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## **STANDARDS FOR GAS PIPING ON CUSTOMERS PREMISES**

**This document is available for viewing and printing on the City of Lancaster website, <http://www.ci.lancaster.oh.us/dept/gas/>, in the gas department forms section.**

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## **PREFACE**

This document and the information contained in it is intended as a guide for the installation or replacement of customer owned service lines, including associated meter settings. This is only a guide; as such it may not include all applicable local, state, or federal codes that apply to every installation.

### **OPERATOR QUALIFICATIONS**

Due to state and federal regulations governing the pipeline industry persons installing natural gas service lines and meter settings must be an “Operator Qualified Person”. Any person installing or replacing a service line or meter setting on the Lancaster Municipal Gas Distribution System must be Operator Qualified. The service line is the portion of gas piping between the meter and the gas main in or near the street in most cases. The Gas Department will provide customers a list of locally qualified plumbers as needed. Plumbers intending to obtain qualified status but not yet Operator Qualified may still contact the Gas Department for assistance.

This regulation does not affect piping downstream of the meter outlet; therefore most inside house piping is exempt.

### **DOT PART 192**

The Code of Federal Regulations Title 49, Department of Transportation Part 192, “Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards”; Gas Department policies and procedures, and applicable state and local codes shall be followed when installing service lines and meter settings. Piping downstream of the meter, commonly called house piping, is not included.

### **DOT PART 199**

All persons working on service lines and meter settings shall follow the Code of Federal Regulations Title 49, Department of Transportation Part 199, “Drug and Alcohol Testing”. Piping downstream of the meter, commonly called house piping, is not included.

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# STANDARDS FOR GAS PIPING ON CUSTOMERS PREMISES

## Part 1 – General

### 1.1 Introduction

This manual covering the installation and maintenance of gas service lines, meter set assemblies, meters and regulators on customer's premises, and the inspection of the same is published by the Lancaster Municipal Gas Department for two purposes: (1) as a compilation of standards in the industry for ready reference of those persons and firms doing work of the nature described herein; and (2) to describe the inspection and testing of house and service lines which the Gas Company will require before establishing gas service. The standards of this manual pertain to all gas service installations which utilize pipe sizes two inches and smaller. Information on service installations for any establishment having a pressure piping system above 2 psig or pipe sizes larger than two inches and for all industrial establishments may be obtained from the Gas Company for each individual job.

For house line installations, appliance installation and venting requirements refer to most current edition of **The International Fuel Gas Code**. This will be the basis for inspections on house lines weather the inspection is performed by the gas department or building code compliance personnel. The most current edition of **The International Fuel Gas Code** can be obtained by calling American Gas Association at 1-866-816-9444 or via their web site, [www.aga.org](http://www.aga.org).

These provisions are not intended to be all-inclusive. **When in doubt as to the proper procedure, consult your Gas Company before proceeding with the work.**

For general installation information:

ASME GUIDE for Gas Transmission and Distribution Piping Systems

The Gas Company will not assume responsibility for any imperfect material or defective 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 Gas Company's inspection and testing is set forth in Part V, and nothing herein shall operate to enlarge or modify the Gas Company's responsibility for inspection and testing as there set out.

The Gas Company will advise on gas applications, piping arrangements, and furnish general information on the use of natural gas for residential, commercial, industrial and public authority customers.

## **1.2 SERVICE CHARGE POLICY**

The Lancaster Municipal Gas Company finds it can no longer offer its customers non-chargeable service in some areas. In order that the local Gas Company may recover a portion of its cost, customers and/or customer representatives shall be billed at the current service charges for the following calls:

- (1) Service calls not originating with the local Gas Company. (Example – relighting of furnaces, changing of furnace filters, installing thermo-couples, etc.
- (2) Damage by outside force type calls.
- (3) Multiple call backs as described within Section 5.1.7.
- (4) Inspections during non-working hours if the customer has been out of service for five (5) calendar days or more.

*Typical, the after hours rate works out to approximately \$50.00 per hour with a one-hour minimum per call.*

However, the Gas Company shall continue to offer its customers most services on a non-charge basis.

## **1.3 DEFINITIONS**

**1.3.1 Appliances** – A gas appliance is any device, which utilizes gas fuel to produce light, heat, power, refrigeration or air conditioning.

**1.3.2 Company Service Line** – The company service line is the piping, which extends from the gas main to the customer service line. The company service line ends at the property line or the curb valve where the gas supplied by the Gas Company passes to the service line of the customer.

**1.3.3 Customer Service Line** – The customer service line is the piping, which extends from the end of the company service line at the property line or the curb valve to the inlet of the meter set assembly or the connection to the house lines if there is no meter set assembly.

### **1.3.4 Service Line Pressure**

- (1) Low Pressure Service Line – Any service line in which the gas pressure is substantially the same as that delivered to the customer’s appliances and a service regulator is not required.
- (2) Intermediate, Medium and High-Pressure Service Lines – Any service line in which the gas pressure is substantially higher than that delivered to the customer’s appliance and a service regulator is required.

**1.3.5 House Lines** – House lines consist of all the piping and fittings from the outlet of the meter set assembly to the appliance connectors.

**1.3.6 Meter Set Assembly** – The meter set assembly is the piping, fittings, and meter valve, including the meter and the service regulator, where required, installed to connect the customer service line to the house lines.

**1.3.7 Gas Company** – The Lancaster Municipal Gas Company is herein referred to as the Gas Company.

**1.3.8 Customer** – The customer is the person, firm or corporation for whose account and use, gas service is established and delivered.

**1.3.9 Relined Customer Service Line** – The relined customer service line consists of the in-place iron or steel gas piping and fittings, the plastic reliner tubing and the appropriate adapter fittings.

**1.3.10 Approved** – Approved, as referred to material items herein, signifies that these materials have been qualified through testing and/or experience by the Gas Company and have been found to be acceptable for use in the gas piping systems covered by this manual.

## **PART II – CUSTOMER’S SERVICE LINE**

### **2.1 REQUEST FOR GAS SERVICE**

Request for service should be made by the customer or customer’s representative as soon as the structure is planned. Information on how to make this request may be obtained by a telephone call to the local Gas Company Office, telephone 740-687-6670.

#### **2.1.1 Information Required from Customers**

The following information should be given when the request is made:

- (1) Name
- (2) Exact address and description of the location at which service is requested
- (3) Phone number
- (4) Type of occupancy, such as residence (single or multiple), commercial, church, school, industrial, municipal or other public use
- (5) Contemplated use of gas, such as space heating, air conditioning, water heating, cooking, incineration, clothes drying, gas light and grill or commercial and industrial process
- (6) Gas pressure required
- (7) Estimated date gas service will be required

#### **2.1.2 Arrangements for Gas Service**

Prior to approval for gas service, the Gas Company will determine if a main extension is required, advise the customer or the customer’s representative of the terms and conditions for the extension and explain deposit requirements if necessary.

The customer or customer’s representative will then be responsible for making the arrangements for the installation, inspection and testing of the customer service line and house lines in accordance with the standards and information set forth in this manual. The following steps are required in procuring gas service.

- (1) Immediately after the foundation of the structure is installed, the Gas Company should be called for advisory service on the installation. The Gas Company will survey the premises and will (a) Discuss and determine the location of the meter set assembly, (b) Show location of curb valve or point of separation between company and customer service lines. (c) Explain customer service line requirements. (d) Explain what inspections and tests are required and when to call and request inspection and turn-on.
- (2) The customer shall obtain a meter bar from the Lancaster Municipal Gas Department at 1424 Campground Rd., Lancaster, Ohio and install the customer service lines and meter setting.
- (3) On buildings where the customer service lines are installed prior to the installation of the meter setting, the Gas Company will provide the “open ditch” inspection of the customer service lines on request of the builder.
- (4) Call the Gas Company requesting a tap installation after the following conditions have been met: (a) Visual inspection of the customer service line has been approved and (b) the meter setting is properly installed and supported with the meter setting outlet valve turned off, or turned off and plugged if no house piping is present.



## **2.2 GENERAL REQUIREMENTS GOVERNING CUSTOMER SERVICE LINES**

**2.2.1** For single-family dwellings and for doubles, duplexes and apartments having a common basement to all tenants, one customer service line only is required. For doubles, duplexes and apartments having a divided basement, the customer service line shall be split so as to provide separate branch line and external shut-off for each division of the building. (Sketch No. 1)

**2.2.2** A separate customer service line shall not be installed to a garage, workshop, or other small buildings on a lot where there already exists a service line to the residence or main building of the customer.

**2.2.3** A customer's service line (as defined in Section 1.3.3) shall not penetrate and then exit a building wall structure prior to the meter set assembly.

**2.2.4** Customer service lines and house lines shall not be split or extended to serve multiple buildings without Gas Company approval and in no case shall they cross property lines.

## **2.3 OWNERSHIP AND RESPONSIBILITY**

The materials, installation and location of the customer service lines shall be subject to the standards contained herein. Such line shall be subject to inspection and test as provided herein, but the Gas Company assumes no responsibility for its condition. The customer shall be responsible for the installation and maintenance of the customer service line at his own expense.

## **2.4 SIZING**

**2.4.1** In sizing the customer service line, the entire service line (company service plus the customer service line) shall be treated as a unit.

**2.4.2** The types of service available and specifications on sizing are listed below. The pipe sizes shown are minimum requirements for the types of service available. For other service line sizes, consult the Gas Company.

- (1) Low Pressure Service Lines – The minimum size of the low pressure customer service line shall be 1 ¼-inch nominal pipe size except that where the combined length of the company and the customer service line is less than 100 feet and load requirements of the appliances are less than 200 cubic feet per hour, the size of the customer service line may be 1-inch CTS pipe size. For residential use, the load requirements may be based on the total rated input of both the central heating equipment and automatic water heating appliances. In the absence of central heating equipment, load requirements for the residence shall be determined for the total input requirements for all appliances. The maximum pressure drop should not exceed ½ inch water column (w.c.) between the main and the meter set assembly. (Table 1)
- (2) Medium Pressure Service Lines – On medium pressure service lines, the customer service line shall not be less than ½-inch CTS nominal pipe size or 1-inch CTS (1 1/8-inches O.D.) The line size installed shall be such that the pressure drop between the main and the meter set assembly does not exceed 10 percent of the distribution plant minimum design pressure (Table 2).

## 2.5 MATERIALS

### 2.5.1 Steel Service Pipe

Where steel pipe is to be used for underground customer service lines, consult the Gas Company for material and installation requirements.

### 2.5.2 Plastic Service Pipe and Tubing

- (1) Plastic service pipe and tubing shall conform to ASTM D2513 – Specifications for Thermoplastic Gas Pressure Pipe, Tubing and Fittings.
- (2) The following sizes of plastic pipe are approved for use underground. Yellow PE 2406 is preferred for new installations and total replacements. Black PE 3408 should be used when heat fusing to existing PE 3408 during repair work.

Nominal Pipe Size	SDR Ratio	OR	Wall Thickness
½”CTS (5/8” OD).....			0.090”
1” CTS (1 1/8” OD).....			0.099”
1 ¼”.....	10		
2”.....	11		
3”.....	11.5		
4”.....	11.5		

### 2.5.3 Compression Fittings

Compression type fittings shall be used only with prior approval of the gas department.

All fittings used in joining pipe of underground steel and wrought-iron service lines shall be of the boltless compression type with conducting gaskets. Plastic fittings specifically designed to mechanically join plastic and steel pipe may be used as transition fittings. Boltless compression type fittings with conducting gaskets or plastic fittings shall be used for mechanically connecting plastic pipe in direct burial service line installations where the pipe is not joined by heat-fusion using approved plastic fittings. An internal metallic tubular stiffener that is made to close tolerance with the internal diameter (I.D.) of the plastic pipe is to be used at each compression fitting connection. Compression type fittings shall not be used above ground. All buried metallic fittings shall be coated and cathodically protected.

### 2.5.4 Screw Fittings

Screw fittings shall be used above ground only and shall be black malleable iron, standard weight of the banded type. These fittings shall comply with the requirements of the ANSI B16.3-American National Standard for Malleable-Iron Screwed Fittings and ANSI B2.1-American National Standard for Pipe Threads (Except Dryseal). Bushings, all-thread nipples and cast iron fittings are not permitted in the service line. Unions are not permitted in the service line except where they may be required above ground in the regulator or meter assembly.

### **2.5.5 Plastic Pipe Fittings**

Approved plastic pipe fittings and stub fittings may be used to connect lengths of plastic pipe. Plastic pipe fittings shall conform to ASTM Specification D2513 and ASTM Specification D2683, and installed according to the manufacturer's specifications.

### **2.5.6 Risers**

- (1) Outside Meter Setting – An approved flexible steel casing or rigid non-corrosive (anodeless) steel encased plastic service line riser, shall be installed with all outside meter setting installations utilizing nominal pipe sizes of 2 inch and smaller (Sketch No. 4). A wall mounting plate or bracket fastened to the riser and building wall shall be used to firm the installation. (Sketch No. 11) Where it is not practical to attach the wall bracket to the building wall, a heavy gauge steel stake firmly embedded parallel and immediately adjacent to the foundation wall shall be used as a support. (Sketch No.10)

The riser shall be installed in such a position that the completed meter set assembly will allow approximately six inches clearance between the bottom of the meter and finished grade.

- (2) Outside Riser, Inside Meter Setting – Consult the Gas Department prior to performing this installation. Where the meter is to be located in the basement or on the ground floor level in a garage, utility room or room approved for the meter location an approved riser per 2.5.6 (1) shall be installed
- (3) Inside Riser, Inside Meter Setting – Consult the Gas Department prior to performing this installation. Where a meter is to be located inside the basement of a building and the service line enters the structure below grade, the riser should be installed to allow sufficient height for the meter set assembly to be located approximately six feet from the floor, where practical. The riser shall be installed approximately six inches from the wall. All inside service line piping shall be exposed and accessible. Customer service lines installed under an unexcavated portion of a building in order to reach the meter setting location shall meet the requirements of 2.6.5.
- (4) Risers in Concrete or Asphalt – Where a riser passes through a walk, patio or driveway, it shall be installed through a sleeve or other means of providing a space between the riser and the walk, patio, or driveway. The 2-inch minimum space between the sleeve and riser shall be filled with sand. (Sketch No. 5)

### **2.5.7 Meter Valves**

Meter Valves approved by the Gas Company shall be used. Valves, nominal pipe sizes 3/4, 1 and 1 1/4-inch, shall be of the insulating union type having lock wing head or equivalent and tamperproof core. These meter valves shall be provided with a drilled and tapped 1/8-inch port on the inlet side of the valve body for test purposes. An Allen head plug shall be used to close the port.

Where the inlet piping to a single meter set assembly is 2-inch nominal pipe size, an insulating union, flange or coupling shall be installed in the setting above ground and downstream of the meter valve to electrically isolate the service line from the house lines, In addition, a test tee shall be installed above ground upstream of the meter valve.

On service lines designed to operate at pressures of 100 psig or less, the meter valve shall have a manufacturer's rated working pressure of not less than 125 pounds per square inch. On service lines designed to operate in excess of 100 psig, the manufacturer's rated working pressure of the meter valve shall be 1.5 times the maximum allowable operating pressure of the service line.

## **2.6 LOCATION OF SERVICE**

**2.6.1** The route of the service line (company and customer) is determined by the location of the meter set assembly and the main. In selecting the location of the service line, consideration shall be given to the best location for the meter set assembly.

**2.6.2** Where practical, the customer service line shall be installed in a continuous straight line with the company service line to the point at which connection is made to the riser or the piping enters the outer masonry wall of a building below grade.

**2.6.3** Where practical, the customer service line shall enter the building wall above grade. When a plastic service line enters through the outer wall of the building below grade, it shall be encased with steel pipe through the foundation wall and the transition from plastic to steel shall be made inside using an approved adapter fitting as used for insert renewal of service lines.

As an alternate below ground service entrance, a rigid, straight, prefabricated non-corrosive type cased gas line may be used as a combination casing and transition fitting. The rigid portion is fixed in the wall so that the plastic to steel transition is through the wall on the basement side.

Galvanized steel sleeves are not permitted below grade. The opening between the sleeve and the outer masonry wall shall be filled with grout, or sealed by the use of service entry flanges. (Sketch Nos. 7 and 8)

**2.6.4** Underground piping paralleling a foundation wall shall be at least 3 feet from the wall to a point opposite the meter setting location. The underground piping should not parallel the foundation wall for more than 15 feet.

**2.6.5** Piping underground beneath buildings – refer to The International Fuel Gas Code, chapter for Piping System Installation.

**2.6.6** The customer service line shall not be laid under concrete or other hard surface, walks or driveways except where it may be necessary to cross under such walks or driveways. Where walks, in excess of eight feet in width, or driveways extend from curb to foundation wall of the full width of the property, such as at service stations, and places of business, a vent shall be installed at the customer's expense over the line near the foundation wall. (Sketch No. 5)

## **2.7 INSTALLATION**

### **2.7.1 Plastic Service Lines**

#### **(1) General**

The use of plastic pipe for service lines is limited to customer service lines designed to operate at 60 psig or less. Plastic piping shall not be installed above ground. It shall not be installed in vaults or other below grade enclosures, unless it is completely encased in a gas-tight metal pipe and metal fittings having adequate corrosion protection.

Plastic pipe shall not be pushed or pulled over sharp projections, dropped or have other objects dropped on it. Injurious gouges and grooves and any kinks or buckles shall be removed by cutting out the damaged portion as a cylinder and shall be replaced. At all times, the plastic material shall be protected from fire and excessive heat. While in storage, the plastic pipe shall be adequately supported and protected from long-term exposure to direct sunlight. Plastic pipe, which has been exposed, to direct sunlight for a long period will discolor and show craze marks indicating deterioration.

Plastic piping shall be installed in such a way that shear or tensile stresses resulting from construction, backfill, thermal contraction and external loading are minimized. The piping shall be laid on undisturbed or well compacted soil. The piping shall not be supported by blocking. The material used for the backfill in contact with the pipe shall be free of rocks, building materials, etc., that might cause damage to the pipe. Plastic pipe shall be installed with sufficient slack to provide for possible thermal contraction. Cooling may be necessary before the last connection is made, under extremely high temperature conditions.

#### **(2) Trenching**

The customer service line shall be laid on undisturbed or well-compacted soil in a separate trench. The customer service line shall not be run through septic tanks and leaching beds, laid in the same trench with sewer piping or electrical cables or laid below un-jointed ceramic field tile. It shall not be laid on a bench or offset of a deeper trench.

The trench shall be graded uniformly to provide solid and continuous foundation for the pipe. Where it is necessary for electrical or telephone conduits or water pipes to pass either over or under the service line underground, there shall be a vertical clearance of at least six inches between gas service line and the other facilities.

Customer service lines installed in a separate trench shall be laid at sufficient depth to provide a minimum of 18 inches cover over the pipe. Where joint trenching is used, the gas pipe and other utility services shall be installed at a minimum depth of 18 inches in a ditch not less than 24 inches in width. The gas and water services shall be separated as much as possible at the bottom of the trench.

(3) Joining Pipe

It is preferable to install the plastic service line as one continuous length of pipe between the curb valve or fitting at the property line and the riser. Where it is necessary to use more than one length of plastic pipe in the customer service line, the lengths shall be joined by either an approved stab type coupling or heat-fusion joint.

The procedure and equipment recommended by the manufacturer of the approved plastic pipe for making heat-fusion joints shall be used.

Direct application of heat with a torch or other open flame to the plastic pipe is prohibited.

(4) Bends

Changes in direction of plastic piping may be made with bends or elbows under the following limitations.

- a. Plastic pipe shall not be deflected to a radius less than two feet.
- b. The bends shall be free of buckles, cracks, or other evidence of damage.
- c. Changes in direction that cannot be made in accordance with (a) above shall be made with elbow-type fittings.

(5) Tracer Wire

Plastic pipe that is not encased must have a minimum #14 PVC coated solid copper wire installed with the pipe. The trace wire may not be wrapped around the pipe and contact with the pipe is to be minimized. The wire must be wrapped around the riser beginning a few inches below grade and extended up to the meter stop. At least six feet of wire shall be left coiled up at the location of the proposed curb valve on new installations.

(6) Warning Tape

Warning tape shall be installed over the service line on all open cut portions of the trench at 6 to 12 inches below grade.

**2.7.2 Steel Service Lines**

Please consult the Gas Department.

**2.8 PLASTIC INSERT RENEWAL OF EXISTING CUSTOMER SERVICE LINES**

**2.8.1 GENERAL**

- (1) When the size of the existing customer service line is 1¼-inch, a plastic insert may be used for renewal work. It is permissible, under certain conditions, to reline sizes, other than 1¼-inch by consulting the Gas Company. In all cases where relining the service line with plastic tubing is being considered, the gas demand requirements and the lengths of tubing to be used in the installation must be fully examined. The service to be inserted must have at least 12-inches of cover as verified by exposing both ends.
- (2) The use of plastic tubing in insert renewal work is limited to customer service lines designed to operate at pressures of 60 psig or less.

- (3) Installation of the plastic tubing above grade is prohibited, except for that plastic that may terminate above ground in an approved riser.
- (4) Any excavation(s) made during the course of the installation shall not be backfilled until after the installation has been visually inspected by an authorized representative of the Gas Company has visually inspected the installation. Customer service lines relined with plastic tubing shall be inspected and tested in accordance with the requirements for new construction in Part V of this manual.
- (5) Solvents, pipe dope and lubricants except those specifically deemed safe for use with plastic material, shall not be allowed to contact the plastic tubing. Consult manufactures' recommendations.

### **2.8.2 Sizing**

Insert renewal service lines must be sized as new service lines, with the following exceptions. See section 2.4.

½-inch CTS may be inserted into ¾ or 1-inch IPS service lines on medium pressure systems. ½-inch CTS shall not be used when inserting existing service lines larger than 1-inch due to the possibility of water freezing and squeezing off ½-inch CTS pipe.

### **2.8.3 Material**

Refer to section 2.5.

### **2.8.4 Installation**

- (1) The casing pipe shall be reamed and cleaned to the extent necessary to remove any sharp edges, projections, or abrasive material which could damage the plastic tubing during or after insertion.
- (2) The plastic tubing shall be inserted into the casing pipe in such manner so as to protect the plastic during the installation. The leading end of the plastic shall be closed before insertion. Care shall be taken to prevent the plastic tubing from bearing on the end of the casing. The casing end nearest the curb stop must be sealed or taped to prevent gas from entering the casing. The portion of plastic tubing which spans disturbed earth shall be adequately protected against shearing from external loading or settling of backfill by a steel or plastic-pipe sleeve bridging piece.
- (3) In cases where the meter is located in the basement and the service line enters the wall below grade, the plastic tubing insert shall be connected to the meter riser using one of the two methods shown in Sketch No. 6. The steel casing pipe entering through the wall may be used as the required sleeving provided that it is firmly anchored in the wall and the opening between the casing pipe and the wall is filled with grout, or sealed by the use of a service entry flange. (Sketch No. 7) Exposure of plastic tubing within the building being served is prohibited.

- (4) In cases where the meter set assembly or riser is located outside of the building being served, the riser shall be replaced with a flexible casing or anodeless riser.



## **PART III – METER SETTINGS**

### **3.1 GENERAL**

**3.1.1** The Gas Company will furnish and connect a meter for each customer, and this meter shall remain the property of the Gas Company.

**3.1.2** When service is provided from distribution mains at pressure in excess of one psig, the Gas Company will furnish the service regulator(s). The service regulators shall remain the property of the Gas Company.

**3.1.3** Service regulators and meters should be installed outside of the building area.

### **3.2 LOCATION**

**3.2.1** The Gas Company reserves the right to determine the location of the meter set assembly.

**3.2.2** The meter set assembly shall be located as near as practical to the point where the house line enters the building. The meter set assembly shall be so installed as to allow for ready access to the meter(s) for examination, reading and replacement.

**3.2.3** The meter set assembly shall not be installed in a small, unventilated, or confined space.

**3.2.4** The meter set assembly shall not be placed where it will be exposed to damage such as in driveways, public passages, halls, coal bins, etc., or where it will be subjected to excessive corrosion.

**3.2.5** The meter set assembly shall be located at a minimum distance of three feet from any electric panel or meter, and at a minimum distance of five feet from a furnace or incinerator and its vent connector. Locations at which there are either extreme temperatures or sudden changes in temperatures should be avoided.

**3.2.6** Service regulators supplied from medium or high-pressure mains shall be installed outside of the building where possible.

### **3.3 INSTALLATION**

**3.3.1** A meter valve approved by the Gas Company shall be installed in the service line upstream of the meter and/or service regulator inlet. For meter valve specification see 2.5.7. All meter valves installed shall be accessible, operable from ground level, and as near as practical to the inlet of the gas meter and/or regulator.

**3.3.2** Where meters are to be manifolded at one location, a master valve controlling the gas supply to all meters must be provided in addition to the meter

valves controlling the supply to each meter. The master valve shall be of the insulating type, or a flange or union shall be installed.

**3.3.3** On multiple meter installations, each meter valve shall be plainly and properly identified by the installing agent with a weatherproof tag, designating the apartment or the part of the building it supplies.

**3.3.4** The distance between a meter and any wall shall be minimum of six inches. On outside meter settings, the bottom of the meter shall be a minimum of six inches above finished grade.

**3.3.5** Meter set assemblies shall be plumb and level so that the meter will line up properly with the meter connections.

**3.3.6** Typical meter set assembly installations are illustrated in Sketch No. 4.

**3.3.7** All outside steel piping shall be painted in accordance with a paint recommended by the paint manufacturer for use on outside steel and applied per the paint manufacturer's specifications.

**3.3.8** Riser brackets are to be installed above finished grade.

## **3.4 RURAL OR HIGH PRESSURE DOMESTIC REGULATOR SETTINGS**

**3.4.1** Consult Gas Company

## **PART IV – HOUSE LINES**

### **4.1 OWNERSHIP AND RESPONSIBILITY**

The Customer shall be responsible for the installation and maintenance of the house lines. Such lines shall be subject to test at any time as provided herein, but the Gas Company assumes no responsibility for their condition.

**4.1.1** The materials, installation and location of the house lines shall be subject to requirements and specifications within The 2003 International Fuel Gas Code. Lancaster Municipal Gas recommends the following exceptions to the International Fuel Code:

- (1) Aluminum tubing should only be used on appliance controls as assembled by the appliance manufacture.
- (2) Piping over 2” nominal OD should not have threaded fittings.

**4.1.2** Corrugated Stainless Steel Tubing (CSST) systems shall be installed per the CSST manufactures specifications. Lancaster Municipal Gas recommends the following exceptions:

- (1) Steel pipe should be used from the meter-setting outlet to the point of entry to the structure. This will provide improved rigidity when utilizing the LMG standard dual meter bar and result in better durability for this portion of piping which is exposed to the hazards of the out-of-doors.
- (2) On 2-psig systems gas line regulators manufactured by Maxitrol should be used.

**NOTE: All CSST manufacturers require installers to be certified to purchase and install their products. All issue a card to certified installers.**

### **4.2 SIZE**

**4.2.1** House lines shall be of such size as to provide a supply of gas sufficient to meet the maximum demand with a recommended pressure drop not in excess of 0.3 inch water column between the outlet of the meter set assembly and appliances with 0.6 specific gravity gas.

**4.2.2** Table 3 list the recommended minimum sizes of house lines to the drop line or connection for heating and/or air conditioning equipment and other types of domestic appliances and should be used unless the complete house line system is sized in accordance to Appendix B.

**4.2.3** Table 4 may be used to size house lines when a more precise method is deemed advisable.

### **4.3 MOBILE HOME PARK GAS SYSTEMS**

#### **4.3.1 Connection to House Line**

The meter riser and house line shall be rigidly supported at the meter setting. (Sketch No.9)

#### **4.3.2 House Line Connector**

Connection to the house line shall be made with an approved mobile home connector.  
(Sketch No. 9)

## **PART V – INSPECTION AND TESTING**

Customer service line and house lines shall be inspected and tested as follows:

### **5.1 NEW CONSTRUCTION**

**5.1.1** The owner, plumber or owner's representative shall give the Gas Company notice that work is completed and ready for inspection. This notice must be made to the Gas Company at least 24 hours in advance of the time when desired.

**5.1.2** A new service line shall be visually inspected before the trench is filled. Any excavation(s) made during either plastic tubing insert renewal work or installation of piping by the "plow-in" method shall not be backfilled until the Gas Company has visually inspected the installation. The end connections and any fittings used to join lengths of pipe must remain exposed for inspection by the Gas Company.

**5.1.3** Customer service lines shall be given a stand-up pressure test after construction and before being placed in service to demonstrate that they are gas tight. Said pressure test shall be applied by the installer and inspected by the Gas Company. When a new tap is required the Gas Company will perform the pressure test if the customer service line is ready to be tied in at the curb stop.

**5.1.4** Air or an inert gas such as nitrogen shall be used to pressurize the piping. In no case shall oxygen, acetylene or other such gases be used.

**5.1.5** To locate leaks, piping joints should be covered with soapsuds, or a leak-finder liquid. In no case shall ether as an odorant, Freon, or any gas that will produce a toxic atmosphere when burned, be injected into the piping to locate leaks.

### **5.1.6 Stand-up Pressure Test Requirements**

- (a) House lines to operate at pressures of 2-psig or less shall be given a stand-up pressure test of not less than 3-psig for a period of not less than 10 minutes with no drop in pressure. (See notes 1,2,3, and 5)
- (b) Service lines up to 2-in diameter to operate at a pressure of 60 psig or less shall be given a stand-up pressure test at 90 psig, for at least 5 minutes with no drop in pressure. (See Notes 3, 4 and 5)

Notes:

- 1. On house lines this test will be made with manual shutoff valves to the appliances closed, preferably with the lines disconnected and capped.
- 2. For house lines to operate at pressures greater than 2 psig, consult the Gas Company for testing procedures.

3. A soapsuds test shall be made at operating pressure of all exposed fittings in the service or house lines which were not included in the pressure drop test.
4. For service lines to operate at pressures above 60 psig, consult the Gas Company.
5. Test pressure must be measured with a manometer or with a pressure-measuring device designed and calibrated to read, record, or indicate a pressure loss caused by leakage during the pressure test period (i.e. a Kuhlman Instrument indicates a pressure loss via fluid rising up the back tube). A standard dial type mechanical pressure gauge indicates pressure, it does not however read, record, or indicate a pressure loss in and of itself.

**5.1.7** The first inspection of any job shall be without charge. In the event the lines will not pass such inspection, or if other unsatisfactory conditions result in the disapproval by the Gas Company, the necessary correction shall be made and the line involved shall again be inspected and tested subject to a charge for such additional inspection.

**5.1.8** At the time the service line and house lines are tested by the customer and/or customer's representative, the results of such test will be recorded by the Gas Company and/or Building Code Department representative on an appropriate form. If the service line and/or house lines do not pass the test prescribed in 5.1.6 the owner, plumber or owner's representative will be notified.

**5.1.9** Only a representative of the Gas Company will establish gas service to the meter.

#### **5.1.10 Real Estate Inspections**

1. The Gas Company does not perform real estate inspections.
2. The Gas Company must be notified during normal working hours of a failed test or other unsatisfactory condition on customer service lines and the gas shall be left off.
3. Operator Qualified Personnel must perform Real Estate tests on customer service lines.
4. The test pressure on customer service lines shall not exceed the distribution system operating pressure.

#### **5.2 Separation of Gas Loads and Piping by Customers**

Any customer wishing to separate the piping and/or gas loads for the sole purpose of billing shall be approved under the following:

- (a) That the customer or customer representative contact the Gas Company prior to scheduling the work.
- (b) That all of the customer's gas piping be separated supplying only one apartment and/or section of apartments that it is intended to supply.
- (c) That each apartment, duplex, etc. have its own heating plant, water tank, etc. completely separate from any other gas load.
- (d) That each apartment, duplex, etc. have its own gas meter when the gas load has been separated and all gas meters shall be installed on a header type of setting and relocated to the outside of the structure with a separate shutoff valve for each gas meter.

## 5.2 Abandoned, Temporarily Disconnected or Partially Replaced

Additional requirement for abandoned, temporarily disconnected or partially replaced customer owned service lines and meter settings installations.

### 5.2.1 Abandoned

Service lines previously abandoned shall be tested in the same manner as new service lines before being placed in service.

**Exception: Abandoned BARE STEEL service lines shall not be returned to service.**

### 5.2.2 Temporarily disconnected or partially replaced

- (a) Service lines temporarily disconnected or partially replaced shall be tested from the point of disconnection to the meter valve in the same manner as new service lines before reconnecting. Replaced piping shall be included in the test section.
- (b) After completion of the initial test, the piping of the tested section shall be reconnected to the upstream section of the service line and the entire line shall be tested at operating pressure for 3 minutes with no drop in pressure.
- (c) A soap suds test shall be made at operating pressure of all exposed fittings in the service line that were not included in the pressure drop test.
- (d) As an alternate to (a) and (b) the entire service line may be tested as new after repairs have been made if the service line has a curb valve rated to handle the test pressure.

Exceptions:

1. Any portion of the original service line used to maintain continuous service, such as by installation of a bypass need not be tested.
2. BARE STEEL service lines to be operated at a pressure of less than 1 psig will be given a pressure test at not less than 3 psig for at least 10 minutes with no drop in pressure.

**TABLE 1  
LOW PRESSURE SERVICE LINES  
PLASTIC PIPE CAPACITIES IN CFH**

Pipe Size	Distance, Ft. – Main to Meter						
	10	50	100	150	200	250	300
1" CTS	373	167	118	96	83	75	68
1 ¼" IPS	1074	480	340	277	244	215	196
2" IPS	3160	1410	1000	820	710	630	580
3" IPS	9280	4150	2940	2400	2030	1860	1700
4" IPS	18430	8240	5830	4760	4120	3690	3360

Capacities based on 0.5-inWC pressure drop and 0.6 specific gravity gas

**TABLE 2  
MEDIUM PRESSURE SERVICE LINES  
PLASTIC PIPE CAPACITIES IN CFH**

Pipe Size	Distance, Ft. – Main to Meter						
	10	50	100	150	200	250	300
½" CTS	533	226	154	123	105	93	84
1" CTS	3830	1570	1070	850	725	640	578
1 ¼" IPS	10840	4430	3020	2410	2050	1810	1640
2" IPS	28180	11530	7840	6260	5340	4710	4260
3" IPS	79300	32430	22070	17620	15010	13260	11985
4" IPS	154970	63380	43120	34120	29340	25920	23420

Capacities based on 16-inWC pressure drop and 0.6 specific gravity gas

**TABLE 3  
HOUSE PIPING SIZES  
FOR SINGLE HOUSES AND/OR APARTMENT UNITS,  
EACH UNIT METERED SEPARATELY**

**Single Houses and/or Apartment Units** **Minimum Nominal Pipe Size**

\*(a). Meter set assembly to central heating or combination heating and cooling equipment

<u>Total Connected Load</u>	<u>Pipe Length</u>	
0 – 250 cfh (and)	40-150 feet	1 ¼ “
0 – 250 cfh (and)	0 – 40 feet	1 “

\*\* (b) To remote cooling only equipment  
(Maximum of 125 cfh input and 40 feet length) ¾ “

- (c) To storage type water heater (only) ½”
- (d) To domestic range (only) ½”
- (e) To domestic clothes dryer (only) ½”
- (f) To domestic incinerator (only) ½”

\* Other domestic appliances may be extended from this line.

\*\*This is not to be included in Total Connected Load in (a) above.

Note: Reference may be made to Appendix B for house line sizing when a particular installation is not covered in this Table.

**TABLE 4  
HOUSE PIPING  
CAPACITY IN CFH**

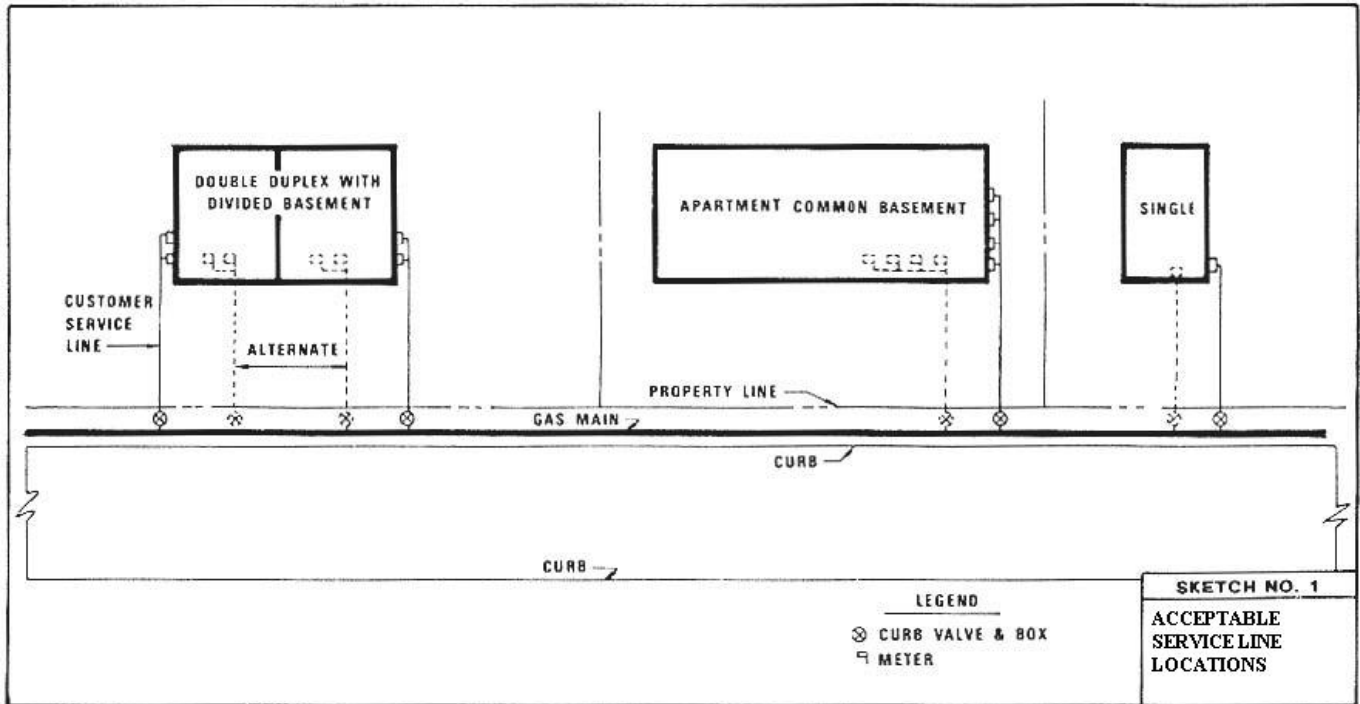
<b>Length, ft.</b>	<b>Nominal Iron Pipe Size, Inches</b>								
	<b>1/2</b>	<b>3/4</b>	<b>1</b>	<b>1 1/4</b>	<b>1 1/2</b>	<b>2</b>	<b>2 1/2</b>	<b>3</b>	<b>4</b>
<b>10</b>	132	278	520	1050	1600	3050	4800	8500	17500
<b>20</b>	92	190	350	730	1100	2100	3300	5900	12000
<b>30</b>	73	152	285	590	890	1650	2700	4700	9700
<b>40</b>	63	130	245	500	760	1450	2300	4100	8300
<b>50</b>	56	115	215	440	670	1270	2000	3600	7400
<b>60</b>	50	105	195	400	610	1150	1850	3250	6800
<b>70</b>	46	96	180	370	560	1050	1700	3000	6200
<b>80</b>	43	90	170	350	530	990	1600	2800	5800
<b>90</b>	40	84	160	320	490	930	1500	2600	5400
<b>100</b>	38	79	150	305	460	870	1400	2500	5100
<b>125</b>	34	72	130	275	410	780	1250	2200	4500
<b>150</b>	31	64	120	250	380	710	1130	2000	4100
<b>175</b>	28	59	110	225	350	650	1050	1850	3800
<b>200</b>	26	55	100	210	320	610	980	1700	3500

Capacities based on 0.3-inWC pressure drop and 0.6 specific gravity gas

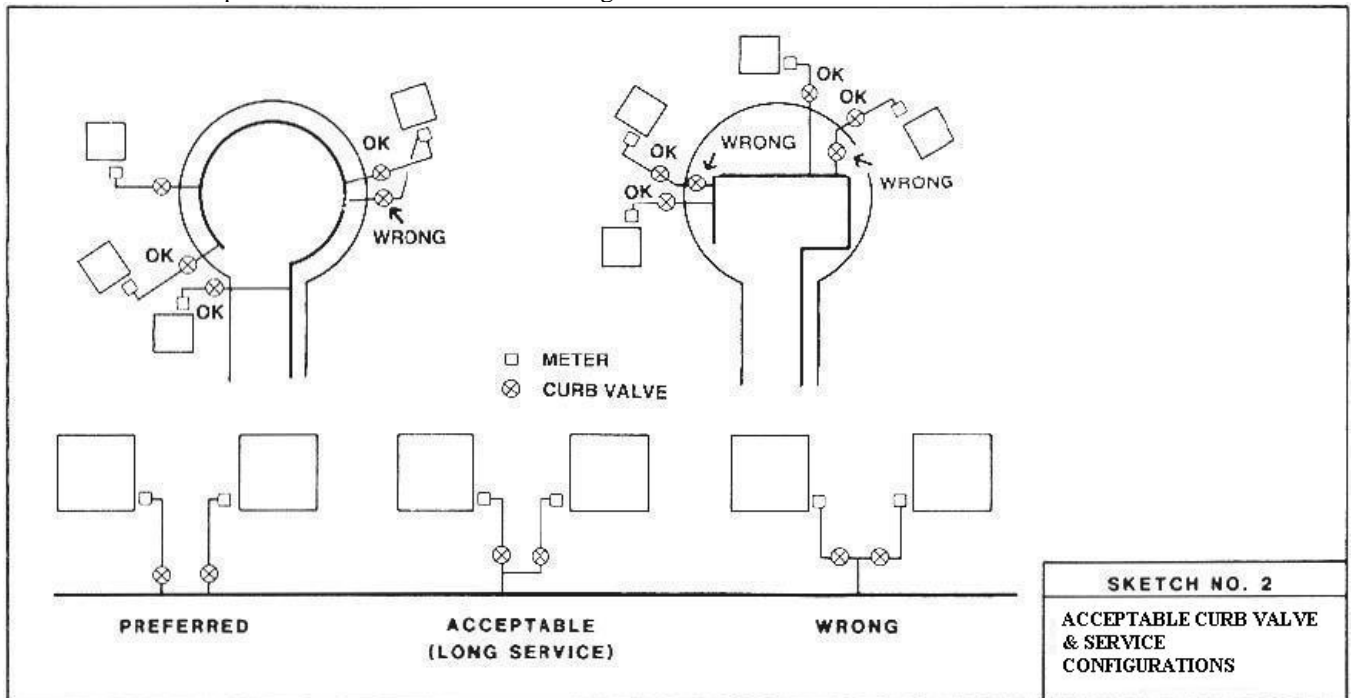


# APPENDIX A

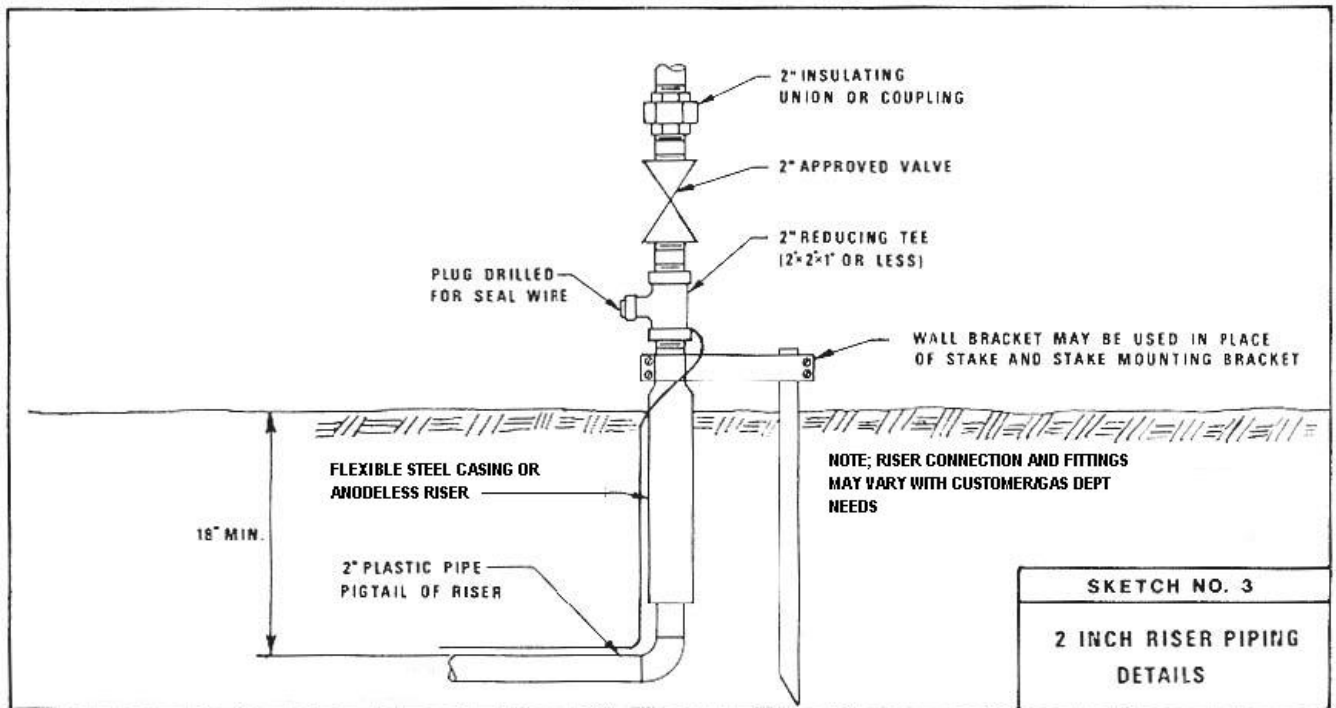
Sketch No. 1 – Acceptable Service Line Configurations



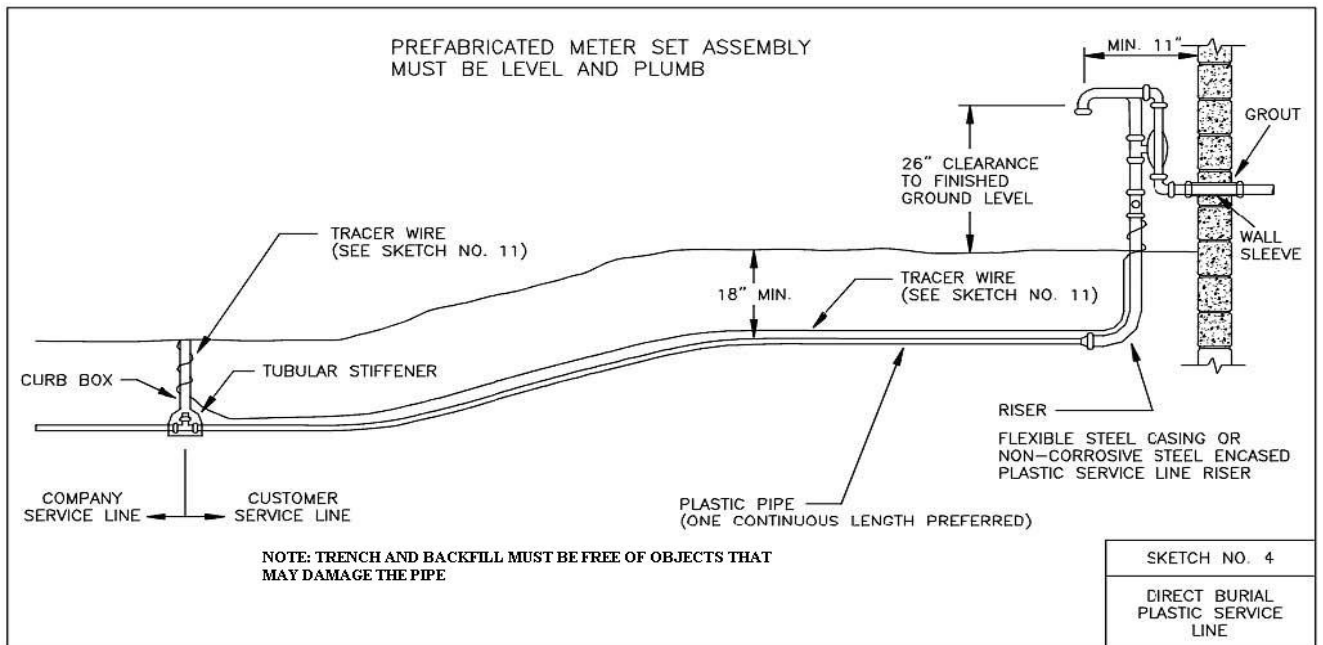
Sketch No. 2 – Acceptable Curb Valve & Service Configurations



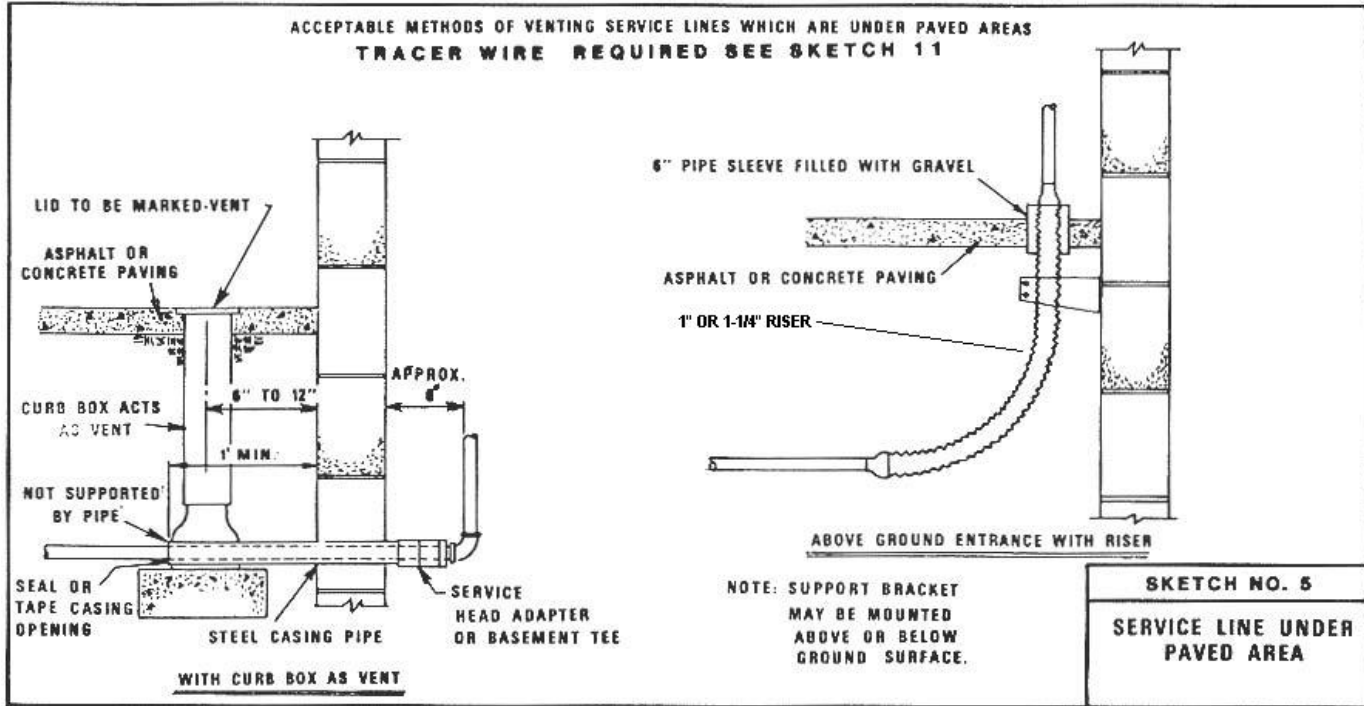
Sketch No. 3 – 2 Inch Riser



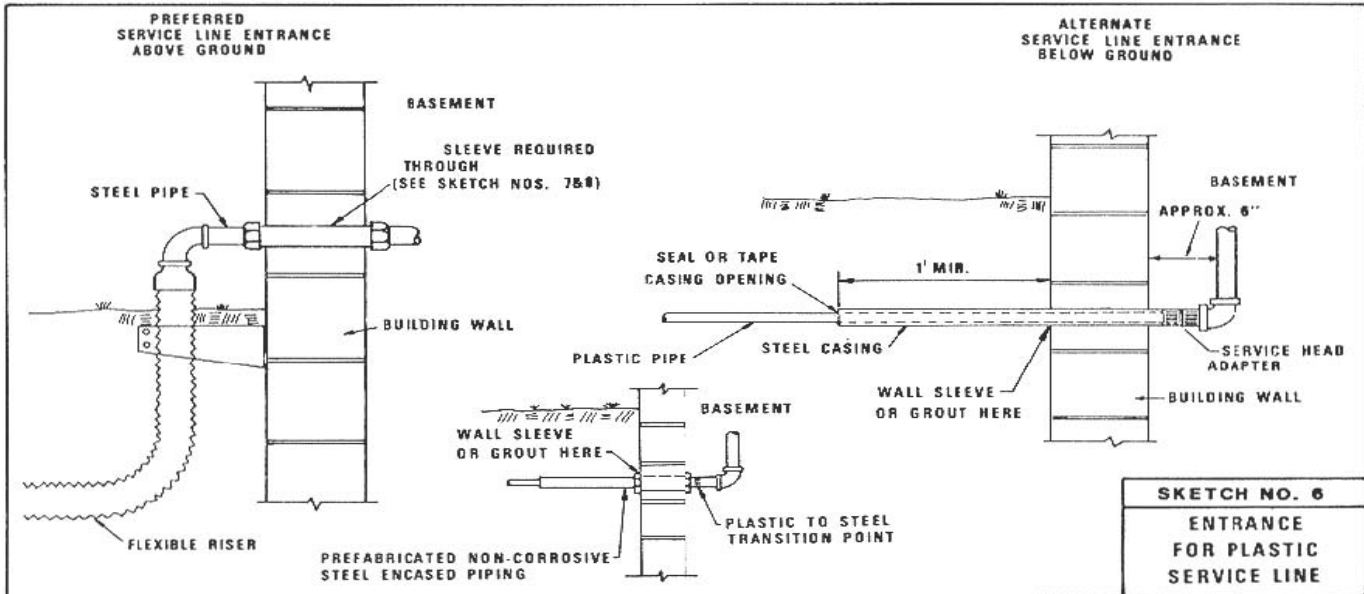
Sketch No. 4 - Direct Burial Plastic Service Line



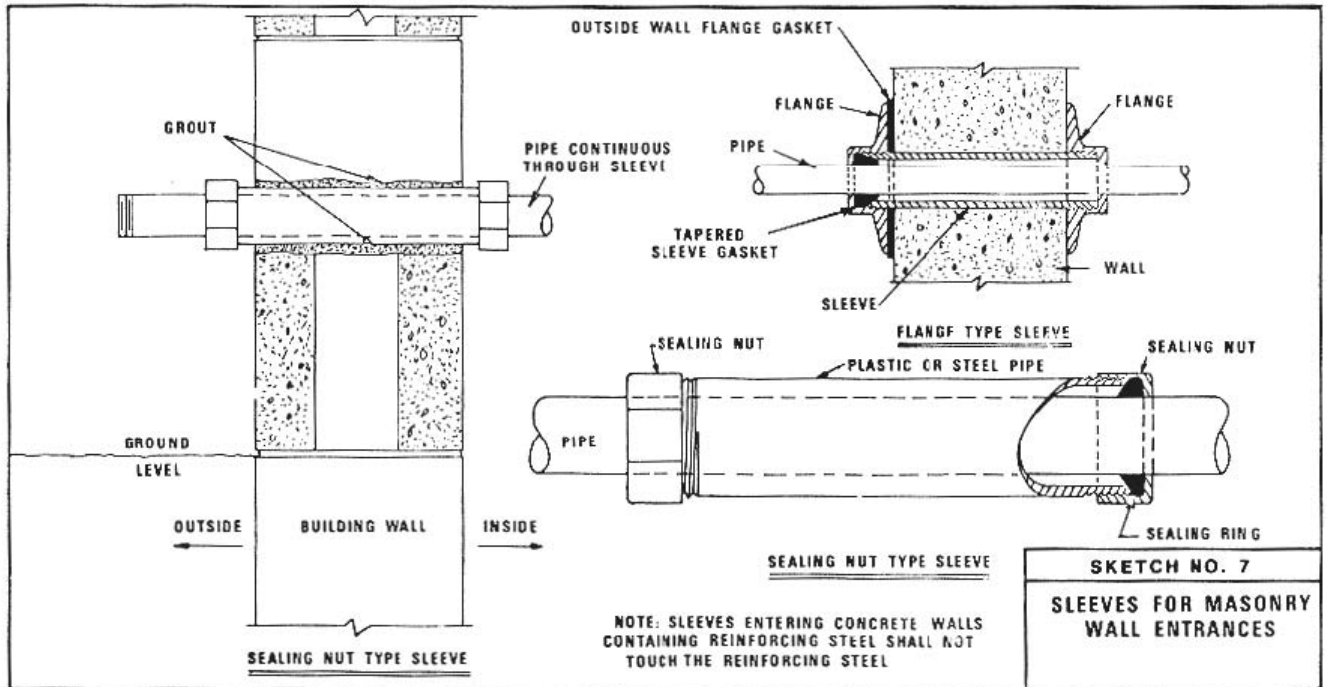
Sketch No. 5 – Service Line Under Paved Area



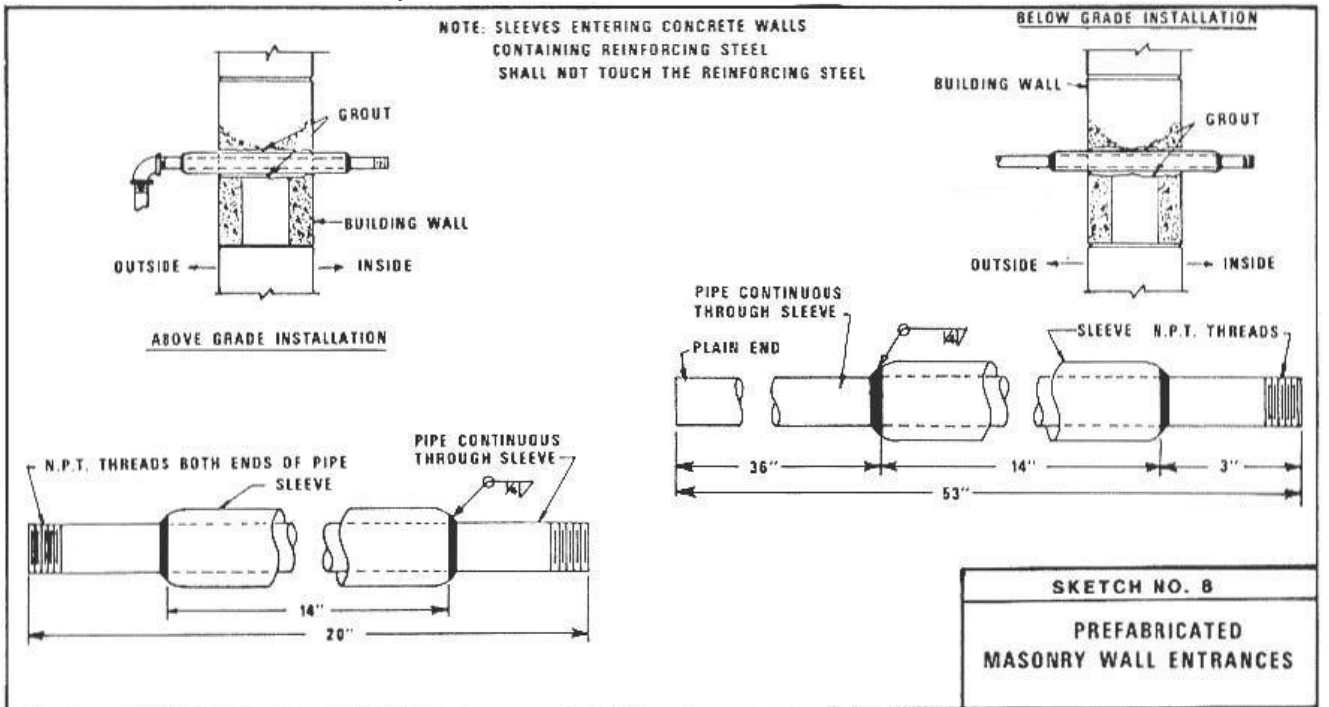
Sketch No. 6 – Entrance for Plastic Service



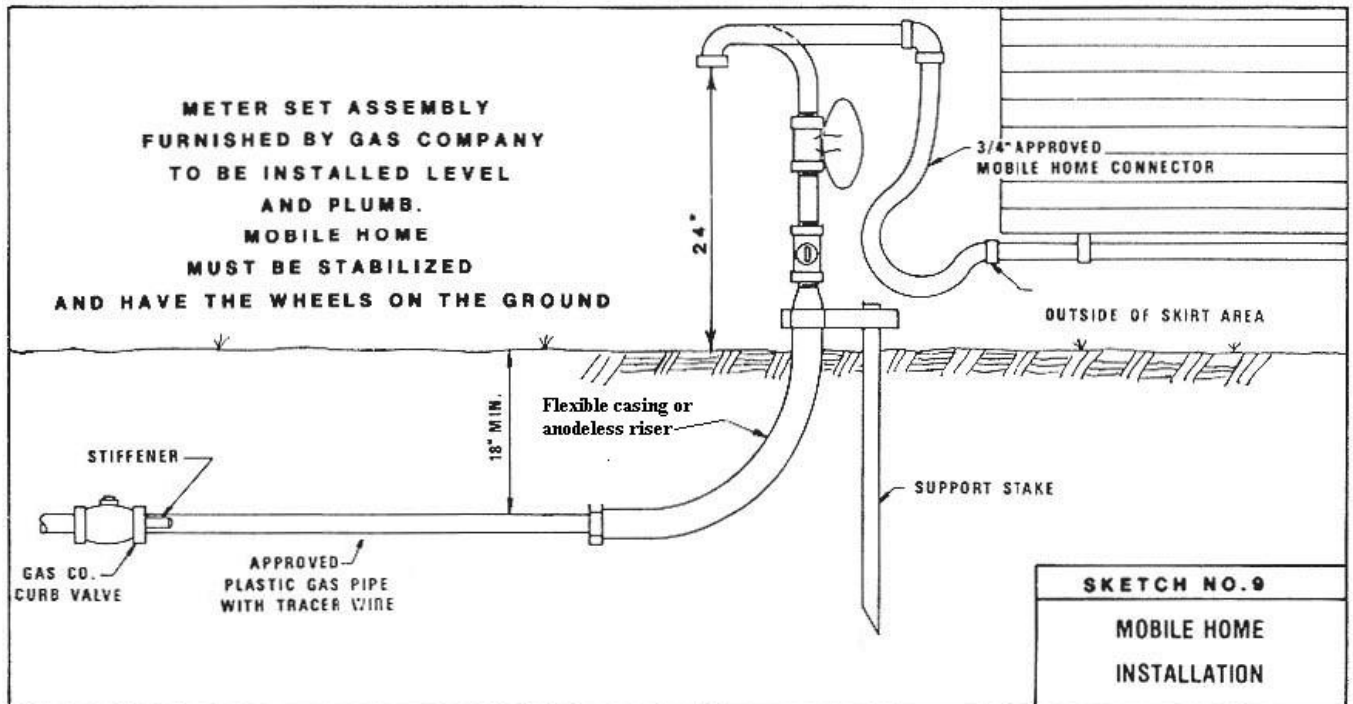
Sketch No. 7 – Sleeves Thru Masonry Walls



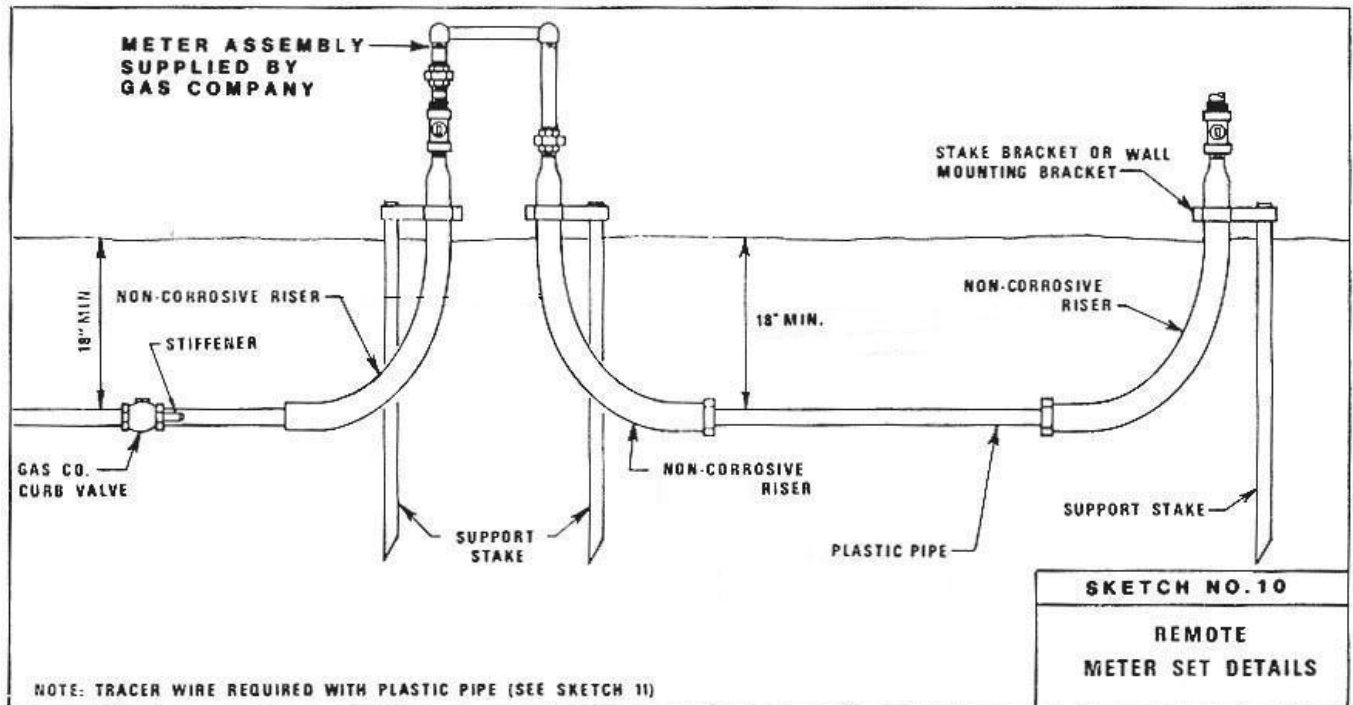
Sketch No. 8 – Prefabricated Masonry Wall Entrances



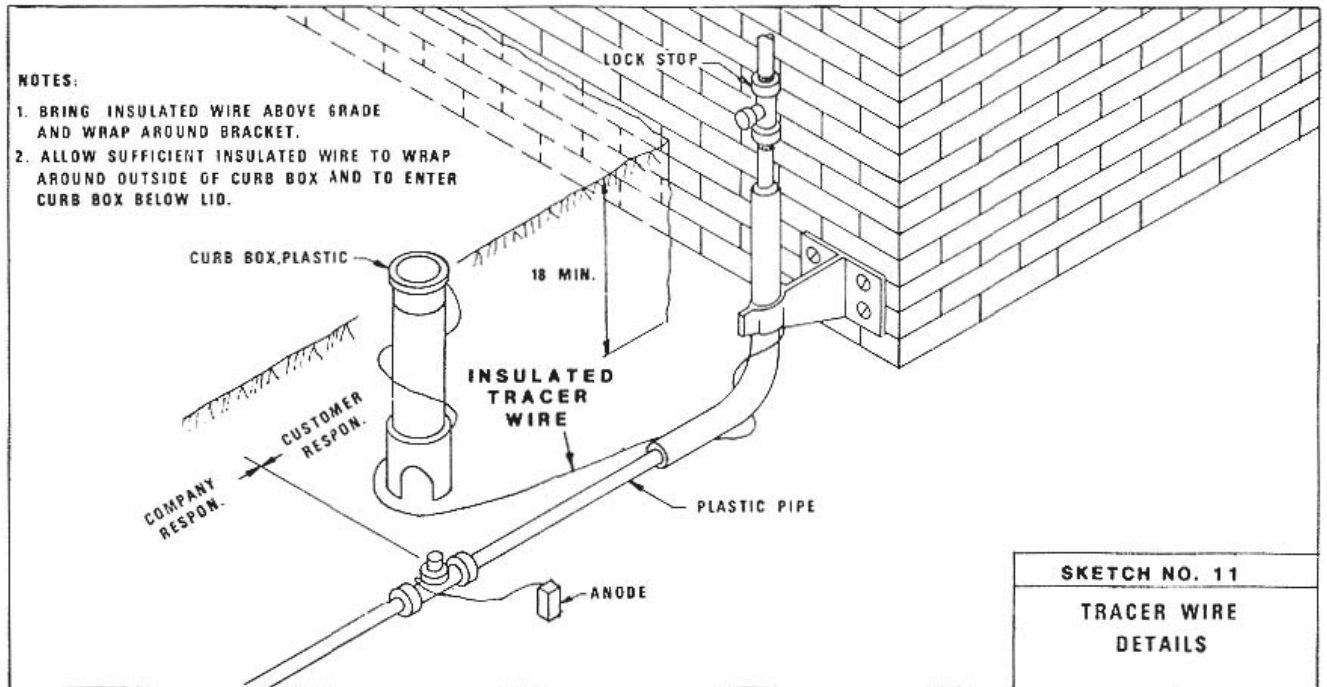
Sketch No. 9 – Mobile Home Installations



Sketch No. 10 – Remote Meter Set



Sketch No. 11 – Trace Wire Detail



Sketch No. 12 – Piping Under Building

