Through NPS 24 Metric/Inch Standard; 2025.
- D. ASME B16.39 - Malleable Iron Threaded Pipe Unions: Classes 150, 250, and 300; 2025.
- E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.
- F. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings; 2021.
- G. AWWA C219 - Bolted Sleeve-Type Couplings for Plain-End Pipe; 2023.
- H. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2021.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 SUMMARY

- A. This Section includes gas piping in buildings (mains and risers) and related components.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with standards of authorities having jurisdiction for gas piping, including materials, installation, and testing.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

1.05 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with the requirements of New York City Fuel Gas Code and Authorities and Utilities having jurisdiction over the project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Preparation for Transport: Prepare valves according to the following:
 - 1. Ensure that valves are dry and internally protected against rust and corrosion.
 - 2. Protect valves against damage to threaded ends.
 - 3. Set valves in best position for handling. Set valves closed to prevent rattling.

- B. During Storage: Use precautions for valves according to the following:
 - 1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
 - 2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.
- C. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- D. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- E. Protect fittings and specialties from moisture and dirt.

PART 2 PRODUCTS

2.01 GAS PIPE

- A. Steel Pipe: ASTM A53/A53M, black steel, Schedule 40, Type F, Grade A.
 - 1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
 - 2. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.
 - 3. Field joints and fittings shall be coated in accordance with Con Edison Spec G-8209.
 - a. Joint Cover Kits: Epoxy paint, adhesive, and heat-shrink PE sleeves.
 - 1) 2.02 CAST IRON PIPE
 - (a) Sanitary, Vent and Storm Drainage Systems:
 - (1) Underground:
 - a. Conforming with ASTM A74, service weight cast iron soil pipe, hub and spigot fittings with neoprene gasketed compression joints.
 - (1) 2. Above Floor:
 - a. Conforming with CISPI 301, hubless, service weight, cast iron soil pipe and fittings (heavy duty couplings by Clamp-All, 125 "Husky SD4000", "MG Products" or equal with minimum shield thickness of 0.015" conforming to ((ASTM C1540))), or galvanized steel pipe with threaded galvanized cast iron recessed drainage fittings, with galvanized malleable beaded fittings for vent piping. Bolts or screws to be stainless steel.

2.02 JOINING MATERIALS

- A. Brazing Filler Metals: AWS A5.8, BCuP Series containing no more than 15% silver and to be cadmium and lead free.
- B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.
- C. Gas pipe installation Joint Compound and Tape: Suitable for natural gas.

2.03 PIPING SPECIALTIES

- A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- B. Tubular-Sleeve Pipe Couplings:
 - (1) Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - b. Cascade Waterworks Manufacturing.
 - c. Dresser, Inc.; Dresser Piping Specialties.
 - d. Ford Meter Box Company, Inc. (The); Pipe Products Div.
 - e. Hays Fluid Controls; a division of ROMAC Industries Inc.

- f. JCM Industries.
 - g. Smith-Blair, Inc.
 - h. Viking Johnson.
2. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.
 - a. Standard: AWWA C219.
 - b. Center-Sleeve Material: Manufacturer's standard.
 - c. Gasket Material: Natural or synthetic rubber.
 - d. Pressure Rating: 150 psig minimum.
 - e. Metal Component Finish: Corrosion-resistant coating or material.
- C. Flexible Connectors:
1. Nonferrous-Metal Piping: Bronze hose covered with bronze wire braid; with copper-tube, pressure-type, solder-joint ends or bronze flanged ends brazed to hose.
 2. Ferrous-Metal Piping: Stainless-steel hose covered with stainless-steel wire braid; with ASME B1.20.1, threaded steel pipe nipples or ASME B16.5, steel pipe flanges welded to hose.
- D. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- E. Seals: Seals around pipes thru building walls shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the conduit and wall opening. Wall seals shall be Thunderline LINK-SEAL Model "C" as manufactured by Pipeline Seal & Insulator Inc. (PSI) or equal.
- F. Escutcheons
1. Neat, spun or stamped No. 25 USSG steel, firmly secured to the pipes by means of expansion bolts, clamps or set screws. Escutcheons shall be of sufficient outside diameter to amply cover up the sleeved openings for the pipes.
- G. Dielectric Fittings: Combination of copper alloy and ferrous; threaded, solder or plain end types; and matching piping system materials.
1. Dielectric Unions: Factory-fabricated union assembly, designed for 250-psig minimum working pressure at 180 deg F. Include insulating material that isolates dissimilar metals and ends with inside threads according to ASME B1.20.1.
 2. Dielectric Flanges: Factory-fabricated companion-flange assembly, for 150- or 300-psig minimum working pressure to suit system pressures.
 3. Dielectric-Flange Insulation Kits: Field-assembled companion-flange assembly, full-face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
 - a. Provide separate companion flanges and steel bolts and nuts for 150- or 300-psig minimum working pressure to suit system pressures.
 4. Dielectric Couplings: Galvanized-steel couplings with inert and noncorrosive thermoplastic lining, with threaded ends and 300-psig minimum working pressure at 225 deg F.
 5. Dielectric Nipples: Electroplated steel nipples with inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved end types, and 300-psig minimum working pressure at 225 deg.

2.04 BALL VALVES

- A. Gas Equipment Shutoff Valves
1. Equipment stopcocks 2 inches and smaller shall be bronze standard port one piece ball valve having stop check with valves 3/4 inch in size having lever handle, and larger sizes having square (or "T") head. Stopcocks 3/4" in size shall be tested as per ANSI Z21.15 at 3 psi for one hour, AGA/CSA certified and OTCR approved.
 2. Manufacturers.

- a. Legend model T-3000.
- b. Legend model T-3001.

2.05 CONTROL VALVES

- A. Building Shutoff Valves
 1. Building shutoff valves shall be iron body plug valve with threaded or flanged ends having lockwing for closed position and be of type approved by the Utility serving the area.
 2. Manufacturers.
 - a. Nordstrom, Walworth, or equal.
- B. Riser Valves and Meter Valves
 1. Valves shall be iron body plug valve or brass ball valve having lockwing for closed position and be of type approved by the Utility serving the area.
 2. Manufacturers.
 - a. Jomar, Mueller, Rockford-Eclipse, A.Y. McDonald, or equal.

2.06 FLEXIBLE CONNECTOR

- A. Flexible connectors shall be 48 inch long stainless steel, with steel (zinc plated) fittings. Ends of connector shall allow approximately 3/8 inch longitudinal movement of fitting. Flexible connector shall be approved by the OTCR (Office of Technical Certification and Research, Dept of Buildings), and the AGA or CSA for use as range connectors. Connector shall physically bear permanent identification indicating the manufacturer's name and the OTCR and AGA/CSA approvals. Flexible connectors shall be Brass Craft model CSSC or equal.
- B. Flexible connector (Dresser couplings & fittings) in gas main is not allowed post-meter.

2.07 THREADED & FLANGED CONNECTOR

- A. Threaded or Flanged connectors are required post-meter.

2.08 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying utility piping, 6 inches wide and 4 mils 0 inch thick, continuously inscribed with a description of the utility; colored as follows:
 1. Yellow: Gas.
- B. Cathodic Anode
 1. The minimum size and weight of the packaged anodes with backfill shall be as follows:
 2. Anode size: 5" X 5" X 23" long
 3. Anode weight: 32 lbs.
 4. Total weight: 72 lbs.

PART 3 EXECUTION

3.01 PIPING APPLICATIONS

- A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
- B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
- C. Provide lockwing valves in gas systems for shut-off of risers.
- D. Install unions downstream of appliance valves.

- E. Where exposed pipes pass through wall, partition, floor, or ceiling they shall be fitted with escutcheons, firmly secured to the pipes with expansion bolts, clamps or set screws. Escutcheons will not be required in crawl spaces or pipe access spaces. Except otherwise specified escutcheons shall be of sufficient outside diameter to amply cover up the sleeved and/or sleeveless openings for the pipes, and shall be installed as to provide a neat finish. Escutcheons shall be attached by means of expansion bolts, clamps or set screws. Except for stainless steel, all escutcheons shall be primed and painted the same color as the pipe. Escutcheons shall only be installed after firestopping has been installed.
- F. Flanges, unions, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.
- G.

3.02 PIPING INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Grounding and bonding shall comply with NYC Fuel Gas Code sections 309 and 310.
- C. Route piping in orderly manner and maintain gradient.
- D. Install piping to conserve building space and not interfere with use of space.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- F. Provide clearance for access to valves and fittings.
- G. Provide access where valves are not exposed.
- H. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- I. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting.
- J. Install valves with stems upright or horizontal, not inverted.
- K. Above Ground Gas Pipe Installation
 - 1. Except as otherwise indicated by the Authority, new risers shall be installed exposed in kitchens.
 - 2. All new gas piping shall be black steel pipe with threaded malleable iron fittings. Apply pipe joint compound (Pro Dope, Blue Lick Luck, or equal) to male threads only. Lampwick, teflon tape or teflon based compounds are not acceptable. Piping of 4 inch and larger diameter shall be welded.
 - 3. Unless otherwise specified all new gas piping and valves shall be sized as the existing piping that is to be replaced and/or as shown on the drawings. Branch take-offs to risers in cellars shall be made with right and left coupling and branch take-offs in apartments from risers shall be made with two elbow swing.
 - 4. Where size of existing riser cannot be determined, riser shall be sized on the basis of the number of ranges served by the riser as indicated in the table below.

<u>Number of Ranges</u>		<u>Riser Size (inches)</u>
1 - 3	1	
4 - 8	1-1/4	
9 - 18	1-1/2	
19 or more	2	

In no case shall the riser size be larger than the size of the cellar branch and riser control valve.
 - 5. Portion of piping passing thru slab opening or sleeve shall be protected against corrosion with wrapped around 2" wide cold applied tape such as Tyco Adhesives (formerly Polyken Technologies) No. 826 or equal. Before cold tape is applied provide a coat of primer of same manufacturer as tape. Consult DOB Plumbing inspector for waiver of the tap requirement .

6. Provide all new connections to gas ranges with new 3/4 inch stopcock installed on rigid pipe as close to the riser as practical. Extend rigid pipe to the location of the gas range. Connect ranges to the pipe using new flexible connectors and apply sealing compound as recommended by the manufacturer to insure tight connections.

3.03 JOINT CONSTRUCTION

- A. Welded Joints for Gas Piping:
 1. Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators.
 2. Bevel plain ends of steel pipe.
 3. Patch factory-applied protective coating as recommended by manufacturer at field welds and where damage to coating occurs during construction.

3.04 NOT USED

3.05 GAS PIPING SCHEDULE

- A. Aboveground natural-gas piping shall be the following:
 1. Steel pipe with malleable-iron fittings and threaded joints (up to and including 4 inch size).

END OF SECTION 22 10 00 22 10 00