INSTALLATION STANDARDS

Revised: November 17, 2009

PIPING
CUSTOMERS' PREMISES

Applies only to
Pennsylvania & West Virginia Customers

THIS INSTALLATION STANDARD IS SUBJECT TO CHANGE AND THE AND THE MOST CURRENT EDITION IS AVAILABLE ON THE EQUITABLE GAS COMPANY WEB SITE (www.equitablegas.com)

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OPERATOR QUALIFICATION

FEDERAL OPERATOR QUALIFICATION REGULATIONS REQUIRE THAT INDEPENDENT GAS SERVICE LINE INSTALLERS BE QUALIFIED BY SUCCESSFULLY COMPLETING AND PASSING THE REQUIRED OPERATOR QUALIFICATION TRAINING PROGRAM AND ALSO PARTICIPATE IN AN APPROVED DRUG AND ALCOHOL TESTING PROGRAM
THE INSTALLER MUST HAVE A VALID OPERATOR QUALIFICATION CARD PRIOR TO AN INSPECTION.

As of 5/27/2009
EQUITABLE GAS COMPANY RECONGNIZES THE FOLLOWING OPERATOR QUALIFICATION TESTING AGENCIES:

UTI – UTILITIES TECHNOLOGY INTERNATIONAL
PHONE: 1-614-879-7316
www.uti-corp.com/training.html

PUR – PROFFESSIONAL UTILITY RESOURCES
PHONE: 1-216-870-2707
www.pur-co.com

PART I - GENERAL

1.1 Introduction

This Standards Manual is published by Equitable Gas Company(Company) for two purposes:

(1) As a compilation of company standards for ready reference of those persons and firms performing work of the nature described here; and

(2) To describe the inspection and testing of house and service lines required by the Company, before gas service will be established.

The standards in this manual pertain to all gas service line installations that operate at 60 pounds per square inch gauge (psig) or less, utilize pipe sizes one and one-half (1-1/2) inches in nominal diameter and smaller, and for buried house lines. Consult ANSI Z223.1/NFPA 54, Natural Fuel Gas Code for all house line installations, appliance installations, and venting requirements. For house line pressure requirements greater than ½ psig, consult the Company to determine availability before proceeding with the work.

These provisions are not intended to be all inclusive. Customers and/or their representatives should always comply with local laws, ordinances and governmental regulations which may contain requirements in addition to the requirements contained herein(except Kentucky/West Virginia gas company consumers, should follow the Kentucky Revised Statute KRS 278.485 " The Farm Tap Statute" consult the Company before proceeding). **When in doubt as to the proper procedure, consult the Company before proceeding with the work.**

The owners of MASTER METERING SYSTEMS as defined by Title 49 CFR, Part 191 are operators of distribution systems and, as such, are subject to federal and state regulatory requirements governing natural gas distribution systems. The Company's regulations enunciated hereinafter do not apply to master metering systems; however, such regulations will be observed up to and including the master meter set assembly itself.

The Company will not assume responsibility for any imperfect material or faulty workmanship in the installation or repair of the customer's service line, house lines, appliances, appliance connections or appliance venting, or for any loss or damage arising from such imperfect material or defective workmanship. The nature and extent of the Company's inspection and testing is set forth in Part IX, and nothing stated herein shall be construed to modify or increase the Company's responsibility for inspection and testing as defined in Part IX.

Installation and replacement of gas piping or gas appliances and repair and servicing of gas appliances must be performed only by a qualified agency.

For general installation information, refer to the latest edition of:

Regulations for the Transportation of Natural and Other Gas by Pipeline: Title 49 CFR, Parts 191-192.

ANSI Z223.1/NFPA 54, National Fuel Gas Code.

AGA/GPTC Guide for Gas Transmission and Distribution Piping Systems.

ANSI/NFPA 70, National Electric Code.

Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280.

NFPA 501A, Standard For Manufactured Home Installations (Manufactured Home Sites and Communities).

1.2 PUBLICATION ORDERING INFORMATION

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) – National Fuel Gas Code

Mail: National Fire Protection Association Publications
1Batterymarch Park
P.O. Box 9101
Quincy, Ma 02269-9101

Phone: 800/344-3555
www.nfpa.org

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

Mail: American National Standards Institute, Inc.
1819 L Street, NW
Washington, DC 20036

Phone: 212/642-4980
www.ansi.org

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

Mail: American Society of Mechanical Engineers
Information Central Orders
PO Box 2300
Fairfield, NJ 07007-2300

Phone: 215/299-5585
www.asme.org

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

Mail: American Society for Testing and Materials International
100 Barr Harber Dr.
PO Box C700
West Conshohocken, PA 19428-2959

Phone: 610/832-9585
www.astm.org

MANUFACTURERS STANDARDIZATION SOCIETY (MSS)

Mail: Manufacturers Standardization Society
127 Park Street, N.E.
Vienna, VA 22180-4602

Phone: 703/281-6613
www.mss-hq.com

DEPARTMENT OF TRANSPORTATION (Title 49CFR)
Part 191-192-Transportation Of Natural and Other Gas By Pipeline
Minimum Federal Safety Standards

Mail: US Department of Transportation
400 7th Street, SW
Washington, DC 20590
Code of Federal Regulations

Phone: 202/366-4000
www.gpoaccess.gov/cfr/index.html

Kentucky Public Service Commission

Mail: P.O. Box 615
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

Phone: 502/564-3940
www.psc.ky.gov

Public Utility Commission - Pennsylvania

Mail: Keystone Building
P.O. Box 3265
Harrisburg, Pa. 17105-3265

Phone: 800/692-7380

Public Service Commission- West Virginia

Mail: 201 Brooks Street
Charleston, W.V. 25301
Phone: (800) 344-5113

1.3 DEFINITIONS

1.3.1 Abandoned Service Line

A service line which has been physically disconnected from the Company's main with the expectation that gas service will not be restored.

1.3.2 Appliances

Any gas utilizing equipment attached to the house line is known as an appliance.

1.3.3 Approved

Approved, as referred to material items herein, signifies that the material has been determine by the Company to be acceptable for use in the gas piping systems covered by this standards manual. Approved materials for the work described herein are listed by manufacturer's name and designation in a separate pamphlet which is available from the Company. (Refer to the Company's Approved Materials List).

1.3.4 Company

Company shall mean Equitable Gas Company.

1.3.5 Company's Meter Set Assembly

The Company's meter set assembly is the piping, fittings and meter valve, including the meter and the service regulator, where required, installed to connect the customer's service line to the customer's house line(s).

1.3.6 Company's Service Line

The gas line extending from the Company's main line to the point of connection with the customer's service line on the outlet side of the curb stop is the Company's service line.

1.3.7 Customer

The customer is the person, firm or corporation for whom gas service is established and delivered.

1.3.8 Customer's House Line

All gas piping installed beyond the outlet side of the Company's meter set is known as the customer's house line piping.

1.3.9 Customer's Representative

The person or firm selected by the customer to install or repair his service line, house line, or appliance.

1.3.10 Customer's Service Line

The gas line extending from the outlet side of the Company's curb stop to the Company's meter valve is known as the customer's service line.

1.3.11 **Existing House Line Warning Tag (400 Tag)**

A tag which warns the customer or customer representative of an existing failed house line due to a gas leak, unapproved material and/or installation. The customer or customer's representative is responsible for and must complete the House Line Warning Tag for materials installation, location, testing etc. of existing house lines, except for buried house lines.

1.3.12 **Express Service Line Gas Request Tag**

An Express Service Line Gas Request Tag is completed by the customer's representative when new residential gas service lines are installed and tested in accordance with the Company's Installation Standards.

1.3.13 **Farm Tap**

An meter set that reduces pressure and may contain, regulator(s), drier tanks, and high/low pressure cut off protection. It is used for gas service to a customer that is tapped into a well, gathering lines, transmission lines, etc.

1.3.14 **Listed**

Equipment or materials included in a list published by an organization acceptable to the authority having jurisdiction and concern with product evaluation that maintains periodic inspection of production of listed equipment or materials and whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

1.3.15 **Master Meter System**

A pipeline system for distributing gas within, but not limited to, a definable area, such as a mobile home park, housing project or apartment complex, where the operator purchases metered gas from an outside source for resale through a gas distribution pipeline system.

1.3.16 **New Construction House Line Warning Tag**

A New Construction House Line Warning Tag is completed by the customer's representative for materials, installation, location and testing of new residential house lines. This tag can not be used for buried house lines.

1.3.17 **Pinlock**

Cylindrical locking device installed in the meter stop.

1.3.18 **Qualified Agency/Customers Representative**

Any individual, firm, corporation or company which either in person or through a representative is engaged in and is responsible for the installation or replacement of gas piping or the connection, installation, repair or servicing of appliances, who is experienced in such work, familiar with all precautions required and has complied with all the requirements of the authority having jurisdiction.

1.3.19 **Reinstated**

Reactivation of a service line or house line to provide gas service after it has been taken out of service.

1.3.20 **Service Line Pressure**

(A) Low Pressure Service Line – Any service line in which the gas pressure is 14" water column or lower and for which a service regulator is not required.

(B) Medium or High Pressure Service Line – Any service line in which the gas pressure is higher than 14" water column for Pa. operations or 15" water column for W.V. operations, and which requires a service regulator.

1.3.21 **Service Regulator**

A device that reduces gas pressure.

PART II – REQUEST FOR GAS SERVICE

2.1 Reestablished Gas Service

A request for service must be made by the customer as soon as the need for service is established. Applications for service can be found online at the Company's Web Site or by calling the Company(1-800-654-6335).

2.2 Express Service- New Gas Service Request

A request for new service must be made by the customer as soon as the need is established. Applications for service can be found online at the Company's Web Site or by calling the Company (1-412-395-2085).

PART III - COMPANY'S SERVICE LINE

3.1 RESPONSIBILITY

The Company's service line, curb stop, and curb box is installed, owned and maintained by the Company and is its responsibility.

3.2 LOCATION

The Company shall determine the location of its service line and curb stop. The Company will select a convenient point for the curb stop, usually between the curb and the property line.

3.3 SIZE

The Company shall determine the size of its service line.

PART IV – COMPANY'S METER SET ASSEMBLY

4.1 GENERAL

The Company shall size, furnish and install a meter for each customer. The customer may be charged for all or portion of these costs.

4.2 RESPONSIBILITY

The Company's meter set assembly is owned and maintained by the Company. Only authorized agents of the Company or others with expressed permission by the Company are permitted to connect or disconnect the Company's meters, turn on gas where it has been turned off and pinlocked, or in any way alter the location of the Company's meters.

4.3 LOCATION

4.3.1 The meter location must be in accordance with the general requirements of this section, Deviations from these requirements require prior approval from, the Company. The meter must be accessible at all times for maintenance and/or reading.

4.3.2 The location for the meter set should be outside, at or near the front foundation. If situations occur where the requirements of this section cannot be met, the Company must be contacted for a decision.

(A) The customer is required to provide suitable protection for the outside meter set assembly in a manner directed by the Company.

(B) The outside meter set assembly must not be located where it will be exposed to damage from vehicles, or where it will be subjected to excessive corrosion etc.

(C) In cases where gas service is to be supplied from distribution lines operated by the company at pressures above 60 psig, the meter and regulating equipment must be located at or near the customer's property line.

(D) In cases where the building is more than 300 feet from the main gas line, the Company must be contacted for an approved meter set location.

(E) The outside meter set assembly must be located at a minimum of three (3) feet to the right or left and not directly below any sources of ignition such as outside electrical panel or electrical meter.

(F) Outside meter sets with service regulators or vents from inside regulators must be located at a sufficient distance from vent or exhaust terminations to prevent freezing of the regulators or vent.

(G) Refer to Drawing Nos. 1, 2, 3, 4 for typical outside meter set assemblies.

4.3.2.1 An inside meter set assembly must be located as near as practical to the point where the service line enters the building.

(A) The meter set assembly must not be installed in unventilated or confined space; it must always be readily accessible.

(B) An inside meter set assembly must be located at a minimum of three (3) feet to the right or left and not directly below any source of ignition such as inside electrical panel or electrical meter.

(C) Refer to Drawing No. 5, for typical inside meter set assemblies.

4.4 COMPANY SERVICE REGULATORS

4.4.1 Standard service pressure shall be low pressure (see 1.3.20 of this Standards Manual). The Customer must contact the Company if a higher pressure is desired but in no case will the Company offer 2 psig systems for residential customers.

4.4.2 When service is provided from distribution mains at pressure in excess of 1 psig, the Company will furnish the service regulator(s) necessary to reduce the pressure to the meter. The service regulator(s) are the property of the Company.

4.4.3 The regulator must be installed outside of the building to be served. An exception may be permitted with prior approval from the Company where the building to be served does not accommodate the safe installation of the regulator outside.

4.4.4 If deemed necessary by the Company, the customer must furnish, at their expense, a suitable housing or vault to protect the regulator.

4.4.5 Service regulators must be located where gas released through the regulator relief can escape freely into the atmosphere and away from any opening into the building.

4.4.6 An independent vent to the outside of the building, sized in accordance with the manufacturers' instruction manual, must be installed in a location where it will not cause a hazard. The vent must be designed to prevent the entry of water, insects, or other foreign materials that could cause blockage.

4.5 INSTALLATION

4.5.1 A meter valve supplied by the Company must be installed on the service line upstream of the meter and/or service regulator inlet.

4.5.2 Where two or more meters are to be manifolded at one location, a master meter valve controlling the gas supply to all meters must be installed in addition to the meter valves controlling the supply to each meter. Such valves shall be provided by the Company.

4.5.3 Before meters will be set, outlet piping of each meter on a multiple-meter manifold must be identified with a metal or plastic tag to clearly show the apartment or section of the building being served.

4.5.4 When two or more meters are installed at the same premises, the gas piping systems supplied by the meters must not be interconnected downstream of the meters.

4.5.5 Refer to Drawing Nos. 4 and 5, for typical manifold meter set assemblies.

4.6 HIGH PRESSURE SERVICE REGULATOR SETTINGS (FARM TAPS)

4.6.1 No such service installations shall commence without prior specific approval by the Company.

4.6.2 When service is provided from a gas pipeline that is not part of the distribution system from which customers are normally supplied, a regulator is required to reduce the pressure to standard distribution operating pressure. The customer may be charged for this equipment.

4.6.3 The regulator(s) must be installed immediately adjacent to the Company's gas pipeline. Where deemed necessary by the Company, the customer will be required to provide suitable protection for the outside meter set assembly in a manner directed by the Company.

PART V – CUSTOMER'S SERVICE LINE

5.1 GENERAL

An additional customer service line must not be installed, or an existing service line extended or split to serve multiple buildings on the same lot without company approval.

5.2 RESPONSIBILITY

The Customer's service line is installed, owned and maintained by the property owner. When or where necessary, securing rights-of ways or easements is the responsibility of the property owner.

5.3 LOCATION

5.3.1 The Customer's service line must be laid in a straight line perpendicular to the Company's gas main to a meter location established in Section 4.3. Any deviation from this requirement must be approved in advance by the Company.

5.3.2 The Customer's service line must not parallel the foundation or building wall for a distance of more than three(3) feet. Any deviation from this requirement must be approved in advance by the Company.

5.3.3 The Customer's service line must not run through septic tanks, leaching beds, drains, sewers, culverts, etc.

5.3.4 The Customer's service line shall not be laid in a common ditch with water lines, sewer lines, electric or telephone lines or conduit unless it is laid on a bench or offset of a deeper ditch if the deeper ditch has been backfilled and properly compacted prior to installation of the service line..

5.3.5 When it is necessary to cross another line or cable, a minimum vertical clearance of six (6) inches is required. With plastic service lines, particular attention must be given to provide additional clearance or insulation from any possible heat source.

5.3.6 The Customer's service line must not be laid under a basement floor or under the first floor of a building or dwelling not having a basement, without prior Company approval.

5.3.7 Wherever possible, service lines must enter buildings above finished grade.

5.4 SIZING

5.4.1 In sizing the Customer's service line, the entire service line (Company's service line plus the customer's service line) must be treated as a unit. The line size installed for low pressure service should permit the estimated maximum hourly rate of flow with no more than one-half (½) inch water column (W.C.) pressure drop between the main line and meter set. (Consult Gas Capacity Tables No.1 and No.2, for appropriate size) Where pressure exceeds Low Pressure, see Tables No.3 and No.4. The minimum customer service line size must be one inch (1") for direct burial or insertion.

The customer or customer's representative will be responsible to size the service line and supply the Company with the total connected usage in British Thermal Units/Hour (BTU's/Hr). or Cubic Feet of Gas/Hour (CFH) for proper sizing of the meter set.

5.5 MATERIAL

5.5.1 Only materials approved by the Company must be used. Approved Material Lists are available from the Company upon request.

5.5.2 Plastic Pipe and Fittings

5.5.2.1 Plastic pipe and tubing must conform to ASTM D2513, Specifications for Thermoplastic Gas Pressure Pipe, Tubing and Fittings. Plastic pipe sizes must conform to the following sizing criteria, 1"CTS, 1"IPS, 1-¼"IPS, 2"IPS. If pipe size is above 2"IPS contact the Company.

5.5.2.2 Approved plastic pipe fittings designed for making heat-fusion joints may be used to connect lengths of plastic pipe. The fittings must be compatible with the plastic pipe to be installed. Plastic pipe fittings must conform to ASTM D2513- Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fitting; ASTM D2683- Specification for Socket-Type Polyethylene Fittings for Outside Diameter- Controlled Polyethylene Pipe; and ASTM D3261-Specification for Butt Fusion-Type Polyethylene Fittings.

5.5.2.3 Approved mechanical fittings with the manufacturer's stiffener may be used for connecting plastic pipe where the pipe is not joined by heat fusion.

5.5.2.4 Plastic material must be protected from fire and excessive heat at all times. While in storage, the plastic pipe must be adequately supported and protected from long-term exposure to direct sunlight.

5.5.3 Metallic Pipe and Fittings

5.5.3.1 Standard or extra heavy black steel or wrought iron pipe must be used for all buried metallic service lines. This pipe must comply with ANSI B36.10-Standard for Wrought Steel and Wrought Iron Pipe. Installation of bare metallic pipe is prohibited.

5.5.3.2 All new and replaced buried metallic service line piping and fittings must be coated or wrapped with approved materials and cathodically protected to retard corrosion. These materials and their application are described in Appendix A, "Protective Coating Systems and Cathodic Protection."

5.5.3.3 All buried fittings installed on metallic pipe must be approved compression fittings of the conducting type (armored gaskets). Screw fittings of any type are prohibited below grade.

5.5.3.4 Screw fittings may be used above ground only, and must be black or galvanized malleable iron, standard weight of the banded type. These fittings must comply with the requirements of ANSI B16.3-American National Standard for Malleable-Iron Screwed Fittings, ANSI B2.1-American National Standard for Pipe Threads (except Dryseal), and MSS SP-76 Malleable-Iron Pipe Thread Union.

5.5.3.5 Weld fittings may be used below ground or above ground and must conform to ANSI B16.9-American National Standard for Factory-Made Wrought Steel Buttwelding Fittings and ANSI B16.25-American National Standard for Buttwelding Ends.

5.5.4 Risers

5.5.4.1 **Outside Meter Set Assembly**

All outside meter set assemblies must be installed using an approved riser. Steel risers must be cathodically protected. Refer to drawings #2, #7 & #7A.

5.5.4.2 **Outside Riser, Inside Meter Set Assembly**

Where a meter set assembly is located inside and the Customer's service line enters the structure above grade, an approved riser must be installed. Gas carrying steel risers must be cathodically protected.

5.5.4.3 **Inside Meter Set Assembly**

An approved service adapter is required where a meter set is to be located inside the building and the service line enters the structure below grade. The service adapter must be installed to match the dimensional requirements of the Company's meter set shown in Drawing No. 5. All inside service line piping must be exposed and accessible.

5.6 INSTALLATION OF CUSTOMER'S SERVICE LINE

5.6.1 **General**

Only Operator Qualified individuals according to D.O.T. standards are permitted to install gas service lines. Consult the Company for clarification if necessary.

5.6.1.1 All rough grading shall be done before customer's service line is installed.

5.6.1.2 The customer's service line must be installed in solid or solidly compacted ground. The ditch must be graded evenly and uniformly to provide solid and continuous support for the pipe. No blocking of any type is permitted to support the customer's service line in the ditch. The customer's service line must be laid not less than eighteen (18) inches and not more than thirty (30) inches below finished grade.

5.6.1.3 Rock or other debris can damage buried pipe. Sand or clean earth padding must be used in the ditch bottom and over the Customer's service line.

5.6.1.4 The Customer's service line must be visually inspected by the customer's representative before the ditch is backfilled.

5.6.1.5 After inspection and testing, the customer's service line must be connected to the Company's service line by Company personnel or supervised by Company personnel.

5.6.1.6 The Customer's service line must be carefully backfilled to avoid damage to the pipe and pipe coating.

5.6.1.7 No heavy weight or compacted heavy material such as stone, concrete block, building materials, cinders or slag may be used in the backfill.

5.6.1.8 No heavy equipment may be run over the Customer's service line after it has been backfilled.

5.6.2 Plastic Pipe – Direct Burial

5.6.2.1 The maximum operating pressure for plastic Customer's service line installations must not exceed 60 psig for medium density PE2406. Consult the Company for pressures exceeding 60 psig.

5.6.2.2 Plastic pipe must not be installed above ground nor installed in vaults or other below-ground enclosures.

5.6.2.3 Plastic pipe must not be pushed or pulled over sharp objects, dropped or have other objects dropped on it. Damages such as gouges, grooves and any kinks or buckles must be cut out. Plastic piping must be installed in such a way that shear or tensile stresses resulting from construction, backfill, thermal contraction and external loading are minimized. Plastic pipe must be installed with sufficient slack to provide for possible thermal contraction. Under extremely high temperature conditions, cooling may be necessary before the last connection is made.

5.6.2.4 Plastic Customer's service lines should be one continuous length of pipe between the curb stop and the meter riser or point of connection to coated steel pipe, or joined by any approved method and material (refer to individual Company's Approved Materials List). Plastic to steel Customer's service line transitions at any outside riser must be made in accordance with 5.6.2.9 of this Standards Manual.

5.6.2.5 Couplings used must be of an approved type and installed in accordance with the manufacturer's instructions. Metallic couplings must be cathodically protected.

5.6.2.6 **Joints on Plastic Pipe**

(A) All plastic joints must be installed by qualified personnel. For plastic joint installer qualification, see Appendix C. Fittings, equipment and procedures recommended by the manufacturer of the approved polyethylene plastic pipe must be used for making heat fusion joints.

(B) All mechanical joints on plastic pipe must be installed by qualified personnel. For plastic joint installer qualification, see Appendix C. Fittings, equipment and procedures recommended by the manufacturer for approved polyethylene plastic pipe must be used for making mechanical joints.

5.6.2.7 Any directional changes required during the installation of the customer's service line must be made gradually. The minimum bend radius allowed for 1" plastic pipe is twenty-four (24) inches; and for 1¼" plastic pipe is thirty-two (32) inches. All bends must be made cold and free of buckles, cracks or any other visible flaws. The use of flame or other heat applying devices, is prohibited.

5.6.2.8 Where an extreme condition prevents a directional change with the preferred cold bend in the pipe, approved plastic ells must be used.

5.6.2.9 At any outside riser, the transition from plastic pipe to steel pipe must be made with an approved riser installed in accordance with manufacturer's instructions.

5.6.2.10 When a new plastic service line enters the building below ground, it must be installed in a steel casing which extends at least one foot outside the building wall and extends inside the wall only far enough to install a service head adapter. An approved "straight" riser may also be used for this type of installation. The steel section must be sealed at the outside wall to prevent entry of water or gas into the wall or building. See Drawing No. 6.

5.6.2.11 The approved riser and bracket must be factory coated with an approved material that retards corrosion.

5.6.2.12 When a meter is installed remote from the building it serves, a separate approved post(s) and bracket(s) must be installed to support the meter. See Drawings Nos. 2 and 3, and Approved Materials List.

5.6.2.13 The Customer's Representative must lay plastic pipe to a point at least one (1) foot past the point where connection to the Company's service line will be made. An approved metallic, tubular stiffener must be inserted in the end of the plastic pipe. An approved compression end cap must be tightened over the stiffener and securely blocked and/or restrained for the air test. An approved heat fused plastic end cap, installed by a qualified fuser, may also be used for the air test.

5.6.2.14 An solid copper or copper clad insulated wire (#12 minimum) must be installed with the Customer's service line to facilitate location of the pipe after construction. The wire must be installed in the same ditch as the service line and brought above ground at the service riser and curb stop. Locater wire must not wrap around or come in contact with plastic pipe. See Drawing Nos. 1 through 7.

5.6.2.15 Solvents, primers, tapes, pipe dope and lubricants, except where specifically deemed safe for use with plastic materials, must not contact the plastic.

5.6.3 **Plastic Pipe – Insert – Renewal**

Note: See Table No. 1, to determine if gas demand requirements will be met by utilization of this method.

5.6.3.1 Customer-owned steel service lines may be renewed by inserting plastic pipe whenever this method is practical and the following conditions exist:

(A) If the maximum allowable operating pressure on the service line exceeds 60 psig consult the Company.

(B) The depth of the existing Customer's service line is between twelve (12) and forty-eight (48) inches.

5.6.3.2 When renewing a Customer's service line with the meter set located inside the structure, the meter should be relocated to an outside location.

5.6.3.3 If meter relocation to the outside is not practical, an effort must be made to change the Customer's service line to an above-grade building entry using an approved riser. Refer to Section 4.3.2.

5.6.3.4 Plastic pipe installed as an insert renewal to an inside meter location below-grade entry is an approved use of plastic pipe. If the insert renewal is made to an inside meter location with a below-grade Customer's service line entry, the plastic-to-steel transition must be made at the inside wall, See Drawing No. 6, and Approved Material List. In such renewals, it must first be ascertained that the old Customer's steel service line penetrating through the foundation wall is sound; if not, the through-wall section must be replaced with a new steel section and extend beyond the outside wall at least one foot, and be sealed at both ends. Exposed plastic pipe must not be used within a building.

5.6.3.5 Solvents, primers, tapes, pipe dope and lubricants, except those specifically deemed safe for use with plastic materials, must not be allowed to contact the plastic.

5.6.3.6 Plastic pipe must not be installed above ground, in vaults or any other below-grade structures.

5.6.3.7 Any excavations made during the installation, except the curb hole, may be backfilled after the installation has been visually inspected by the customer's representative.

5.6.3.8 Prior to installation, plastic pipe will be carefully inspected for all defects, e.g., cuts, cracks and gouges. Pipe containing defects must not be used.

5.6.3.9 Prior to inserting plastic pipe, the ends of the steel casing pipe must be reamed and filed to remove any sharp edges or projections which could damage the plastic pipe during or after insertion. If reaming is not possible, the renewal must be completed by the appropriate direct burial method.

5.6.3.10 Plastic pipe must be inserted into steel casing in such manner so as to protect the plastic pipe during the installation. The leading end of the plastic pipe must be closed before insertion. Care must be taken to prevent the plastic pipe from bearing on the end of the casing.

If the plastic pipe continues unimpeded through the steel casing pipe, complete the insertion by pushing through an additional four (4) feet of plastic pipe. Thoroughly examine this excess plastic pipe for damage. If no damage is found, reinsert the excess back into the steel casing pipe and complete the installation. If damage is found, abandon the installation and renew by the appropriate direct burial method. A special inner sleeve protection must be used between the ends of the steel casing pipe and the plastic pipe. See Drawing No. 6.

5.6.3.11 The plastic Customer's service line must be installed in such as a manner as to minimize shear and tensile stresses resulting from construction, backfill, thermal contraction and external loading. Care must be exercised to ensure the plastic pipe is never twisted or creased during the installation. Pushing or pulling the plastic pipe over sharp projections, dropping the pipe or dropping objects on the pipe must be avoided.

5.6.3.12 Plastic pipe with partial casing resulting from the removal of a section of steel casing pipe or which spans disturbed earth must be adequately protected against shearing from external loading, or settling of backfill.

5.6.3.13 At any outside riser, the transition from plastic pipe to steel pipe must be made with an approved riser. (Refer to Approved Material List).

5.6.3.14 When a meter is installed remote from the building it serves, a separate approved posts and brackets must be used to support the meter. See Drawing Nos. 2 and 3, and Approved Materials List.

5.6.3.15 To provide for the required pressure test, the Customer's plastic pipe service line must be extended one (1) foot past the point where connection to the Company's service line will be made and a cap installed. An approved metallic, tubular stiffener must be inserted in the end of the plastic pipe. An approved compression end cap must be tightened over the stiffener and securely blocked and/or restrained for the air test. An approved heat fused plastic end cap, installed by a qualified fuser, may also be used for the air test.

5.6.3.16 Backfill must be installed in all excavated areas so as to provide firm support around the Customer's plastic pipe service line and steel casing pipe. Fine, loose earth or sand, free of any stone or other objects that might cause damage to the Customer's plastic pipe service line, must be placed around the pipe for a minimum of six (6) inches prior to compaction. The use of heavy equipment for trench compaction is prohibited.

5.6.4 Metallic Pipe – Direct Burial

5.6.4.1 **Installation of Bare Metallic Pipe is Prohibited.**

5.6.4.2 Use of coated metallic pipe must receive prior approval from the Company. Coated metallic pipe must be cathodically protected and is not recommended for Customer owned service lines. Coated metallic pipe installations must be by the direct burial method. Insertion of metallic Customer's service lines is not permitted.

5.6.4.3 **Joining Steel Pipe**

Where it is necessary to use more than one length (single random) of pipe in the Customer's service line, the lengths must be joined by either an approved compression type fitting or a welded joint. Where it is necessary to use more than one single random length of pipe, the first full joint will be laid from the house or foundation. The protective coating must be cut back and removed from the end of the pipe. The cutback must be of sufficient length to provide for assemblage of the fitting on bare steel pipe or to prevent the coating material from entering the weld. Where compression fittings are used, the pipe must be filed to bright metal to assure electrical conductivity. Pipe and fittings must then be wrapped, coated and cathodically protected (See Appendix A "Protective Coating Systems and Cathodic Protection). Only plain end pipe is permitted in the makeup of compression type or welded joints. For welder certification, see Appendix B .

5.6.4.4 Screw fittings of any type must not be used underground. Where screw fittings are permitted above ground, field threading must meet the requirements of ANSI B2.1- Threaded Pipe Standard. Screw Joints must be made up tight using a non-hardening pipe joint compound applied to only male threads sparingly.

5.6.4.5 Where offsets or changes of direction are necessary , one of the following methods shall be utilized:

(A) Compression fitting swing joints

(B) Weld Fittings

5.6.4.6 **Cathodic Protection**

Refer to Appendix A, , " Protective Coating Systems and Cathodic Protection."

5.6.4.7 **Wall Sleeve**

Where the Customer's service line runs through the foundation wall, an approved wall sleeve of suitable size and end rings, must be installed through the wall. Both sides of the wall must be carefully sealed around the wall sleeve. The Customer's service line shall project at least two (2) inches beyond the threaded portion to allow use of a pipe wrench without damaging the Customer's service line or threads. The Customer's service line must be dimensionally compatible with the Company's meter set as shown in Drawing Nos. 7 and 7A.

5.7 TEMPORARY SERVICE LINE (INSTALLED-BY OTHER THAN COMPANY)

5.7.1 The customer is responsible for contacting a qualified installer to install a temporary service line. The Company will allow temporary service for no longer than 72 hours. Temporary service must utilize an approved hose and be visually inspected by the Customer's representative for any defects or damage and pressure tested at 90PSIG for a minimum of 5 minutes.

5.7.2 Temporary service will only be allowed to an outside meter set or where the house line piping is brought to the outside. The Customer or Customer's representative is responsible for testing the inside house line piping prior to installing temporary service.

PART VI – CUSTOMER HOUSE LINES

6.1 General

Equitable Gas Company no longer offers 2 psig systems for residential customers. For all existing residential 2 psig house lines systems, a 2 psig warning tag must be placed at the appliance regulator or at the manifolds. This applies to both PA and WV.

6.2 Responsibility

The Customer is responsible for the sizing, installation, testing, inspection and maintenance of the house lines. The Company assumes no responsibility for their condition.

6.3 Installation

6.3.1 The materials, installation, location and testing of the house line, except for buried house lines from the Company's meter set through the customers building wall must meet the requirements and specifications contained in the National Fuel Gas Code, ANSI Z223.1, NFPA No 54.

6.3.2 Corrugated Stainless Steel Tubing (CSST) shall be installed and tested in accordance with the manufacturer's specifications.

6.3.3 The materials, installation, location and testing of buried house lines from the Company's meter set to the Customers building wall must be the same as those requirements for buried service lines.

6.3.4 The Company must be consulted concerning the buried house line location for large single dwellings, double houses, condominiums, town houses, apartment houses, commercial buildings, churches and schools.

6.3.5 Wall Sleeve

When rigid piping is used for the house line, an approved wall sleeve of suitable size must be installed through the external building wall. Both sides of the wall must be carefully sealed around the wall sleeve. The house line must project at least two (2) inches beyond the threaded portion of the sleeve to allow the use of a pipe wrench of suitable size without damaging the house line threads. In addition, the house line must be dimensionally compatible with the Company's meter set as shown in Drawing Nos. 7 and 7A.

6.3.6 For house line testing criteria see section 9.4

PART VII – GAS SERVICE TO MOBILE HOMES

7.1 The Customer is responsible for the installation and maintenance of lines in mobile homes. The Gas Company assumes no responsibility for their condition.

7.2 Gas Piping installed in or on mobile homes must comply with the applicable sections of NFPA 501A-Standard for Manufactured Home Installation (Manufactured Home Sites and Communities) and with HUD Title 24-CFR- Park 3280-"Mobile Home Construction and Safety Standards."

PART VIII– APPLIANCES

8.1 The Customer is responsible for the installation, operation and maintenance of all appliances. The Gas Company assumes no responsibility for their condition.

8.2 Appliances must be installed in accordance with the manufacture specifications and ANSIZ223.1/NFPA 54 National Fuel Gas Code.

PART IX - INSPECTION AND TESTING

9.1 General

The Customer's service line must be installed, visually inspected and tested by an Operator Qualified plumber/installer, before gas service is established to a new customer or to a customer whose service has been discontinued for repair, renewal, modification or extension of Customer's service line. The owner or his representative must make known in writing to the Company's inspector at the time of inspection, any hidden, known or suspected defects in violation of or in conflict with the Company's specifications for the piping or Customer's service line trench. Application to the Company for inspection and witnessing of test must be made by the owner of the premises, or his authorized agent, through the Company's appropriate office. The applicant must specify the time and place where the inspection is desired, and notification must be made sufficiently in advance to permit scheduling by the Company.

9.2 New, Renewed, Reinstated, Temporarily Disconnected or Partially Replaced Service Lines, One and One Half (1 ½") inches in Diameter or Less. (Not for new single meter residential service lines)

9.2.1 Before the Customer service line can be placed into service a Company representative must witness a pressure test with air or inert gas. Gas piping, must be free of leaks before being placed in service. All tests must be performed using an approved gauge and method as specified by the Company.

9.2.2 When the Company representative arrives, the Customer's service line to be tested must be securely capped, adequately restrained, and have an approved test connection. At the termination of the test, the installer must relieve pressure in the tested line. The tested lines must remain capped, plugged or valved by the installer to prevent entry of water or debris, prior to final connection to Company facilities.

9.2.3 The first visit by the Company to inspect the Customer's service line will be without a charge. Leaks, material defects or other unsatisfactory conditions which result in the Company's inability to connect the lines must be corrected by the installer at the owner's expense. If it is necessary for the Company to make a second visit or incur unusual expense as the result of installers' errors, a service fee may be charged

9.2.4 Final connection between the Company's service connection and the Customer's Service Line must be made by a representative of the Company or supervised by Company representative after it has been determined that the Company's specifications have been fully complied with. If a Customer's service line is not in compliance with the Company specifications, the line will not be connected. An additional inspection must be rescheduled subsequent to correction of the faulty condition.

9.2.5 **Testing Requirements**

9.2.5.1 New, renewed, reinstated, temporarily disconnected or partially replaced Customer's service lines operating at 60psig or less, must be tested at 90psig for a minimum of 5 minutes. For service lines operating in excess of 60psig, Consult the Company.

9.2.5.2 Reinstated Customer owned service lines that are connected at the Company curb stop and main line, shall be tested at operating pressure by Company personnel

9.3 Express Service. (For new single residential and small commercial meters only)

9.3.1 New construction Customer service line testing, for residential customers, (does not include multi-meter sets or remote sets) does not require a test to be witnessed by a Company representative. The contractor/plumber is required to install the Customer's service line, house line and prefab meter bar.

9.3.1.1 Express Service may only be used for single small commercial meters with loads of 500,000 btu or less.

9.3.2 Testing Requirements

9.3.2.1 New Customer's service lines operating at 60psig or less must be tested at 90psig for a minimum of 5 minutes.

9.3.2.2 The contractor/plumber must complete the Equitable Gas Company (Express Service and New Construction Warning Tag)tag, insert the tag into a weatherproof pouch, and attach it to the prefab meter bar.

9.4 House Lines

9.4.1 PA Operations

9.4.1.1 Testing and inspection requirements for new, renewed, previously abandoned, and partially replaced buried house lines from the Company's meter set through the Customer's building wall must be the same as those for service lines, Section 9.2.

9.4.1.2 **Above ground,** New, Repaired, Shut- off, Reinstated, Partially Replaced, or Extended House Lines One and One Half (1 ½") inches in diameter or less and less than 2 psig.

Where new house lines have been installed or existing house lines have been repaired, reinstated, partially replaced or extended, the testing of these lines must be completed by the Customer or Customer's representative in accordance with the current National Fuel Gas Code. Once testing is completed the house line can be reconnected and gas service restored. The Customer's representative is required to complete the warning tag found at the meter set and mail it back to the Company once service is restored. For house lines two (2) inches and larger and/or operating at 2 psig or above, contact the Company for testing and inspection requirements.

9.4.1.3 **Testing Requirements**

For house lines that operate at less than 2 psig and are 1 ½ inch in diameter or less, the test requirements must be 3 psig for 10 minutes, and does not require a Company inspection.

9.4.2 Other than PA Operations

9.4.2.1 New, renewed and/or reinstated above ground and buried house lines after repairs, alterations, extensions, and fire or explosion must be inspected and pressure tested. The pressure test must be conducted by the person doing the work, and witnessed by a Company representative.

9.4.2.2. **Testing Requirements**

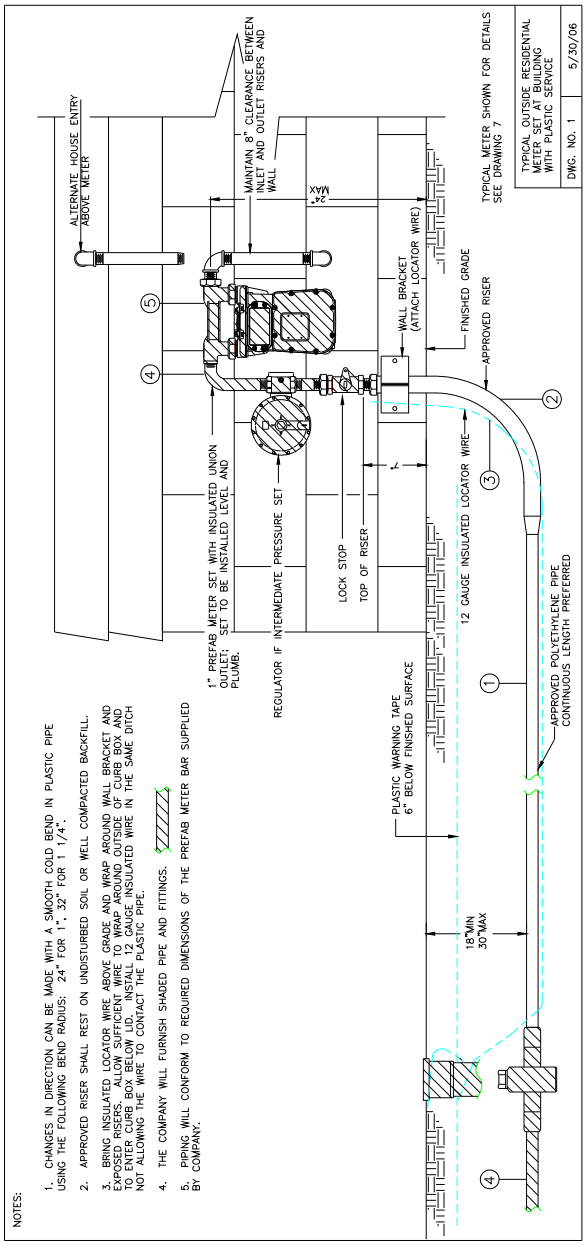
9.4.2.2.1 For house lines that operate at less than 2 psig and are 1 ½ inch in diameter less, the test requirements must be 3 psig for 10 minutes, and will be witnessed by a Company representative.

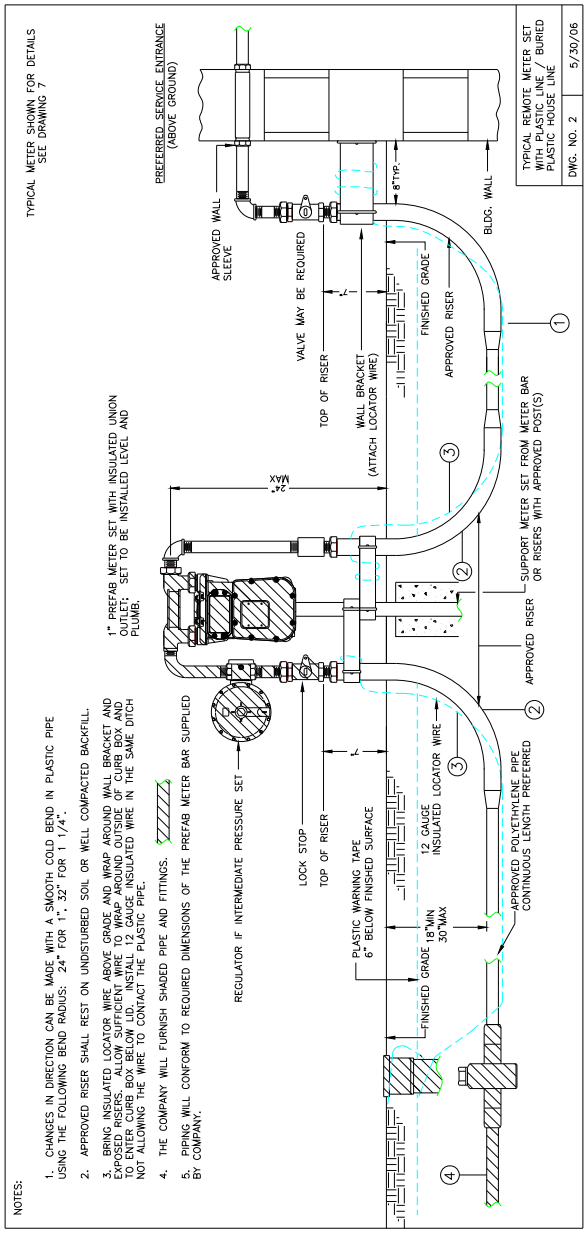
9.4.2.2.2 For house lines larger than 1 ½ inch in diameter and/or will operate at or above 2 psig contact the Company.

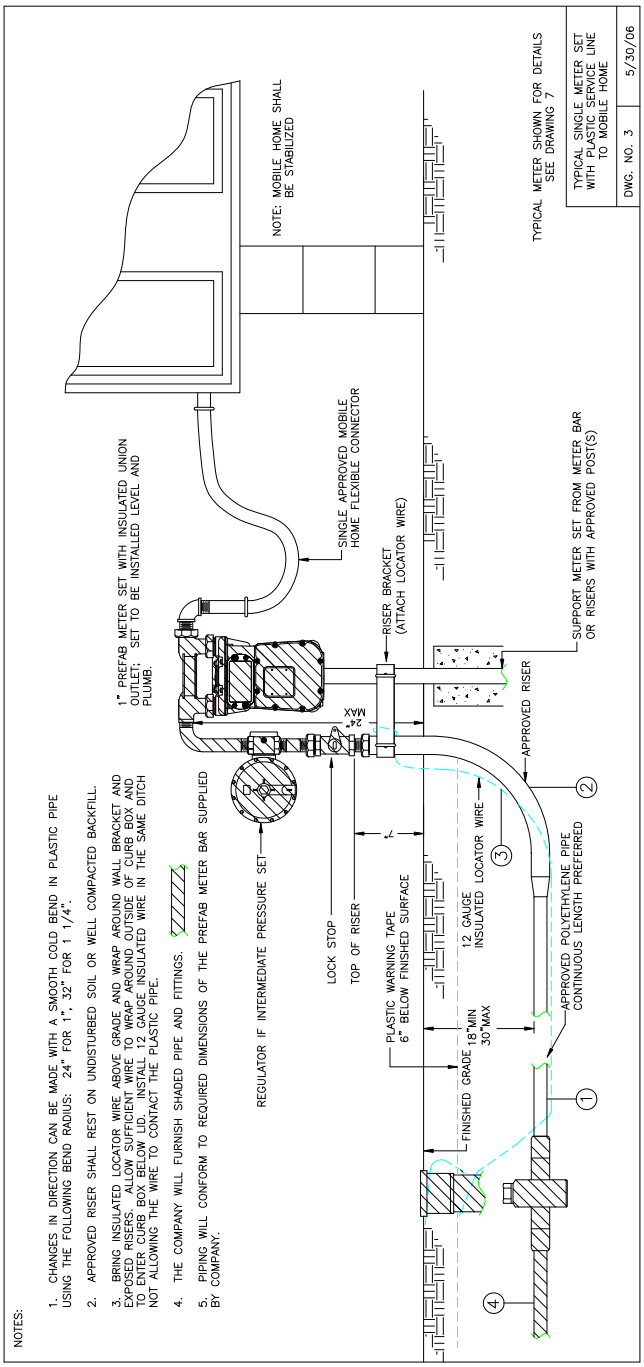
9.5 Mobile Homes

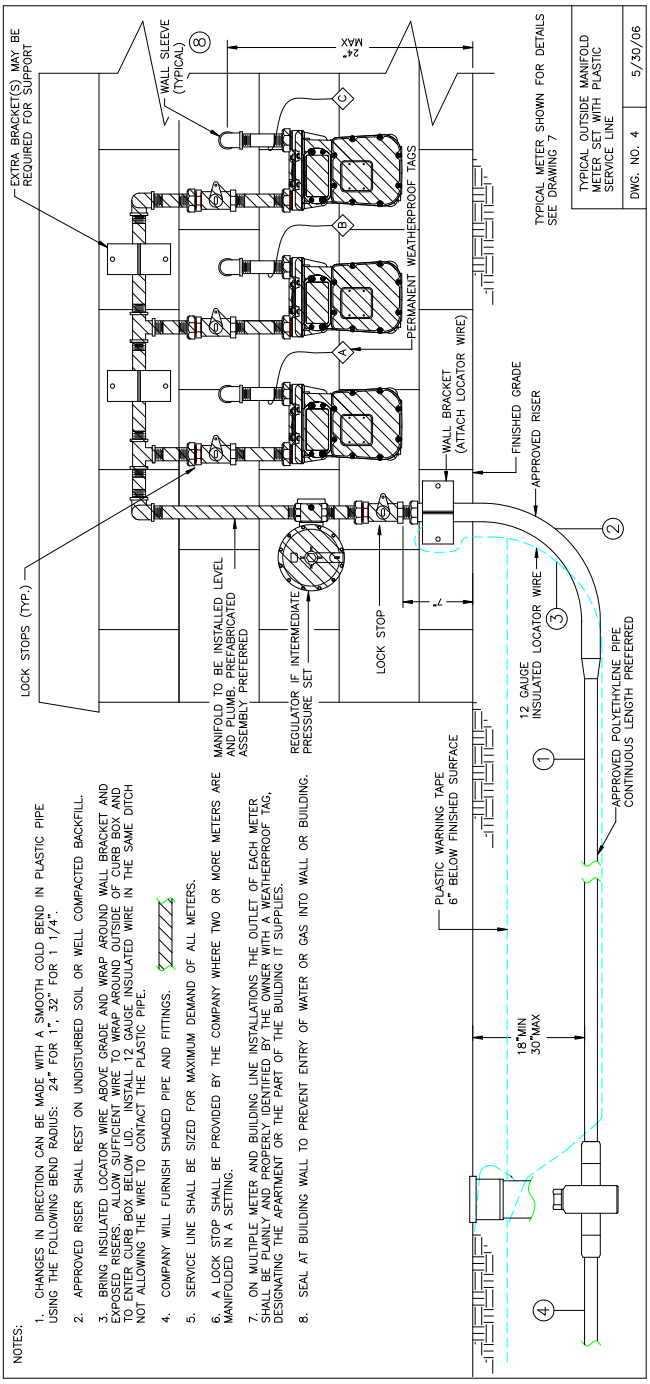
9.5.1 Non-factory installed house lines for mobile homes must be tested in accordance with Section 9.4.1.1. Piping installed by the mobile home manufacturer in accordance with HUD Title 24 CFR, Part 3280 Manufactured Home Construction and Safety Standard must be tested in accordance with Section 9.4.1.2.The Company does not assume responsibility for inspection or testing Customer's piping other than as set forth in these requirements.

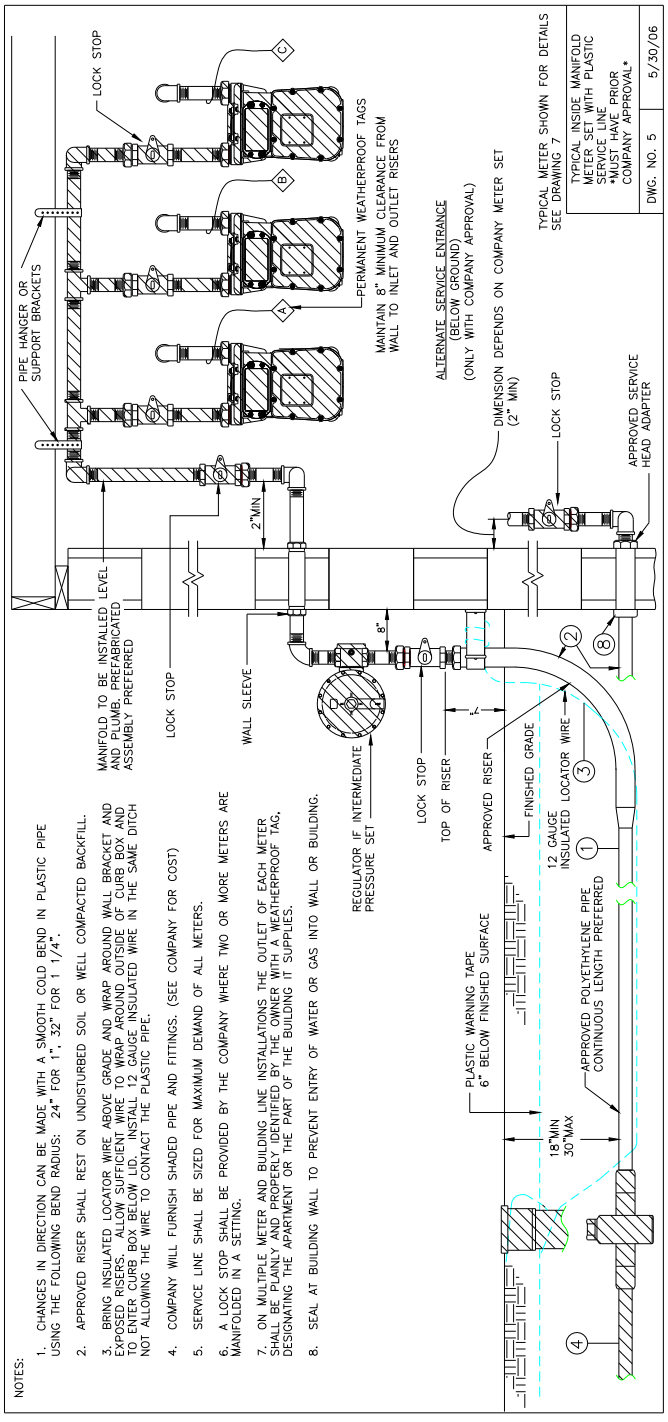
DRAWINGS

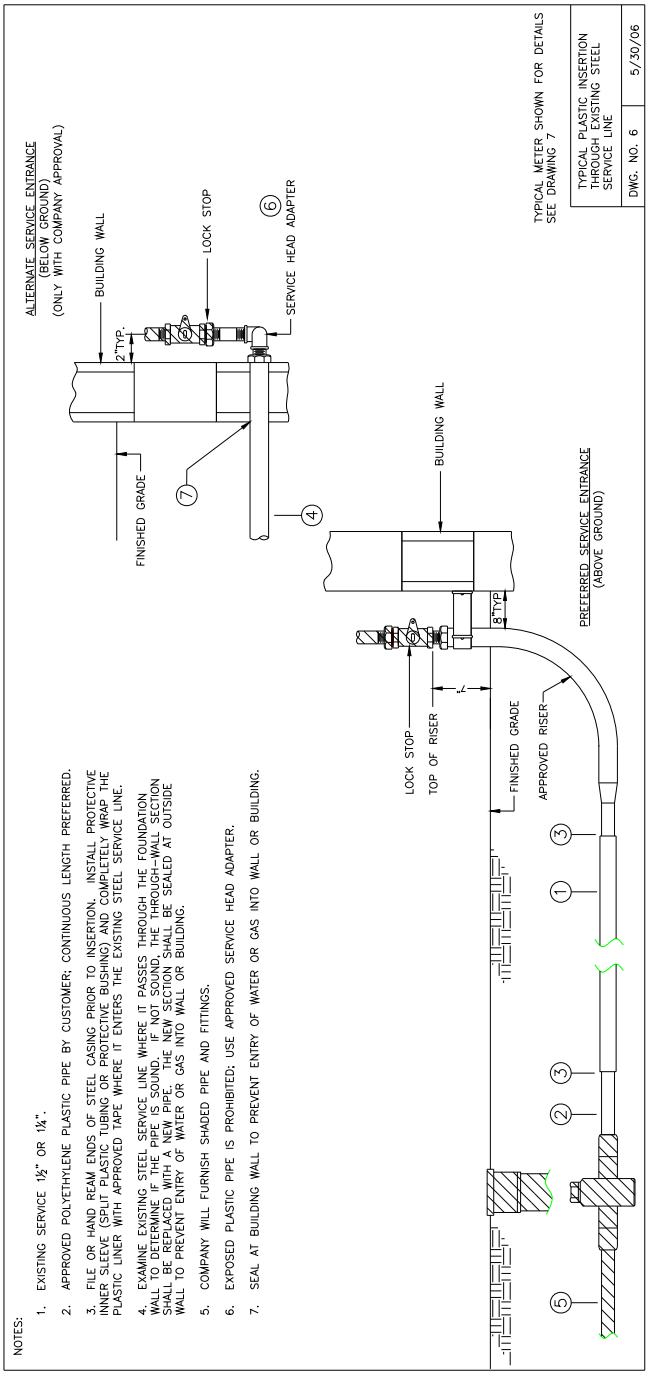

NOTES:
1. CHANGES IN DIRECTION CAN BE MADE WITH A SMOOTH COLD BEND IN PLASTIC PIPE USING THE FOLLOWING BEND RADIUS: 24" FOR 1", 32" FOR 1 1/4".
2. APPROVED RISER SHALL REST ON UNDISTURBED SOIL OR WELL COMPACTED BACKFILL.
3. BRING INSULATED LOCATOR WIRE ABOVE GRADE AND WRAP AROUND WALL BRACKET AND EXPOSED RISERS. ALLOW SUFFICIENT WIRE TO WRAP AROUND OUTSIDE OF CURB BOX AND TO ENTER CURB BOX BELOW LID. INSTALL 12 GAUGE INSULATED WIRE IN THE SAME DITCH NOT ALLOWING THE WIRE TO CONTACT THE PLASTIC PIPE.
4. THE COMPANY WILL FURNISH SHADED PIPE AND FITTINGS.
5. PIPING WILL CONFORM TO REQUIRED DIMENSIONS OF THE PREFAB METER BAR SUPPLIED BY COMPANY.
ALTERNATE HOUSE ENTRY ABOVE METER
MAINTAIN 8" CLEARANCE BETWEEN INLET AND OUTLET RISERS AND WALL
MAX 24"
1" PREFAB METER SET WITH INSULATED UNION OUTLET; SET TO BE INSTALLED LEVEL AND PLUMB.
REGULATOR IF INTERMEDIATE PRESSURE SET
LOCK STOP
TOP OF RISER
WALL BRACKET (ATTACH LOCATOR WIRE)
FINISHED GRADE
APPROVED RISER
TYPICAL METER SHOWN FOR DETAILS SEE DRAWING 7
12 GAUGE INSULATED LOCATOR WIRE
PLASTIC WARNING TAPE 6" BELOW FINISHED SURFACE
APPROVED POLYETHYLENE PIPE CONTINUOUS LENGTH PREFERRED
18"MIN 30"MAX
TYPICAL OUTSIDE RESIDENTIAL METER SET AT BUILDING WITH PLASTIC SERVICE
DWG. NO. 1
5/30/06

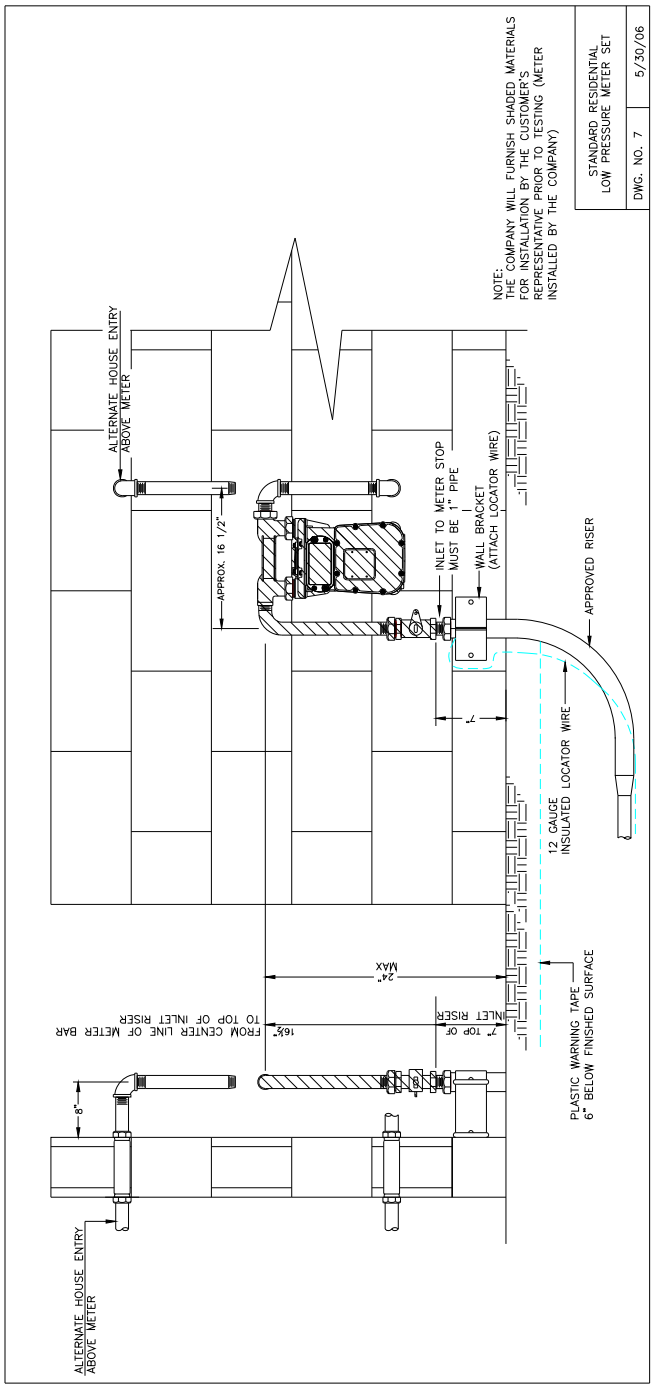

NOTES:
1. CHANGES IN DIRECTION CAN BE MADE WITH A SMOOTH COLD BEND IN PLASTIC PIPE USING THE FOLLOWING BEND RADIUS: 24" FOR 1", 32" FOR 1 1/4".
2. APPROVED RISER SHALL REST ON UNDISTURBED SOIL OR WELL COMPACTED BACKFILL.
3. BRING INSULATED LOCATOR WIRE ABOVE GRADE AND WRAP AROUND WALL BRACKET AND EXPOSED RISERS. ALLOW SUFFICIENT WIRE TO WRAP AROUND OUTSIDE OF CURB BOX AND TO ENTER CURB BOX BELOW LID. INSTALL 12 GAUGE INSULATED WIRE IN THE SAME DITCH NOT ALLOWING THE WIRE TO CONTACT THE PLASTIC PIPE.
4. THE COMPANY WILL FURNISH SHADED PIPE AND FITTINGS.
5. PIPING WILL CONFORM TO REQUIRED DIMENSIONS OF THE PREFAB METER BAR SUPPLIED BY COMPANY.
TYPICAL METER SHOWN FOR DETAILS SEE DRAWING 7
PREFERRED SERVICE ENTRANCE (ABOVE GROUND)
APPROVED WALL SLEEVE
VALVE MAY BE REQUIRED
TOP OF RISER
WALL BRACKET (ATTACH LOCATOR WIRE)
FINISHED GRADE
APPROVED RISER
BLDG. WALL
6"TYP.
1" PREFAB METER SET WITH INSULATED UNION OUTLETS SET TO BE INSTALLED LEVEL AND PLUMB.
24" MAX
REGULATOR IF INTERMEDIATE PRESSURE SET
LOCK STOP
TOP OF RISER
PLASTIC WARNING TAPE 6" BELOW FINISHED SURFACE
12 GAUGE INSULATED LOCATOR WIRE
FINISHED GRADE 18"MIN 30"MAX
APPROVED POLYETHYLENE PIPE CONTINUOUS LENGTH PREFERRED
APPROVED RISER
SUPPORT METER SET FROM METER BAR OR RISERS WITH APPROVED POST(S)
TYPICAL REMOTE METER SET WITH PLASTIC LINE / BURIED PLASTIC HOUSE LINE
DWG. NO. 2
5/30/06

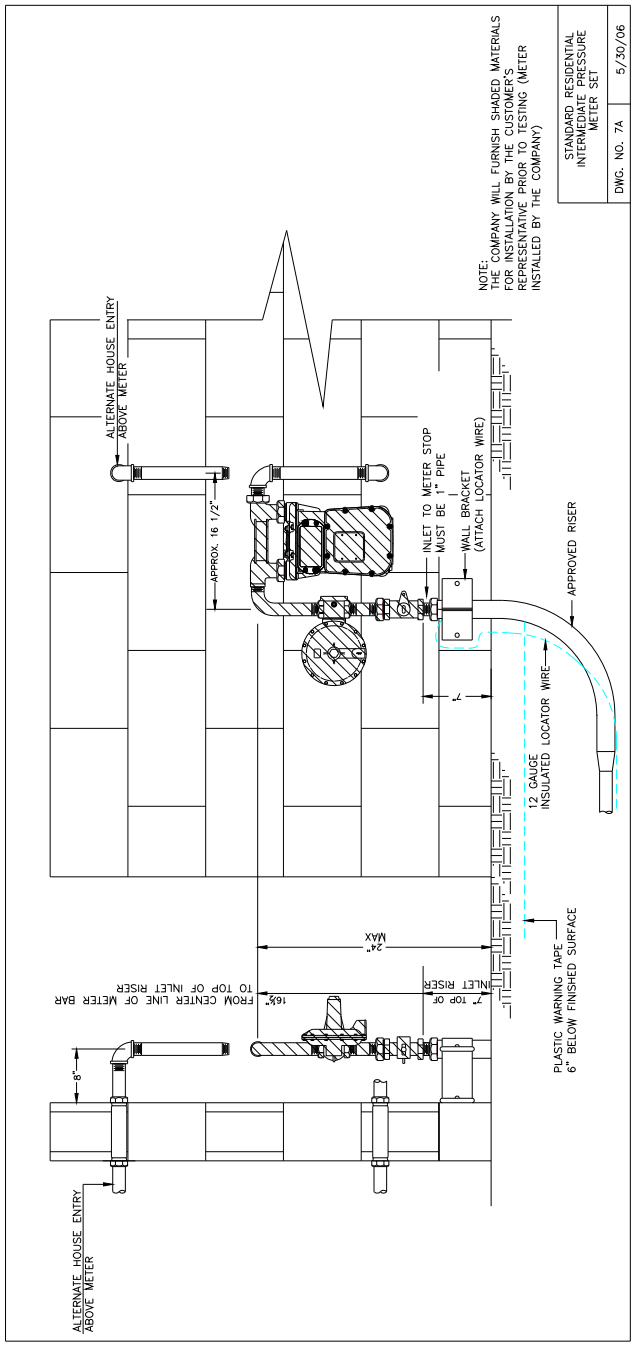

NOTES:
1. CHANGES IN DIRECTION CAN BE MADE WITH A SMOOTH COLD BEND IN PLASTIC PIPE USING THE FOLLOWING BEND RADIUS: 24" FOR 1", 32" FOR 1 1/4".
2. APPROVED RISER SHALL REST ON UNDISTURBED SOIL OR WELL COMPACTED BACKFILL.
3. BRING INSULATED LOCATOR WIRE ABOVE GRADE AND WRAP AROUND WALL BRACKET AND EXPOSED RISERS. ALLOW SUFFICIENT WIRE TO WRAP AROUND OUTSIDE OF CURB BOX AND TO ENTER CURB BOX BELOW LID. INSTALL 12 GAUGE INSULATED WIRE IN THE SAME DITCH NOT ALLOWING THE WIRE TO CONTACT THE PLASTIC PIPE.
4. THE COMPANY WILL FURNISH SHADED PIPE AND FITTINGS.
5. PIPING WILL CONFORM TO REQUIRED DIMENSIONS OF THE PREFAB METER BAR SUPPLIED BY COMPANY.
REGULATOR IF INTERMEDIATE PRESSURE SET
LOCK STOP
TOP OF RISER
1" PREFAB METER SET WITH INSULATED UNION OUTLET; SET TO BE INSTALLED LEVEL AND PLUMB.
SINGLE APPROVED MOBILE HOME FLEXIBLE CONNECTOR
RISER BRACKET (ATTACH LOCATOR WIRE)
24" MAX
NOTE: MOBILE HOME SHALL BE STABILIZED
TYPICAL METER SHOWN FOR DETAILS SEE DRAWING 7
SUPPORT METER SET FROM METER BAR OR RISERS WITH APPROVED POST(S)
APPROVED RISER
PLASTIC WARNING TAPE 6" BELOW FINISHED SURFACE
12 GAUGE INSULATED LOCATOR WIRE
FINISHED GRADE
18" MIN 30" MAX
APPROVED POLYETHYLENE PIPE CONTINUOUS LENGTH PREFERRED
1
2
3
4
TYPICAL SINGLE METER SET WITH PLASTIC SERVICE LINE TO MOBILE HOME
DWG. NO. 3
5/30/06


NOTES:
1. CHANGES IN DIRECTION CAN BE MADE WITH A SMOOTH COLD BEND IN PLASTIC PIPE USING THE FOLLOWING BEND RADIUS: 24" FOR 1", 32" FOR 1 1/4".
2. APPROVED RISER SHALL REST ON UNDISTURBED SOIL OR WELL COMPACTED BACKFILL.
3. BRING INSULATED LOCATOR WIRE ABOVE GRADE AND WRAP AROUND WALL BRACKET AND EXPOSED RISERS. ALLOW SUFFICIENT WIRE TO WRAP AROUND OUTSIDE OF CURB BOX AND TO ENTER CURB BOX FOR UTILITY INSTALLATION. INSTALL 12 GAUGE INSULATED WIRE IN THE SAME DITCH NOT ALLOWING THE WIRE TO CONTACT THE PLASTIC PIPE.
4. COMPANY WILL FURNISH SHADED PIPE AND FITTINGS.
5. SERVICE LINE SHALL BE SIZED FOR MAXIMUM DEMAND OF ALL METERS.
6. A LOCK STOP SHALL BE PROVIDED BY THE COMPANY WHERE TWO OR MORE METERS ARE MANIFOLDED IN A SETTING.
7. ON MULTIPLE METER AND BUILDING LINE INSTALLATIONS THE OUTLET OF EACH METER SHALL BE PLAINLY AND PROPERLY IDENTIFIED BY THE OWNER WITH A WEATHERPROOF TAG, DESIGNATING THE APARTMENT OR THE PART OF THE BUILDING IT SUPPLIES.
8. SEAL AT BUILDING WALL TO PREVENT ENTRY OF WATER OR GAS INTO WALL OR BUILDING.
EXTRA BRACKET(S) MAY BE REQUIRED FOR SUPPORT
LOCK STOPS (TYP.)
WALL SLEEVE (TYPICAL)
MAX 24"
PERMANENT WEATHERPROOF TAGS
MANIFOLD TO BE INSTALLED LEVEL AND PLUMB. PREFABRICATED ASSEMBLY PREFERRED
REGULATOR IF INTERMEDIATE PRESSURE SET
LOCK STOP
7"
WALL BRACKET (ATTACH LOCATOR WIRE)
FINISHED GRADE
APPROVED RISER
TYPICAL METER SHOWN FOR DETAILS SEE DRAWING 7
PLASTIC WARNING TAPE 6" BELOW FINISHED SURFACE
12 GAUGE INSULATED LOCATOR WIRE
APPROVED POLYETHYLENE PIPE CONTINUOUS LENGTH PREFERRED
18" MIN 30" MAX
TYPICAL OUTSIDE MANIFOLD METER SET WITH PLASTIC SERVICE LINE
DWG. NO. 4
5/30/06


NOTES:
1. CHANGES IN DIRECTION CAN BE MADE WITH A SMOOTH COLD BEND IN PLASTIC PIPE USING THE FOLLOWING BEND RADIUS: 24" FOR 1", 32" FOR 1 1/4".
2. APPROVED RISER SHALL REST ON UNDISTURBED SOIL OR WELL COMPACTED BACKFILL.
3. BRING INSULATED LOCATOR WIRE ABOVE GRADE AND WRAP AROUND WALL BRACKET AND EXPOSED RISERS. ALLOW SUFFICIENT WIRE TO WRAP AROUND OUTSIDE OF CURB BOX AND TO ENTER CURB BOX BELOW LID. INSTALL 12 GAUGE INSULATED WIRE IN THE SAME DITCH NOT ALLOWING THE WIRE TO CONTACT THE PLASTIC PIPE.
4. COMPANY WILL FURNISH SHADED PIPE AND FITTINGS. (SEE COMPANY FOR COST)
5. SERVICE LINE SHALL BE SIZED FOR MAXIMUM DEMAND OF ALL METERS.
6. A LOCK STOP SHALL BE PROVIDED BY THE COMPANY WHERE TWO OR MORE METERS ARE MANIFOLDED IN A SETTING.
7. ON MULTIPLE METER AND BUILDING LINE INSTALLATIONS THE OUTLET OF EACH METER SHALL BE PLAINLY AND PROPERLY IDENTIFIED BY THE OWNER WITH A WEATHERPROOF TAG, DESIGNATING THE APARTMENT OR THE PART OF THE BUILDING IT SUPPLIES.
8. SEAL AT BUILDING WALL TO PREVENT ENTRY OF WATER OR GAS INTO WALL OR BUILDING.
PIPE HANGER OR SUPPORT BRACKETS
LOCK STOP
PERMANENT WEATHERPROOF TAGS
MAINTAIN 8" MINIMUM CLEARANCE FROM WALL TO INLET AND OUTLET RISERS
ALTERNATE SERVICE ENTRANCE (BELOW GROUND) (ONLY WITH COMPANY APPROVAL)
DIMENSION DEPENDS ON COMPANY METER SET (2" MIN)
LOCK STOP
APPROVED SERVICE HEAD ADAPTER
TYPICAL METER SHOWN FOR DETAILS SEE DRAWING 7
TYPICAL INSIDE MANIFOLD METER SET WITH PLASTIC SERVICE LINE *MUST HAVE PRIOR COMPANY APPROVAL*
DWG. NO. 5
5/30/06
MANIFOLD TO BE INSTALLED LEVEL AND PLUMB. PREFABRICATED ASSEMBLY PREFERRED
LOCK STOP
WALL SLEEVE
2"MIN
8"
REGULATOR IF INTERMEDIATE PRESSURE SET
LOCK STOP
TOP OF RISER
APPROVED RISER
FINISHED GRADE
12 GAUGE INSULATED LOCATOR WIRE
PLASTIC WARNING TAPE 6" BELOW FINISHED SURFACE
18"MIN 30"MAX
APPROVED POLYETHYLENE PIPE CONTINUOUS LENGTH PREFERRED


NOTES:
1. EXISTING SERVICE 1½" OR 1¼".
2. APPROVED POLYETHYLENE PLASTIC PIPE BY CUSTOMER; CONTINUOUS LENGTH PREFERRED.
3. FILE OR HAND REAM ENDS OF STEEL CASING PRIOR TO INSERTION. INSTALL PROTECTIVE INNER SLEEVE (SPLIT PLASTIC TUBING OR PROTECTIVE BUSHING) AND COMPLETELY WRAP THE PLASTIC LINER WITH APPROVED TAPE WHERE IT ENTERS THE EXISTING STEEL SERVICE LINE.
4. EXAMINE EXISTING STEEL SERVICE LINE WHERE IT PASSES THROUGH THE FOUNDATION WALL TO DETERMINE IF THE PIPE IS SOUND. IF NOT SOUND, THE THROUGH-WALL SECTION SHALL BE REPLACED WITH A NEW PIPE. THE NEW SECTION SHALL BE SEALED AT OUTSIDE WALL TO PREVENT ENTRY OF WATER OR GAS INTO WALL OR BUILDING.
5. COMPANY WILL FURNISH SHADED PIPE AND FITTINGS.
6. EXPOSED PLASTIC PIPE IS PROHIBITED; USE APPROVED SERVICE HEAD ADAPTER.
7. SEAL AT BUILDING WALL TO PREVENT ENTRY OF WATER OR GAS INTO WALL OR BUILDING.
ALTERNATE SERVICE ENTRANCE
(BELOW GROUND)
(ONLY WITH COMPANY APPROVAL)
BUILDING WALL
2" TYP.
LOCK STOP
SERVICE HEAD ADAPTER
FINISHED GRADE
BUILDING WALL
8" TYP.
LOCK STOP
TOP OF RISER
FINISHED GRADE
APPROVED RISER
PREFERRED SERVICE ENTRANCE
(ABOVE GROUND)
TYPICAL METER SHOWN FOR DETAILS
SEE DRAWING 7
TYPICAL PLASTIC INSERTION
THROUGH EXISTING STEEL
SERVICE LINE
DWG. NO. 6
5/30/06


STANDARD RESIDENTIAL
LOW PRESSURE METER SET
DWG. NO. 7
5/30/06
NOTE:
THE COMPANY WILL FURNISH SHADED MATERIALS
FOR INSTALLATION BY THE CUSTOMER'S
REPRESENTATIVE PRIOR TO TESTING (METER
INSTALLED BY THE COMPANY)
ALTERNATE HOUSE ENTRY
ABOVE METER
APPROX. 16 1/2"
INLET TO METER STOP
MUST BE 1" PIPE
WALL BRACKET
(ATTACH LOCATOR WIRE)
APPROVED RISER
7"
12 GAUGE
INSULATED LOCATOR WIRE
PLASTIC WARNING TAPE
6" BELOW FINISHED SURFACE
24"
MAX
16½"
FROM CENTER LINE OF METER BAR
TO TOP OF INLET RISER
7" TOP OF
INLET RISER
8"
ALTERNATE HOUSE ENTRY
ABOVE METER


NOTE:
THE COMPANY WILL FURNISH SHADED MATERIALS FOR INSTALLATION BY THE CUSTOMER'S REPRESENTATIVE PRIOR TO TESTING (METER INSTALLED BY THE COMPANY)
STANDARD RESIDENTIAL INTERMEDIATE PRESSURE METER SET
DWG. NO. 7A
5/30/06
ALTERNATE HOUSE ENTRY ABOVE METER
APPROX. 16 1/2"
INLET TO METER STOP MUST BE 1" PIPE
WALL BRACKET (ATTACH LOCATOR WIRE)
APPROVED RISER
7"
12 GAUGE INSULATED LOCATOR WIRE
PLASTIC WARNING TAPE 6" BELOW FINISHED SURFACE
24" MAX
16½" FROM CENTER LINE OF METER BAR TO TOP OF INLET RISER
7" TOP OF INLET RISER
8"
ALTERNATE HOUSE ENTRY ABOVE METER

TABLES

TABLE 1

MAXIMUM CAPACITY OF PIPE IN CUBIC FEET OF GAS PER HOUR FOR PE SERVICE LINES OPERATED AT LOW PRESSURE (12 INCH WATER COLUMN)

(Based Upon a Pressure Drop of .5-inch Water Column and 0.6 Specific Gravity Gas)

Nominal Pipe Size In. ID)	Length of Pipe in Feet (Main to Meter)										
	10	**25**	**50**	**75**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
1 CTS (.945)	404	256	181	148	128	104	90	82	74	64	57
1 ¼ IPS (1.328)	1074	680	480	393	340	277	240	215	196	170	152
2 IPS (1.943)	3160	1999	1414	1154	1000	816	707	632	577	500	447

TABLE 2

MAXIMUM CAPACITY OF PIPE IN CUBIC FEET OF GAS PER HOUR FOR STEEL SERVICE LINES OPERATED AT LOW PRESSURE (12 INCH WATER COLUMN)

(Based Upon a Pressure Drop of .5-inch Water Column and 0.6 Specific Gravity Gas)

Nominal Pipe Size In. ID)	Length of Pipe in Feet (Main to Meter)										
	10	**25**	**50**	**75**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
1 IPS (.1049)	547	346	244	200	173	141	122	109	74	86	77
1 ¼ IPS (1.380)	1200	759	537	438	379	310	268	240	219	190	170
2 IPS (2.067)	3760	2378	1680	1373	1190	970	840	750	690	594	532

TABLE 3

MAXIMUM CAPACITY OF PIPE IN CUBIC FEET OF GAS PER HOUR FOR INTERMEDIATE-PRESSURE SERVICE LINES (2 PSI MINIMUM, 7 PSI MAXIMUM)

(Based Upon a Pressure Drop of 16 Inch W.C. and 0.6 Specific Gravity Gas)

Type	Nominal Pipe Size In. (ID)	Length of Pipe in Feet (Main to Meter)										
		10	**25**	**50**	**75**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
PLASTIC	½"CTS (.445)	450	287	201	166	142	116	101	90	82	72	64
	1 CTS (.945)	3356	2138	1501	1238	1061	867	750	671	613	535	479
	1 ¼ IPS(1.380)	8316	5311	3719	3066	2630	2147	1859	1663	1518	1328	1188
	2 IPS (2.067)	22942	14653	10260	8460	7255	5924	5130	4588	4189	3664	3277
STEEL	1 IPS (.1049)	4434	2832	1983	1635	1402	1145	991	887	810	708	633
	1 ¼ IPS(1.380)	9213	5884	4120	3397	2913	2379	2060	1843	1682	1471	1316
	2 IPS (2.067)	27057	17281	12100	9977	8556	6986	6050	5411	4940	4321	3865

Table values are based on 5 psi inlet pressure using the Weymouth Formula. For pressure other than 5 psi inlet, multiply the table value by the factor corresponding to the pressure shown at right.

Inlet Pressure	Table Factor
7 psi	1.05
2 psi	.92

TABLE 4

MAXIMUM CAPACITY OF PIPE IN CUBIC FEET OF GAS PER HOUR FOR MEDIUM AND HIGH PRESSURE SERVICE LINES (8 PSI MINIMUM, 30 PSI MAXIMUM)

(Based Upon a Pressure Drop of 2 PSI and 0.6 Specific Gravity Gas)

Type	Nominal Pipe Size In. (ID)	Length of Pipe in Feet (Main to Meter)										
		10	**25**	**50**	**75**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
PLASTIC	½"CTS (.445)	1022	650	457	375	323	264	228	204	187	162	145
	1 CTS (.945)	7613	4840	3405	2795	2408	1966	1702	1526	1390	1212	1084
	1 ¼ IPS(1.380)	18863	11993	8436	6924	5965	4870	4218	3723	3444	3004	2687
	2 IPS (2.067)	52041	33087	23274	19103	16457	13437	11637	10408	9501	8287	7411
STEEL	1 IPS (.1049)	10057	6394	4498	3692	3180	2597	2264	2011	1836	1601	1432
	1 ¼ IPS(1.380)	20898	13287	9346	7671	6608	5396	4673	4180	3815	3327	2976
	2 IPS (2.067)	61376	39022	27448	22529	19409	15847	13724	12275	11206	9773	8741

Table values are based on 15 psi inlet pressure using the Weymouth Formula. For pressures other than 15 psi inlet, multiply the table value by the factor corresponding to the pressure shown at right.

Inlet Pressure	Table Factor
8 psi	.87
10 psi	.91
20 psi	1.08
25 psi	1.16
30 psi	1.24

APPENDICES

APPENDIX A
PROTECTIVE COATING SYSTEMS
AND CATHODIC PROTECTION

1.0 PROTECTIVE COATING SYSTEMS

General

All underground steel or wrought iron pipe lines and fittings must be provided with a protective coating system. The protective coating system on the pipe must extend to a point at least six (6) inches above finished grade. The coating system selected for use must consist of a coating and compatible primer that retards corrosion.

All approved pipe coatings must be installed according to their manufacturer's specifications.

In order to install protective coatings and cathodic protection systems, the installer must be Operator Qualified per D.O.T. Standards.

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1.1 HANDLING AND INSTALLING

1.1.1 Coated pipe must be handled in a manner to protect the coating from damage. It must not be dropped, rolled or impacted against solid objects with a force capable of causing damage to the coating. The pipe ditch must be free of rocks, stones, skids, scrap metal, or other solid objects which would damage the coating. The backfill material must be free of rocks, stones, or other heavy objects which might damage the coating during the backfill operation.

1.2 PROTECTIVE COATINGS FOR EXPOSED PIPE AND FITTINGS

All gas piping exposed to an outside weather environment must be protected from corrosion by the application of a non-metallic base painting system specifically designed and manufactured for protection of steel structures or an above-ground cold applied tape resistant to ultraviolet (UV) degradation. The system must be applied in accordance with the recommendations and specifications of the manufacturer. The pipe surface to be painted must be free of all rust, scale, dirt, dust, grease and water or other surface contamination. The union of the underground coating and aboveground paint must be at least six (6) inches above finished grade and well bonded by application of the coating materials.

2.0 CATHODIC PROTECTION

2.1 LEVEL OF CATHODIC PROTECTION

All new or replaced underground steel and wrought iron pipe, fittings and service line risers must be protected from corrosion as evidenced by a negative (cathodic) voltage of at least 0.85 volts on the metal installation. The determination of this voltage must be conducted by the Company on service lines.

2.2 METHODS OF CATHODIC PROTECTION

2.2.1 Cathodic Protection of Pipe

All new or replaced underground steel and wrought iron pipe and service line risers, except mill-coated prefabricated service line risers equipped with an anode, must be protected from corrosion by the installation of magnesium anodes. This protection must be in addition to and supplement the protection from corrosion given by the application of protective coatings.

The installation of magnesium anodes is not required in those specific cases where the Company representative authorizes an exception based on cathodic protection being provided by other means. The Company must be consulted if other means of cathodic protection are desired.

2.2.2 Cathodic Protection of Fittings

All metallic fittings joining the buried plastic pipe must be coated with an approved coating material and cathodically protected utilizing a zinc anode weighing at least ¾ pound.

2.2.3 Magnesium Anodes

All magnesium anodes installed must be high purity magnesium alloy and packaged in a low resistant backfill material.

2.2.4 Anode Installations

A magnesium anode five (5) pounds or greater in weight must be installed on each buried steel or wrought iron piping system one hundred (100) feet or less in length. The anode must be buried a minimum distance of two (2) feet from the pipe at or below trench depth and must be installed approximately midway between the service entrance to the building and the curb stop. Any buried steel or wrought iron piping system longer than one hundred (100) feet in length must have an additional five (5) pound magnesium anode installed for each additional one hundred (100) feet of length or portion thereof.

The additional anode(s) must be spaced at middle distance of the added footage. Any isolated buried steel piping installed adjacent to or between buildings must be protected by anodes according to the above specifications.

2.2.5 Anode Lead Attachment

The anode lead wire must be attached to the steel or wrought iron piping by the thermite weld process using a maximum charge of 15 grams. The pipe must be cleaned to dry parent metal for the attachment of the lead wire. The pipe at the lead wire attachment area must be cleaned of all slag, dirt or contamination and must be primed and coated with an approved coating material compatible with the coating applied to the piping. The ditch must be backfilled with care and in a manner that will not damage or remove the lead wire from the pipe.

2.3 Line Insulation

Buried steel or wrought iron lines with below ground entry or above ground entry to a building being served must be insulated aboveground, either inside or outside, as close to the point of entry as possible. When dissimilar metals are joined underground, an insulating coupling or fitting must be used. In such cases, both sections must be cathodically protected.

APPENDIX B
WELDER CERTIFICATION

All welded natural gas service line, house line and buried house line installations must meet the requirements of the Code of Federal Regulations; Title 49, Part 192-"Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards". To so comply, any welding performed as a part of such installation must be performed only by welders that are Operator Qualified in the manner set forth in Section 192.227 and subject to the limitations set forth in Section 192.229 of the above.

If any portion of the Customer's Service Line and/or house line or buried house line has been joined by the welding process, the customer or installer must indicate on the Request for Service Form that the welder has been certified and Operator Qualified, prior to welding, according to the requirements set forth in this Appendix.

All welders, welding gas lines up to 60 PSIG M.A.O.P. must be certified once per calendar year not to exceed 15 months.

The Company will, upon request, supply the names of the testing agencies which it has approved to administer qualification tests. Arrangements for such tests must be made directly with the testing agency by the installer or person desiring such qualification test. The testing agency will inform the Company of all certifications made through its qualification testing, and such information must include the following:

1. Welder's Name
2. Social Security Number
3. Testing Agency
4. Date Tested
5. Test Witness
6. Welding Process (Electric Arc or Acetylene)
7. Test Method

Welders qualified by the testing agency will be furnished an identification card by the agency, attesting to their certification. Welders will make this card available for inspection by a representative of the Company on request.

The welder's card must show that he is qualified to weld pipe and what welding procedure he is qualified to use. These tests would be recorded on his card.

(A) The welder's card must state that he has qualified in welding steel pipe not plate.

(B) The welder's card must show what welding procedure he is qualified to use. These tests must be recorded on his card.

A card issued by any recognized testing agency will be honored if the test given meets the requirements specified.

APPENDIX C
PLASTIC JOINT QUALIFICATION

All plastic natural gas service line installations must meet the requirements of the Code and Federal Regulations; Title 49, Part 192 – "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards." To so comply, any joining of plastic pipe and materials such as heat-fusion or mechanical joints must be performed only by persons qualified in the manner set forth in Section 192.285 and with procedures qualified in the manner set forth in 192.283. Consult the Company.

(A) Qualifying Joining Procedures

Each joint in plastic pipe must be made in accordance with written procedures meeting the requirements of Section 192.283.

The Procedures to make heat-fusion joints may be ones which have been established and qualified by a Manufacturer of plastic products. The procedures must be for the fittings that have been approved by the Company.

The person making joints at the site where the joint is accomplished must have available a copy of each written procedure used to join plastic pipe.

(B) Qualifying Persons to Make Joints

A person making heat-fusion or mechanical joints in plastic pipe service lines must be Operator Qualified in accordance with the requirements of Section 192.285 of the Federal Safety Standards. Qualification of a person must be performed by one of the following:

1. An independent testing agency.
2. A pipe or fitting manufacturer.
3. A gas company conducting qualification tests.
4. An individual who has been qualified by any of the above.

A person must obtain prior qualification to join pipe for the specific joint types and sizes representative of those intended to be installed.

(C) Administration of Qualification Records

All persons who make joints in plastic service lines are responsible for keeping the records that are necessary to provide evidence of compliance with Parts 192.283 and 192.285 of the Federal Safety Standards. The records must be made available to Company personnel upon request and must consist of the following:

1. A written copy of each of the procedures being used to make heat-fusion and mechanical joints.
2. A list of employees qualified to join plastic pipe indicating the type (socket, saddle, or butt) and size of heat-fusion joints and specific fittings or mechanical joints.

(D) **Qualification Documentation**

Following the installation and inspection of a plastic service line by the customer's representative, the qualified person must sign the Company's "Service Line Test Form" which indicates compliance with regulatory procedures and utilization of approved materials.

After the company inspector witnesses a successful pressure test, the "Service Line Test Form" must be completed and retained by the Company inspector and made part of the Company inspection record. If a faulty or improper heat-fusion or mechanical joint is discovered, the plumber or contractor who made the joint must be notified, and the line must not be placed in service until the joint is corrected and re-inspected.