Specifications And Requirements For Gas Installations

People. Power. Possibilities.

Central Hudson

A FORTIS COMPANY

Effective- February 2021

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Central Hudson Gas & Electric Corp.

Directory of Company Offices

Upper Hudson Division

Catskill Office
7964 Route 9W
Catskill, NY 12414

Kingston Office
2001 Route 9W
Lake Katrine, NY 12449

Mid-Hudson Division

Poughkeepsie Office
284 South Avenue
Poughkeepsie, NY 12601

Lower Hudson Division

Fishkill Office
25 Central Hudson Way
Fishkill, NY 12524

Newburgh Office
610 Little Britain Road
New Windsor, NY 12553

Customer Service

(845) 452-2700
(800) 527-2714

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Central Hudson Gas & Electric Corp.

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Central Hudson Gas & Electric Corp.

1. INTRODUCTION

1.1 Purpose

The purpose of this book is to present information, specifications, and requirements pertaining to the delivery of natural gas by Central Hudson Gas & Electric Corporation (the Company). Adherence to the specifications and requirements set forth herein will protect the interests of the Customer and the Company and will result in installations that comply with codes and regulations necessary for safe, adequate, and satisfactory service.

1.2 Scope

The information, specifications, and requirements compiled in this book pertain to the equipment connecting the Customer's and the Company's natural gas systems and to other subjects associated with the delivery of natural gas that are of mutual interest to the Customer and the Company. It should be noted that this is not a complete set of specifications governing the installation of natural gas piping and equipment. It is the Customer's responsibility to research and comply with any other applicable codes or standards pertaining to the installation of natural gas piping and equipment.

1.3 Rate Schedules

Natural gas tariffs and the rules and regulations pertaining thereto are on file with the New York State Public Service Commission (PSC) and are available for download from the Company's website at www.CentralHudson.com.

1.4 Cooperation

It is the Company's goal to provide and maintain safe and reliable natural gas service in a courteous and efficient manner. The submittal of preliminary information to the Company early in the development of plans leading to new or increased natural gas service will aid in optimum scheduling of the work of both the Company and the Customer. **Strict and complete adherence to the specifications and requirements in this book will expedite the delivery of natural gas service.**

1.5 Codes

These specifications supplement the Fuel Gas Code of New York State and all other applicable codes. They are not a substitute for these codes. To provide for safe installations, the Company requires that the Customer's piping installations comply with these specifications and all other applicable codes. Service may be denied if these specifications and all other applicable codes are not met. The Company accepts no liability for direct or indirect damages resulting from the Company's refusal to activate a service or from the Company terminating a service that does not meet these specifications and all other applicable codes.

1.6 Responsibility

The Customer has the responsibility to maintain his or her gas piping and equipment in a safe and operating condition. Any significant changes in connected loads shall be reported to the Company immediately. The Company does not accept any responsibility for the Customer's piping and equipment.

1.7 Objectionable Equipment

The Company reserves the right to discontinue service where equipment used by a Customer interferes with the operation of facilities of the Company or its Customers, until the Customer discontinues the use of such equipment or installs corrective equipment.

1.8 Revisions

These specifications will be revised or amended as necessary to protect the mutual interests of the Customer and the Company.

The latest edition of this book shall be used.

2. DEFINITIONS

Air Shutter - An adjustable device for varying the size of the primary air inlet(s).

Applicant - A customer, developer, builder, or other person, partnership, association, corporation, or governmental agency that applies for gas service or for the construction of gas facilities.

Appliance – Any apparatus or device that utilizes a fuel or a raw material as a fuel to produce light, heat, power, refrigeration or air conditioning. Also, an apparatus that compresses fuel gases.

Atmospheric Pressure - The pressure exerted on the earth's surface by the weight of the atmosphere above it. At sea level, this is approximately 14.7 pounds per square inch (760 mm of mercury).

Baffle - An object placed in an appliance to change the direction of or retard the flow of air, air-gas mixture, or flue gases.

British Thermal Unit (BTU) -The quantity of heat required to raise the temperature of one pound of fresh water (1) degree Fahrenheit.

Building - A structure which stands alone or which is cut off from adjoining structures by firewalls, which meet the requirements specified by the New York State Fire Code and any other applicable local codes.

Burner - A device for the final conveyance of gas, or a mixture of gas and air, to the combustion zone. (See also specific type of burner.)

Chimney (See also Gas Vents) - A vertical shaft enclosing one or more flues for conveying flue gases to the outside atmosphere.

A. Factory-Built Chimney - A chimney listed for the intended application and installed according to manufacturer's instructions.

B. Masonry Chimney - A chimney of solid masonry units, bricks, stones, listed masonry units, or reinforced concrete, lined with suitable flue liners.

C. Metal Chimney - A field-constructed chimney of metal.

Combustible Material - As pertaining to materials adjacent to or in contact with heat producing appliances, vent connectors, gas vents, chimneys, steam and hot water pipes, and warm air ducts, shall mean materials made of or surfaced with wood, compressed paper, plant fibers, or other materials that will ignite and burn. Such material shall be considered combustible even though it was flame proofed, fire retardant treated, or plastered.

Combustion - Rapid oxidation of fuel gases accompanied by the production of heat, or heat and light. Complete combustion of a fuel is possible only in the presence of an adequate supply of oxygen.

Combustion Air - Air supplied to an appliance specifically for the combustion of fuel.

Combustion Products - Constituents resulting from the combustion of a fuel with the oxygen of the air, including the inerts but excluding excess air.

Company - Central Hudson Gas and Electric Corporation.

Control - The methods and means of governing the operation of an appliance.

Convection - Transfer of heat by movement of a fluid or air containing the heat.

Cost or Expense - "Cost" or "Expense" shall include labor, material, and other applicable charges, including overheads required for specified work to be performed by Company personnel.

CSST – Corrugated Stainless Steel Tubing

Cubic Foot of Gas - (Standard Conditions) The amount of gas which will occupy 1 cubic foot at a temperature of 60°F under a pressure equivalent to that of 14.73 psia without adjustment for water vapor.

Customer - A present or prospective user of the Company's gas service or agent thereof.

Customer Piping – The pipe and fittings which carry gas from the outlet of the meter to any points of utilization. This may include additional exterior pipe running along the building wall, up to and along the building roof, or back down below grade to other risers at other utilization points.

Density - The weight of a substance per unit volume. As applied to gases, the weight in pounds of a cubic foot of gas at standard pressure (14.73 psia) and temperature (60°F).

Dew Point - The temperature at which vapor starts to condense into a liquid. In undiluted flue gases it is about 140°F. In diluted gases in the vent it is approximately 100 to 105°F.

Dilution Air - Air that enters a draft hood and mixes with the flue gases.

Direct Spark Ignition System - An ignition system in which gas is ignited directly by a spark formed between two high-voltage electrodes. No intermediate pilot flame is used.

Direct Vent Appliances - Appliances that are constructed and installed so that all air for combustion is obtained from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

Downstream - In the direction of the Customer's gas utilization equipment.

Draft Hood - A device built into an appliance or made a part of the flue or vent connector from an appliance which is designed to (1) provide for the ready escape of the flue gases in the event of no draft, back draft, or stoppage beyond the draft hood; (2) prevent a back draft from entering the appliance; and (3) neutralize the effect of stack action of the chimney or gas vent upon the operation of the appliance.

Excess Air - Air which passes through an appliance and the appliance flues in excess of that which is required for complete combustion of the gas. Usually expressed as a percentage of the air required for complete combustion of the gas.

Excess Flow Valve – A device installed on services operating at 10 psig or more near the service tee to prevent gas from flowing downstream in the event of failure of the service between the tee and meter. When the gas flow through the device exceeds a designated rate, the valve automatically closes and stops all or a major portion of the gas flow. A tag on the service riser should indicate the presence of an excess flow valve.

Flue - The general term for the passageways in an appliance and vents through which combustion products pass to the outside atmosphere.

A. Appliance Flue - The flue passageways within an appliance.

B. Chimney Flue - The vertical conduit for conveying combustion products delivered to it by a vent connector to the outside atmosphere.

Flue Liner – Clay and/or flexible stainless-steel liner that is internal to the chimney from bottom to top.

Flue Loss - The heat loss by flue products exiting from the flue outlet of an appliance.

Gas Vents - Factory-built vent piping and vent fittings listed by a nationally recognized testing agency that are used in accordance with the terms of their listings for conveying flue gases to the outside atmosphere.

A. Type B Gas Vent - A gas vent for venting gas appliances with draft hoods and other gas appliances listed for use with Type B Gas Vents.

B. Type B-W Gas Vent - A gas vent for venting listed gas-fired vented wall furnaces.

C. Type L Venting System - A venting system composed of listed factory-built components assembled in accordance with the terms of listing for venting appliances listed for use with Type L venting systems. They may be used also where Type B gas vents are permitted.

Heat Anticipator - A small resistance heater in a wall thermostat, which, by heating the thermostat enclosure, causes the thermostat to cycle to off before the set room temperature is reached to maintain constant room temperature.

Heat Exchanger - Any device for transferring heat from one fluid to another.

High Pressure - Pressure greater than 60 psig but not exceeding 120 psig.

Humidistat - A device to sense and control the amount of moisture (relative humidity) in circulating air.

Hydrocarbon - Any of a number of compounds composed of carbon and hydrogen.
Ignition Temperature - The minimum temperature at which combustion can be started.

Inches of Water Column - A unit used in measuring pressures. One inch of water column equals a pressure of 0.578 ounces per square inch (1 PSI = 27.7" W.C.). One-inch mercury column equals about 13.6 inches of water column.

Incomplete Combustion - Combustion in which the fuel is only partially burned.

Infrared Burner - (Radiant Burner) A burner that is designed to operate with a hot, glowing surface. A substantial amount of its energy output is in the form of infrared radiant energy.

Input Rating - The gas-burning capacity of an appliance in BTU per hour as specified by the manufacturer. Appliance input ratings are based on sea level operation and need not be changed for operation up to 2,000 feet elevation. For operation at elevations above 2,000 feet, input ratings should be reduced at the rate of 4% for each 1,000 feet above sea level.

Intermediate Pressure - Pressure greater than 30 psig but not exceeding 60 psig.

Liquefied Petroleum Gases - The terms "Liquefied Petroleum Gases", "LPG", and "LP Gas" mean and include any fuel gas that is composed predominantly of any of the following hydrocarbons or mixtures of them: propane, propylene, normal butane, or isobutene and butylenes.

Living Space – Space within a dwelling unit utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes.

LNG - Liquefied Natural Gas. Natural gas that which has been cooled until it becomes a liquid.

Low Pressure - Pressure up to and including 14.0 inches of water column.

Low Water Cutoff - A low-water cutoff is a mechanical device (usually a float switch) that is used to turn off the burner or shut off fuel to a boiler to prevent it from running once the water drops below a certain point. If a boiler is "dry-fired" (burned without water in it) it can suffer rupture or catastrophic failure.

Main - The pipes and equipment used by the Company for the distribution of natural gas to its customers.

Make-Up Air - Air supplied to a space to replace air exhausted or otherwise removed from the space.

Manifold - The conduit of an appliance, which supplies gas to the individual burners.

Medium Pressure - Pressure greater than 14.0 inches of water column but not exceeding 30 psig.

Mixer - That portion of a burner where air and gas are mixed before delivery to the burner ports.

Natural Draft - The motion of flue gases through an appliance generated by hot flue gases rising in a chimney or vent.

Natural Gas - Any gas found in the earth as opposed to gases, which are manufactured. For this document, any gas composed primarily of methane and lesser amounts of other constituents such as ethane, pentane, etc.

Odorant - A substance added to an otherwise odorless, colorless, and tasteless gas to give warning of gas leakage and to aid in leak detection.

Orifice - An opening in an orifice cap (hood), orifice spud, or other device through which gas is discharged and whereby the flow of gas is limited and/or controlled.

Power Burner - A burner in which either gas or air or both are supplied at pressures exceeding, for gas, the line pressure, and for air, atmospheric pressure.

Pressure-Temperature Relief Valve - A device applied to water heaters that will open to pass water or steam if excessive pressure or temperature occurs in the water heater tank.

Primary Air - The combustion air introduced into a burner, which mixes with the gas before it, reaches the port. Usually expressed as a percentage of air required for complete combustion of the gas.

Radiation - Heat transfer between a hot object and a cooler one without heating of the atmosphere between.

Regulator, Pressure - A device placed in a gas line for reducing, controlling, and maintaining the pressure in that portion of the piping system downstream of the device.

Relief Opening - The opening provided in a draft hood to permit the ready escape to the atmosphere of the flue products from the draft hood in the event of no draft, back draft, or stoppage beyond the draft hood, and to permit inspiration of air into the draft hood in the event of a strong chimney updraft.

Relief Valve - A safety valve designed to forestall the development of a dangerous condition by relieving either pressure or vacuum in the hot water supply system.

Return Air - Air returning through ductwork to be reheated by a forced-air furnace after circulation through the heated space.

Secondary Air - The air externally supplied to the flame at the point of combustion.

Service - The piping between the Company's gas main and the Customer's piping installation.

Service Pipe - The pipes and equipment used to deliver gas from the Company's distribution system to the piping system of the building or premises.

Specific Gravity - Specific gravity is the ratio of the weight of a given volume of gas to that of the same volume of air, both measured at the same temperature and pressure. Natural gas is approximately 0.6.

Spill Switch - A spill switch is a device (used in conjunction with a draft hood) that automatically interrupts the gas supply to a space or water heating appliance in the event the venting system malfunctions. By interrupting the gas supply, spill switches can reduce the risk of injury or death from products of combustion. Although the likelihood of a venting system or chimney malfunction may be small, spill switches do provide an additional measure of safety.

Standard Conditions - Pressure and temperature conditions selected for expressing properties of gases on a common basis. In appliance work, these are normally 14.73 psia and 60 °F.

Static Pressure - The pressure exerted by a motionless gas.

Temporary Service - A nonrecurring service intended to be used for a short time only.

Therm - A unit of heat energy equal to 100,000 BTU's.

Thermocouple - A device consisting of two wires or strips of dissimilar materials, which are joined together at one end (hot junction). When this hot junction is heated, the thermocouple produces a DC voltage across the other two ends (cold junction).

Thermostat - A switching device that is temperature-operated to control operation of an appliance.

Transmission Pressure - Pressure greater than 125 psig.

Unvented Room Heater – An unvented heating appliance designed for stationary installation and utilized to provide comfort heating. Such appliances provide radiant heat or convection heat by gravity or fan circulation directly from the heater and do not utilize ducts. A wall-mounted unvented room heater does not incorporate concealed venting arrangements in its construction and discharges all products of combustion through the front into the room being heated.

Upstream - In the direction of the gas supply point.

Vent - A device, such as a pipe, to transmit flue products from an appliance to the outdoors. This term also is used to designate a small hole or opening for the escape of a fluid (such as in a gas control).

Vent Connector - That portion of the venting system, which connects the gas appliance to the gas vent chimney.

Vent Terminal (Vent Cap) - The fitting at the end of a vent pipe that directs the flue gases into the outside atmosphere and keeps out rain, snow, debris, and animals.

3. GENERAL INFORMATION AND REQUIREMENTS

3.1 Application for Natural Gas Service

3.1.1 Accepted Format

Application for new natural gas service or upgrades to existing service can be made at the Central Hudson website at:

https://www.cenhud.com/forms/gas-service-agreement/

Application may also be made by fax or mail by completing the Natural Gas Service Request Form in Appendix B.

3.1.2 Required Lead-Time

Application for new service or service upgrade should be made as far as possible in advance of the date gas service is required. Additional lead-time may be necessary to gain additional third-party approvals such as permits or rights-of-way.

3.2 Payment of Fees and/or Deposits

If the Company has been contracted to perform work on Customer property or if previously billed amounts are outstanding, a security deposit or payment arrangements may be required as a condition for service.

3.3 Access

In accepting service, the Customer grants to identified Company employees and its' agents the right of access to Customer's premises at all reasonable times for such purposes as the reading of meters, inspection of Company meters and or piping. Additionally, upon accepting service, the customer agrees to provide access for installing, operating, maintaining, disconnecting and removing any and all property belonging to the Company whenever necessary into the future. Company employees or their

contractors authorized to visit Customer premises are furnished with an identification card, which they will show upon request. The Company reserves the right to disconnect service, should access for required maintenance and gas safety inspections of company owned equipment is repeatedly denied.

3.4 Character of Natural Gas Service

3.4.1 Responsibility

The Company will designate the character of service, meter location and the point of attachment.

3.4.2 Natural Gas Characteristics

Natural gas having a monthly average heating value of not less than 1,000 BTU per cubic foot is supplied to the Customer. Normal delivery pressure is 7 inches water column. However, seasonal variations from 4 to 12 inches water column may occur.

Large commercial or industrial loads may be supplied at higher pressures upon application to and approval by the Company.

3.5 New Natural Gas Service or Construction

3.5.1 Installation Requirements

A service will not be energized until all vented gas appliances, and all other appliances that are present at the time of unlock, are installed and operational.

3.6 Temporary Service

3.6.1 General

The Company provides temporary gas service for construction purposes, non-permanent usage, or other non-recurring uses.

3.6.2 Installation Requirements

The Customer shall provide substantial and adequate support for temporary service. The temporary service piping and equipment shall be installed and inspected in the same manner as required for permanent installations. Appliances requiring venting as per Fuel Gas Code of New York State must have code compliant venting fully installed before turn-on. Furthermore, temporary service installations will abide by all other regulations that apply in the Fuel Gas Code of New York State (latest edition).

3.6.3 Cost

The entire cost of installing and removing the temporary service facilities is the responsibility of the Customer.

3.7 Excavation, Construction and Demolition near Company Underground Facilities

3.7.1 General

Excavation, construction, and demolition at or near underground facilities require strict adherence to the provisions of 12 NYCRR 753 (Code Rule 753). The Customer/Contractor must call 811 several days in advance of such activities.

3.7.2 Responsibility

It is the responsibility of the Customer/Contractor to contact DigSafely New York by dialing toll free '811' to request a markout of all below grade facilities (electric, natural gas, telephone, water, sewer, etc.) shall be made at least two (2) but not more than ten (10) working days prior to the start of the proposed work. While many municipalities (water, sewer, etc.) are members of DigSafely New York, not all are. Therefore, a separate notification must be made to the municipality in these cases. If the excavation work will take place in the vicinity of privately-owned underground facilities it is the responsibility of the excavator to notify the facility owner.

At least seven working days in advance of the commencement date of the demolition, the excavator shall request an on-site Pre-Demolition Conference, through the one call notification system with all operators who have underground facilities at or near the proposed demolition area. A request for a Pre-Demolition Conference is not a substitute for the notice of intent to perform demolition work required by Code Rule 753.

The Customer/Contractor shall preserve and protect locational markings of Company underground facilities.

The Customer/Contractor shall provide satisfactory protection of the Company's underground facilities in accordance with the provisions of Code Rule 753.

3.8 Work Authorization

The Company prohibits any work on its facilities by unauthorized personnel. This includes, service risers, regulators, regulator stations, meters, meter bars and manifolds, etc.

Exception: Customer piping tie-in connection to Company Installed and Approved meter set or meter manifold position.

4. SERVICE PIPE INSTALLATIONS

4.1 General

4.1.1 Service Pipe

The Company will typically size and provide gas service to each building or premise through a single service pipe except where, for economic, operational, or load considerations, the Company elects to install more than one service pipe. The required service piping will be based on customer provided load information.

4.1.2 Route of Service

The route of the service and the type of construction will be determined by the Company after taking into consideration the location, size and nature of the proposed load and its relation to Company facilities.

4.1.3 Point of Service Termination

The Company's service pipe shall terminate at the outlet piping of the Company's meter or at the gas pressure regulator supplying the Customer's piping. The Company reserves the right to specify the location of the gas service connection. The Customer shall consult with the Company regarding the location of the service connection prior to starting construction. The Customer will pipe to the Company's meter set location.

4.1.4 Easements and Rights-of-Way

Easements or rights-of-way may be required, at Customer expense, to give the Company access to the metering/service installation and equipment for the purpose of connecting/energizing the service and for other purposes necessary for the delivery of service.

4.2 Customer Piping

4.2.1 General

All customer owned natural gas installations, including piping, valves and fittings, shall meet all applicable code requirements including but not limited to the Fuel Gas Code in New York State (latest edition), this document and any other applicable local or municipal requirements.

Customer piping must be installed plumb and level. In addition, it shall be properly supported to minimize any resulting stress or strain to the Company meter installation.

Piping installed above ground outdoors shall be protected from atmospheric corrosion by appropriate coating or paint, securely supported and located where it will be protected from physical damage. Where passing through an outside wall, the piping shall also be protected against corrosion by coating or wrapping with an approved inert material. Where piping is encased in a protective pipe sleeve, the annular space between the piping and the sleeve shall be sealed.

Gas piping installed on the roof surfaces shall be elevated above the roof surface and shall be supported in accordance with the National Fuel Code section 7.2.5.4 and Table 7.2.5.2. The support interval required for rooftop piping installations is the same as the support intervals required for all indoor piping. Rooftop gas piping runs for new construction on slightly sloped commercial roofs, must be installed in the direction of slope to prevent pipe breakage during ice sheet and snow sheet runoff. Rooftop installations are increasingly used for large retail / commercial buildings, and other applications. Note that the requirement does not specify a height the pipe needs to be elevated above the roof. Depending on local weather conditions and construction practices, the authority having jurisdiction may have specific height requirements for piping installed on rooftops, particularly where snow or rain may accumulate on a flat roof. Roof based supports shall be secured to the roof.

Underground piping, where installed below grade through the outer foundation or basement wall of a building, shall terminate on each end with Company approved gas risers. Refer to Figure 10. The annular space

between the gas piping and the sleeve shall be sealed and wrapped with an approved material suitable for the application at the foundation or basement wall to prevent entry of gas or water.

The Customer/Contractor shall provide a diagram of the installed customer owned underground piping to the District Service Supervisor.

Customer piping shall be supplied and maintained by the Customer.

4.2.2 Distribution Piping

Distribution piping in buildings shall be wrought iron, steel, galvanized steel or CSST (Corrugated Stainless-Steel Tubing).

The Customer's distribution piping shall be sized to adequately supply the rated demand of all connected appliances and in accordance with Section 402 of the Fuel Gas Code in New York State (latest edition).

Pipe size shall be calculated to prevent pressure drops greater than the minimum pressure required for proper equipment operation for low-pressure systems (see Section 402 of the Fuel Gas Code of New York State (latest edition)).

In addition, wrought iron, steel and galvanized steel piping shall be no smaller than 3/4" in pipe size for appliances rated at 50,000 Btuh or less and no smaller than 1" in pipe size, to within 18", of appliances rated in excess of 50,000 Btuh. CSST piping shall be no smaller than 23 equivalent hydraulic diameter (EHD) for appliances rated at 50,000 Btuh or less and no smaller than 31 EHD, to within 18", of appliances rated in excess of 50,000 Btuh.

Where the Customer piping is of a size not normally stocked by the Company, the Customer shall supply a suitable adaptor for connection to the Company's piping. For example, if the Customer uses 1½" distribution piping, a reducing fitting must be provided by the Customer to allow connection to the Company's 1" piping.

All runs should be parallel and/or at right angles to joists when practical.

Multiple runs of customer piping that terminate at a Company multi meter manifold shall have labels on the piping stating what is served by each customer pipe.

Gas metal piping, including CSST piping, shall not be used as a grounding electrode. For CSST bonding, refer to the Fuel Gas Code of New York State Section 310 for requirements.

4.2.3 CSST Piping

Installation of CSST piping shall be in accordance with the requirements set forth in the Fuel Gas Code of New York State. The Customer should verify with the local municipality if CSST piping is allowed.

CSST should be installed within the building structure. When installed along the side of a structure in an exposed condition, the CSST shall be protected inside a conduit or chase.

Gas Meter Connections: CSST systems shall terminate at the exterior wall of the building with a listed termination fitting securely mounted to the exterior of the structure. The termination fitting shall be rigidly connected to the gas meter with approved steel piping material. An acceptable alternate design is to penetrate the exterior wall with steel pipe and provide a rigid attachment for CSST within the building.

Installation of piping shall be performed only by service personnel specifically trained by CSST manufacturers and approved manufacturer representatives. Proof of CSST licensing shall be provided upon request.

Installation of CSST components shall be in accordance with standard practices set forth by the manufacturer. Striker plates shall be utilized wherever a tubing puncture threat may exist. Minimum bending radius of CSST shall conform to manufacturers recommended minimum bend radius.

Shut off valves installed in tubing systems shall be rigidly and securely supported independently of the tubing.

Testing of CSST piping shall be performed on entire system and not just the manifold (see also Section 4.5).

4.2.4 Press-Connect Fittings

May be utilized in accordance with the requirements set forth in the Fuel Gas Code of New York State (latest version). Use of press connect fittings is also authorized by NFPA 54 2018 Table A.5.6, and ANSI LC-4/CSA 6.32. Installers must be trained by the manufacturer or approved manufacturer's representative. All press fittings utilized regardless of manufacturer must comply with ANSI 6.32 installation requirements.

4.3 Relocation of Existing Company Facilities

Any relocation of existing Company facilities requested by the Customer, including the point of service termination, the location of the service piping, meters, or regulators, will be made in accordance with the Company's current relocation policy. The Customer will be responsible for reimbursing the Company for the requested work. See Appendix E for listing of charges for gas related work on Customer property.

4.4 URD Subdivisions

4.4.1 General

New York State Public Service Codes, Rules and Regulations require underground residential distribution (URD) in all new subdivisions, or in a new section of an existing subdivision, consisting of five (5) or more single-family homes or one or more multiple occupancy dwellings (including four (4) or more dwelling units). All mobile home developments, or extensions of an existing development, with five (5) or more permanent sites shall also be provided with a URD system. Information on URD and related costs can be obtained by contacting the Company.

4.4.2 Application Requirements

Prior to construction by the Company, the applicant for construction of underground electric and natural gas lines in a residential subdivision shall:

- Submit an application to the Company with sufficient lead-time for design of the facilities within the development.

- Provide the Company with a site map in AutoCAD DWG format approved by the local authority. The map shall show

the location of all lot lines, roads, sidewalks, curbs, water lines, sewer lines, storm drains and grades.

- Install all other proposed underground facilities including water mains, sewer lines, and drainage facilities.

- Establish final roadway and parking area grades within six (6) inches of final grade; place and maintain construction survey stakes indicating grades, property lines and the location of other utilities. Curbs shall be installed before the underground facilities are installed.

- Make such contribution and/or deposit as may be required in accordance with Company tariffs.

4.4.3 Additional Requirements

Services shall not be energized unless the following requirements are met:

- The installation is made in accordance with the requirements as contained herein.

- The installation meets all applicable codes and standards.

- The service lateral conductors shall be backfilled with proper sand padding for the entire length of the trench. The trench must be open for inspection by the authority having jurisdiction before backfilling. If the service fails to meet approval, the service must be corrected and inspected by the authority having jurisdiction.

- Yellow insulated copper Tracer Wire shall be installed adjacent to the underground nonmetallic piping. Access shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic piping. Tracer wire shall not be less than 18 AWG and the insulation type shall be suitable for direct burial.

- After approval by the authority having jurisdiction, the service lateral conductors shall be backfilled prior to the Company energizing service.

- Backfill shall be consistent with Construction Standard G 01 03 005.0 in the Appendices.

4.5 Pressure Testing

Prior to acceptance and initial operation, every natural gas piping installation shall be inspected, and pressure tested to determine that the materials, design, fabrication, and installation practices comply with the requirements of Section 406 of the Fuel Gas Code of New York State (latest edition)

- Test pressure shall be measured with a manometer or with a pressure-measuring device designed and calibrated to read, record, or indicate a pressure loss due to leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made.

- The test pressure to be used shall be no less than 1-1/2 times the proposed maximum working pressure, but not less than 3 psig (20 kPa gauge), irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50% of the specified minimum yield strength of the pipe.

- The contractor shall perform the test in the presence of a Company Commercial Representative or, with prior approval, provide a written letter indicating that the test was performed and that the piping system passed that test. (See Gas Piping Pressure and Leakage Test Form in Appendix A.) The duration of the test shall be enough to determine if a leak is present. In no case shall the length be less than 15 minutes for residential applications. Consult the Fuel Gas Code of New York State (latest edition) for commercial applications.

Pressure Test Form Link

https://www.cenhud.com/forms/gas-piping-pressure-and-leakage-test-form/

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Central Hudson Gas & Electric Corp.

5. METERING

5.1 General

The Company will furnish, install, and connect all meters required for billing purposes, and reserves the right to designate and approve all meter locations.

The Company will provide and install a meter bar or equivalent mounting facilities and will connect its supply piping to the inlet connection of the meter bar.

For single-meter residential services, the Customer or contractor shall connect the building's piping to the outlet connection of the meter bar. For all other types of service, the Company, at its discretion, will connect the building's piping to the outlet of the Company's meter set piping.

Whenever it is necessary to know in advance the dimensions of the meter to be used on a installation, the Company shall be consulted before the piping installation is started.

5.2 Meter Location

Meters shall be located outdoors. The Customer shall bring his piping to the outside of the building wall adjacent to the meter location. For mobile home installations, the Company will supply a flexible hose connection between the outlet of the meter and the Customer's piping connection.

It is in the mutual interest of both the Customer and the Company to provide a suitable outside meter location to facilitate examination, reading, billing, and replacement. Such location is to be as near as practicable to the point where the gas supply piping enters the building.

Gas meters shall not be installed where they will be subject to damage such as in driveways, public passages, show windows, under porches, or over doors, showcases, or shelving, or close to machinery, or in similar inconvenient or dangerous locations, or where they will be exposed to excessive corrosion. Where no such location is available, the Customer shall provide adequate protection for the Company's meter. Such protection shall meet or exceed the Company's standards and requirements.

A clear working space of **four feet square** shall be provided and maintained **in front** of the gas meter by the Customer. This space shall be permanently free of all obstructions, including but not limited to shrubs, bushes, trees, or other large plantings that may impede this required clear four foot/sq. working space.

Separation between a gas meter/regulator and an electric meter and/or meters shall be three (3) feet minimum (see Figure 16).

If the meter cannot be located in accordance with any of the above requirements, the Company shall be consulted before the piping installation is started.

5.3 Multiple Meters

When more than one meter is installed, the contractor installing the Customer's gas piping shall plainly mark each meter connection with a metal tag or other permanent means, designating the part of the building supplied through that meter.

When three or more meters are to be installed at one location, the Customer shall consult the Company before starting the piping installations since such installations require special consideration.

5.4 Customer Service Valve

This valve shall be placed inside the building near the point where the Customer's piping enters and shall be so located and installed that it will be accessible for operation (see Figure 1). If two or more meters supply the building, each meter supply valve shall be clearly marked to show the portion of the building gas piping system it controls. For those situations where the inside installation of a control valve would be impossible or inaccessible, the valve may be installed outside of the building providing prior Company approval is obtained.

5.5 Unauthorized Use

The breaking of seals, tampering with meters and unmetered piping is strictly prohibited (New York State Penal Law, Section 165.15). Violators will be prosecuted.

5.6 Demolition

The Company requires a minimum of seven (7) working days prior to starting demolition. No building demolition shall be undertaken until the Company's meters and regulators have been removed and the gas service has been retired (see also Section 3.7).

It is the Customer's responsibility to call 811 and schedule a pre-demolition meeting to consult with the local municipality, utilities, and other involved parties prior to commencing demolition work. See Section 3.7.

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Central Hudson Gas & Electric Corp.

6. ADEQUACY AND SAFETY OF INSTALLATION

6.1 General

The Company reserves the right to withhold service or discontinue service whenever the Customer's piping or equipment is found to be unsafe, inadequate, or unsuitable for receiving the Company's service. Service to a Customer may also be discontinued if it is determined to interfere with or impair the quality or continuity of service to the Customer or others. The Company has a "warning tag" procedure to cover hazardous conditions found on Customer premises. It is the Customer's responsibility to correct such deficiencies before service will be restored.

6.2 Liability

The Company, either by inspection or non-rejection, does not give any warranty as to the adequacy, safety, or other characteristics of any structure, equipment, piping, or appliances owned, installed, or maintained by the Customer or leased by the Customer from a third party.

6.3 Gas Odors

The Customer shall immediately notify the Company of any suspected gas odor, leakage or escape of gas by calling our toll-free hotline 1-800-942-8274 (note: this number is for reporting gas odors only) or 9-1-1.

6.4 Customer’s Installation

The Customer's piping, equipment, and appliances must be safe, adequate, and in accordance with generally accepted practice and applicable codes.

Before the gas unlock appointment commences, the Customer’s appliances must be fully wired and the water operational to appliances that utilize water before the gas meter will be turned on.

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Central Hudson Gas & Electric Corp.

7. APPLIANCE INSTALLATION

7.1 Certification

Gas appliances and accessories shall comply with applicable ANSI requirements regarding safe operation, substantial and durable construction, and acceptable performance (See also Chapter 6 of the Fuel Gas Code of New York State).

Such compliance may be determined by the presence on the appliance or accessory of a label of a nationally recognized testing agency such as the Canadian Standards Association (CSA). Compliance may also be determined by the listing of the appliance or accessory in a list published by such a nationally recognized testing agency that certifies the appliance or accessory complies with national safety requirements.

If no applicable ANSI requirements or certification listing exists for a particular appliance or accessory, specific approval of the Company shall be obtained prior to installation.

7.2 Installation and Accessibility

The appliance installation shall be made in accordance with the Fuel Gas Code of New York State and any other applicable codes or regulations.

All accessibility requirements as listed I Section 306 of the Fuel Gas Code of NYS shall be followed.

7.3 Equipment Shut-off Valves and Connections

Any gas utilization equipment connected to a piping system shall have an accessible, approved manual shut-off valve located on the same level (floor) installed upstream of any connector and within six (6) feet of the equipment it serves. A union or flanged connection shall be provided downstream from this valve to permit removal of controls. All installations are to be in compliance with the Fuel Gas Code of New York State (latest edition). All valves must be approved for use with gas fuel systems. One half-inch (1/2") valves are limited to the full port, ball type only. The use of core valves is limited to 3/4" and above. Shut off

valves shall be provided with access. Shut off valves serving movable appliances, such as cooking appliances and clothes dryers, shall be considered to be provided with access where installed behind such appliances. Appliance shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions.

All steam and hot water boilers shall be protected with a low-water fuel cutoff control in accordance with Section 1007 of the Mechanical Code of New York State (see also Section 7.4.1).

Any reduction in pipe size for appliance connection must be made downstream of the appliance shut-off valve and within a maximum of 18" of the appliance being connected.

Approved flexible connectors will be permitted for ranges and dryers. All other gas utilization equipment must be hard piped with the exception of approved equipment using manufacturer supplied flexible connectors or equipment requiring flexible connections to satisfy the manufacturer's installation instructions.

The installation of flexible connectors must satisfy the provisions of the Fuel Gas Code of New York State (latest edition). In particular:

- Flexible connectors must be of minimum practical length.
    - Flexible connectors must be visible and entirely within the same room as the equipment being served.
    - Flexible connectors must be protected from corrosion as well as physical, thermal damage.
    - An accessible shut-off valve must be provided in the rigid piping immediately upstream from the flexible connection or quick disconnect device.
    - Appliances that are moved should have a new flexible connector installed at the time of appliance reinstallation.

7.4 Specific Appliances

7.4.1 Boilers

All steam and hot water boilers shall be protected with a low-water cutoff control (see also Section 1007 of the Mechanical Code of New York State).

The low-water cutoff shall automatically stop the combustion operation of the appliance when the water level drops below the lowest safe water level as established by the manufacturer.

7.4.2 Unvented Gas Space Heaters

The Fuel Gas Code of New York State (latest edition) permits the sale and installation of unvented gas space heaters as supplemental heat sources in residential applications up to 40,000 BTU. The Company will allow the installation of these units if they comply with applicable state and municipal codes.

7.4.3 Air Conditioners

Gas piping serving gas heating utilization equipment may also serve cooling equipment when heating and cooling equipment cannot be operated simultaneously (see Section 626 of the Fuel Gas Code of New York State (latest edition)).

7.4.4 Domestic Water Heaters

Domestic water heaters shall be located as close as practicable to the chimney or gas vent and shall be effectively vented. These appliances, with the exception of those having sealed combustion systems, shall not be installed in bathrooms, bedrooms, or any occupied rooms normally kept closed (see Section 502 of the Plumbing Code of New York State).

7.4.5 Pool Heaters

Pool and Spa Heaters shall be tested in accordance with ANSI Z21.56 and shall be installed in accordance with the manufacturer's installation instructions. If the pool heater is supplied with natural gas from meter set and customer owned piping is installed underground the piping shall be plastic high-density polyethylene, which meets ASTM standard D2513. The pipe shall be rated for 100 PSIG. Each end of the customer owned underground gas piping to the pool shall have an approved riser. (Refer to figure #10). Tracer wire and danger tape is also required to be installed in trench. (Refer to figure #16). A sketch of the customer underground gas piping installation including measurements to its location shall be provided to Central Hudson. In most cases a larger capacity gas meter will be required to supply the additional load of the pool heater. It is the customer's and or their contractor's responsibility to contact Central Hudson at least 2-weeks before the larger meter installation is required.

7.4.6 Generators

Customer or Contractor must contact Central Hudson before the purchase of a natural gas generator to confirm gas system pressure capabilities in your area and your existing service capacity can handle the natural gas input requirements. (You need to get Generator BTU Load value before contacting the Central Hudson) It is the customer's and or their contractor's responsibility to contact the gas company at least 2-weeks before the larger meter installation is required.

7.4.7 ON-Demand Water Heaters

Contact Central Hudson before purchase an On-Demand Water Heater to confirm your present gas service size can handle the increased on-demand load. (You need to get On-Demand Water Heater BTU Load value before contacting the Central Hudson) It is the customer's and or their contractor's responsibility to contact the gas company at least 2-weeks before the larger meter installation is required.

7.4.8 Conversion Burners

Conversion Burners must be installed as per manufacturer's instructions. You must have a cleaned and lined chimney. You must have all required safety devices installed. (i.e.: spill switch, low water cutoff. Gas damper must be installed in place of a barometric damper.) Firing rate should not be set to lower than 10% of appliance input rating or no greater than 5% above input rating.

7.4.9 Specialized Process Equipment

The customer or customer's contractor must contact the gas company if any of the gas utilization equipment to be installed requires pressure beyond 8" of W.C. for proper operation.

8. VENTING, CHIMNEYS, AND COMBUSTION AIR

8.1 General

Venting systems shall be designed and constructed so as to provide a positive flow adequate to remove flue gases to the outside atmosphere (see Chapter 5 of the Fuel Gas Code of New York State).

A venting system serving gas utilization equipment requiring draft for proper operation shall be designed and installed to develop adequate draft. The installation shall satisfy the draft requirements of the equipment as defined in the manufacturer's instructions.

- Appliances should be installed as close as possible to the vent.
- The flue should enter the vent as high as possible while maintaining proper clearances.
- Where multiple appliances utilize a common vent, install the smaller input appliance closer to the vent or provide a separate entrance higher in the vent for the smaller appliance.
- Multistory venting shall be in accordance with Section 504 of the Fuel Gas Code of New York State.
- Equipment burning solid fuel shall not be connected to gas vents.

8.2 Venting Systems and Spill Switch Requirements

It is the Customer's responsibility to ensure chimneys and vents are inspected to ascertain that they are clear and free of obstructions.

It is required that masonry chimneys that are not clay lined, be lined with suitable listed stainless-steel flue liners. **Aluminum liners are not permitted in Central Hudson Service Territory.**

A complete **cleaning and documented inspection** of a clay lined chimney flue is required before turn-on when converting from other fuels to natural gas.

It is required that a sleeve be used for the flue connection to a chimney. This sleeve should be set using masonry cement and should be located at least 4" above the base of the chimney flue.

Sizing and termination of vents shall be as described in the Fuel Gas Code of New York State (latest edition).

The use of a **spill switch** is required in the following instances:

- Whenever a new space or water heating appliance is installed with an atmospheric draft hood that does not have an automatic safety device that interrupts the gas supply in the event of a venting system malfunction.

- Whenever an existing space or water heating appliance is converted from some other fuel to natural gas.

  ***whenever a spill switch is found to not be present or in working order on an existing space or water heating appliance with an atmospheric draft hood during any Gas Odor or C.O. Emergency investigation and, or during routine gas maintenance work.

For existing space and water heating appliances, it is strongly encouraged that spill switches be retrofitted.

Note: A spill switch is a device (used in conjunction with a draft hood) that automatically interrupts the gas supply to a space or water heating appliance in the event the venting system malfunctions. By interrupting the gas supply, spill switches can reduce the risk of injury or death from products of combustion. Although the likelihood of a venting system or chimney malfunction may be small, spill switches do provide an additional measure of safety.

Wherever a chimney is used with a fuel gas appliance, an accessible cleanout shall be provided. The cleanout shall have a tight-fitting cover and be installed so its upper edge is at least twelve (12) inches below the lower edge of the lowest chimney inlet opening.

8.3 Natural Gas Regulators

8.3.1 Regulators

Regulators shall not be located directly underneath windows or other building openings.

8.3.2 Regulator Venting

All regulators shall be vented in accordance with Section 410 of the Fuel Gas Code of New York State and the following:

- All vent lines must be sized at least the size of the vent tap in the regulator. At no time in the piping scheme shall the inside diameter be allowed to be decreased below this size.

- Vent lines shall be routed to the outside utilizing the most direct practical route to minimize bends and elbows. Vent terminus shall be located at least eighteen (18) inches from any opening where gas can enter the building.

- Minimum vent size (as indicated by vent tap size) may be run a maximum distance of 25 to 30 feet of equivalent pipe feet without increasing size. Vent size should be increased one pipe size for each additional 25 to 30 feet of pipe run.

- Regulators that develop chatter during operation, must have the first 25 to 30 feet of vent pipe removed and increased one pipe size. This should eliminate the chatter.

- It is recommended that each regulator be vented separately. Manifolding of regulator vents should be avoided. If a manifold configuration is proposed, the Customer/contractor shall submit to the Company a release from the regulator manufacturer stating that the design is approved prior to receiving service.

8.3.3 Combustion Air

All appliances shall be installed in a manner that provides adequate air for combustion. All installations shall be in accordance with the provisions of Section 304 of the Fuel Gas Code of New York State.

*Direct-Vent Appliances, gas appliances of other than natural gas natural draft design, vented gas appliances not designated as Category 1 and appliances equipped with power burners shall be provided with combustion, ventilation and dilution air in accordance with the appliance manufacturer's instructions.

Exception: Type 1 clothes dryers that are provided with makeup air in accordance with Section 614.6 of the Fuel Gas Code of NYS.

**Ref.-Fuel Gas Code of NYS Section 304/304.1*

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Central Hudson Gas & Electric Corp.

9. CUSTOMER INSTALLED LOW PRESSURE UNDERGROUND SERVICE PIPING TO OUTDOOR APPLIANCES

9.1 Purpose

This standard has been developed for use by the Customer/Contractor when installing low-pressure underground piping to supply outdoor gas appliances. It will avoid the need for the Company to provide an additional meter (and meter charge) at the Customer's facility.

This standard is not meant to be a complete summary of the rules and regulations governing the installation of outdoor gas piping. However, compliance with its conditions will help aid in the safe and timely supply of gas service to equipment.

This standard in no way relieves the Customer/Contractor of responsibility for installing gas piping in accordance with the Fuel Gas Code of New York State and all other applicable codes.

This standard will provide the basic information needed to install a gas distribution system. If more information about specific applications regarding safety or installation is required, please contact the Company.

9.2 Installation

The Customer shall install the piping in accordance with Figures 10-13. Any deviation must be discussed with the Company Service Supervisor prior to installation to prevent unnecessary delays. The following rules shall be adhered to for all installations:

- The Customer shall provide the Company with an as-built drawing showing the location of the pipe for future maintenance.

- Only high-density polyethylene plastic pipe may be used for underground sections of the gas piping service. Joining of underground pipe shall be accomplished by using mechanical compression couplings or electrofusion couplings if qualified to install them.

- Allow for expansion and contraction of gas pipe by meandering the pipe in the trench between the two galvanized steel service risers.

- A shutoff valve shall be installed above ground at each end of the gas pipe at each galvanized steel service riser.

- The piping system shall be pressure tested prior to back filling (Appendix A). The test shall be performed at 10 PSIG and shall last for a full 15 minutes after a 15-minute stabilization period.

- The minimum depth of cover over the piping shall be 18 inches. Install a six-inch cushion of sand both above and below the pipe for protection (the minimum trench depth must be 24"). Soil free from rocks and sharp fill may be returned as backfill. The backfilled trench shall be crowned to allow for future settlement. It is in the Customer's best interest to locate the service run where it will most likely not encounter future disturbances from external forces (see Figure 13).

- All service lines shall be installed with clearance of not less than 12", whenever practical from any subsurface structures not associated with the pipeline. When 12" is not practical, a minimum clearance of 4" shall be maintained and the pipeline protected from damage as detailed in the Appendices Figure 19.

- It is required that a #12 AWG insulated tracer wire be installed at the same depth as or just below the plastic pipe but not in contact with it. Both ends of the wire run shall be wrapped around the galvanized steel risers just above grade. This will aid in the location of the pipe run in the future.

- Marker tape shall be installed in the trench about six inches below grade directly above the installed gas piping to reduce the chance of a dig-in. Yellow marker tape clearly indicates the presence of underground gas piping in the area.

9.3 Materials

- Natural gas piping shall be sized by the Customer/Contractor according to the expected load. Plastic piping shall be high density polyethylene, which meets ASTM standard D2513. The pipe shall be rated for 100 PSIG (SDR 11).
- The #12 AWG tracer wire shall be coated with 600V insulation for direct bury application.

- Mechanical couplings shall be sized and listed for the specific pipe being used. The coupling shall be rated for natural gas service and provide a gas-tight seal capable of withstanding the maximum operating pressure and the test pressure. The coupling shall also provide full protection against pullout (ASTM D2513 Category 1 Design).

- The galvanized steel risers shall each contain one 90-degree bend with a steel to plastic transition. A compression or electrofusion coupling shall be used to connect the riser to the underground plastic piping.

- The Customer/Contractor shall install shutoff valves that are rated for natural gas service at both ends of the service run. It is required that the riser valves be provided with a means of locking in the off position. The valve body shall be galvanized and rated for exterior use. Valves should be exercised at least once a year to prevent lock up.

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Central Hudson Gas & Electric Corp.

10. SPECIAL EMERGENCY SITUATIONS

10.1 Flooding

When meter(s) / regulator(s) and/or Customer controls/safeties are submerged by water and/or mud, they must be replaced and piping in the house or facility pressure tested per Appendix A before any appliance is placed back into operation.

10.2 Fires

After a gas meter is turned off because of a fire, the Customer/Contractor will have the local fire department and/or building safety department issue a letter to the Company indicating that all incident investigations have been completed and the Customer will provide a pressure test of the piping in the house or facility per Appendix A before any appliance is placed back into operation.

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Central Hudson Gas & Electric Corp.

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1. INDEX TO SPECIFICATIONS AND DRAWINGS

APPENDIX A - GAS PIPING PRESSURE AND LEAKAGE TEST

APPENDIX A - GAS PIPING PRESSURE AND LEAKAGE TEST

People. Power. Possibilities. Central Hudson A FORTIS COMPANY

simply better

To: Service Supervisor / Project Director

10-digit Account No: _____ Job #: _____
Example: J1-23456

I _____ certify that I have tested the gas piping system at _____
Name *Street Address*

_____, the results of which are tabulated below.
City/town/zipcode of gas service installation

	Diameter	Length (feet/inches)
Pipe Installed	inches	(feet/inches)
Pipe Installed	inches	(feet/inches)

	Test Date	Time	Gauge Pressure	Read By	Remarks
Start of Test			psi		Start Test
1st Reading*			psi		Pressure Held
2nd Reading*			psi		End Test

**Test duration is required to be 60 minutes at minimum.*

I further certify that the **piping described above is free of any leaks, in accordance with Central Hudson's "Specifications and Requirements for Gas Installations", and adequate to serve gas to the appliances installed at the above-mentioned location**.

Company Name:_____ Phone Number:_____

_____ _____ _____
Print Name *Signature* *Date*

Please fax completed form to the closest district to your installation.
Residential Gas Conversion (Company Wide): 845-563-4503 / gaswork@cenhud.com
Catskill District: 518-943-7099
Kingston District: 845-338-5075
Poughkeepsie District: 845-486-5688
Fishkill District: 845-897-6115
Newburgh District: 845-563-4503

Notes:

1) *A minimum of two (2) readings shall be taken not less than 30 minutes apart*. Test pressures shall be in accordance with the Fuel Gas Code of New York State. The test pressure to be used shall be no less than 1-1/2 times the proposed maximum working pressure, but no less than 3 psig (20 kPa gauge), irrespective of design pressure.
2) Submitting this form does not constitute a meter order.
3) The results of this test shall be deemed valid for a period of two (2) years from the date of the test barring any changes to the piping system.
4) In activating the service, an initial inspection by Central Hudson personnel will be done at no charge. If the piping system fails to meet our requirements, a fee may be applied for each subsequent re-inspection conducted, with payment to be made prior to the re-inspection.

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APPENDIX B - SERVICE AGREEMENT

J# _____

People. Power. Possibilities.
Central Hudson
A FORTIS COMPANY

Residential Natural Gas Meter Request Form

Customer Name: _____ **Account #:** _____ -_____-_____

Service Address: _____

THE FOLLOWING ITEMS MUST BE COMPLETED BY THE PLUMBER/INSTALLER PRIOR TO SCHEDULING A GAS METER APPOINTMENT:

_____ Are you connected to the meter bar?
_____ Are water and electric active to the building and appliances?
_____ Is the customer piping shutoff valve installed?
_____ Is there a stainless steel flue gas liner Installed?
If not, attach Level 2 Chimney Inspection.

Note the BTU load/venting option for the appliances that will be **onsite at the time of appointment:**

Furnace	_____ **BTU**	→	**Direct Vent** ☐	**Chimney** ☐			
Boiler	_____ **BTU**	→	**Direct Vent** ☐	**Chimney** ☐			
Water Heater	_____ **BTU**	→	**Direct Vent** ☐	**Chimney** ☐			
Dryer	_____ **BTU**	**Fireplace**	_____ **BTU**	**Pool Heater**	_____ **BTU**		
Range	_____ **BTU**	**Other**	_____ **BTU**	**Generator**	_____ **BTU**		

- **Aluminum chimney liners are NOT permitted.**
- **Customer piping must be sleeved with a non-corrosive material when going through a masonry foundation and must be a minimum of 1" when installing appliances greater than 50k BTU. 1" black iron piping is required within 18" of the appliance along with an individual appliance shut off valve. When installing appliances less than 50k BTU, 3/4" black iron piping is adequate within 18" of the appliance. CSST (Corrugated Stainless Steel Tubing) piping must be installed by CSST certified contractor and bonded to the neutral in the electric panel.**
- **All existing and newly installed appliances must meet the current National Fuel Gas Code (NFGC) and NYS Fuel Gas Code, including safety devices (spill switches and low water cutoffs).**

Refer to Central Hudson's "Redbook" for all specifications

https://www.cenhud.com/static_files/cenhud/assets/pdf/gas-specs-redbook.pdf

Please sign below and return with the pressure test. All the above requirements must be met in order to set and unlock a gas meter. You may also refer to Central Hudson's "Redbook" describing the above requirements. In activating the service, an initial inspection by Central Hudson personnel will be done at no charge. **If the piping system or appliance installation fails to meet our requirements, a fee may be applied for each subsequent re-inspection conducted, with payment to be made prior to re-inspection.**

Contractor Acknowledgement

Sign: _____
Print: _____
Date: _____

Customer Acknowledgement

Sign: _____
Print: _____
Date: _____

Rev. 11/2019

APPENDIX C - MEASURING GAS INPUT TO AN APPLIANCE

The following is an explanation of a simple method for determining the gas input to an appliance by timing the gas meter. This method requires nothing but a watch with a second hand.

Before timing a meter, make sure that all other appliances are turned off or not burning gas (except for pilots).

Note that when the test hand on the meter makes one revolution, it measures ½ ft³, 1 ft³, or 2 ft³. With the burner to be measured turned on and holding the watch near the meter dial in order to keep an eye on both, proceed as follows:

1. Note any starting point on the test hand dial and, at the same moment, the starting point of the second hand on the watch dial.

2. At the end of 60 seconds note the number of revolutions and fractions thereof made by the test hand to the closest 1/10 or 1/8 of a revolution.

3. From the revolution and fraction of the revolutions and the value of the test hand (whether it be ½ ft³, 1ft³, or 2 ft³) determine the cubic feet per minute.

4. Multiply by 60 minutes to give the ft³/hr required for the btu/hr input rating of the furnace.

Example: A ½ ft³ test dial makes 2 ½ revolutions in one minute. This would mean 1 ¼ ft³ passed through the meter in one minute (1/2 x 2 ½ = 1 ¼). Multiplied by 60 minutes = 75 ft³/hr.

Alternatively, you may use the following method to calculate the cubic feet per hour of gas flow:

1. Shut off all gas appliances except the one being tested.

2. Identify the smallest gas flow dial on the gas meter (i.e., test dial at ½ ft³, 1ft³, or 2 ft³).

3. Operate the appliance and with a stopwatch or a watch with a second hand, measure the time for one revolution of the smallest gas flow dial.

4. Using the following formula, calculate the cubic feet per hour of gas flow:

$$\text{CUBIC FEET PER HOUR} = \frac{\text{CUBIC FEET OF DIAL BEING TIMED X 3600}}{\text{SECONDS PER 1 REVOLUTION OF THE DIAL}}$$

APPENDIX D - PIPE CAPACITY

Maximum Capacity of Pipe in Cubic Feet of Gas per Hour for Gas Pressures of 0.5 psi or Less and a Pressure Drop of 0.5-inch Water Column (Based on a 0.60 Specific Gravity Gas)

Nominal Iron Pipe Size (inches)	Length of Pipe (ft)													
	10	20	30	40	50	60	70	80	90	100	125	150	175	200
¾*	360	250	200	170	151	138	125	118	110	103	93	84	77	72
1	680	465	375	320	285	260	240	220	205	195	175	160	145	135
1 ¼	1400	950	770	660	580	530	490	460	430	400	360	325	300	280
1 ½	2100	1460	1180	990	900	810	750	690	650	620	550	500	460	430
2	3950	2750	2200	1900	1680	1520	1400	1300	1220	1150	1020	950	850	800
2 ½	6300	4350	3520	3000	2650	2400	2250	2050	1950	1850	1650	1500	1370	1280
3	11000	7700	6250	5300	4750	4300	3900	3700	3450	3250	2950	2650	2450	2280
4	23000	15800	12800	10900	9700	8800	8100	7500	7200	6700	6000	5500	5000	4600

Example:

What size fuel line is needed for 150,000 Btuh furnace located 80 feet from meter?

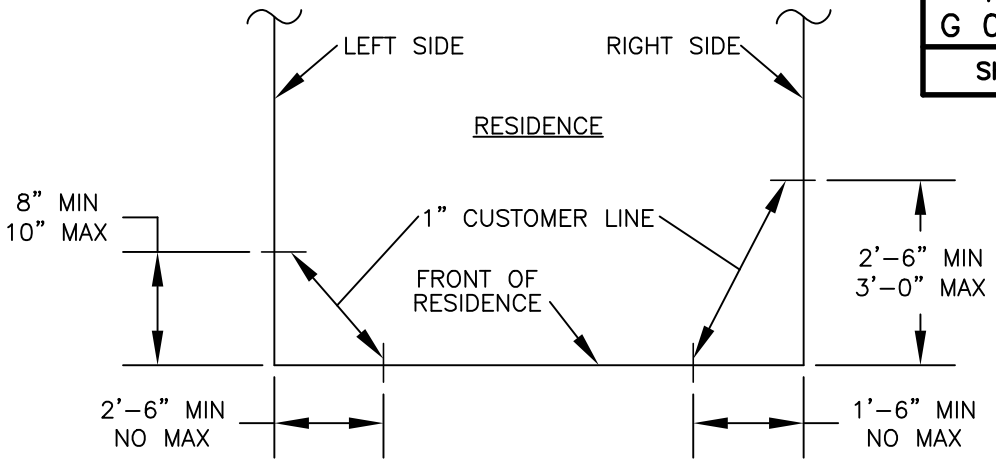
150,000 Btuh = 150 cubic feet

Under the 80 ft. column, read down until you find 150 or more. 118 is too low. The next number is 220 which is large enough. Read the left under "Pipe Size." The answer is "1".

* For heating installations in excess of 50,000 Btuh, all piping must be no smaller than 1" to within 18" of the heating unit.

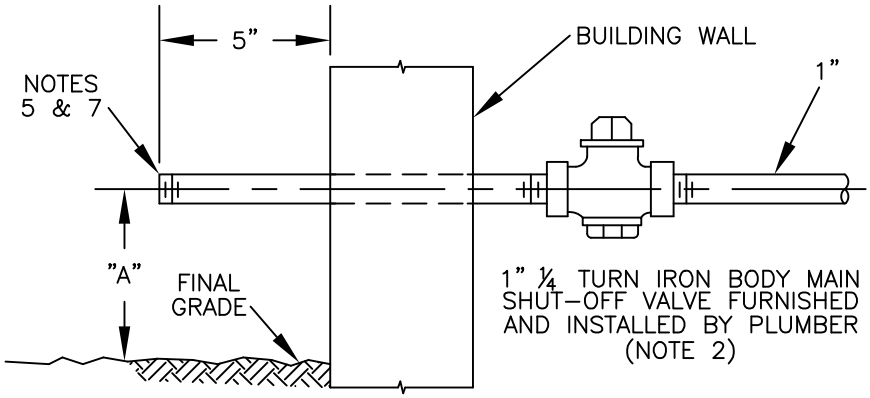
* For CSST Sizing, use the specific manufacturer's sizing charts.

FIGURE 01
G 03 01 003.0
SHEET 1 OF 2



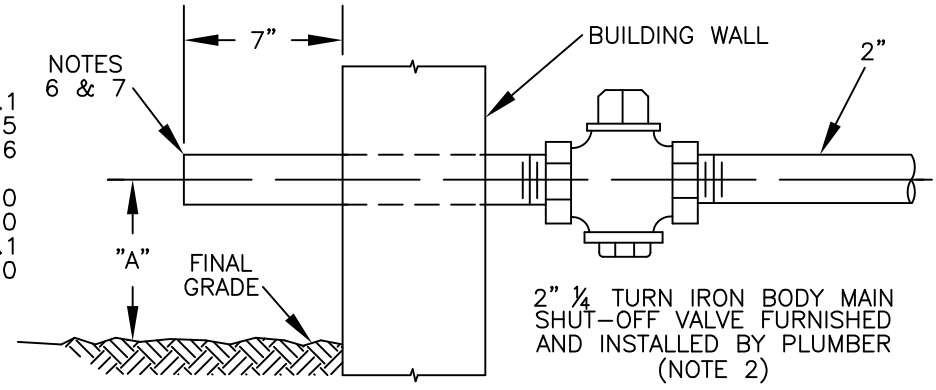
PREFERRED LOCATION FOR 1" CUSTOMER LINE
PLAN VIEW

DIM "A"	STANDARD
2'–6"	G 03 01 008.0
	G 03 01 016.0
	G 03 01 016.1
	G 03 01 017.0
	G 03 01 020.0



SINGLE RESIDENTIAL OR SMALL COMMERCIAL CUSTOMER – 1" PIPING

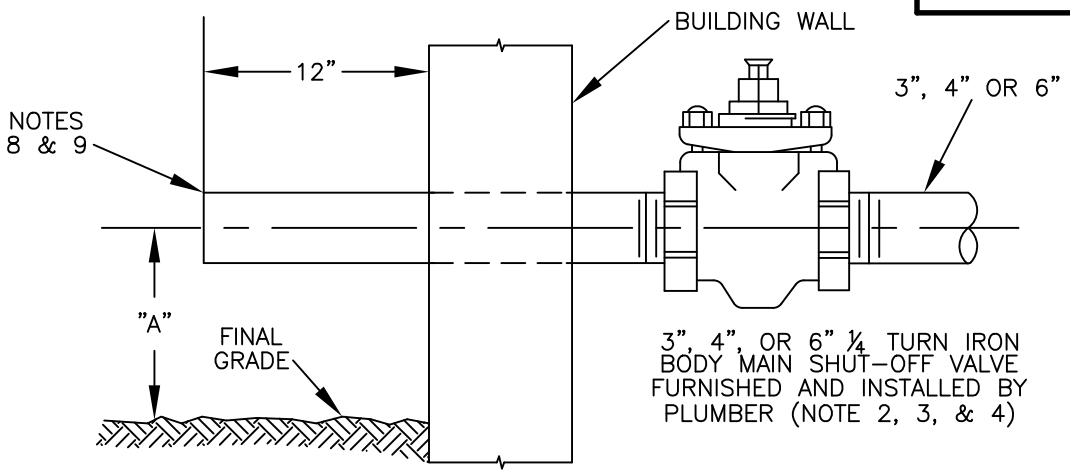
DIM "A"	STANDARD
25"	G 03 02 009.1
	G 03 02 009.5
	G 03 02 009.6
3'–6"	G 03 02 003.0
	G 03 02 004.0
	G 03 02 004.1
	G 03 02 005.0



COMMERCIAL AND SMALL INDUSTRIAL CUSTOMER – 2" PIPING

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	12/15
DRAWN	CHA		ISSUE	9
CLEAR	MFB	OUTDOOR METER INSTALLATION PLUMBER'S GAS FITTING TERMINATION WORK	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

FIGURE 01 G 03 01 003.0
SHEET 2 OF 2



DIM "A"	STANDARD
25"	G 03 02 009.7 G 03 02 009.8
30"	G 03 02 009.2 G 03 02 009.3 G 03 02 009.9 G 03 02 009.10

DIM "A"	STANDARD
12"	G 03 04 002.0 G 03 04 003.0 G 03 04 004.0 G 03 04 004.1 G 03 04 005.0 G 03 04 006.0 G 03 04 007.0

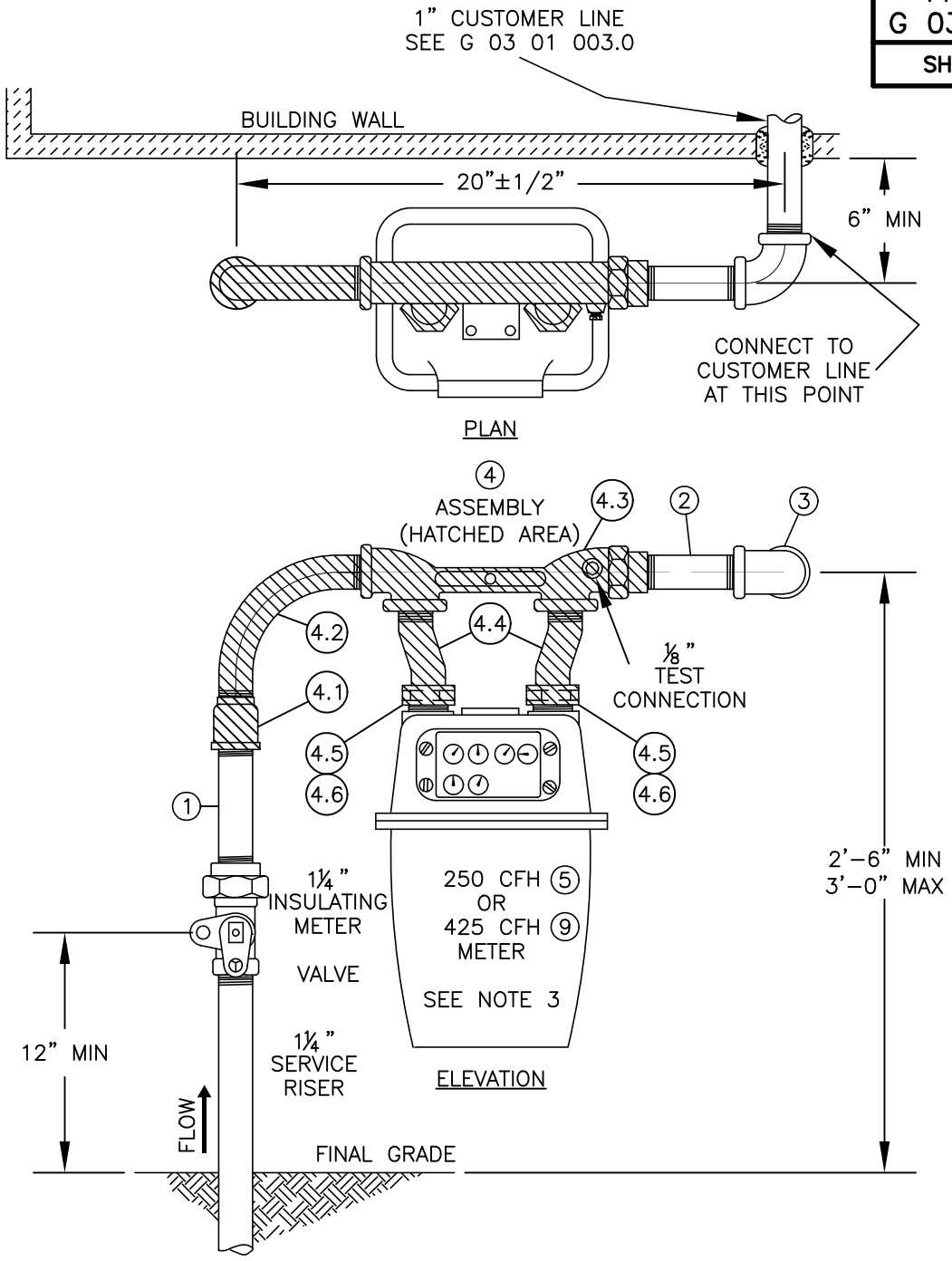
LARGE COMMERCIAL AND INDUSTRIAL CUSTOMER – 3", 4" OR 6" PIPING

NOTES

1. For actual dimension, refer to meter set selected.
2. Valve shall be placed in an accessible location and located so as to control all gas equipment.
3. For ease of operation, a lubricated plug is valve recommended.
4. Flanged valve can be used.
5. End of customer pipe to be threaded.
6. End of customer pipe to be plain end and reamed.
7. Install wooden or rubber plug in pipe end.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	12/15
DRAWN	CHA		ISSUE	9
CLEAR	MFB	OUTDOOR METER INSTALLATION PLUMBER'S GAS FITTING TERMINATION WORK	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

FIGURE 02 G 03 01 008.0
SHEET 1 OF 1



NOTES

1. Hatching indicates prefabricated and painted meter set piping assembly, Standard Stock 35-30-320.

2. Refer to Standard G 03 01 003.0 for meter set location requirements.

3. For 425 Meter (Item 9), remove Items 4.4, 4.5, and 4.6 from prefabricated piping and install Items 6, 7, and 8.

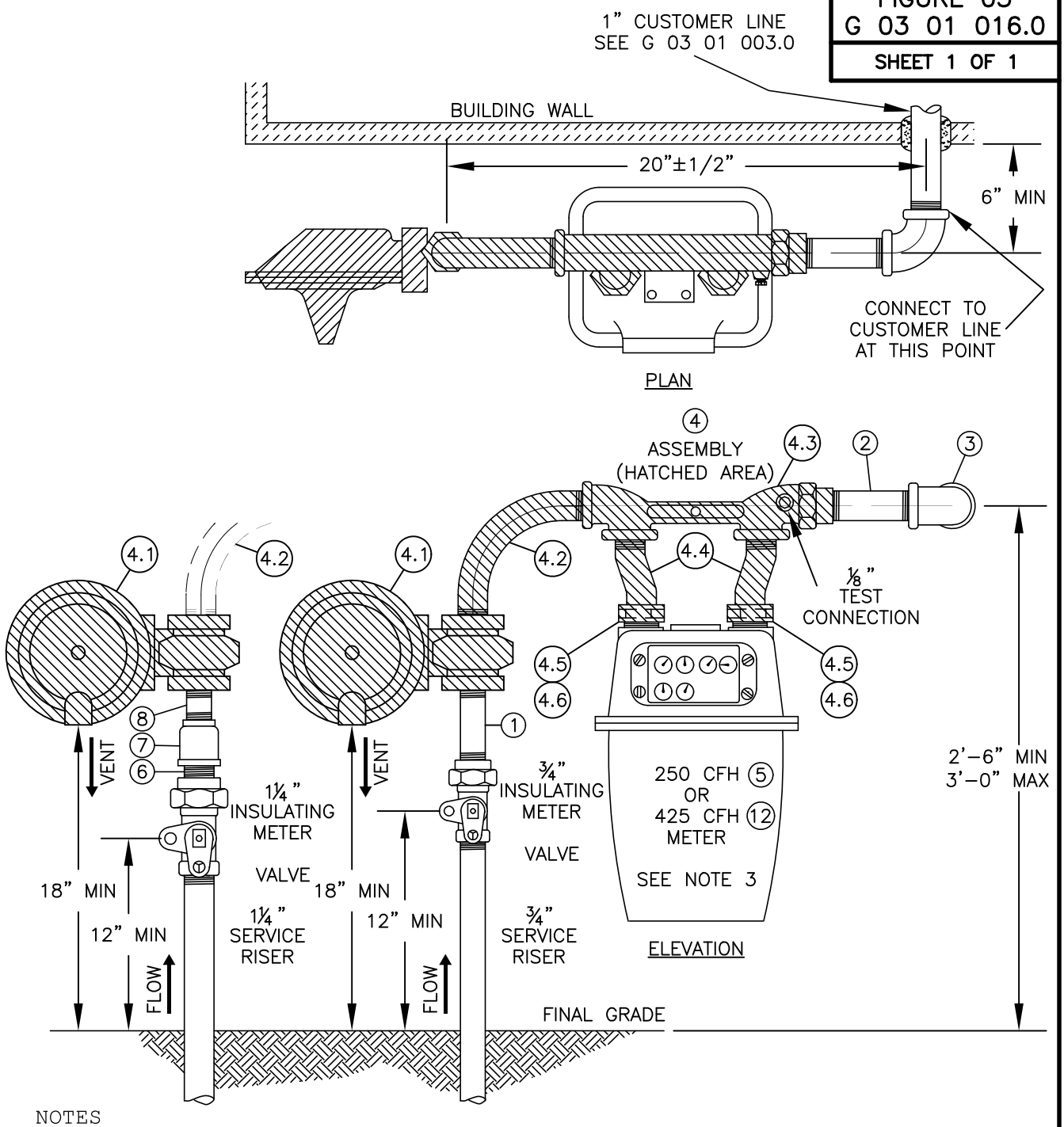
GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	1/14
DRAWN	RJS	250 OR 425 DIAPHRAGM OUTDOOR METER INSTALLATION FOR LOW PRESSURE SERVICE	ISSUE	10
CLEAR	MFB		APP.	JAR
ENGR.	RJS		APP.	KER
APP.	KJF			

Bill of Material
Figure 02 - Standard G 03 01 008.0

Item Number	Description	Stock Number	Number Required
1	1-1/4" X 4" NIPPLE	36-04-596	1
2	1" X 5" NIPPLE	36-04-592	1
3	1" ELBOW, 90 DEGREE, THREADED	36-04-563	1
4	PREFABRICATED 250 METER SET (CONSISTING OF ITEMS 4.1-4.6)	35-30-320	1
4.1	1-1/4" X 1" COUPLING, THREADED	36-04-553	1
4.2	1" X 5" X 5" PREBENT ELBOW	36-04-058	1
4.3	METER BAR, 1" INLET X 1" INSULATED OUTLET WITH 3/4" SWIVEL CONNECTIONS	35-30-301	1
4.4	SWIVEL, SPRAGUE 1A, 1" OFFSET X 3/4" MNPT	36-06-687	2
4.5	SWIVEL NUT, SPRAGUE 1A	36-06-673	2
4.6	SWIVEL WASHER, SPRAGUE 1A	36-06-695	2
5	250 METER		1
	Additional Material Required for 425 Meter Installation (substitute the following 4 for Items 4.4, 4.5, 4.6, and 5)		
6	SWIVEL, 20 LT METER 1-5/8" OFFSET X 3/4" MNPT	36-06-875	2
7	SWIVEL NUT, 20 LT	36-06-669	2
8	SWIVEL WASHER, 20 LT	36-06-690	2
9	425 METER		1

LENGTH OR QUANTITY AS REQUIRED

FIGURE 03 G 03 01 016.0
SHEET 1 OF 1



NOTES

1. Hatching indicates prefabricated and painted meter set piping assembly, Standard Stock 35-30-303.

2. Refer to Standard G 03 01 003.0 for meter set location requirements.

3. For 425 Meter (Item 12), remove Items 4.4, 4.5, and 4.6 from prefabricated piping and install Items 9, 10, and 11.

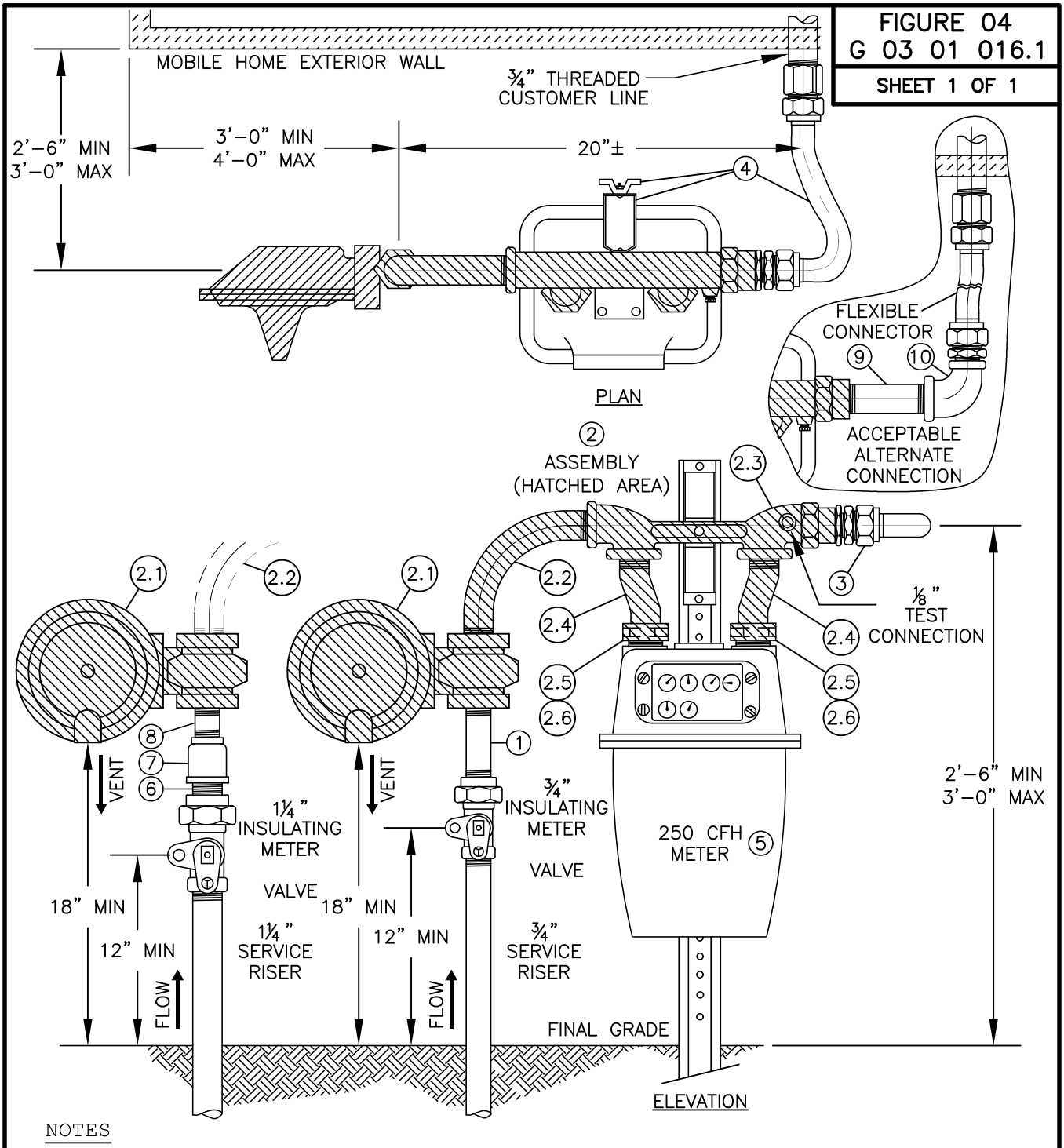
GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	1/14
DRAWN	RJS	PERMANAENT RESIDENCE REGULATOR AND 250/415 CFH METER INSTALLATION FOR 3 PSIG TO 120 PSIG SERVICE	ISSUE	7
CLEAR	MFB		APP.	JAR
ENGR.	RJS		APP.	KER
APP.	KJF			

Bill of Material
Figure 03 - Standard G 03 01 016.0

Item Number	Description	Stock Number	Number Required
1	3/4" X 4" NIPPLE	36-04-586	1
2	1" X 5" NIPPLE	36-04-592	1
3	1" ELBOW, 90 DEGREE, THREADED	36-04-563	1
4	PREFABRICATED REGULATOR/250 METER SET (CONSISTING OF ITEMS 4.1-4.6)	35-30-303	1
4.1	3/4" X 1" SERVICE REGULATOR	36-06-109	1
4.2	1" X 5" X 5" PREBENT ELBOW	36-04-058	1
4.3	METER BAR, 1" INLET X 1" INSULATED OUTLET WITH 3/4" SWIVEL CONNECTIONS	35-30-301	1
4.4	SWIVEL, SPRAGUE 1A, 1" OFFSET X 3/4" MNPT	36-06-687	2
4.5	SWIVEL NUT, SPRAGUE 1A	36-06-673	2
4.6	SWIVEL WASHER, SPRAGUE 1A	36-06-695	2
5	250 METER		1
	Additional Material Required for 1-1/4" Service Riser (substitute the following 3 items for Item 1)		
6	1-1/4" CLOSE NIPPLE	36-04-695	1
7	1-1/4" X 3/4" COUPLING, THREADED	36-04-552	1
8	3/4" X 2" NIPPLE	36-04-584	1
	Additional Material Required for 425 Meter Installation (substitute the following 4 for Items 4.4, 4.5, 4.6, and 5) For operating pressures below 15 PSIG, it may be necessary to replace the stock regulator orifice with a larger size orifice to accommodate the increased flow through the larger 425 meter.		
9	SWIVEL, 20 LT METER 1-5/8" OFFSET X 3/4" MNPT	36-06-875	2
10	SWIVEL NUT, 20 LT	36-06-669	2
11	SWIVEL WASHER, 20 LT	36-06-690	2
12	425 METER		1

LENGTH OR QUANTITY AS REQUIRED

FIGURE 04
G 03 01 016.1
SHEET 1 OF 1



NOTES

1. Hatching indicates prefabricated and painted meter set piping assembly, Standard Stock 35-30-303.

2. To install post and meter bracket, attach bracket (short leg up) to post using ⅜" diameter bolts. Drive post into ground with meter bar attached. Attach meter bar to bracket with 5/16" bolt using round washers on each side of bar.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	1/14
DRAWN	RJS	250 DIAPHRAGM OUTDOOR REGULATOR AND METER INSTALLATION FOR 3 PSIG TO 120 PSIG SERVICE MOBILE RESIDENCE	ISSUE	2
CLEAR	MFB		APP.	JAR
ENGR.	RJS		APP.	KER
APP.	KJF			

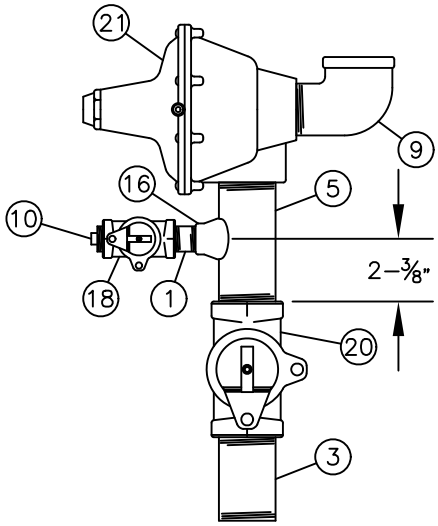
Bill of Material
Figure 04 - Standard G 03 01 016.1

Item Number	Description	Stock Number	Number Required
1	3/4" X 4" NIPPLE	36-04-586	1
2	PREFABRICATED REGULATOR/250 METER SET (CONSISTING OF ITEMS 2.1-2.6)	35-30-303	1
2.1	3/4" X 1" SERVICE REGULATOR	36-06-109	1
2.2	1" X 5" X 5" PREBENT ELBOW	36-04-058	1
2.3	METER BAR, 1" INLET X 1" INSULATED OUTLET WITH 3/4" SWIVEL CONNECTIONS	35-30-301	1
2.4	SWIVEL, SPRAGUE 1A, 1" OFFSET X 3/4" MNPT	36-06-687	2
2.5	SWIVEL NUT, SPRAGUE 1A	36-06-673	2
2.6	SWIVEL WASHER, SPRAGUE 1A	36-06-695	2
3	1" X 3/4" REDUCER BUSHING	36-04-913	1
4	METER BRACKET ASSEMBLY KIT WITH 3/4" FLEXIBLE GAS CONNECTOR	35-30-433	1
5	250 METER		1
	Additional Material Required for 1-1/4" Service Riser (substitute the following 3 items for Item 1)		
6	1-1/4" CLOSE NIPPLE	36-04-695	1
7	1-1/4" X 3/4" COUPLING, THREADED	36-04-552	1
8	3/4" X 2" NIPPLE	36-04-584	1
	Additional Material Required for Alternate Connection (substitute the following 2 items for Item 3)		
9	1" X 5" NIPPLE	36-06-592	1
10	1" X 3/4" REDUCING ELBOW	36-04-566	1

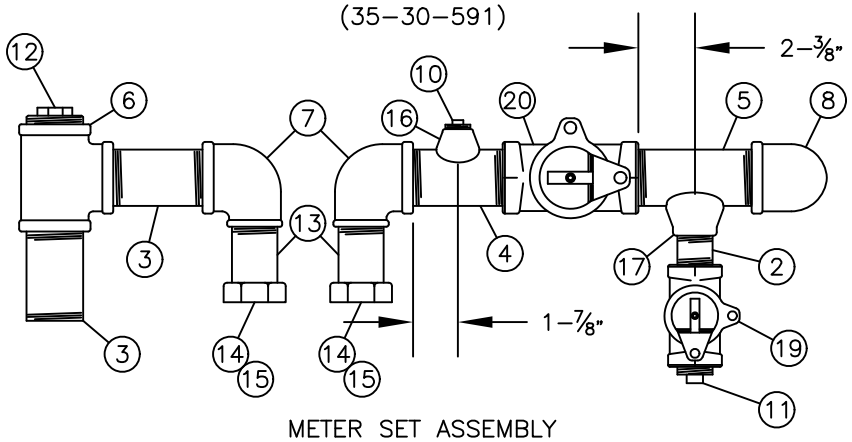
LENGTH OR QUANTITY AS REQUIRED

FIGURE 05 G 03 02 002.1
SHEET 1 OF 1

PIPE ASSEMBLIES FOR
425 & 1000
DIAPHRAGM METERS



RELIEF VALVE ASSEMBLY
(35–30–591)



METER SET ASSEMBLY
(35–30–333)

NOTES

1. Vendor shall supply all materials required to fabricate the pipe assemblies. Material specifications shall be as described in the bill of materials for this Standard.

2. All welding shall be as per API 1104 or ASME Section IX by welders qualified under the code used. Vendor shall supply proof of welder qualification with bid.

3. Fit-up and fabrication shall be accomplished in a workmanlike manner. Alignment shall be true and square. The finished product shall have a professionally fabricated appearance.

4. All threaded connections shall be made leak-tight with appropriate application of thread sealant compatible with natural gas.

5. Holes cut or drilled in pipe or fittings for weldolets or threadolets shall be full-size, smoothed, and de-burred.

6. Each assembly shall be final coated per Standard G 04 05 002.1. Coatings shall be allowed to fully cure prior to shipment.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/15
DRAWN	CHA		ISSUE	7
CLEAR	MFB	PREFABRICATED PIPE ASSEMBLIES FOR INSTALLATION OF 425 & 1000 DIAPHRAGM METERS	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

Bill of Material
Figure 05 - Standard G 03 02 002.1

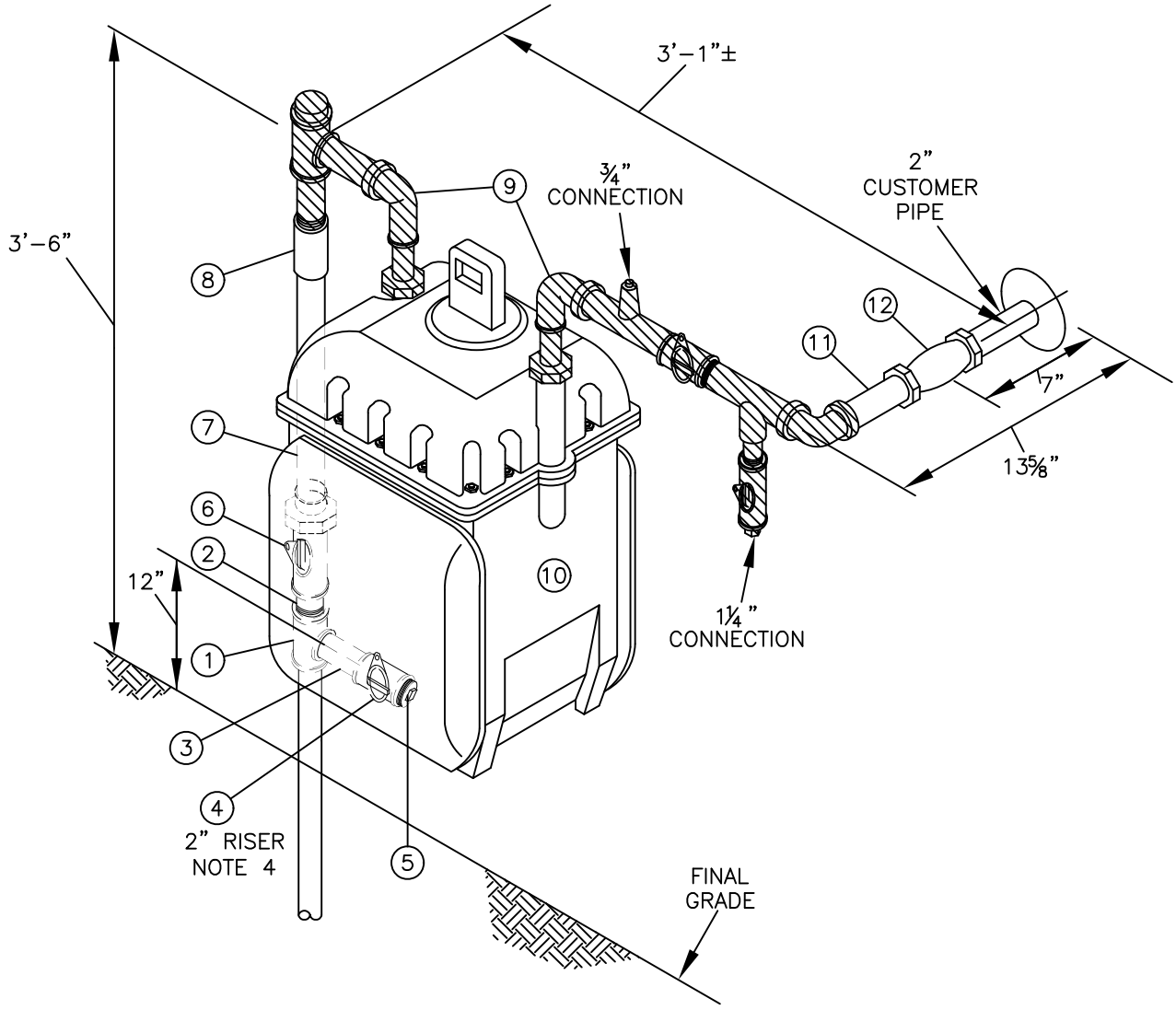
Item Number	Description	Stock Number	Number Required
	All nipples shall be galvanized, manufactured from schedule 40 carbon steel pipe, conform to the latest revision of ASTM A-53 and A-733, MNPT both ends, domestic manufacture only:		
1	NIPPLE, 3/4" X 2" LENGTH, GALVANIZED	36-04-584	1
2	NIPPLE, 1-1/4" x 2" LENGTH, GALVANIZED	36-04-594	1
3	NIPPLE, 2" X 4" LENGTH, GALVANIZED	35-09-144	3
4	NIPPLE, 2" X 5" LENGTH, GALVANIZED	35-09-155	1
5	NIPPLE, 2" X 6" LENGTH, GALVANIZED	35-09-146	2
	All threaded (NPT) fittings shall be standard malleable iron, banded or galvanized, conform to ANSI B-1.2 and B-16.3, conform to ASTM A-153 and A-197, domestic manufacture only:		
6	TEE, 2", THREADED	35-20-007	1
7	ELBOW, REDUCING, 2" X 1-1/2", 90 DEGREE, THREADED	35-08-091	2
8	ELBOW, 2", 90 DEGREE, THREADED	35-08-007	1
9	ELBOW, 2", 90 DEGREE STREET, THREADED	35-08-022	1
	All threaded (NPT) plugs shall be regular solid or cored standard cast iron, 125 LB., galvanized, square head, conform to ANSI B-1.2 and B-16.3, conform to ASTM A-126, A-153 and A-197, domestic manufacture only:		
10	PLUG, 3/4" NPT, THREADED, GAL CI	36-04-612	2
11	PLUG, 1-1/4" NPT, THREADED, GAL CI	36-04-609	1
12	PLUG, 2" NPT, THREADED, GAL CI	35-10-007	1
13	SWIVEL, 45 LT METER, GALVANIZED, MALLEABLE IRON, STRAIGHT, 1-1/2" MNPT, 3" LENGTH, 0.250" PILOT LENGTH	36-06-807	2
14	SWIVEL NUT, 45 LT, GALVANIZED, MALLEABLE IRON, 11-1/2 THREADS/INCH, 1-15/16" BORE I.D.	36-06-806	2
15	SWIVEL WASHER, 45 LT, NEOPRENE COMPOSITE, 2-1/8" O.D., 1-45/64" I.D., 1/8" THICK	36-06-808	2
	All threadolets (NPT outlet) shall be seamless forged carbon steel, ASTM A-105 Grade II, 3000# Rating, conform to ANSI B-16.11, domestic manufacture only:		
16	THREADOLET, 1-1/2"-36" X 3/4" NPT OUTLET	36-05-661	2
17	THREADOLET, 2"-3-1/2" X 1-1/4" NPT OUTLET	36-05-979	1
	All meter valves shall have a 175 PSIG (natural gas) rating, FNPT inlet X FNPT outlet, iron body with lubricated bronze plug, tamper-proof, with lockwing drilled to accomodate a 0.4" diameter barrel lock, zinc coated, o-ring seal capable of being re-lubed in the field while in the open or closed position, conform to the latest revision of ASME B-16.33, domestic manufacture only:		
18	METER VALVE, 3/4" FNPT	35-05-017	1
19	METER VALVE, 1-1/4" FNPT	35-05-016	1
20	METER VALVE, 2" FNPT	35-22-027	2
21	RELIEF VALVE, FISHER 289H, 2" NPT, CAST IRON BODY WITH ALUMINUM SPRING CASE, SPRING PRESSURE RANGE: 1.75 PSIG - 7 PSIG, SET PRESSURE: 4.5 PSIG	38-35-001	1

LENGTH OR QUANTITY AS REQUIRED

Bill of Material
Figure 05.1 - Standard G 03 02 003.0

Item Number	Description	Stock Number	Number Required
	Gas Service Crew shall install bypass connection Items 1-5 on the riser below the meter valve. Estimator can include Items 1-5 in the service work order for this meter installation.		
1	TEE, REDUCING, 2" X 2" X 1-1/4", THREADED	35-20-029	1
2	NIPPLE, 2" X 3" LENGTH, GALVANIZED	35-09-143	1
3	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-596	1
4	METER VALVE, 1-1/4" FNPT	35-05-016	1
5	PLUG, 1-1/4" NPT, THREADED, GAL CI	36-04-614	1
6	METER VALVE, 2" FNPT, WITH INSULATING UNION (ORDERED WITH SERVICE)	35-22-131	1
7	NIPPLE, 2" X 12" LENGTH, GALVANIZED	35-09-162	1
8	COUPLING, 2" NPT, THREADED	35-06-007	1
9	METER PREFAB, 425 OR 1000 DIAPHRAGM	35-30-333	1
10	425 OR 1000 DIAPHRAGM METER		1
11	NIPPLE, 2" X 5" LENGTH, GALVANIZED	35-09-124	1
12	COUPLING, 2", COMPRESSION, INSULATING, LOCKING	35-06-092	1
13	BARREL LOCK, STAINLESS STEEL	35-30-116	2
14	BARREL LOCK CAP, STAINLESS STEEL	31-65-111	2
15	CAP, PLASTIC, LIGHT GRAY, WEATHERPROOF FOR BARREL LOCK	36-06-105	2

FIGURE 05.1 G 03 02 003.0
SHEET 1 OF 1

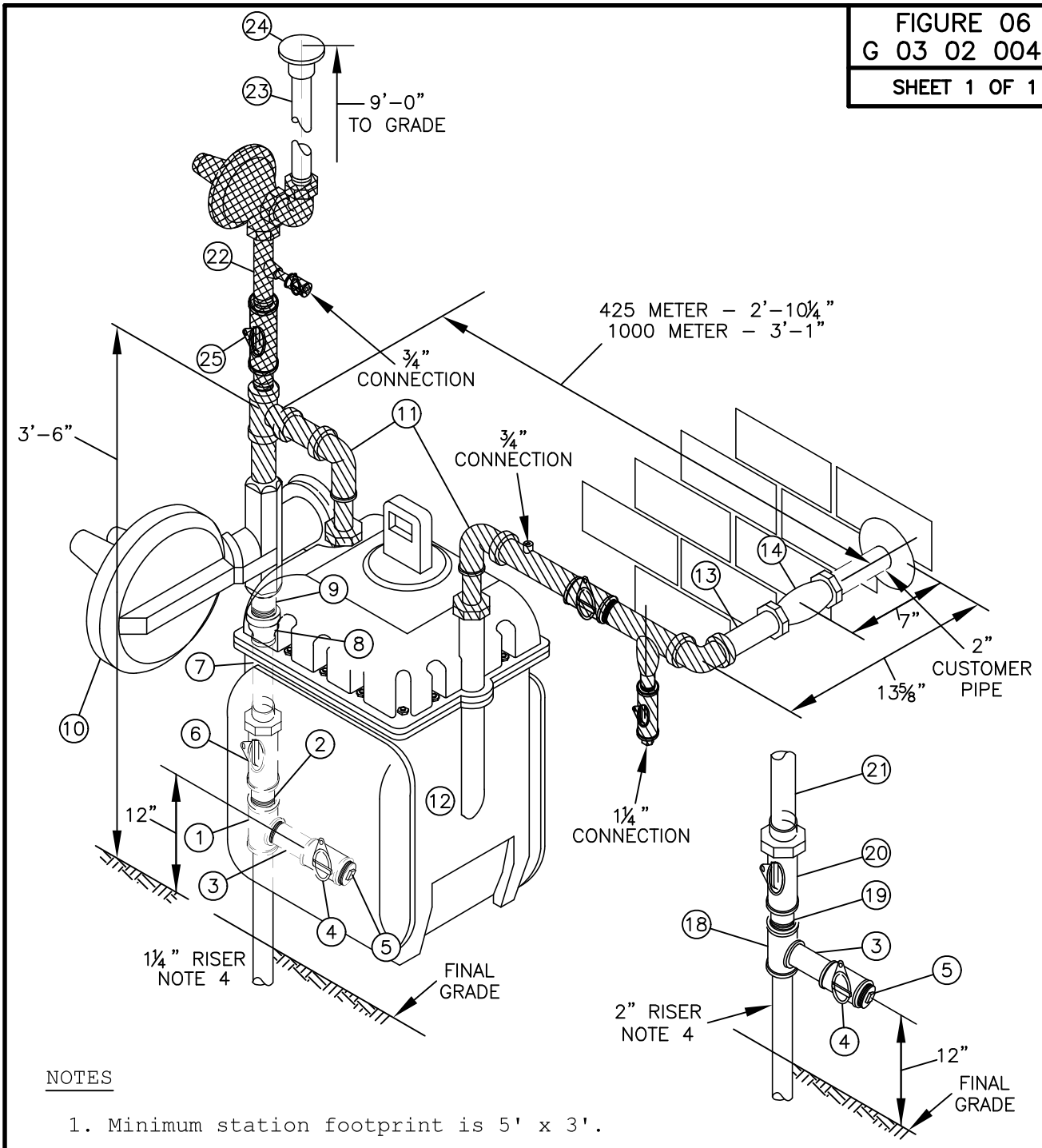


NOTES

1. Minimum station footprint is 5' x 3'.
2. Hatching denotes prefabricated pipe assembly.
3. All piping and components that have not been finish-painted shall be thoroughly cleaned, primed, and painted per Standard G 04 05 002.0. Final coat of paint shall be applied immediately after installation.
4. Bypass piping below the meter valve (Item 6) shall be installed by the gas service crew at the same time as the service piping.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/15
DRAWN	CHA	425 OR 1000 DIAPHRAGM OUTDOOR METER INSTALLATION FOR LOW PRESSURE SERVICE	ISSUE	7
CLEAR	MFB		APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

FIGURE 06 G 03 02 004.0
SHEET 1 OF 1



NOTES

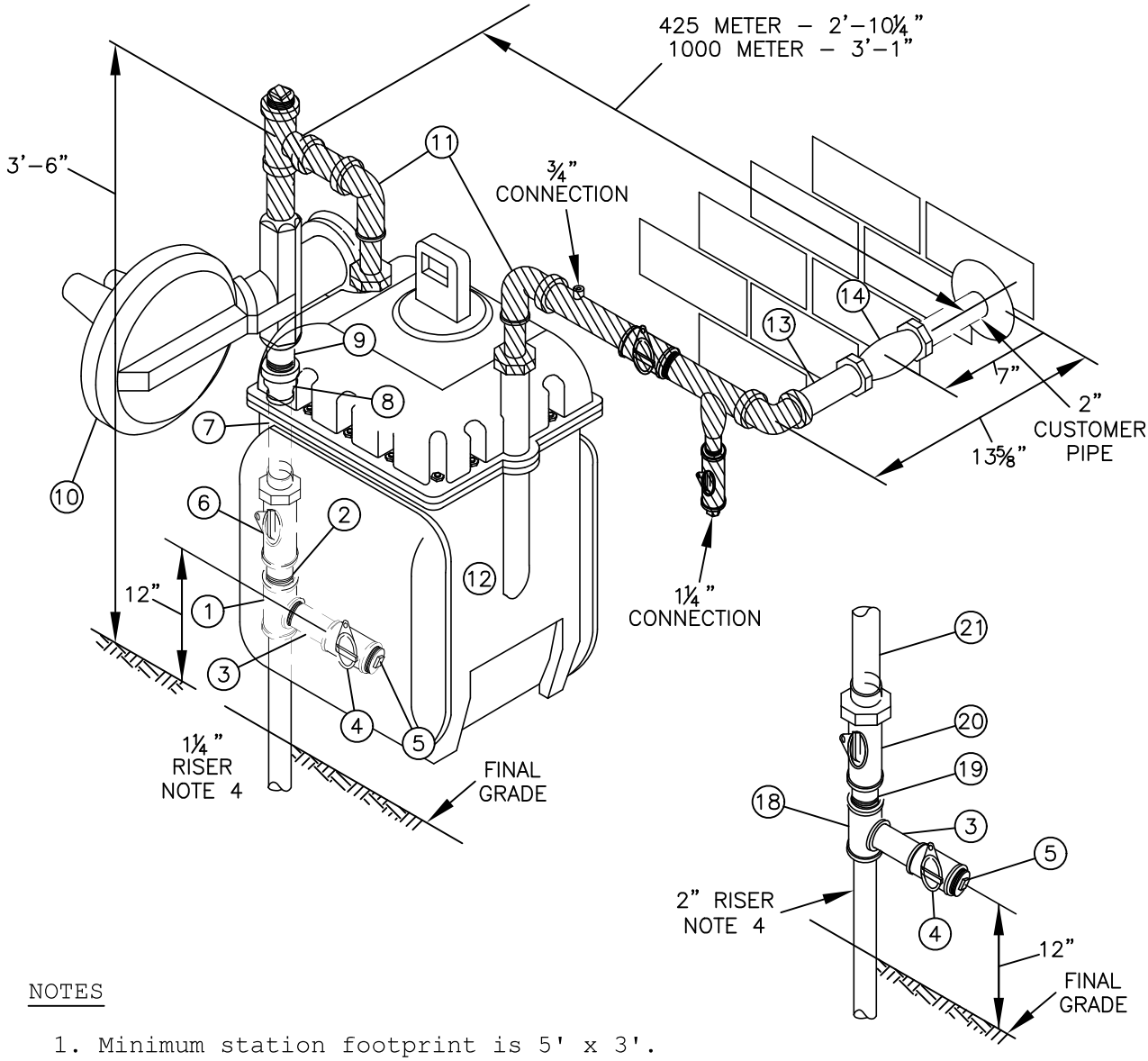
1. Minimum station footprint is 5' x 3'.
2. Hatching denotes prefabricated pipe assemblies.
3. All piping and components that have not been finish-painted shall be thoroughly cleaned, primed, and painted per Standard G 04 05 002.0. Final coat of paint shall be applied immediately after installation.
4. Bypass piping below the meter valve (Item 6 or 20) shall be installed by the gas service crew at the same time as the service piping.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/15
DRAWN	CHA	425 OR 1000 DIAPHRAGM OUTDOOR REGULATOR AND METER INSTALLATION RELIEF VALVE PROTECTION 120 PSIG MAXIMUM INLET – 0.50 TO 8 PSIG DELIVERY	ISSUE	7
CLEAR	MFB		APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

Bill of Material
Figure 06 - Standard G 03 02 004.0

Item Number	Description	Stock Number	Number Required
	Gas Service Crew shall install bypass connection Items 1-5 on the riser below the meter valve. Estimator can include Items 1-5 in the service work order for this meter installation.		
1	TEE, 1-1/4", THREADED	36-04-622	1
2	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-596	1
3	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-596	1
4	METER VALVE, 1-1/4" FNPT	35-05-016	1
5	PLUG, 1-1/4" NPT, THREADED, GAL CI	36-04-614	1
6	METER VALVE, 1-1/4" FNPT, WITH INSULATING UNION (ORDERED WITH SERVICE)	35-22-129	1
7	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-576	1
8	COUPLING, REDUCING, 2" X 1-1/4" NPT, THREADED	35-06-030	1
9	NIPPLE, 2" X 4" LENGTH, GALVANIZED	35-09-144	1
10	2" REGULATOR (REFER TO STANDARD G 03 02 001.0)		1
11	METER PREFAB, 425 OR 1000 DIAPHRAGM (REMOVE 2" PLUG)	35-30-333	1
12	425 OR 1000 DIAPHRAGM METER		1
13	NIPPLE, 2" X 5" LENGTH, GALVANIZED	35-09-124	1
14	COUPLING, 2", COMPRESSION, INSULATING, LOCKING	35-06-092	1
15	BARREL LOCK, STAINLESS STEEL	35-30-116	4
16	BARREL LOCK CAP, STAINLESS STEEL	31-65-111	4
17	CAP, PLASTIC, LIGHT GRAY, WEATHERPROOF FOR BARREL LOCK	36-06-105	4
22	PREFAB, RELIEF VALVE, 425 OR 1000 DIAPHRAGM	35-30-591	1
23	PIPE, 2" STEEL, 0.154" WT, BARE	35-13-135	1
24	CAP, 2", RELIEF VALVE	35-04-027	1
25	LOCK OPEN BAR, 1/2" - 2" METER VALVES	36-06-103	1
	Additional Material Required for 2" Service Riser (Bypass connection notes above apply) (substitute the following 4 items for Items 1, 2, 6, 7, 8, and 9)		
18	TEE, REDUCING, 2" X 2" X 1-1/4", THREADED	35-20-029	1
19	NIPPLE, 2" X 3" LENGTH, GALVANIZED	35-09-143	1
20	METER VALVE, 2" FNPT, WITH INSULATING UNION (ORDERED WITH SERVICE)	35-22-131	1
21	NIPPLE, 2" X 8-1/4" LENGTH, GALVANIZED	35-09-158	1

FIGURE 07 G 03 02 005.0
SHEET 1 OF 1



NOTES

1. Minimum station footprint is 5' x 3'.
2. Hatching denotes prefabricated pipe assembly.
3. All piping and components that have not been finish-painted shall be thoroughly cleaned, primed, and painted per Standard G 04 05 002.0. Final coat of paint shall be applied immediately after installation.
4. Bypass piping below the meter valve (Item 6 or 20) shall be installed by the gas service crew at the same time as the service piping.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	05/16
DRAWN	WTS	425 OR 1000 DIAPHRAGM OUTDOOR REGULATOR AND METER INSTALLATION 120 PSIG MAXIMUM INLET – 0.25 PSIG DELIVERY	ISSUE	7
CLEAR	MFB		APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

Bill of Material
Figure 07 - Standard G 03 02 005.0

Item Number	Description	Stock Number	Number Required
	Gas Service Crew shall install bypass connection Items 1-5 on the riser below the meter valve. Estimator can include Items 1-5 in the service work order for this meter installation.		
1	TEE, 1-1/4", THREADED	36-04-622	1
2	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-596	1
3	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-596	1
4	METER VALVE, 1-1/4" FNPT	35-05-016	1
5	PLUG, 1-1/4" NPT, THREADED, GAL CI	36-04-614	1
6	METER VALVE, 1-1/4" FNPT, WITH INSULATING UNION (ORDERED WITH SERVICE)	35-22-129	1
7	NIPPLE, 1-1/4" X 4" LENGTH, GALVANIZED	36-04-576	1
8	COUPLING, REDUCING, 2" X 1-1/4" NPT, THREADED	35-06-030	1
9	NIPPLE, 2" X 4" LENGTH, GALVANIZED	35-09-144	1
10	2" REGULATOR (REFER TO STANDARD G 03 02 001.0)		1
11	METER PREFAB, 425 OR 1000 DIAPHRAGM (REMOVE 2" PLUG)	35-30-333	1
12	425 OR 1000 DIAPHRAGM METER		1
13	NIPPLE, 2" X 5" LENGTH, GALVANIZED	35-09-124	1
14	COUPLING, 2", COMPRESSION, INSULATING, LOCKING	35-06-092	1
15	BARREL LOCK, STAINLESS STEEL	35-30-116	2
16	BARREL LOCK CAP, STAINLESS STEEL	31-65-111	2
17	CAP, PLASTIC, LIGHT GRAY, WEATHERPROOF FOR BARREL LOCK	36-06-105	2
	Additional Material Required for 2" Service Riser (Bypass connection notes above apply) (substitute the following 4 items for Items 1, 2, 6, 7, 8, and 9)		
18	TEE, REDUCING, 2" X 2" X 1-1/4", THREADED	35-20-029	1
19	NIPPLE, 2" X 3" LENGTH, GALVANIZED	35-09-143	1
20	METER VALVE, 2" FNPT, WITH INSULATING UNION (ORDERED WITH SERVICE)	35-22-131	1
21	NIPPLE, 2" X 8-1/4" LENGTH, GALVANIZED	35-09-158	1

BILL OF MATERIAL
FIGURE 08

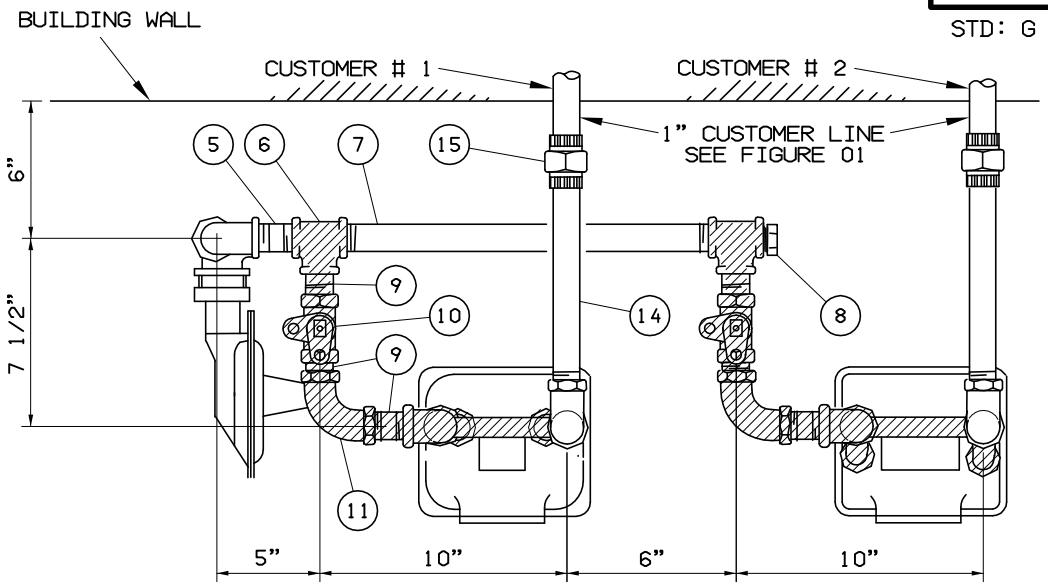
ITEM NO.	DESCRIPTION	STOCK NO.	NO. REQ'D	SEE NOTE
	MATERIALS REQUIRED FOR 250 AND/OR 415 METER			
1	3/4" PIPE, THREADED	35-13-004	#	
1.1	1-1/4" X 3/4" BUSHING	36-04-976	1	
2	3/4" X 5" NIPPLE	36-04-587	1	
3	3/4" SERVICE REGULATOR	36-06-674	1	
4	1-1/4" X 3/4" STREET ELL	36-04-831	1	
5	1-1/4" X 3" NIPPLE	36-04-595	1	
7	1-1/4" PIPE, THREADED	35-13-062	1	
8	1-1/4" PIPE PLUG	36-04-614	1	
12	1" X 4" NIPPLE	36-04-591	1	
13	1" MI THREADED ELL OR	36-04-563	#	
	1" COMPRESSION ELL	36-06-700	#	
14	1" X 6" NIPPLE	36-04-593	#	
15	1" UNION MI	36-04-632	#	
17	250 METER	METER STOCK	#	
21	415 METER	METER STOCK	#	
25	PREFABRICATED METER PIPING FOR 250 METER	35-30-527	#	
	MATERIALS REQUIRED FOR PREFABRICATED 250 METER PIPING (RESULT ITEM 25)			
6	1-1/4" X 1" TEE, REDUCING	36-04-625	1	
9	1" CLOSE NIPPLE	36-04-964	3	
10	1" METER VALVE	35-05-002	1	
11	1" ELL	36-04-563	1	
16	METER BAR, 1" X 1" TOP OUTLET X 3/4" SWIVEL	36-30-504	1	
18	250 METER SWIVEL	36-06-687	2	
19	250 METER SWIVEL NUT	36-06-673	2	
20	250 METER SWIVEL WASHER	36-06-095	2	
26	PREFABRICATED METER PIPING FOR 415 METER	35-30-528	#	
	MATERIALS REQUIRED FOR PREFABRICATED 415 METER PIPING (RESULT ITEM 26)			
6	1-1/4" X 1" TEE, REDUCING	36-04-625	1	
9	1" CLOSE NIPPLE	36-04-964	3	
10	1" METER VALVE	35-05-002	1	
11	1" ELL	36-04-563	1	
16	METER BAR, 1" X 1" TOP OUTLET X 3/4" SWIVEL	36-30-504	1	
22	415 METER SWIVEL	36-06-875	2	
23	415 METER SWIVEL NUT	36-06-669	2	
24	415 METER SWIVEL WASHER	36-06-690	2	

QUANTITY AS REQUIRED

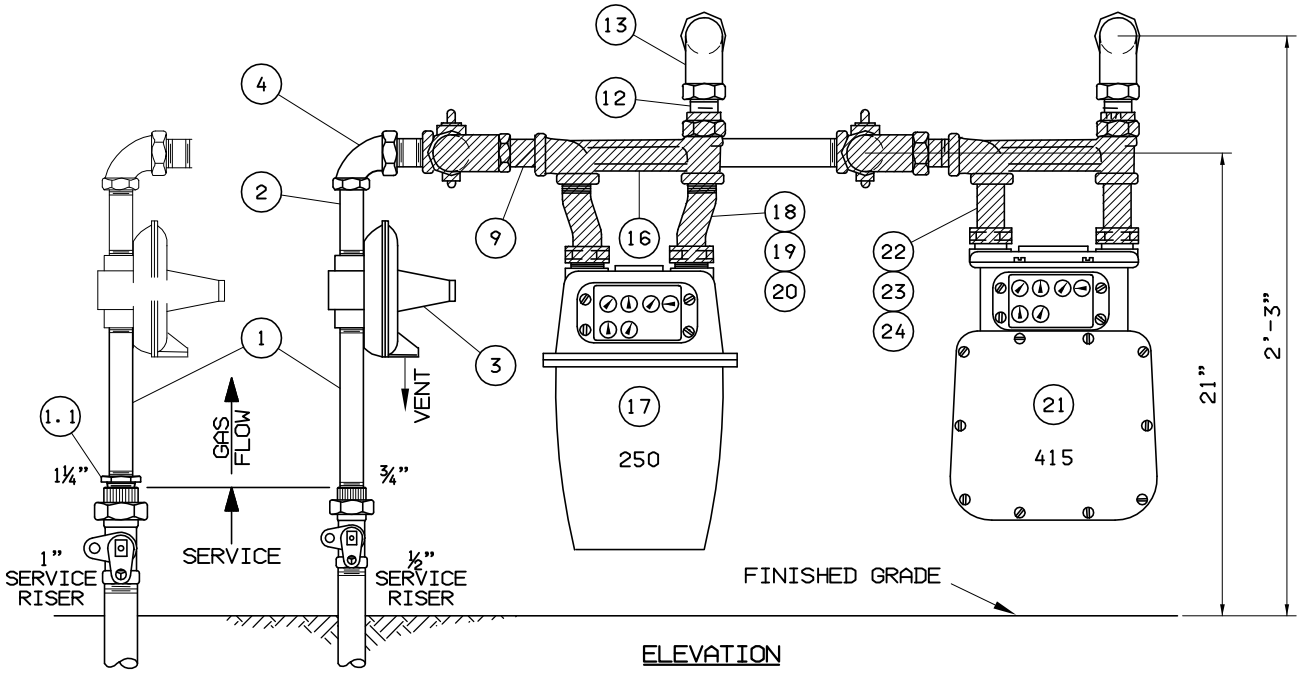
FIGURE 08

SHEET 1 OF 1

STD: G 03 01 017.0



PLAN



ELEVATION

NOTES:

1. REFER TO STANDARD G 03 01 001.0 FOR REGULATOR-METER SET LOCATION REQUIREMENTS.
2. THE NUMBER OF CUSTOMERS SUPPLIED BY THE MULTIPLE METER SET CAN TOTAL A MAXIMUM DEMAND OF 800 CFH. THE NUMBER AND SIZE OF METERS USED WILL DEPEND UPON THE TOTAL VALUE OF EACH OF THE CUSTOMERS DEMAND.
3. CHECK REGULATOR CAPACITY AT MINIMUM INLET PRESSURE TO MAKE SURE IT EQUALS OR EXCEEDS THE TOTAL DEMAND.
4. INSTALLATION NOTE: FABRICATE PIPING USING PREFABRICATED METER PIPING UNITS.

GAS STANDARDS	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE 5/07
DRAWN. _____ CLEAR _____ ENGR. _____ APP. _____	GAS CONSTRUCTION 250 AND 415 CFH OUTDOOR MULTIPLE METER AND SEPARATE SINGLE 3/4" REGULATOR INSTALLATION FOR 3 LB. TO 120 LB. SERVICE	ISSUE APP. APP.

CAD DRAWING
DO NOT REVISE MANUALLY

BILL OF MATERIAL
FIGURE 09
(CONTINUED)

ITEM NO.	DESCRIPTION	STOCK NO.	NO. REQ'D	SEE NOTE
	MATERIALS REQUIRED FOR PREFABRICATED 415 METER PIPING (RESULT ITEM 34)			
13	1-1/4" X 1" TEE, REDUCING	36-04-625	1	
16	1" CLOSE NIPPLE	36-04-964	3	
17	1" METER VALVE	35-05-002	1	
18	1" ELL	36-04-563	1	
23	METER BAR, 1" X 1" TOP OUTLET X 3/4" SWIVEL	36-30-504	1	
29	415 METER SWIVEL	36-06-875	2	
30	415 METER SWIVEL NUT	36-06-669	2	
31	415 METER SWIVEL WASHER	36-06-690	2	
	NO LOAD BUILD UP PROTECTION MAT. NOTE 3			
5	1/4" FIPT 289 U-4 RELIEF VALVE, 5" - 25" RANGE, SET AT 20" W.C.	38-35-003	1	
8	1-1/4" X 3/4" BUSHING	36-04-976	1	
9	3/4" X 1/4" BUSHING	36-04-886	1	
10	1/4" X 2" NIPPLE	36-04-575	1	
11	1/4" MUSHROOM VENT	36-07-911	1	

QUANTITY AS REQUIRED

BILL OF MATERIAL
FIGURE 09

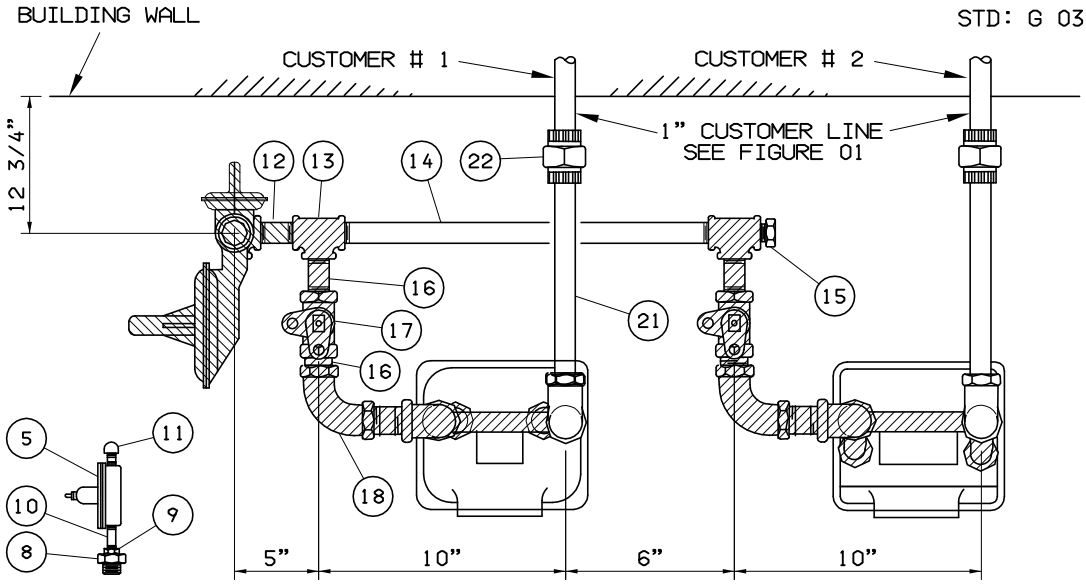
ITEM NO.	DESCRIPTION	STOCK NO.	NO. REQ'D	SEE NOTE
	MATERIALS REQUIRED FOR 250 AND/OR 415 METER			
1	PIPE, THREADED			
	3/4"	35-13-004	#	
	1-1/4"	35-13-062	#	
2	COMP. OR THREADED ADAPTER INSULATED			
	3/4"	36-03-496	1	
	1-1/4"	36-03-498	1	
3	BUSHING			
	2 X 1-1/4"	35-02-030	1	
	2" X 3/4"	35-02-027	1	
14	1-1/4" PIPE, THREADED	35-13-062	#	
15	1-1/4" PIPE PLUG	36-04-614	1	
19	1" X 4" NIPPLE	36-04-591	1	
20	1" MI THREADED ELL OR	36-04-563	#	
	1" COMPRESSION ELL	36-06-700	#	
21	1" PIPE, THREADED	35-13-006	#	
22	1" UNION MI	36-04-632	#	
24	250 METER	METER STOCK	#	
28	415 METER	METER STOCK	#	
32	PREFABRICATED REGULATOR PIPING	35-30-529	1	
	MATERIALS REQUIRED FOR PREFABRICATED REGULATOR PIPING (RESULT ITEM 32)			
4	2" FIPT 1883 REG. 1/4" ORIFICE, 7" W.C. SET PRESS	38-32-002	1	
	26" W.C. OPSO SETTING - 10# MIN. TO 120# INLET - 1900 CFH CAP.			
	OTHER ORIFICES AVAIL.: 3/8" - 5# MIN. TO 60# - 2000 CFH CAP.			
	1/2" - 3# MIN. TO 60# - 2100 CFH CAP.			
6	1-1/4" TEE	36-04-622	1	
7	2 X 1-1/4" BUSHING	35-02-030	1	
12	1-1/4" X 3" NIPPLE	36-04-595	2	
15	1-1/4" PIPE PLUG	36-04-614	1	
33	PREFABRICATED METER PIPING FOR 250 METER	35-30-527	#	
	MATERIALS REQUIRED FOR PREFABRICATED 250 METER PIPING (RESULT ITEM 33)			
13	1-1/4" X 1" TEE, REDUCING	36-04-625	1	
16	1" CLOSE NIPPLE	36-04-964	3	
17	1" METER VALVE	35-05-002	1	
18	1" ELL	36-04-563	1	
23	METER BAR, 1" X 1" TOP OUTLET X 3/4" SWIVEL	36-30-504	1	
25	250 METER SWIVEL	36-06-687	2	
26	250 METER SWIVEL NUT	36-06-673	2	
27	250 METER SWIVEL WASHER	36-06-695	2	
34	PREFABRICATED METER PIPING FOR 415 METER	35-30-528	#	

QUANTITY AS REQUIRED

FIGURE 09

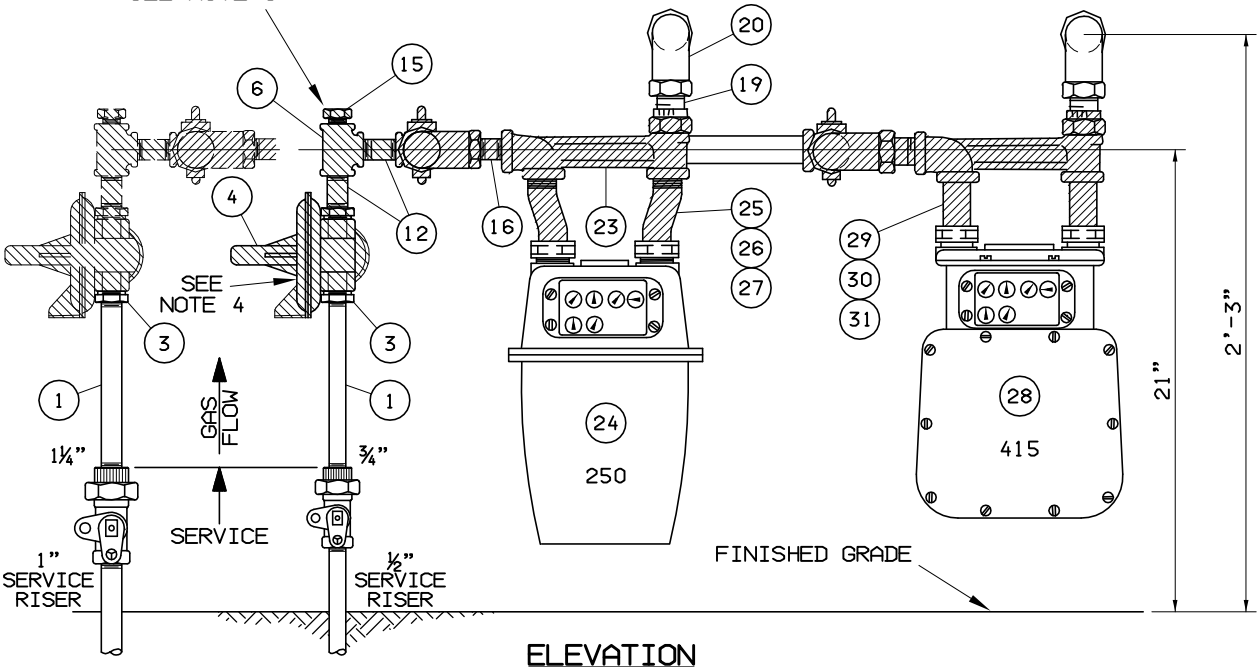
SHEET 1 OF 1

STD: G 03 01 020.0



DETAIL "A"
SEE NOTE 3

PLAN



ELEVATION

NOTES:

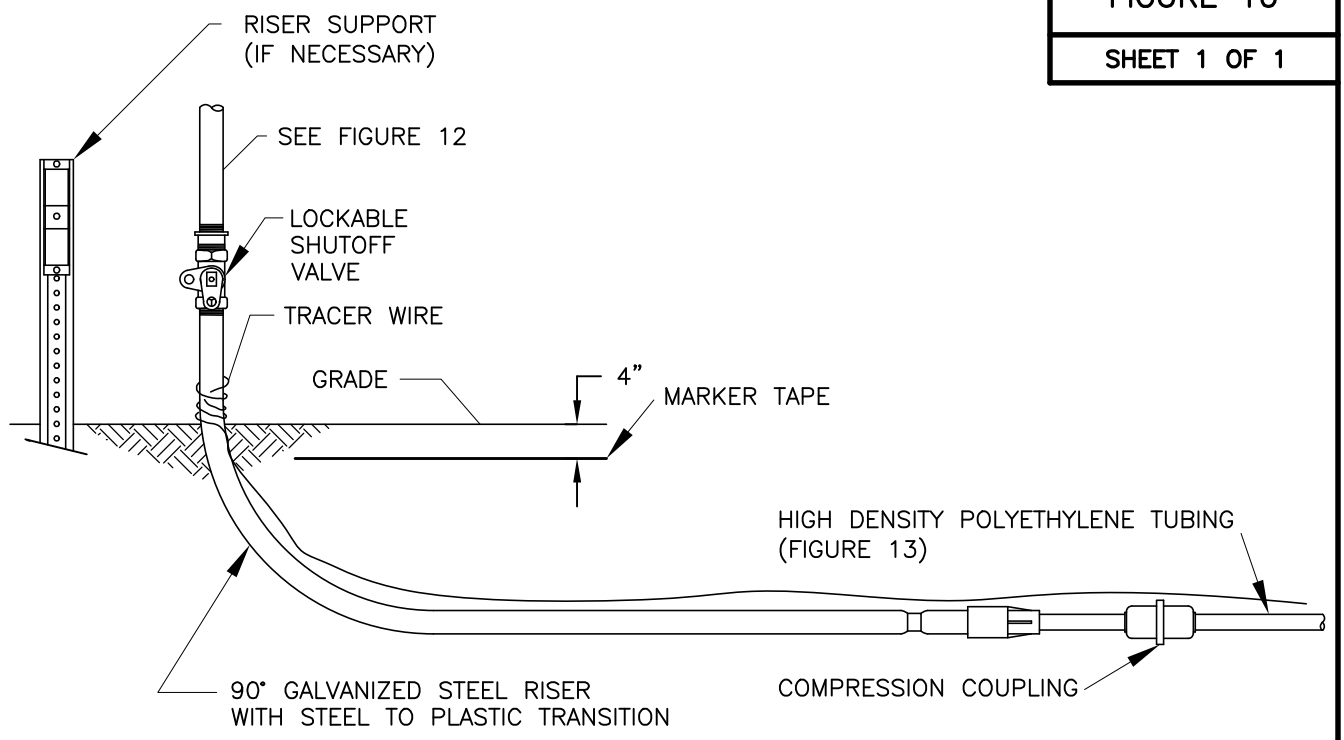
1. REFER TO STANDARD G 03 01 001.0 FOR REGULATOR-METER SET LOCATION REQUIREMENTS
2. THE NUMBER OF CUSTOMERS SUPPLIED BY THE MULTIPLE METER SET REQUIRES A CHECK OF THE REGULATOR CAPACITY AT MINIMUM INLET PRESSURE TO MAKE SURE IT EQUALS OR EXCEEDS THE TOTAL DEMAND. REFER TO MANUFACTURERS REGULATOR CAPACITY TABLES. THE REGULATOR CAPACITIES PROVIDED UNDER BILL OF MATERIAL ITEM 4 ARE PROVIDED AS A BASIC REFERENCE.
3. IF LOAD AND CUSTOMER USAGE IS SUCH THAT PRESSURE IN PIPING DOWNSTREAM OF REGULATOR COULD INCREASE WITH AMBIENT TEMPERATURE RISE AND CAUSE SHUT-OFF OVER PRESSURE PROTECTION OF REGULATOR TO BE ACTIVATED REMOVE 1 1/4" PLUG AND INSTALL 1/4" RELIEF VALVE TO RELIEVE PRESSURE BUILD-UP AS PER DETAIL "A".
4. REGULATOR DIAPHRAM MAY HAVE TO BE DISASSEMBLED TO BE THREADED ON TO NIPPLE DUE TO ROOM CONSTRAINTS.

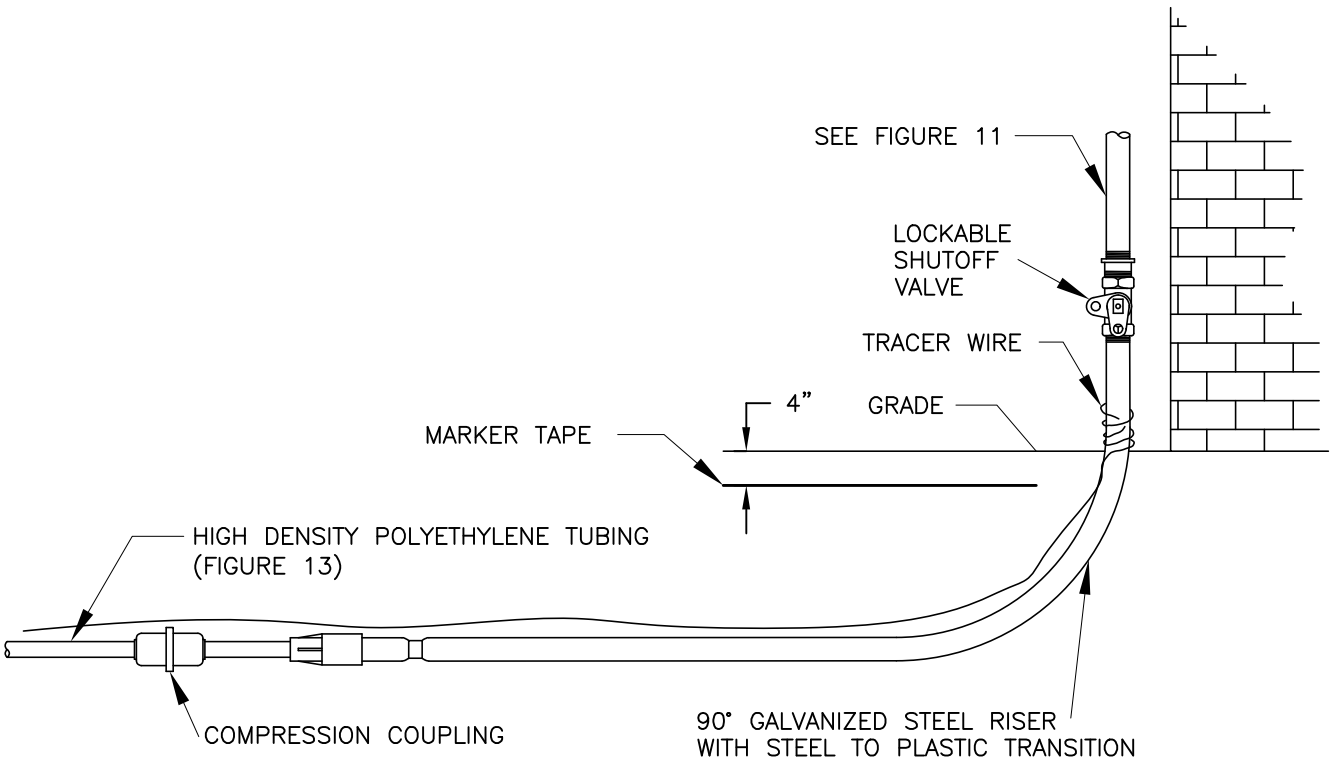
GAS STANDARDS	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE 5/07
DRAWN. _____ CLEAR _____ ENGR. _____ APP. _____	GAS CONSTRUCTION 250 AND 415 CFH OUTDOOR MULTIPLE METER AND SEPARATE SINGLE 2" REGULATOR INSTALLATION FOR 3 LB. TO 120 LB. SERVICE	ISSUE APP. APP.

CAD DRAWING
DO NOT REVISE MANUALLY

FIGURE 10

SHEET 1 OF 1

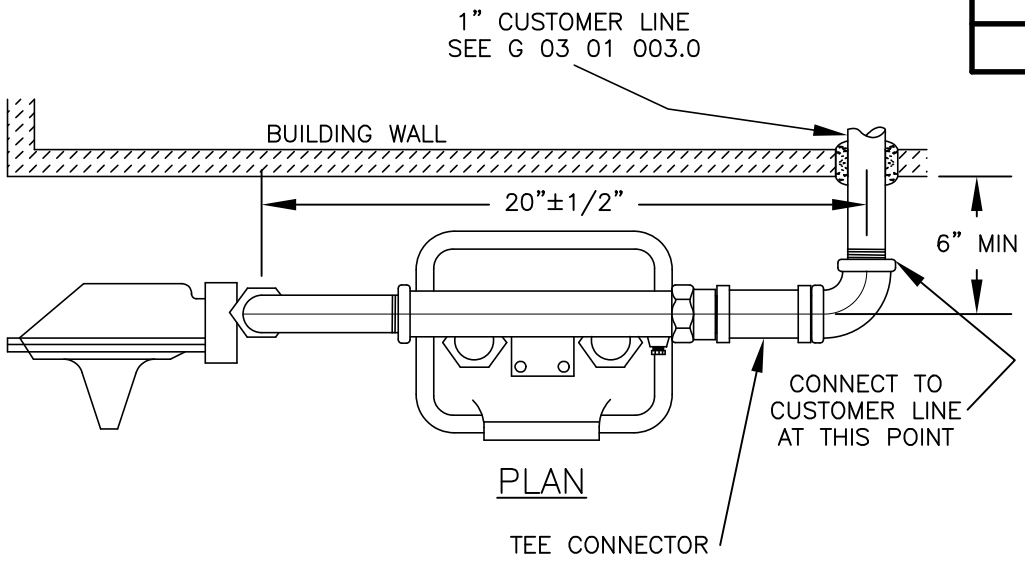


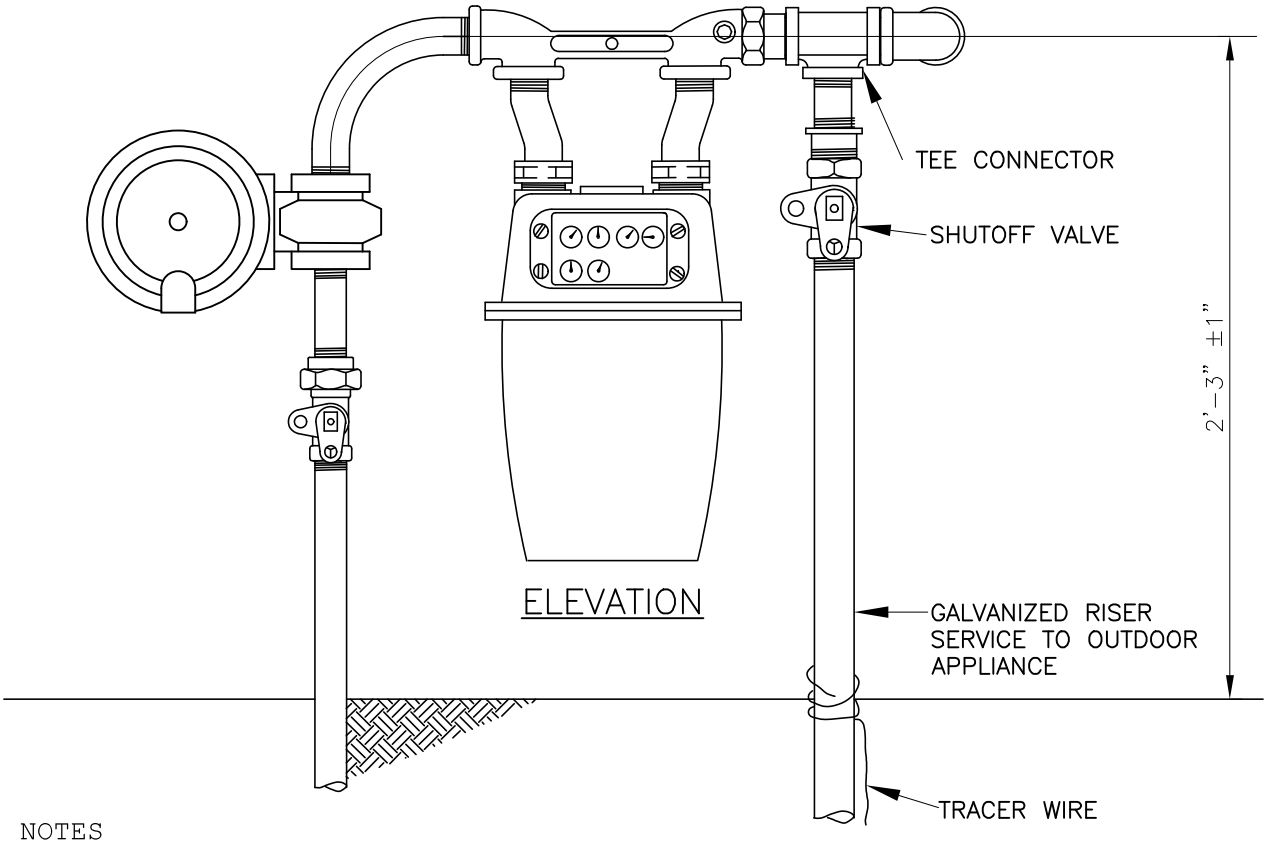


	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE 6/16
DRAWN WTS		ISSUE 7
CLEAR RJS	TYPICAL CUSTOMER PIPING LAYOUT	APP.
ENGR. WAB		APP.
APP.		

FIGURE 11

SHEET 1 OF 1





NOTES

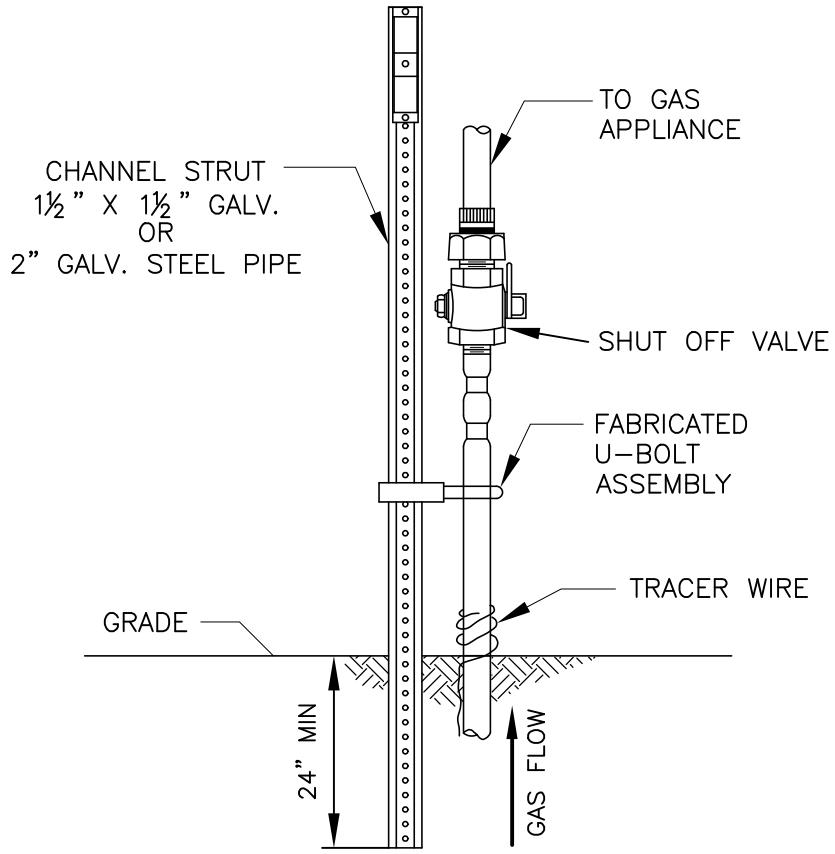
1. Tee connection will require shutdown of service by Central Hudson. Please provide sufficient notice prior to beginning project to insure that schedules are met.

2. Exact location and positioning of tee fitting may require alterations in customer piping.

	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	6/16
DRAWN WTS	OUTDOOR METER AND REGULATOR INSTALLATION	ISSUE	7
CLEAR RJS	(FOR 3 PSI TO 124 PSI SERVICE)	APP.	
ENGR. WAB	PERMANENT HOME TYPE	APP.	
APP.	(WITH SERVICE TO OUTDOOR APPLIANCE)		

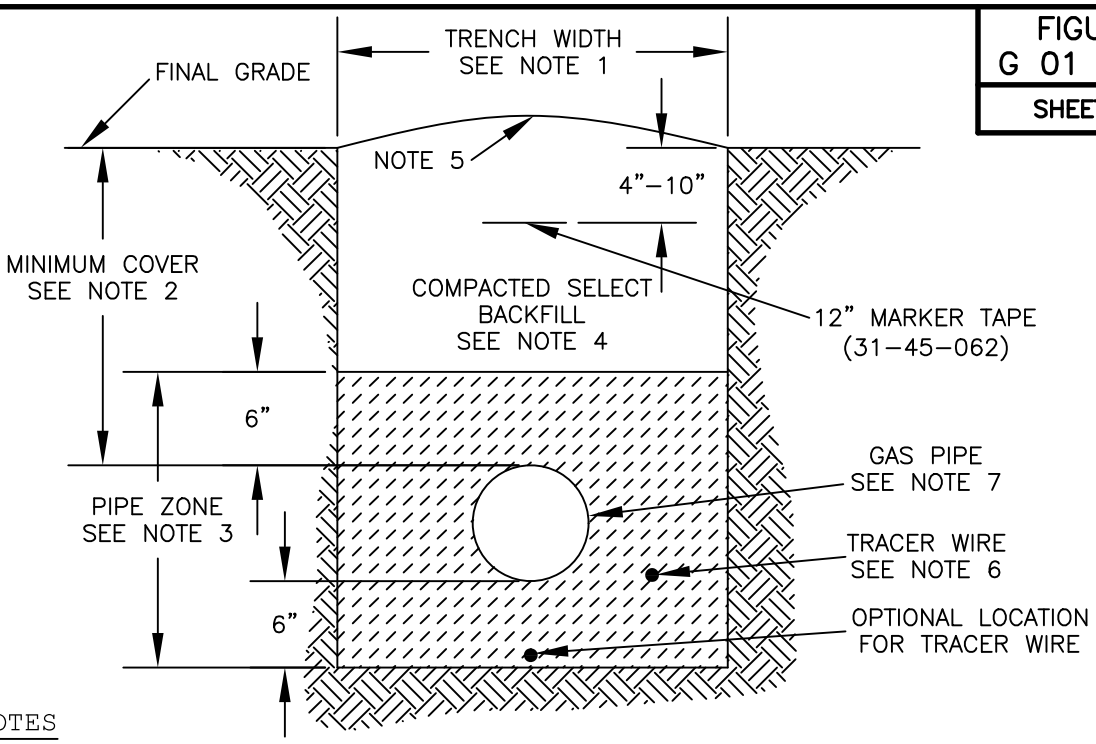
FIGURE 12

SHEET 1 OF 1



	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	6/16
DRAWN WTS		ISSUE	7
CLEAR RJS	FREE STANDING SUPPORT DETAIL	APP.	
ENGR. WAB		APP.	
APP.			

FIGURE 13
G 01 03 002.1
SHEET 1 OF 1



NOTES

1. The minimum trench width shall be as follows:

PIPE SIZE	TRENCH WIDTH
2"	12"
3" - 16"	PIPE O.D. + 12"

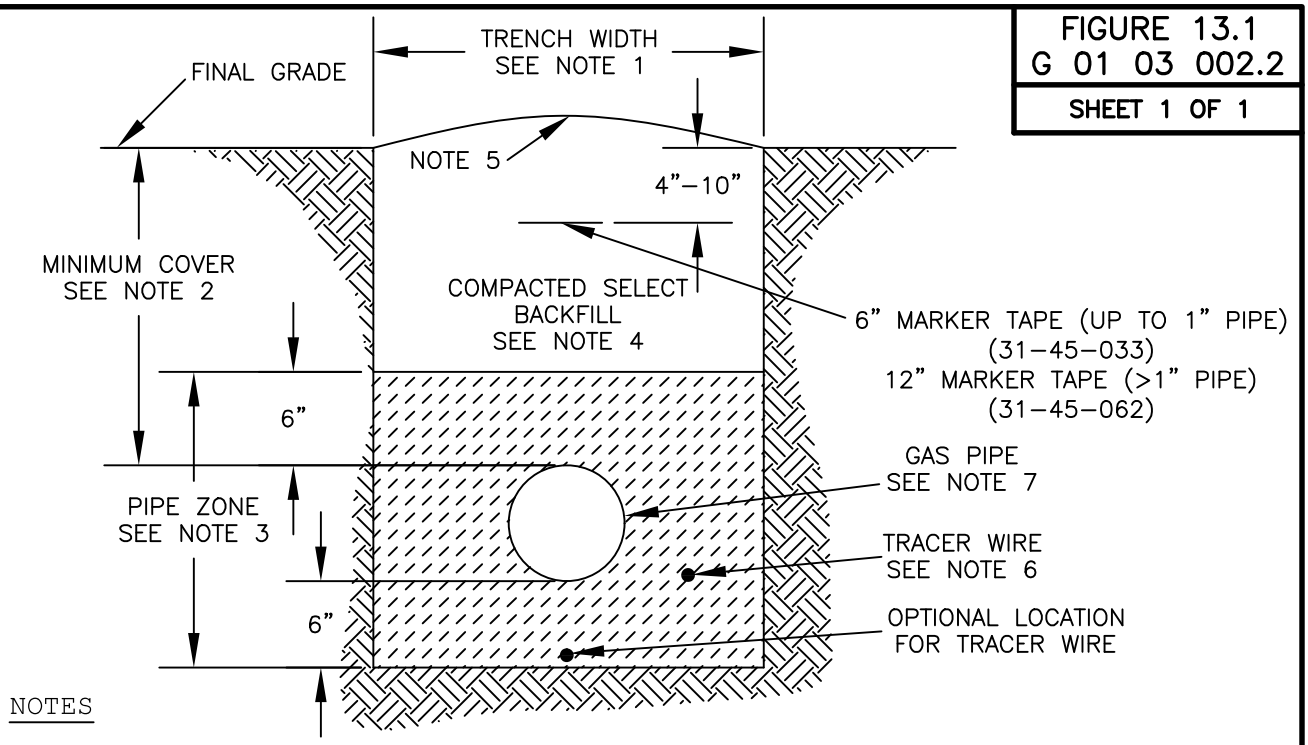
2. Minimum depth of cover from final grade to top of pipe shall be as follows:

IN EARTH	IN ROCK
24"	24"

   Refer to G 01 03 001.0 for special cover requirements in cultivated land or navigable waterways and G 01 03 004.1 for shallow cover. Greater depths may be required by the governing authority.
3. Sand padding is required in the pipe zone. Refer to G 01 03 005.0 for the definition of sand padding. It shall be thoroughly compacted in 12" lifts or as required by the governing authority.
4. Compacted select backfill may be on-site material provided it contains no rocks or stones over 6" in diameter, roots, stumps, or construction debris. It shall be thoroughly compacted in 12" lifts or as required by the governing authority.
5. The backfilled trench shall be crowned slightly to allow for future settlement.
6. For plastic pipe, tracer wire shall be installed per G 02 03 005.0 and G 02 03 006.0.
7. In areas where plastic pipe less than 6" in diameter is installed below the water table, an unopened 75 lb. bag of concrete mix shall be placed directly over the pipe every 40 feet to prevent the pipe from floating up after installation. The bags shall be backfilled along with the pipe.
8. Refer to G 02 01 037.0 to determine the need for shoring or sloping.
9. Refer to G 01 03 004.0 for minimum below grade clearances.
10. In steep terrain, trench breakers and erosion control may be required. Consult with Gas & Mechanical Engineering.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	CHA		ISSUE	3
CLEAR	MFB	TRENCHING AND BACKFILL REQUIREMENTS DISTRIBUTION MAINS	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

FIGURE 13.1
G 01 03 002.2
SHEET 1 OF 1



NOTES

1. The minimum trench width shall be as follows:

PIPE SIZE	TRENCH WIDTH
Up to 1" CTS	4"
1¼" - 2"	12"
3" - 6"	PIPE O.D. + 12"

2. Minimum depth of cover from final grade to top of pipe shall be as follows:

IN EARTH	IN ROCK
18"	12"

   Refer to G 01 03 001.0 for special cover requirements in cultivated land or navigable waterways and G 01 03 004.1 for shallow cover. Greater depths may be required by the governing authority.
3. Sand padding is required in the pipe zone. Refer to G 01 03 005.0 for the definition of sand padding. It shall be thoroughly compacted in 12" lifts or as required by the governing authority.
4. Compacted select backfill may be on-site material provided it contains no rocks or stones over 6" in diameter, roots, stumps, or construction debris. It shall be thoroughly compacted in 12" lifts or as required by the governing authority.
5. The backfilled trench shall be crowned slightly to allow for future settlement.
6. For plastic pipe, tracer wire shall be installed per G 02 03 005.0 and G 02 03 006.0.
7. In areas where plastic pipe less than 6" in diameter is installed below the water table, an unopened 75 lb. bag of concrete mix shall be placed directly over the pipe every 40 feet to prevent the pipe from floating up after installation. The bags shall be backfilled along with the pipe.
8. Refer to G 02 01 037.0 to determine the need for shoring or sloping.
9. Refer to G 01 03 004.0 for minimum below grade clearances.
10. In steep terrain, trench breakers and erosion control may be required. Consult with Gas & Mechanical Engineering.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	CHA		ISSUE	3
CLEAR	MFB	TRENCHING AND BACKFILL REQUIREMENTS DISTRIBUTION SERVICES	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

EQUIVALENT TO ELECTRIC STANDARD E 05-06-001.0

FIGURE 14
G 01 03 005.0
SHEET 1 OF 1

GENERAL

1. JOINT USE, RANDOM LAY, DIRECT BURIAL CABLE INSTALLATIONS INVOLVING BOTH POWER AND COMMUNICATIONS CABLES ARE LIMITED TO THOSE APPLICATIONS IN WHICH THE POWER CABLES DO NOT EXCEED:
   A. 5,300 VOLTS PHASE TO PHASE FOR UNGROUNDED (DELTA) OPERATION OR
   B. 22,000 VOLTS PHASE TO GROUND FOR GROUNDED (WYE) OPERATION
2. WHERE THE POWER CABLE EXCEEDS 300 VOLTS TO GROUND, THE INSTALLATION SHALL INCLUDE A BARE OR SEMICONDUCTING JACKETED GROUNDED CONDUCTOR IN CONTINUOUS CONTACT WITH EARTH (EXCEPT FOR SHORT SECTIONS SUCH AS CONDUIT UNDER A HIGHWAY).
3. MARKER TAPE SHALL BE INSTALLED IN ALL URD INSTALLATIONS.
4. ELECTRIC CABLE AND GAS PIPE SHALL BE LAID IN THE TRENCH WITHOUT TENSION.
5. DIRECT BURIED CABLES AND GAS MAINS/SERVICES SHALL NOT BE PLACED IN LOCATIONS FOR WHICH THE SURFACE IS NOT READILY ACCESSIBLE (SUCH AS UNDER SIDEWALKS AND ALONG PAVED ROADWAYS). DIRECT BURIED CABLES MAY CROSS UNDER PAVED ROADS. HOWEVER, ALL MAIN ROADS SHALL HAVE AT LEAST ONE SPARE DUCT INSTALLED ALONG WITH THE CABLE. SPARE DUCTS ARE OPTIONAL FOR PARKING LOTS AND SIDE ROADS BASED UPON INDIVIDUAL CIRCUMSTANCES.
6. TRACER WIRE SHALL BE INSTALLED FOR ALL JOINT URD's AS PER GAS STANDARDS: G 02 03 005.0 AND G 02 03 006.0.

TRENCH INSTALLATIONS

7. GAS AND ELECTRIC FACILITIES SHALL NOT BE INSTALLED UNLESS THE SURFACE IS AT, OR NO MORE THAN 6" BELOW FINAL GRADE. MINIMUM COVER REQUIREMENTS SHALL BE MET BOTH DURING CONSTRUCTION AND AFTER FINAL GRADING.
8. TRENCHES SHALL BE EXCAVATED TO ADEQUATE WIDTH AND DEPTH TO ACCOMMODATE THE FACILITIES TO BE INSTALLED AND TO ASSURE SUFFICIENT COVER AS SPECIFIED.
9. FOR TRENCHES OVER 5 FEET DEEP REQUIRING PERSONS TO ENTER, THE TRENCH SHALL BE PREPARED AS PER GAS CONSTRUCTION STANDARD G 02 01 037.0.
10. FOR THE PURPOSE OF THESE STANDARDS, THE PREFERRED SAND PADDING SHALL BE IMPORTED NATURAL OR MANUFACTURED STONE DUST, CUSHION SAND, SCREENED BANK RUN, CONCRETE SAND, OR FINE AGGREGATE. SAND PADDING SHALL CONSIST OF HARD, STRONG, DURABLE PARTICLES FREE FROM CLAY, LOAM, OR HARMFUL SUBSTANCES. THE MATERIAL SHALL BE SCREENED TO CONTAIN NO SHARP STONES OR STONES GREATER THAN ¼" IN DIAMETER. THE MATERIAL SHALL BE SIGNIFICANTLY DIFFERENT IN COLOR OR CONSISTENCY TO READILY DISTINGUISH IT FROM THE SOILS SURROUNDING THE TRENCH. ACCEPTABLE OPTIONS INCLUDE NEW YORK STATE DOT APPROVED SOURCES WITH A GENERAL RANGE OF GRADATION AT 90-100% PASSING ¼", 90-100% PASSING ⅛", 0-80% PASSING #80 SCREEN, AND 0-10% PASSING #200 SCREEN.
11. THE TRENCH BOTTOM SHALL BE SMOOTH AND FREE OF ALL STONE AND SHARP OBJECTS. A 6" LAYER OF SAND PADDING SHALL BE PLACED ON THE BOTTOM OF THE TRENCH PRIOR TO THE INSTALLATION OF ELECTRIC AND/OR GAS UTILITIES.
12. THE ELECTRIC AND COMMUNICATION CABLES SHALL BE COVERED WITH A MINIMUM 12" OF SAND PADDING. THE GAS MAIN AND SERVICES SHALL BE COVERED WITH A MINIMUM OF 6" OF SAND PADDING.
13. PLACE WOODEN STAKES AS OFTEN AS NEEDED TO MAINTAIN REQUIRED SEPARATION. THE TRACER WIRE MAY BE TAPED TO THE STAKES TO MINIMIZE CONTACT WITH THE PLASTIC PIPE.

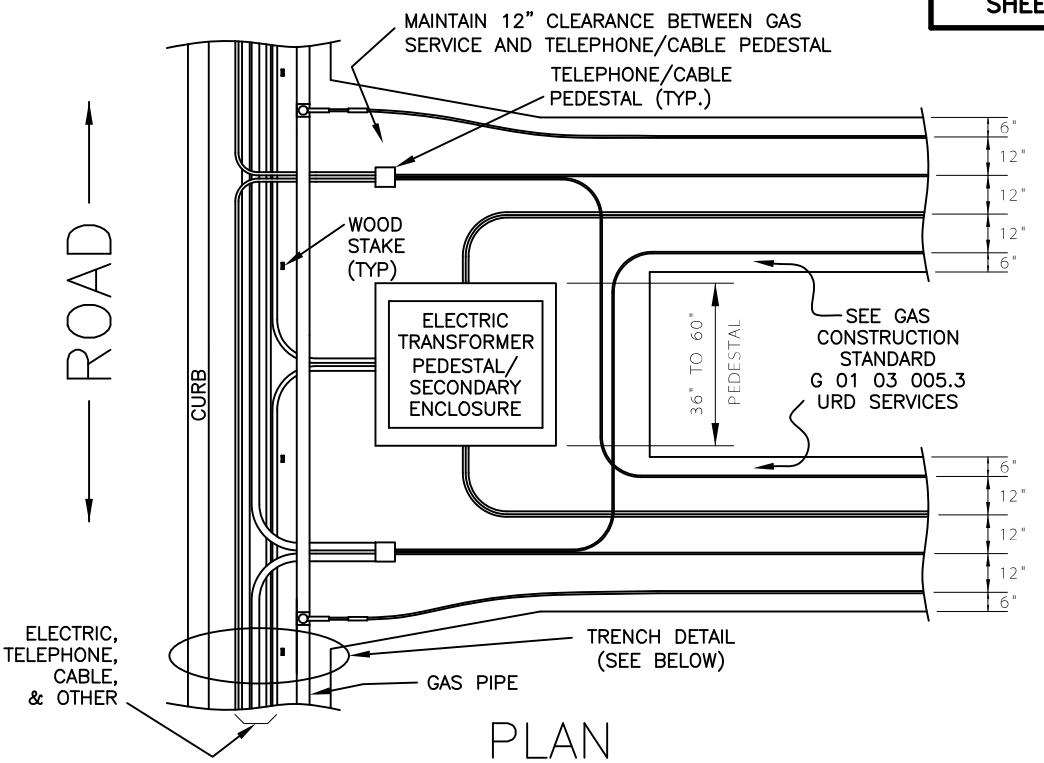
CLEARANCES

14. A MINIMUM CLEARANCE OF 12" SHALL BE MAINTAINED BETWEEN GAS PIPING AND OTHER UNDERGROUND UTILITIES OR STRUCTURES.
15. ELECTRIC CABLES SHALL NOT BE INSTALLED WITH LESS THAN 12" SEPARATION FROM OTHER UNDERGROUND STRUCTURES EXCEPT AS PROVIDED BY THESE STANDARDS.
16. PRIMARY ELECTRIC CABLES SHALL NOT BE LOCATED WITHIN 5 FEET OF SWIMMING POOLS OR THEIR AUXILIARY EQUIPMENT.
17. THE GAS MAIN SHALL BE LAID ON THE HOUSE SIDE OF JOINT URD TRENCHES. FOR GAS MAINS AND SERVICES INSTALLED JOINTLY WITH ANOTHER ELECTRIC UTILITY, THE MAIN SHALL BE INSTALLED AS PER THE CONSTRUCTION STANDARDS OF THE ELECTRIC UTILITY.
18. FOR GAS MAIN/SERVICES AND CABLE (ELECTRIC, COMMUNICATIONS, ETC.) CROSSINGS WITH LESS THAN 12" BUT GREATER THAN OR EQUAL TO 6", THE CABLES SHALL BE PLACED IN A SCHEDULE 40 PLASTIC DUCT WHICH EXTENDS, WHERE POSSIBLE, 2 FEET BEYOND EACH END OF THE SECTION OF GAS MAIN/SERVICE WHERE THE CLEARANCE IS LESS THAN 12". SECONDARY AND/OR SERVICE CABLES SHALL NOT BE PLACED IN THE SAME DUCT AS PRIMARY CABLES. COMMUNICATION CABLES MAY BE PLACED IN A DUCT WITH OTHER 600 VOLT OR LESS CABLES. CLEARANCES BETWEEN GAS MAIN/SERVICES AND CABLE LESS THAN 6" ARE NOT ACCEPTABLE.

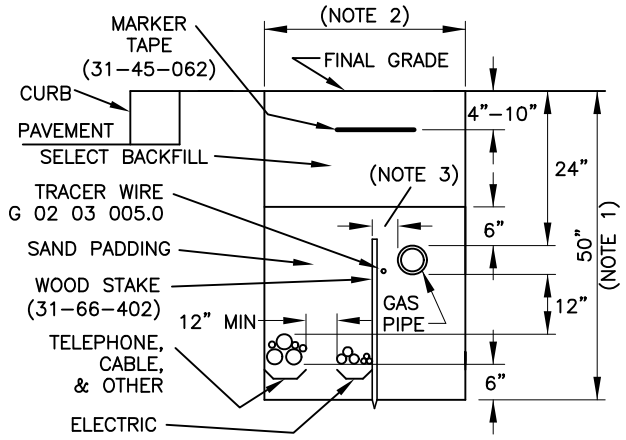
GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/15
DRAWN	CHA		ISSUE	10
CLEAR	MFB	UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) JOINT WITH GAS AND OTHER UTILITIES	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

EQUIVALENT TO ELECTRIC STANDARD E 05-06-001.1

FIGURE 14.1
G 01 03 005.1
SHEET 1 OF 1

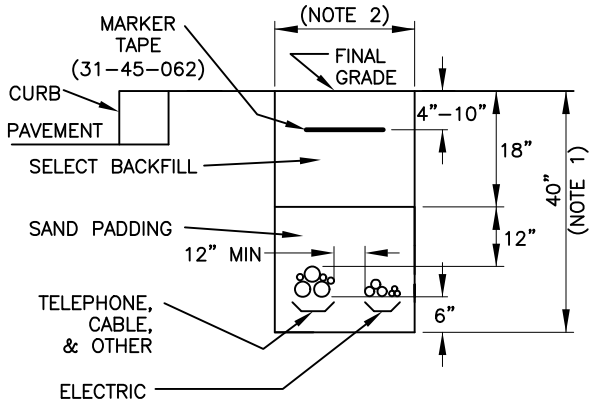


PLAN



TRENCH DETAIL

(GAS AND ELECTRIC)



TRENCH DETAIL

(ELECTRIC ONLY)

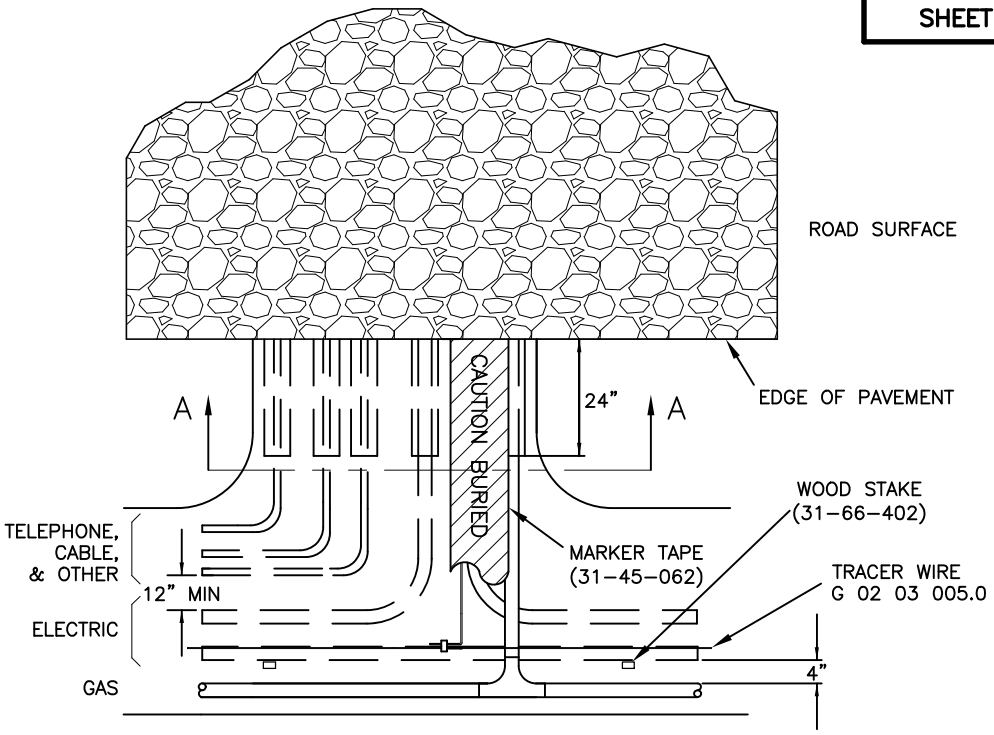
NOTES

1. INDICATED TRENCH DEPTH IS FOR 2" OR 4" GAS MAINS. FOR 6" MAINS THE TRENCH DEPTH SHALL BE 52". FOR ELECTRIC-ONLY INSTALLATIONS, THE DEPTH OF COVER CAN BE REDUCED TO 30" OVER ELECTRIC AND OTHER CABLE UTILITIES. A MINIMUM OF 40" DEPTH-OF-COVER REQUIRED FOR CULTIVATED LAND. LAND OWNER MAY REQUIRE ADDITIONAL DEPTH-OF-COVER.
2. TRENCH WIDTH FOR 2" OR 4" GAS MAINS SHALL BE A MINIMUM 30" PLUS WIDTH REQUIRED BY TELEPHONE, CABLE, AND OTHER UTILITIES. FOR 6" MAINS THE MINIMUM WIDTH SHALL BE 32" PLUS WIDTH REQUIRED BY TELEPHONE, CABLE, AND OTHER UTILITIES. FOR ELECTRIC-ONLY INSTALLATION, THE MINIMUM TRENCH WIDTH SHALL BE 18" PLUS TELEPHONE, CABLE, AND OTHER UTILITY REQUIREMENTS.
3. LOCATE PLASTIC PIPE A SUFFICIENT DISTANCE FROM WOODEN STAKE TO MINIMIZE TRACER WIRE TO PIPE CONTACT.
4. ALL DIMENSIONS ARE MINIMUMS.

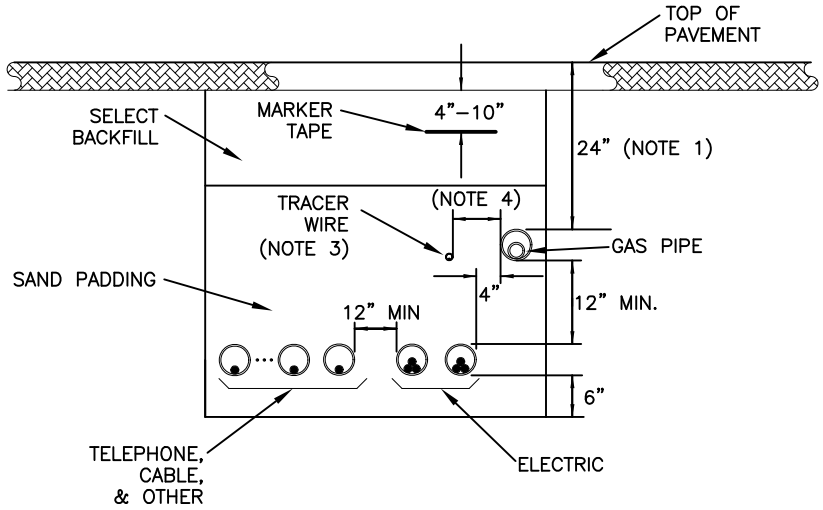
GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	CHA	UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) ELECTRIC & GAS MAIN INSTALLATION WITH OTHER UTILITIES	ISSUE	4
CLEAR	MFB		APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

EQUIVALENT TO ELECTRIC STANDARD E 05-06-001.2

FIGURE 14.2
G 01 03 005.2
SHEET 1 OF 1



PLAN



SECTION "A-A"

NOTES

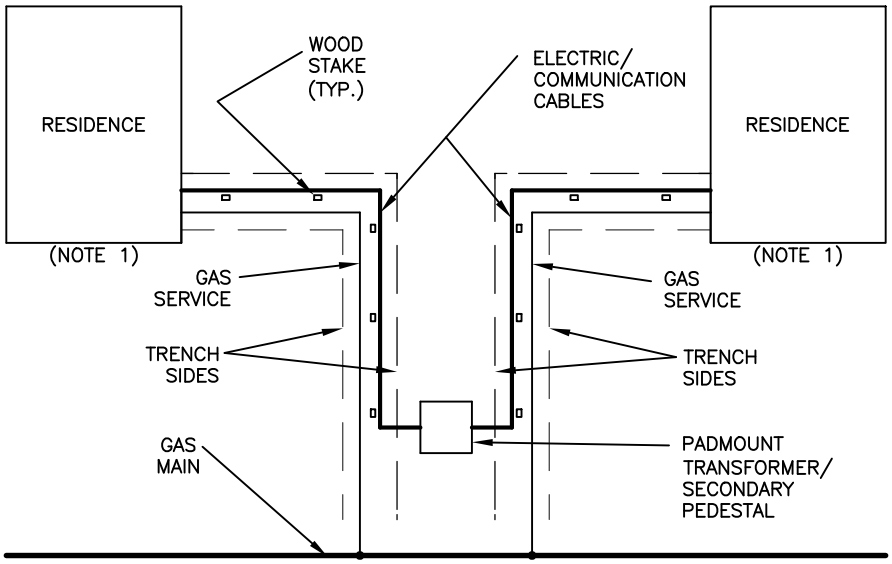
1. MINIMUM PIPE DEPTH SHALL BE 24" OR GREATER AS REQUIRED BY LOCAL AUTHORITIES.
2. IF ROAD CROSSING IS OPEN CUT, CONDUITS ARE NOT REQUIRED FOR GAS FACILITIES, HOWEVER, SPECIFIED SPACING SHALL BE MAINTAINED.
3. A SEPARATE 1" OR LARGER IPS SCHEDULE 40 PVC CONDUIT WITH PULL STRING, SHALL BE INSTALLED ALONG WITH OTHER ROAD CROSSING CONDUITS TO ACCOMMODATE TRACER WIRE INSTALLATION.
4. LOCATE TRACER WIRE A SUFFICIENT DISTANCE FROM PLASTIC PIPE TO MINIMIZE TRACER WIRE TO PIPE CONTACT.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	CHA		ISSUE	2
CLEAR	MFB	UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) ROAD CROSSING INSTALLATION	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

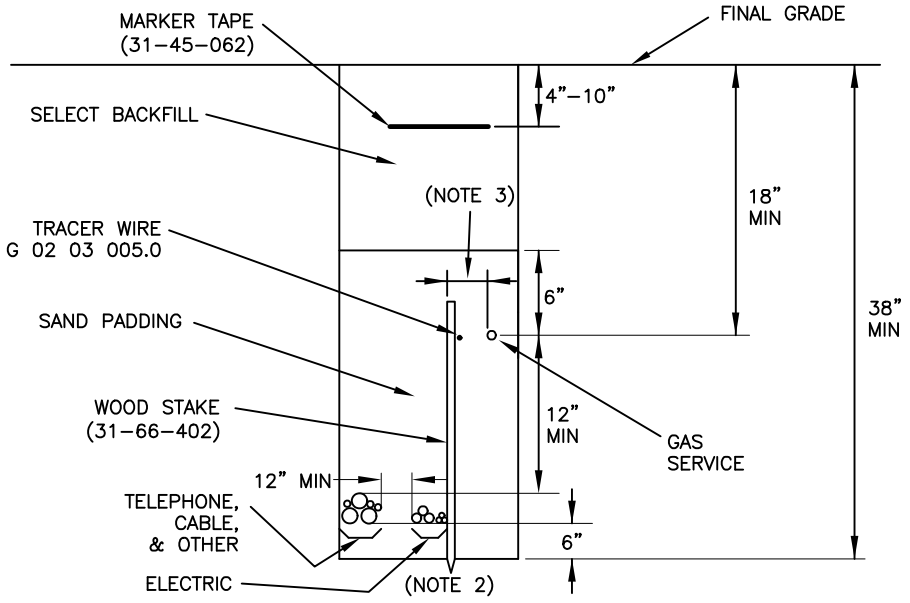
EQUIVALENT TO ELECTRIC STANDARD E 05-06-001.3

FIGURE 14.3
G 01 03 005.3

SHEET 1 OF 1



PLAN



PROFILE

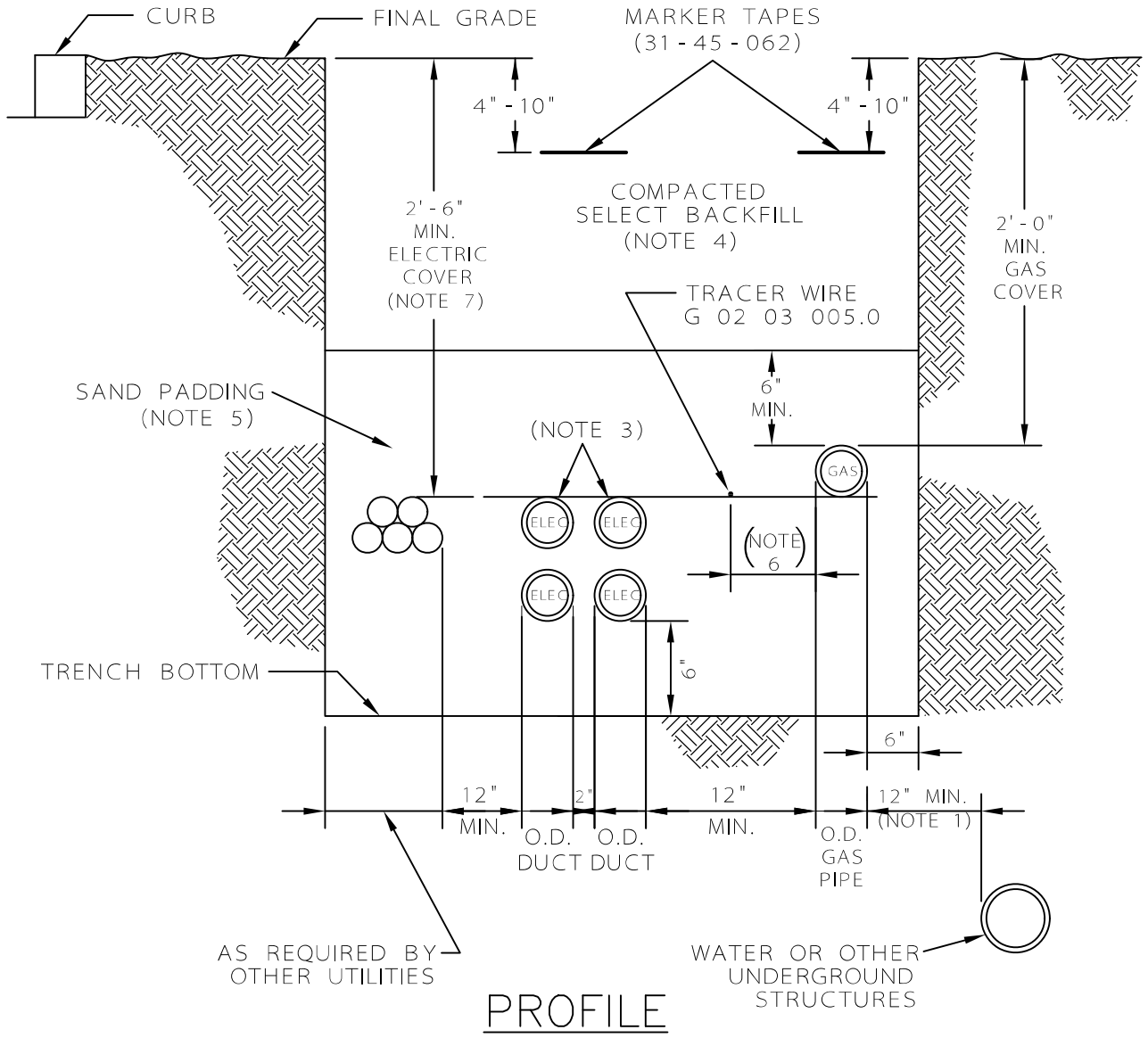
NOTES

1. SEE GAS CONSTRUCTION STANDARD G 03 01 001.0 FOR LOCATION OF THE GAS METER SET.
2. TRENCH WIDTH SHALL BE A MINIMUM 30".
3. LOCATE PLASTIC PIPE A SUFFICIENT DISTANCE FROM WOODEN STAKE TO MINIMIZE TRACER WIRE TO PIPE CONTACT.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	CHA	UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) ELECTRIC & GAS SERVICE INSTALLATION WITH OTHER UTILITIES	ISSUE	4
CLEAR	MFB		APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

EQUIVALENT TO ELECTRIC STANDARD E 05-05-003.0

FIGURE 15
G 01 03 007.0
SHEET 1 OF 1



PROFILE

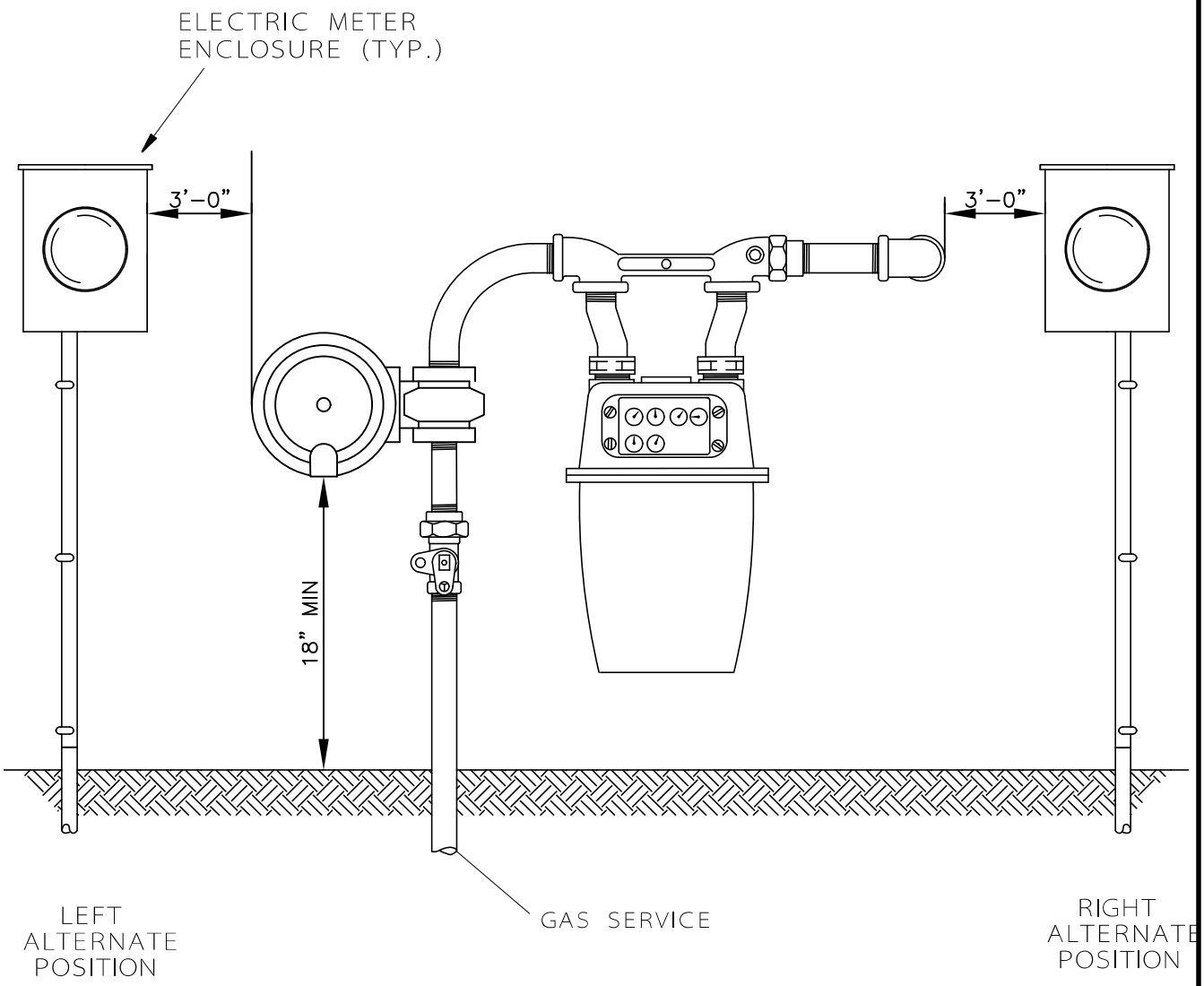
NOTES

1. THE MINIMUM CLEARANCE FROM GAS TO OTHER UTILITIES SUCH AS WATER AND SEWER SHALL BE 12". CONSULT WITH OTHER UTILITIES OR REVIEW LOCAL ORDINANCES FOR ADDITIONAL CLEARANCE REQUIREMENTS. IF 12" CLEARANCE IS NOT POSSIBLE, REFER TO GAS CONSTRUCTION STANDARD G 01 03 004.0.
2. GAS SHALL BE INSTALLED ON THE FIELD SIDE OF THE ELECTRIC.
3. SPACING SHALL BE MAINTAINED FOR CONCRETE ENCASED DUCTS.
4. COMPACTED SELECT BACKFILL MAY BE ON-SITE MATERIAL PROVIDED IT CONTAINS NO ROCKS OR STONES OVER 6" IN DIAMETER, ROOTS, STUMPS OR CONSTRUCTION DEBRIS.
5. REFER TO GAS CONSTRUCTION STANDARD G 01 03 005.0 FOR DEFINITION OF SAND PADDING.
6. LOCATE TRACER WIRE A SUFFICIENT DISTANCE FROM PLASTIC PIPE TO MINIMIZE TRACER WIRE TO PIPE CONTACT.
7. ELECTRIC DUCTS MUST BE NO LESS THAN 5'-0" FROM IN-GROUND POOLS PER NESC.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	CHA		ISSUE	3
CLEAR	MFB	TYPICAL COMMON TRENCH CONFIGURATION ELECTRIC DUCTS WITH GAS MAIN AND OTHER UTILITIES	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

FIGURE 16

SHEET 1 OF 1

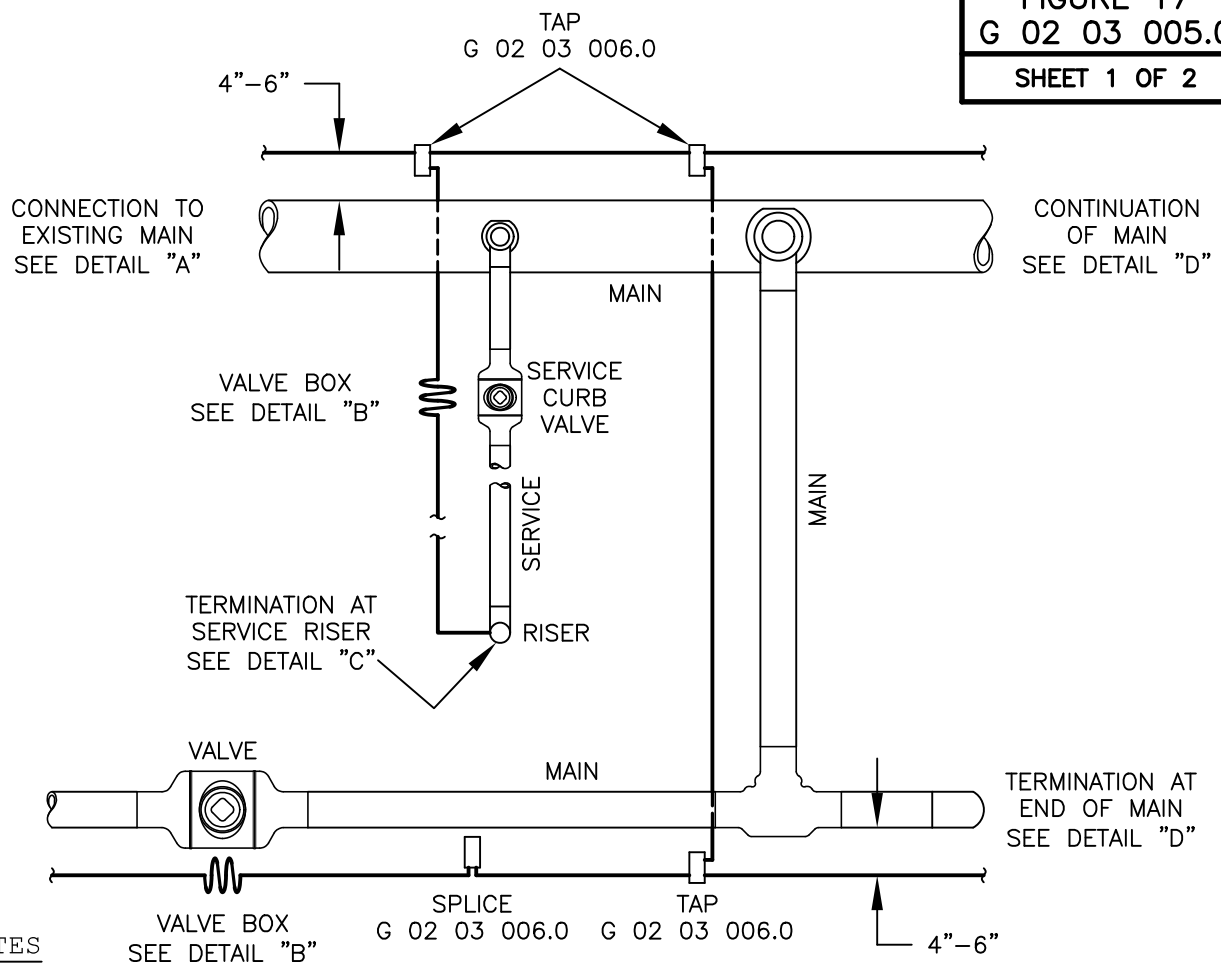


NOTES

1. All installations shall be in accordance with the specifications contained herein, the NEC, and all applicable codes and standards.
2. All installations shall be inspected by the authority having jurisdiction.

	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	6/16
DRAWN WTS	SEPARARTION OF ELECTRIC AND GAS METERS	ISSUE	7
CLEAR RJS		APP.	
ENGR. WAB		APP.	
APP.			

FIGURE 17
G 02 03 005.0
SHEET 1 OF 2



NOTES

1. Tracer Wire shall be installed 4"-6" below or to either side of all plastic main and services. Tracer Wire shall be placed to minimize contact with the plastic pipe or tubing. Splices in the Tracer Wire shall be kept to a minimum and made per Standard G 02 03 006.0.

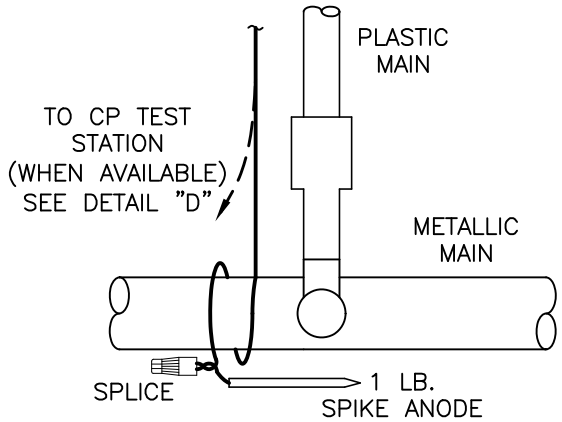
2. When transitioning from metallic main to plastic main, loosely wrap the Tracer Wire one (1) time around the metallic main and splice the end of the Tracer Wire to a 1 lb. Spike Anode (36-30-642). The Spike Anode shall be installed horizontally or vertically below and with a minimum 12" of clearance from the metallic main. Alternatively if a test station is available, terminate the Tracer Wire there.

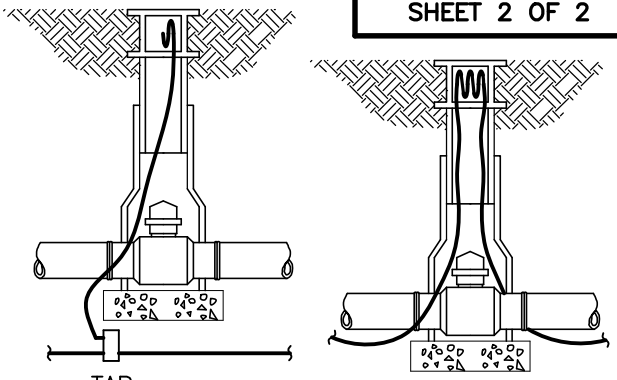
3. For long runs of main without services, install a test station for Tracer Wire per Standard G 04 02 004.0 or G 04 02 015.0. Terminate the wire from each direction inside the test station. See Detail "D" for above grade test station, below grade test station, or pipeline marker installation. Locate these test stations at sufficient intervals (500'±) to locate below-grade facility.

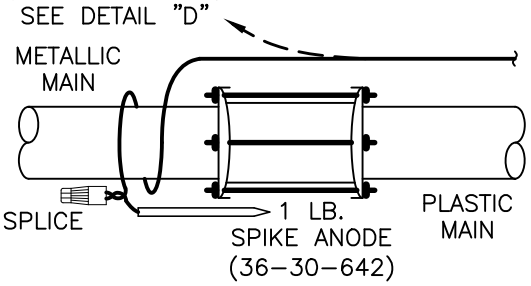
4. For drilled or bored main installations, see Standard G 01 09 002.0. Install a test station from Detail "D" at each end of the bore to isolate the bore Tracer Wire(s) from the main Tracer Wire.

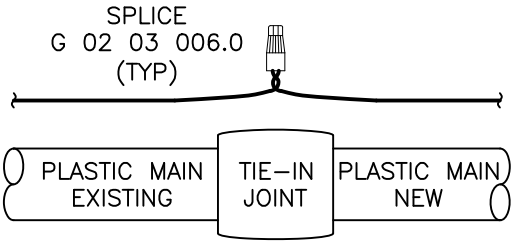
		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/14
DRAWN	RJS		ISSUE	7
CLEAR	MFB	TRACER WIRE INSTALLATION FOR MAIN AND SERVICE	APP.	JAR
ENGR.	RJS		APP.	KER
APP.	KJF			

FIGURE 17
G 02 03 005.0
SHEET 2 OF 2

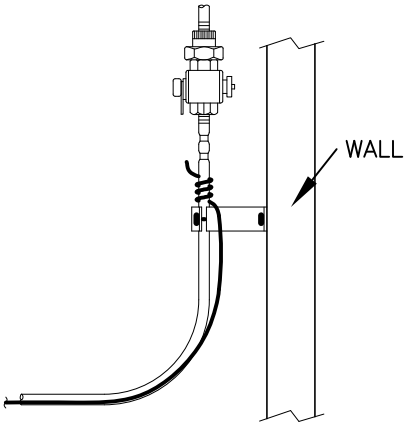




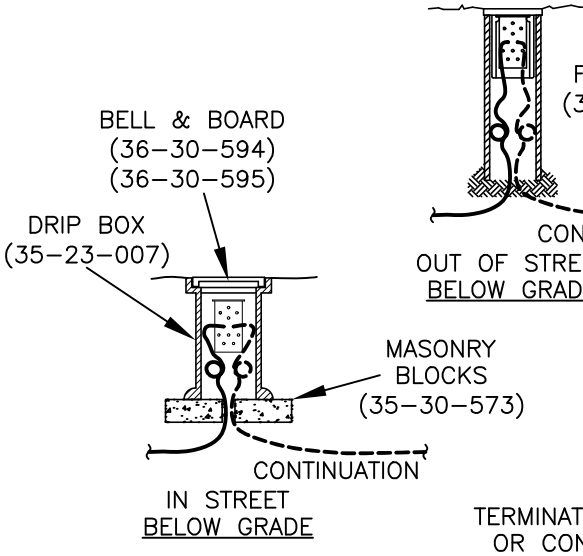


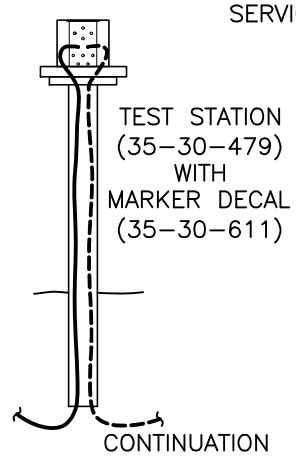


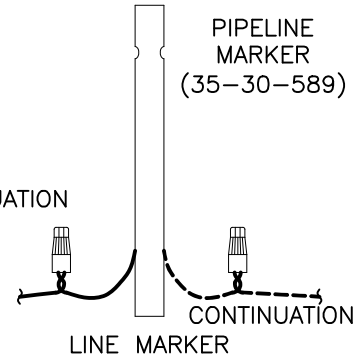
DETAIL "A"
CONNECTION TO EXISTING MAIN



DETAIL "C"
TERMINATION AT SERVICE RISER





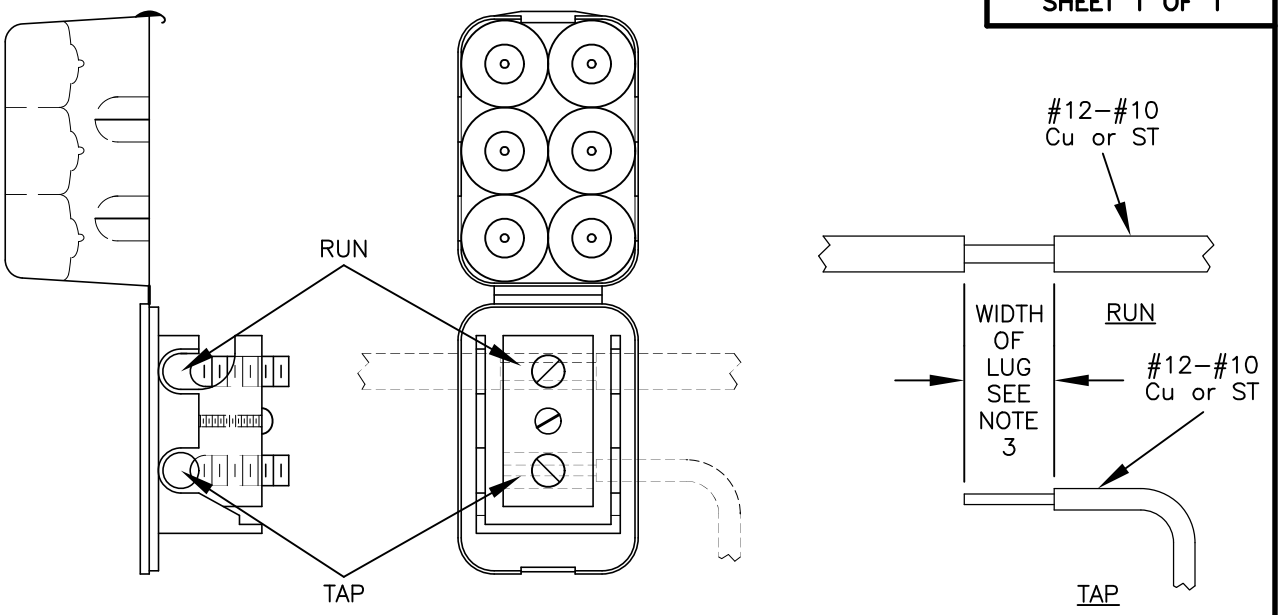


DETAIL "D"
TERMINATION AT END OF MAIN OR CONTINUATION OF MAIN

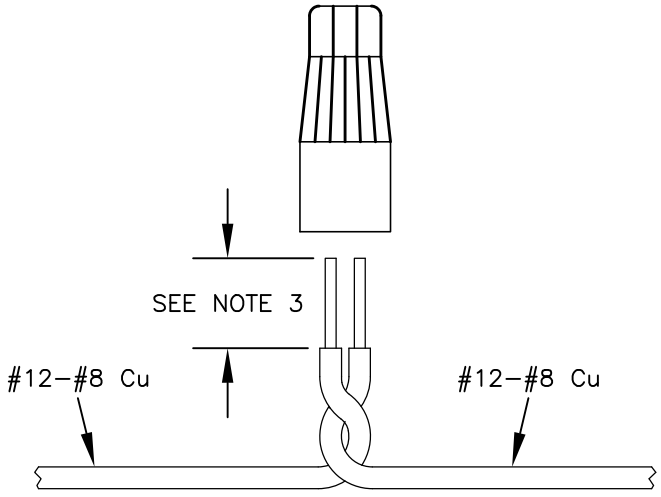
	CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/14
DRAWN RJS		ISSUE	7
CLEAR MFB	TRACER WIRE INSTALLATION FOR MAIN AND SERVICE	APP.	JAR
ENGR. RJS		APP.	KER
APP. KJF			

FIGURE 18
G 02 03 006.0

SHEET 1 OF 1



SILICONE FILLED CONNECTION LUG
(36–30–597)



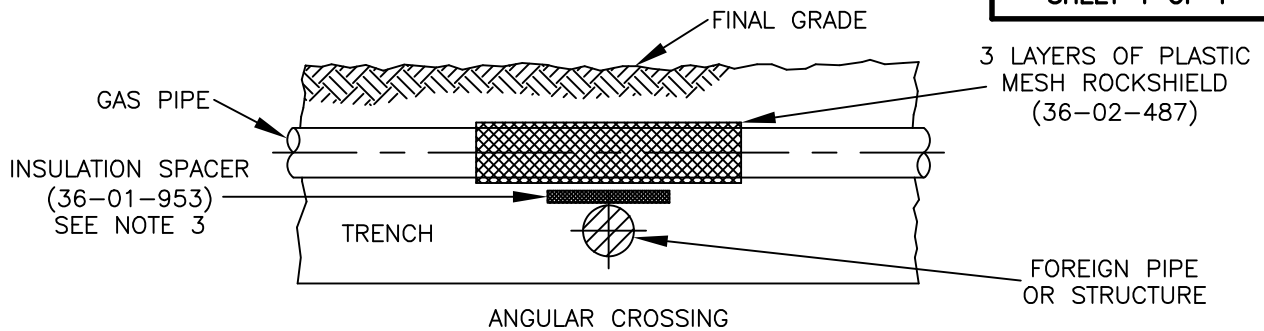
SILICONE FILLED SPLICING CONNECTOR
(36–30–592)

NOTES

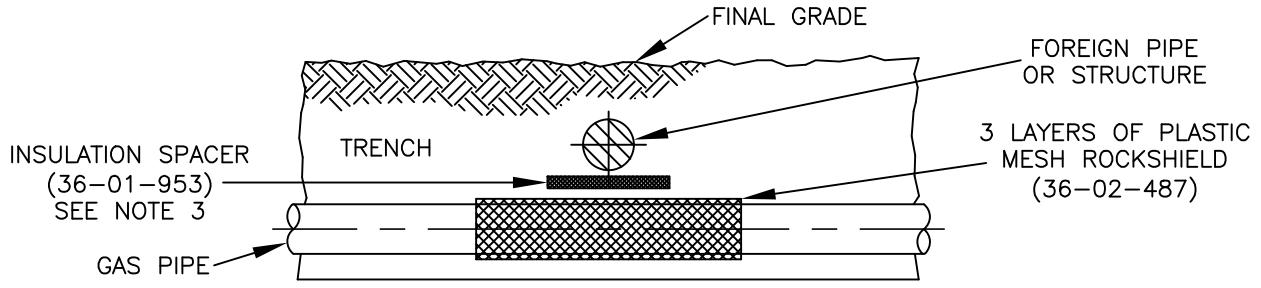
1. Refer to Manufacturer's installation instructions.
2. For wire sizes not specified, consult Gas & Mechanical Engineering.
3. Strip no more than the width of the Lug. Do not leave any exposed copper at a Lug or Connector.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	3/13
DRAWN	CHA		ISSUE	7
CLEAR	MFB	WATER–TIGHT DIRECT BURY CONNECTORS FOR TRACER & CATHODIC WIRES	APP.	KER
ENGR.	RJS		APP.	JAR
APP.	KJF			

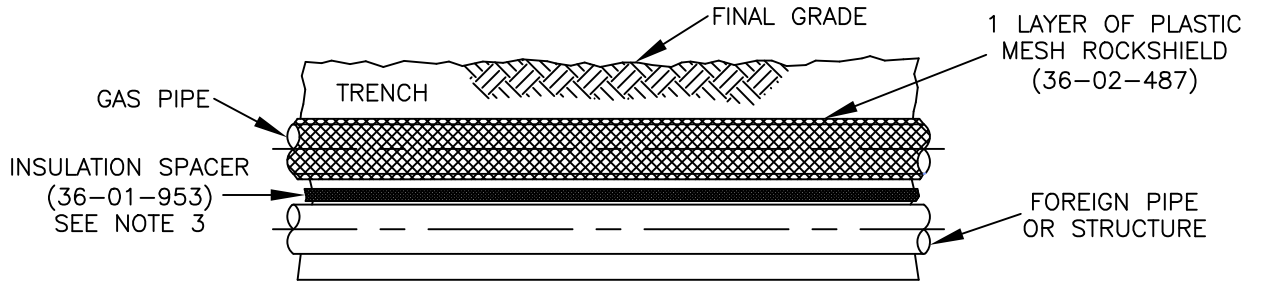
FIGURE 19 G 01 03 004.0
SHEET 1 OF 1



ANGULAR CROSSING
(ABOVE FOREIGN PIPE OR STRUCTURE)



ANGULAR CROSSING
(BELOW FOREIGN PIPE OR STRUCTURE)



PARALLEL INSTALLATION
(HORIZONTAL OR VERTICAL ARRANGEMENT)

NOTES

1. All gas transmission and distribution mains and services shall be constructed with a clearance of not less than 12", whenever practical, from any subsurface structure.

2. When 12" of clearance is not practical, a minimum clearance of 4" shall be maintained and the pipeline protected from damage as detailed above.

3. An Insulation Spacer (36-01-953) shall be installed with steel pipe to prevent electrical contact with structure.

GAS STANDARDS		CENTRAL HUDSON GAS & ELECTRIC CORP.	DATE	9/15
DRAWN	RJS		ISSUE	4
CLEAR	MFB	PROTECTION OF GAS PIPE FOR BELOW GRADE CLEARANCES 4" TO 12"	APP.	KER
ENGR.	RJS		APP.	LRC
APP.	GMD			

Report any and all suspected gas leaks to Central Hudson by calling this special, 24-hour, toll-free hotline:

1-800-942-8274

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Central Hudson Gas & Electric Corp.

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