



NATURAL GAS CUSTOMER PIPING HANDBOOK

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a PPL company

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Changes since November 2021 revision:

- 2.1.2 Clarified customers covered under this Handbook
- 3.1 Updated phone number for gas emergencies in Louisville
- 4.1 Updated "What to Do if you Smell Natural Gas" language
- 4.4 Clarified Kentucky811 contact information
- 5 Clarified Kentucky811 steps to dig safely 5.1.1 Relocated tampering to Section 5
- 5.1.2 Relocated tracer wire to Section 5
- 6.2 Updates blasting notifications, minimum notice period and required notice
- 6.4 Added blasting operation information
- 6.5 Removed LG&E service map and added responsibilities of blasting contractor
- 6.6 Added LG&E provisions for monitoring of blasting operations
- 6.7 Added documentation requirements for blasting
- 7.1 Updated hyperlink to rates/tariffs
- 8 Added definition for delivery pressure and interruption of service
- 10.2 Added expiration date for notification without additional correspondence
- 11.3 Clarified existing service line scenarios that require new construction
- 15.1.1.1 Updated residential gas customer meter figure
- 16 Clarified turn off for emergency vs. non-emergency
- 22.4.1 Clarified service depth adjustments
- 23.4 Clarified abandoned services
- 23.7 Clarified use of warning tape
- 23.8 Clarified installation of tracer wire
- 24.3.2 Clarified height requirements and updated manifold heights to 40" min to 48" max
- 25 Added requirements for free-standing, non-rigid, and pole-barn style buildings
- 29 Clarified flange size required for rotary meters
- 30 Removed duplicate section
- 30 Clarified house line identification on manifolds
- 32.6 Clarified check valve location needs to be approved by LG&E
- 32.10 Clarified gas piping labeling
- 32.11.2.5 Added location restrictions for press-connect fittings
- 32.11.6.5 Added explanation for temporary heat connections
- 34.1 Clarified pressure test to requirements for maximum delivery pressure
- 34.4. Clarified application of table and updated testing requirements
- 34.6 Updated new construction examples
- 35.1 Specified LG&E right to inspect
- 36.4 Removed pipe sizing method, reference NFPA 54 for sizing methods
- 39 Revised Gas Load Data Sheet
- 39 Fig 5. Revised 1" meter loop height requirements: 36" min to 48" max with manifold note

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2 General Information

2.1 Preface

Louisville Gas and Electric Company (LG&E) provides retail gas and electric service in and around the Louisville, Kentucky area. The Customer Gas Piping Handbook is intended to address natural gas service issues for customers served by LG&E.

A separate document, "Electric Service Handbook," details the requirements for LG&E electric service.

2.1.1 Customer Gas Piping Handbook

This Customer Gas Piping Handbook prescribes LG&E's standards with respect to gas service and meter installations pursuant to the rules and regulations of the Kentucky Public Service Commission (KPSC). All piping used for gas service lines and meter installations must be installed in accordance with the specifications provided by LG&E and will be subject to inspection and testing by LG&E. In the event that special circumstances prevent compliance with the service line specifications prescribed within this handbook, LG&E will consider alternative methods, if applicable regulations are not violated and safety and reliability are not jeopardized. The Customer has the responsibility of notifying LG&E of any changes to the piping, appliances, or building structure that may affect safety or gas system performance.

In addition, this handbook includes standards pertaining to Customers' house piping and appliance installation in the interest of uniform and safe operations.

LG&E reserves the right to modify the requirements found in this handbook or any of its service policies, procedures and/or standards at any time. It is the responsibility of the Customer to ensure that any reference document is the version currently approved for use by LG&E. It is also the responsibility of the Customer to notify LG&E of any changes to natural gas facilities that may affect safety or natural gas system performance.

By publishing this handbook, LG&E does not assume liability or responsibility for house piping, appliance installation, or appliance operation. LG&E maintains the right to refuse to supply gas to piping or appliances that are installed or operated in a potentially unsafe manner. In addition, LG&E is not responsible for continuing inspection or surveillance of Customers' house piping, appliances, or appliance operation.

2.1.2 Scope of Customer Gas Piping Handbook

This handbook provides specifications and construction standards for the installation of service lines and Customer metering facilities. It also provides guidance for the installation of house lines and gas appliances for residential, commercial, and industrial customers served with natural gas from LG&E (hereinafter referred to as "Customers").

The intention of this handbook is to meet or exceed not only the Kentucky Public Service Commission (KPSC) regulations but also the NFPA 54 (National Fuel Gas Code), Kentucky Building Code, *Kentucky Residential Code*, and other relevant publications. However, the information contained herein does not preempt any of the rules, codes, or regulations contained in the aforementioned publications.

It is the Customer's responsibility to notify LG&E of any conflict between this handbook and the requirements of any of the above publications.

2.2 Facts about Natural Gas

- Natural gas is an abundant, clean-burning, and energy-efficient fuel.
- Natural gas is colorless, odorless, and tasteless. As a safety precaution, a chemical called mercaptan is added to natural gas. This chemical provides a distinctive odor that will alert persons to a potential safety hazard. Mercaptan has the smell of rotten eggs. Odors that are sometimes mistaken for natural gas can come from a variety of sources, such as petroleum products (especially gasoline), marsh gas, sewer gas, and industrial gases.
- Natural gas is not toxic (i.e., poisonous). No health hazards exist from the exposure to natural gas. However, if present in sufficient quantities to displace the oxygen in the air, it can cause drowsiness and eventual suffocation due to lack of oxygen.
- Natural gas is lighter than air. When released in an open space, natural gas will rise and diffuse rapidly. If confined in a closed space, natural gas will rise to the highest level. The air in the space will be displaced from the top downward. Therefore, to ventilate a room, windows should be open from the top and bottom portions of the room.
- To burn or explode, natural gas must mix with air in the proper amount (i.e., 4% to 15% natural gas to air) and be ignited at an ignition point of 1,100°F – 1,200°F. Ignition sources include, but are not limited to, pilot lights, flint sparks, matches, sparks from electrical switches and motors, or electrostatic sparks.
- A properly burning natural gas flame will have a crisp blue color. If natural gas is burned without enough air, it may produce carbon monoxide, a poisonous gas. In this case the flame will be yellow. A person exposed to carbon monoxide may complain of dizziness,

headache, nausea, fatigue, and other flu-like symptoms. Prolonged exposure could result in loss of consciousness and eventually death.

- Natural gas should not be confused with liquefied petroleum gas. Liquefied petroleum gas is more commonly called L.P. gas, bottle gas, or propane. It is heavier than air and collects in low places when not confined.

Helpful information about natural gas can be found at: <https://lge-ku.com/safety/gas>

3 Important Contact Information

3.1 Gas Emergencies/ Gas Odor / Gas Leaks

502-589-1444, Outside Louisville: 1-800-331-7370

Please listen to the automated systems' options. At the time of publication, the sequence of selection for gas outage (considered an "emergency") was 1, 1, 1.

3.2 Gas Outage (Gas Turn On), Questions – General, Questions – Billing

(502) 589-1444, Outside Louisville: 1-800-331-7370.

3.3 Primary Contact - Gas Designer/Locator – By Zip Code

For the latest version of these Gas Designer/Locator areas, please reference the LG&E website at: <https://lge-ku.com/business/lge-builderdeveloper-relations>

4 Natural Gas Safety

4.1.1 What to Do if You Smell Natural Gas

If you suspect a natural gas leak:

Leave the area immediately and get to a safe area where you cannot smell a natural gas odor.
Then call 911 and LG&E.

To contact LG&E, call 502-589-1444 or 800-331-7370 and press 1-1-1

NEVER report a gas leak by email.

LG&E will dispatch personnel to take necessary actions to minimize the impact of the situation.

Warn others to stay out of the area.

DO NOT light a match, turn light switches on or off, use a cell or home phone (until you leave the area of the suspected leak) or do anything to create a spark.

DO NOT attempt to extinguish any fire.

DO NOT attempt to operate any valves.

Never look for a natural gas leak with a lighted flame or match.

Do not try to relight a gas furnace, water heater, or range.

4.2 Signs of a Natural Gas Leak

You may HEAR a blowing or hissing sound coming from the ground.

You may SEE dust blowing from a hole, continuous bubbling in wet or flooded areas, dead vegetation, abnormally dry or hardened soil or fire coming from the ground.

You may SMELL an odor similar to sulfur or rotten eggs.

4.3 Safety First – Providing Safe Natural Gas Service

The health and safety of LG&E's Customers and employees and the public are our highest priorities. LG&E believes strongly in the concept that safety is everyone's responsibility. LG&E's employees and contractors will not perform any work in areas considered to be unsafe or install or connect any natural gas facilities that are, in the opinion of our employees or contractors, unsafe or not in compliance with LG&E's requirements or governing codes and regulations.

Both LG&E and Customer-owned natural gas facilities must be planned, designed, built, maintained, and operated in a manner that minimizes the risk of injury and property damage during construction and throughout the life of the facility.

4.4 Look for Natural Gas Pipeline Markers

Residential and commercial developments are encroaching on pipeline rights-of-way with increasing frequency. These encroachments imply safety concerns for the local residents and for the physical integrity of the pipeline itself. To help improve awareness and prevent encroachment, LG&E installs signposts along the pipeline rights-of-way.

Currently, these pipeline markers are white in color, stand 4 to 6 feet tall, and are posted along the high pressure distribution and transmission pipelines. These markers indicate the presence, but not the exact location, of underground pipelines.

NOT ALL PIPELINES ARE MARKED. The vast majority of pipes in the LG&E distribution system are not marked and are not required to be marked.

Contact Kentucky 811 (call 8-1-1 or visit Kentucky811.org) to have underground facilities located, free of charge to the caller. This service is available 24 hours a day, 7 days a week

4.5 Natural Gas Odorant Information

This notice is to provide Customers and contractors who work on natural gas piping, equipment, and appliances with additional safety information on natural gas odorant and the potential for odor fade.

LG&E odorizes natural gas that is delivered through its natural gas distribution system. The odorization of natural gas for leak detection and public safety is regulated by the Department of Transportation (DOT) and by the Kentucky Public Service Commission (KPSC). LG&E routinely monitors odor concentration in the gas distribution system to ensure compliance with the regulatory requirements listed above.

Even though odorant is added to natural gas to assist in the detection of leaks, you should not rely solely on your sense of smell to determine if a gas leak has occurred or is occurring. Some persons may not be able to detect the odorant because of a diminished sense of smell or because the odorant smell is being masked by other odors. In addition, there may be rare conditions, such as odor fade (loss of odorant), which may occur and may cause the odor to diminish so that it is not detectable.

Odor fade or loss of odorant can occur when physical and/or chemical processes including adsorption, absorption, and oxidation cause the level of odorant in the gas to be reduced. This can occur more frequently in installations of new gas pipe than in existing pipe. It is more likely to occur in new steel pipe of larger diameters and longer lengths. Odorant fade can also occur in plastic pipe and in smaller and/or shorter pipe installations. Conditioning of new pipeline installations or additions of new piping segments may be needed before the pipe is placed into service to prevent odorant fade.

Soil may also cause odorant fade if a natural gas leak occurs underground. Other factors which could cause odorant fade include the following: construction and configuration of a Customer's gas facilities; presence of rust, moisture, liquids, or other substances in the pipe; and gas composition, pressure, or flow. Little or no gas flow over an extended period can also result in odorant fade until gas flow increases or becomes more frequent.

Never purge the contents of a gas line into a confined space. Only a licensed and qualified professional should purge a gas line. Purging should be done in a well-ventilated area or by venting the contents to the outside atmosphere. Gas detection equipment should always be used during purging operations or when working on gas piping systems to ensure that no natural gas is present that may result in a combustible or hazardous atmosphere. DO NOT rely on your sense of smell alone to detect the presence of natural gas.

Consult your local fuel gas code for more information. When installing gas appliances or equipment, the manufacturer's instruction manual should be followed in accordance with the local code requirements.

4.6 Electrical Bonding/Grounding of Gas Pipe

Electrical bonding or grounding of natural gas service piping endangers the safety of the Customer, the public, and LG&E.

Electrical bonding to the service, service riser, and/or meter(s) is prohibited.

Using gas service piping or meter loop as a grounding or current carrying conductor is prohibited.

Each aboveground portion of a gas piping system upstream from the appliance equipment shutoff valve shall be electrically continuous *and bonded to the ground fault path* as defined by NFPA 70, *National Electric Code*, and NFPA 54, *National Fuel Gas Code*.

Gas house line piping, excluding CSST systems, shall be considered bonded when there is a continuous electrical path from the gas piping to the circuit electrical ground for the appliance.

CSST systems shall be bonded to the electrical ground per NFPA 54, manufacturer's recommendations, and other governing building codes.

5 Excavation Safety

CONTACT 811 BEFORE YOU DIG – IT IS THE LAW

The Underground Facility Damage Prevention Act (KRS 367.4901-367.4917) was enacted by the Kentucky legislature in 1994. This law requires all persons excavating in the Commonwealth of Kentucky to have underground facilities located prior to starting excavations. Violators of this law may be subject to fines and/or criminal prosecution.

Kentucky 811 is the answer to the continuing problem of damage to underground facilities. Kentucky 811 provides a communication link between excavators and operators of underground utilities. Kentucky 811 is a non-profit organization made up of owners and operators of underground facilities in the Commonwealth of Kentucky.

Everyone, including the public, should contact Kentucky 811 before digging.

Follow these simple steps to dig safely:

- **Make a locate request.** Once you have your outdoor project planned, call 8-1-1 or visit Kentucky 811 (kentucky811.org) to submit a locate request. You must submit your request at least two (2) full business days before any excavation work can begin, not including the day of the request. This will ensure sufficient time for operators of underground facilities to mark their lines. When you submit your request, 811 will issue a "locate request" to member utilities*, including those who provide natural gas, electric, telephone, cable and/or water service.
- **Mark the project area.** Although it's not required, marking the boundary lines of your project area with white lines helps utilities know exactly where you plan to work while they're marking underground utility lines.
- **Wait for a positive response.** Operators of underground utilities will provide a 'positive response' regarding each locate request in the form of flags or markings around your excavation



**ALWAYS CONTACT 811 BEFORE
YOU DIG!**

KNOW WHAT IS BELOW.

IT'S THE LAW

Dial: 811 or visit kentucky811.org

area or verification through a phone call, email, or online portal notification. They will also let you know if there are no underground lines in the area. This work is performed at no cost to you.

- **Dig with care.** Once you have confirmed a positive response, you can dig with care. Don't assume underground lines run straight between marks that's why we have a 'tolerance zone' around the markings. The tolerance zone is the area equal to the width of the underground utility plus the area extending 24" on either side of the utility. If no width is given for the utility, assume 2", and depths may vary. When excavation is necessary within the tolerance zone, hand-dig or use non-intrusive means to avoid damage to the underground line.

- *As a reminder, some underground utilities on your property will NOT be marked by Kentucky 811 members* because they are not owned by KY 811 members*.* These can include underground lines like an electric line or water line to your pool, lines to septic tanks and the tanks themselves, electric lines to sheds or landscape lighting, lawn sprinkler systems and more. You are responsible for contacting non-members and having any private lines on your property marked.

- As a general rule, if the utility runs from the street to the meter, and is owned by a Kentucky 811 member*, the member will mark the utility. If the utility is installed from the meter to another location on your property, you will need to hire a private locator to locate that line.

**Not all utilities are members of Kentucky 811*

Report Unmarked Excavations near Buried Utility Lines

Please protect yourself and your neighbors by reporting digging where buried utility lines have not been located (either by paint, flags, or both). Please report such situations to LG&E at 502-589-1444 and Kentucky 811 by dialing 8-1-1

5.1.1 Tampering with Regulators, Meters, Tracer Wires and/or Pipes

Individuals, companies, or Customers who tamper with natural gas meters, regulators, and/or piping to make the meter show less consumption endanger public safety.

Meter, regulator, and/or pipe tampering can create a dangerous situation that can lead to serious and sometimes fatal injury from fire or explosion.

Evidence of tampering can be cause for disconnection of service without advanced notice and an investigation will follow to determine the responsible party and the monetary amount of any damages or theft owed to LG&E.

Theft of gas, whether through meter, regulator, or pipe tampering will be prosecuted.

Theft of gas may also result in civil action by LG&E.

5.1.1.1 DO NOT CUT THE TRACER WIRE

Plastic natural gas pipelines cannot be located with metal detectors. The small wires that are run above ground (with the gas service) and attached to the meter loop are used to locate the route of the natural gas service below ground. These wires must not be removed or cut. Please contact LG&E at (502) 364-8209 if inadvertent damage to tracer wire occurs.

6 Blasting in the Vicinity of Natural Gas Pipelines

6.1 Applicable Regulations

Blasting operations are governed by the following regulations:

805 KAR 4:075 (14) states that “[b]lasting operations in the proximity of ... utility services, or other services or structures shall not be carried on until the operators and/or owners have been notified at least twenty-four (24) hours in advance **and measures for safe control have been taken**”.

KRS 351.330 (9) states “[w]hen blasting operations ... are to be conducted within the vicinity of a pipeline or public utility, the blaster or person in charge of the blasting operations shall take due precautionary measures for the protection of the pipeline or utility, and shall give adequate notice to the owner or his agent that such blasting operations are intended. The blaster shall be subject to regulations promulgated by the [Kentucky Department for Natural Resources] concerning such a blasting operation”.

6.2 Notifications

6.2.1 Minimum Notice Period

Notifying Kentucky 811 with blasting information is required to initiate the notification process to LG&E (refer to Section 5 of this Handbook for more information on the 811 process). A minimum notice period of five (5) working days prior to the proposed work is required for blasting operations. This period allows for LG&E to obtain blasting information and perform blasting analysis, leakage survey, valve maintenance, etc. This minimum notice period starts once the blasting contractor submits a complete Blasting Operation Form in Section 39 to the LG&E Contact. Inaccurate or incomplete information will result in delays.

LG&E should also be notified two (2) full working days prior to commencement of blasting operations. This notification will allow LG&E to make necessary preparations for affected gas facilities and/or have a representative on site during blasting operations if deemed necessary by LG&E.

6.2.2 Required Notice

For the safety of the public and blasting operators, 811 will notify LG&E when blasting operations are planned within the following proximity to gas pipelines:

- 500 feet from an LG&E natural gas transmission pipeline.
- 250 feet from an LG&E natural gas distribution pipeline.

Notifying 811 with blasting information starts the notification process to LG&E.

Marking of utility locates does not constitute approval to commence blasting operations.

6.3 Distance

When blasters submit their blasting parameters, LG&E will use the maximum allowable stress criterion to determine an acceptable distance from the affected pipeline for a given charge weight per delay. LG&E does not use vibration velocity criterion for evaluation and will not recommend a specific peak particle velocity (in/s).

The acceptable distance may vary from blasting operation to blasting operation, even with the same charge weight per delay and blasting parameters.

Blasting is not permitted in any LG&E easement.

6.4 Blasting Operation Information

The blasting contactor must submit the pre-blasting information section of the Blasting Operation Form, found in Section 39. LG&E needs this information to perform its analysis. Inaccurate or incomplete information will extend the analysis period for LG&E. Submitted pre-blasting information includes, at a minimum:

- Project name and exact location
 - Drawing or diagram of location of blasting operations
- Scheduled date(s) for blasting operations
- Kentucky 811 locate request number
- Material to be blasted
- Name, type, and manufacturer of explosive
- Weight strength and specific gravity of explosive
- Type of delay, delay interval, charge weight per delay, and total number of delays
- Total number of holes, holes per delay, hole spacing, and hole diameter, depth, and layout
- Method of installation and detonation

6.5 Responsibilities of Blasting Contractor

The blasting contractor is responsible for the following, at a minimum:

- Notify LG&E of their intention to perform blasting activities in the vicinity of LG&E's facilities and prior to commencement of blasting operations. Refer to Section 6.2.

- Comply with stipulations outlined in the Agreement Letter. Refer to Section 6.7 Documentation.
Submit complete and accurate daily blasting reports using the Blasting Operation Form in Section 39 to LG&E Contact listed in the Agreement Letter.

6.6 LG&E Provisions for Monitoring

LG&E provisions for monitoring the blasting operations may include the following:

- Have representative(s) on site to perform the following as needed:
 - Inspect and check all facilities and appurtenances to ensure safe conditions after each blasting sequence.
 - Monitor the drilling of each hole and the loading of explosive to verify compliance with the agreement letter.
 - Provide immediate response in the event of an emergency.
 - Record the date, the time of day, the measured perpendicular distances between the pipeline and the nearest charge, blasting parameters (e.g., charge weight per delay, hole spacing, delay interval, type of explosive, energy release, etc.) and seismographs results.
 - Prohibit further blasting and have a leakage survey performed, if the agreement between the blasting company and LG&E is violated.
 - Initiate LG&E's gas emergency operating procedures in the event of damage to LG&E facilities.
 - Monitor the operating pressure of its pipelines to ensure that unexpected abnormal operation does not occur as a result of the blasting operations.
 - Conduct a leakage survey over the pipeline prior to the blasting operations, after each blast sequence, and after the area has been restored to normal conditions, if deemed necessary by LG&E. The leakage survey will be conducted on all facilities that are in the affected blast area for a distance considered adequate by LG&E.
 - Continue surveillance for a reasonable period of time for damage caused by blasting operations as deemed necessary by LG&E.

6.7 Documentation

LG&E will evaluate blasting parameters for all parties that submit a complete and accurate Blasting Operation Form with preblasting information. Once safe blasting parameters have been determined, LG&E will send an Agreement Letter that stipulates the agreement between the parties. This Agreement Letter must be signed by both parties prior to commencement of blasting operations. At minimum, the Agreement Letter will include the following:

- Maximum charge weight per delay with the corresponding minimum distance from LG&E pipeline(s)
- The blasting parameters in addition to the charge weight per delay and distance
- The schedule for the blasting operation
- Specifications for notification of actual blasting commencement
- Requirements for submitting new blasting parameters
- LG&E Contact(s) and their contact information
- LG&E provisions for monitoring the involved pipeline(s)
- An indemnification requirement and a disclaimer of LG&E's responsibilities in the event of an accident
- LG&E's provisions for damages to LG&E facilities and/or recovery of loss revenues as the result of agreement letter violations

LG&E also requires a copy of blaster's post-blasting report. Refer to Section 6.5

7 Rates, Rules and Regulations

7.1 LG&E Rates, Terms and Conditions for Furnishing Natural Gas Service

LG&E's rates and requirements for natural gas service are documented in *Louisville Gas and Electric Company Rates, Terms, and Conditions for Furnishing Natural Gas Service*. This document explains specific rates and requirements for natural gas service provided by LG&E.

This document can be found at <http://www.lge-ku.com>.

Click through the menu: About LG&E and KU > Regulatory > Resources > Rates and tariffs > LG&E gas rates
or go directly to <https://lge-ku.com/regulatory/rates-and-tariffs>

7.2 Kentucky Public Service Commission

All natural gas service supplied by LG&E is provided in accordance with the applicable rates, rules, and regulations of the Kentucky Public Service Commission (KPSC), Website: <http://www.psc.state.ky.us/> .

The administrative rules of the KPSC can be found in the document Kentucky Administrative Regulations (KAR) pertaining to the Kentucky Public Service Commission, Title 807, and Chapter 5 – Utilities.

This KAR document is available for public inspection at the Commission, on the KPSC Internet site, and at LG&E's Customer Service Center at 701 South Ninth Street in Louisville, Kentucky 40203.

This document KAR establishes general rules and regulations for all types of public utility service (water, gas, electric, telephone, etc.) that fall under the jurisdiction of KPSC. Specific sections of this document apply to gas service.

7.3 National Fuel Gas Code (ANSI Z223.1-NFPA 54)

NFPA 54 - *National Fuel Gas Code* covers, in general, the design, alteration, modification, construction, maintenance and testing of utilization (i.e. non-utility) house line piping.

The National Fuel Gas Code generally covers all aspects of natural gas piping beyond the outlet of the meter. (National Fire Protection Association, Quincy, Massachusetts 02169.)

7.4 Kentucky Building Code

The *Kentucky Building Code and Kentucky Residential Code* establishes rules that are intended to establish a uniform building code in the Commonwealth of Kentucky (Department of Housing, Buildings and Construction, 101 Sea Hero Road, Suite 100, Frankfort, Kentucky 40601; Website: <http://dhbc.ky.gov>).

8 Definitions

Appliance (Gas Appliance) – Any device that utilizes natural gas as a fuel or raw material to produce light, heat, power, refrigeration, or air conditioning, or any device that compresses fuel gas. *A major gas appliance is an appliance that uses a consistent, metered volume of gas for several billing periods in a year; examples include a water heater, pool heater, furnace, continuous gas light, etc.*

Approved Gas Valve – A natural gas valve that meets or exceeds the minimum requirements of applicable federal, state, and local codes and regulations.

Branched Service Line – A Company service line that branches off from an adjacent Company service to serve a total of two (2) Customer service lines that are on adjacent or adjoining properties

BTU – British Thermal Unit. A measure of heat energy. One BTU is the quantity of heat that will raise the temperature of one pound of distilled water by one degree Fahrenheit (1°F) at 70 degrees Fahrenheit (70°F).

BTUH Input Rating – The heat energy input, in terms of BTU per hour (BTUH), required to properly operate a gas-burning appliance. The amount of natural gas needed to operate the appliance is determined by the BTU input rating. One standard cubic foot of natural gas will produce slightly over 1,000 BTUs in normal efficient combustion.

Cathodically Protected Piping – Underground coated steel piping that has cathodic protection applied to retard corrosion. The cathodic protection can be provided by the use of galvanic anodes, such as magnesium anodes.

Company – When used herein, refers to Louisville Gas and Electric Company (LG&E), *a wholly owned subsidiary of PPL Corporation.*

Company Service Line – Piping from LG&E's gas main to a point within one foot of the Customer's property line or easement line, adjacent to the main, for the purpose of supplying gas to the Customer's service line.

Corrosion Prevention – Measures taken to prevent corrosion and prolong the life of buried metallic piping, and aboveground piping exposed to weather or a corrosive environment.

CSST – Corrugated Stainless Steel Tubing. Gas house piping systems incorporating corrugated stainless steel tubing and custom designed fittings must be installed according to manufacturer's recommendations and all applicable codes and regulations.

CTS – Copper Tube Size. The size convention used to describe the size of polyethylene gas piping in terms of standard copper tubing. The actual outside diameter of CTS-sized tubing is one-eighth inch (0.125") larger than the nominal CTS.

Customer Contribution – The amount of money that the Customer must contribute to obtain natural gas service. A Customer contribution may be required when a pipeline must be either extended or tapped to provide service to the Customer.

Customer Service Line – Piping installed from LG&E's Company service connection (usually at the property line) to the inlet side of the gas meter. Effective January 1, 2013, LG&E is responsible for maintenance and installation of this piping.

Delivery Pressure – *See Operating Pressure.*

FT Customer – Firm Transport Customer; a Customer who purchases gas from a gas company (other than LG&E) and uses LG&E facilities to transport the gas to the Customer's service. Restrictions apply; contact an LG&E customer account representative for more information.

House Line (or House Piping) – Piping installed by the Customer from the outlet of the gas meter to all appliance and equipment connections. This definition includes piping installed underground or aboveground beyond the outlet of the meter. The Customer is responsible for maintenance of the house line piping.

Ignition Source – Any equipment, meter, wire junction, communications equipment, or other object that creates or may create a spark or flame. Rigid conduit without pull boxes or splices is not considered an ignition source. Cable and Telecom service boxes are considered ignition sources as these lines may carry current.

Interruption of Service – Disconnection or discontinuation of fuel gas to the point of delivery which includes planned and unplanned depressurization of any house line piping. An interruption of service requires house line piping to be tested in accordance with Section 34.

IPS – Iron Pipe Size. The size convention used to describe the size of polyethylene gas pipe in terms of nominal steel pipe of the same outside diameter.

Listed – Material and equipment certified to meet the quality and performance standards specified by a nationally recognized testing laboratory or quality assurance organization.

Low, Elevated, Medium, and High Pressure – LG&E's classifications of operating pressures in the gas mains throughout its gas system are as follows:

a. Low Pressure – The system operating pressure is essentially the same as the standard delivery pressure delivered to each Customer’s meter and house line (i.e., 4 ounces per square inch, 7 inches W.C. or 0.25 psig).

b. Elevated Pressure – LG&E’s elevated pressure systems operate at 2.0 psig at their sources of gas supply. A pressure regulator is required upstream of each Customer’s meter to maintain a constant standard delivery pressure (i.e., 4 ounces per square inch, 7 inches W.C. or 0.25 psig).

c. Medium Pressure – LG&E’s medium pressure systems operate at pressures higher than 2.0 psig up to 60 psig. LG&E has several medium pressure systems operating at different pressures. A pressure regulator is required upstream of each Customer’s meter to maintain a constant delivery pressure that is normally the standard 0.25 psig. Higher delivery pressure can be delivered to the Customer if necessary, limited by the characteristics and operating restraints for the particular medium pressure system.

d. High Pressure – LG&E’s designation for high pressure includes any gas transmission system or distribution system that is subject to operation at over 60 psig. Pressure regulation equipment is typically required both at the property line and upstream of each Customer’s meter to maintain a constant delivery pressure which may be the standard 0.25 psig or higher if necessary.

Main – In general terms, the Main refers to the Gas system piping located in a public highway, street, alley, or private easement that is used by LG&E to distribute gas.

Manifold – In general terms, this refers to the above ground service piping that carries gas from the service riser to multiple meter loops at the same location.

Meter Loop – Piping to accommodate the installation of the gas meter(s). The meter loop includes all piping, valves, and fittings from the service riser (including the service valve) to the final elbow, union, or other connection as illustrated by the meter loop drawings associated with this book.

NPS – Nominal Pipe Size. The size convention used to describe the size of steel pipe.

Operating Pressure (Delivery Pressure for House Line) – The maximum pressure delivered to the Customer through the meter.

PSIG – Pounds per Square Inch Gauge. A standard unit of measurement for describing the pressure of a gas or a liquid.

Riser - A gas service riser is a piping component that protects plastic service pipe as it transitions from below ground to above ground and from plastic to steel just upstream of the Customer meter loop. Please also reference Service Head Adapter.

SDR – Standard Dimensional Ratio. A numerical term used to describe the wall thickness of polyethylene pipe. SDR is derived by dividing the actual outside diameter of the pipe by the wall thickness and is an indication of the strength of the pipe.

Service Head Adapter – A transition fitting that adapts polyethylene gas pipe to steel pipe, in a manner in which the polyethylene pipe is shielded against damage from physical force and solar radiation, with all pressure containing metallic components located aboveground. Please also reference Riser.

Standard Delivery Pressure – The gas pressure normally delivered to residential and small commercial Customers, which is approximately four ounces (4 ounces per square inch, 7 inches W.C. or 0.25 psig).

Tamperproof Gas Valve – A gas valve in which the core cannot be easily removed, either accidentally or intentionally, with ordinary hand tools. Tamperproof valves include a stem locking mechanism.

Total Connected Load – The total heat input in BTUH for all gas-burning appliances and equipment installed.

W.C. – Water column pressure. A standard unit of measurement for describing the pressure that is expressed in terms of a water depth exerting an equivalent force. Typical gas pressure delivered to Customer's house piping is 7 inches W.C., which is approximately 0.25 psig or 4 ounces per square inch. The loss in gas pressure that results from gas flowing through a piping system is generally expressed in inches W.C. drop.

9 What Type of Customer am I Considered?

The Categories below are used by LG&E to reference gas load only. These categories are not necessarily indicative of type of establishment, building, or business. Refer the the LG&E Gas Tariff for details and rates for Customer types.

In all cases, confirm the availability of natural gas with LG&E in terms of the volume and pressures needed before purchasing and installing equipment

9.1 Residential

Residential customers include private residencies, single occupancy apartments, and/or common use areas of multi-purpose occupancy buildings. Typically, residential customers will have the following appliances:

- Traditional Hot Water Heater
- Natural Gas or Dual Fuel Furnace
- Natural Gas Stove / Oven
- Natural Gas Clothes Dryer
- Pool heater
- Natural gas fired emergency generator



9.2 Commercial

Commercial businesses typically include:

- Retail Stores
- Restaurants
- Office Buildings



9.3 Industrial

The customer in this category is a commercial or industrial customer with a natural gas demand of over 500,000 Btu/hr. Industrial customers typically include:

- Manufacturing facilities
- Large process businesses
- Distilleries



9.4 How do I determine My Total Connected Natural Gas Load?

9.4.1 General

Customers are responsible for ensuring the accuracy of gas load information provided to LG&E.

9.4.2 PREFERRED METHOD: Calculated Total Connected Load.

1. Compile a list of all gas-burning devices and their maximum gas consumption based upon the manufacturers' input BTUH ratings.
 - a. These ratings are typically found on equipment nameplates, model information stickers inside the equipment covers, or manufacturer's manuals.
2. Convert the input rating from BTUH to SCFH (standard cubic feet of gas per hour) by dividing the BTUH value by 1,000 (1 SCFH = 1,000 BTUH).
3. A list of approximate gas input ratings for typical appliances is located in Table A.5.3.2.1 of the NFPA 54-2021 *National Fuel Gas Code*.
4. Please use the Gas Load Data Sheet to help compute and tally total connected load and use types

9.4.3 ALTERNATE METHOD: Appliance Gas Consumption Test

1. To test the gas consumption and BTU input rate for a device, perform the following steps:
2. Turn off all appliances or devices not to be included in the test. For most accurate results, shut off their pilot lights.
3. Place the appliance to be tested into full operation.
4. Observe the test dial. Using a stopwatch or conventional watch, count the number of revolutions of the test hand that occur in one minute, or time the number of seconds required for one or more complete revolutions.
5. Calculate the flow rate of gas using the following formula:

$$Q = \frac{N \times F \times 3600}{t}$$

Q = Flow rate of gas in cubic feet per hour (CFH)

N = Number of revolutions of the test hand

F = Volume in cubic feet for one turn of the test hand. (Most residential meters have a 1/2 cubic foot test dial.)

t = Measured time in seconds

6. NOTE: If the gas is being delivered at a pressure other than the standard pressure (i.e., 4 ounces per square inch), a multiplier must be applied. For assistance, consult the Gas Load Designer/Locator (see Section 3.3) in your area.
7. To determine the BTUH input for the device being tested, multiply the flow rate calculated above by one thousand (1,000). While this value is an approximation, it is a conservative

- value because the BTU content for the natural gas delivered by LG&E is guaranteed to be a minimum of 1,000 BTU per standard cubic foot. Normally, the BTU content is slightly higher.
8. Upon completion of the test, return other appliances to normal operation.

10 What do I need to do if my Gas Load or Nature of Service Changes?

10.1 General

The service pipes, meters, and appurtenances supplied by LG&E for providing gas service to its Customers have a definite capacity.

In the event that the Customer contemplates any material change in the total connected load, whether in a single increment or over an extended period, the Customer shall immediately give LG&E written notice of this fact.

A Customer must notify LG&E in writing of plans to make significant changes or modifications to the amount or nature of the natural gas load supplied by the existing meter (i.e. addition or removal of an appliance, change from process to heat load or vice versa).

This notification is not required when appliances are replaced with like kind or when there is not a significant change in the total connected load that would affect the type of meter or size of service equipment selected to serve the Customer.

Customers who change their load may or may not be responsible for costs associated with LG&E updating its gas facilities (including the Company & Customer service, meter loop, manifold, etc.) to accommodate those changes in gas load.

10.2 Written Notification of Load Changes

Notification should be given to the Gas Designer/Locator (see Section 3.3) via completion of the *Gas Load Data Sheet* with the load modifications and/or revisions indicated. The *Gas Load Data Sheet* is found in Section 39 Drawings and Customer Forms. Contact information for the Gas Designer/Locator can be found in section 3.3.

Please attach a cover letter that briefly describes the change.

LG&E requires this notification to determine the adequacy of the existing utility facilities and to determine if Company and or Customer facility modifications are necessary to supply the change in gas load.

LG&E will determine if the Customer will be responsible for any portions of the costs that will be incurred by LG&E to accommodate the change in gas load.

This notification requirement includes but is not limited to an increase or reduction in gas process load, an increase or reduction in gas heating load, and/or changes in fuel supply type to equipment (i.e. conversion of equipment from natural gas to propane/fuel oil or vice versa).

This notification expires one (1) year from the date of the last correspondence from the Customer/Contractor to LG&E. After one year has elapsed without communication from the Customer, the Customer must resubmit the notification with a new *Gas Load Data Sheet*. A lack of communication by the Customer/Contractor may lead to delays in Company installation.

10.3 Liability for Changes in Nature of Service

If the Customer fails to notify LG&E of any planned or intended changes in load or nature of the service and exceeds the capabilities of the installed Company service or metering facilities (either by excess use or insufficient load) the Customer may be liable for damages to LG&E and its facilities.

This includes but is not limited to notification of the addition of emergency use natural gas-burning equipment such as gas fired electric generators.

10.4 Responsibilities

LG&E will be responsible for the isolation of the service line from the meter (typically the operation of a curb valve or squeeze off of a service line).

If the meter needs to be relocated, the Customer is responsible for opening the ditch line to the new meter location and providing a minimum excavation of 2'x 4' with the service line exposed at the point of connection. The Customer is responsible for the site safety of these excavations (i.e. barricading). The Customer is also responsible for backfilling to grade and final restoration of these excavations. Consult with the Gas Designer/Locator (see Section 3.3) to meet onsite about specifics associated with your job.

11 Who is Responsible for the Maintenance and Installation of Gas Facilities on my Property?

11.1 General

Effective January 1, 2013, LG&E is responsible for the installation, maintenance, repair, and replacement of all gas service lines, meter loops, meters, regulators, risers and other associated piping up to the outlet of the gas meter. This is included in the gas rates LG&E Customers pay.

All gas Customer services under 100 feet in length and gas meter loops will be replaced or installed once by LG&E without a charge to the Customer. This does not mean that each Customer is entitled to a new service installation at no charge. Refer to Customer Responsibility of Service Installation (section 19).

11.2 Buildings without prior Gas Service

LG&E will install a new Customer service line, **at no charge** to the Customer for a new account (without prior gas service to the building) if the service line is **less than 100 feet from the property line** to the meter location.

New Customers (without prior gas service to the building) **may be charged for any portion of the service line that exceeds 100 feet**. Certain other conditions may apply to new service; the Gas Designer/Locator (see Section 3.3) will be able to detail any costs that may apply.

11.3 Buildings with prior or existing Gas Service

In general, existing Customers (with prior gas service to the building) will receive a replacement service to accommodate a Customer initiated project at no charge.

Leaking or failed service lines will be repaired or replaced at no charge.

With LG&E making the repairs or replacing the natural gas service, the Customer is assured work will be performed safely, efficiently, and by qualified personnel.

Previously existing gas service that has been disconnected due to a house fire and/or notification of demolition is considered abandoned by LG&E. In these cases, the abandoned service line will not be reused and a new service will need to be installed.

12 Who installs the Service to my Property

With LG&E installing the new service or replacing the existing service, the Customer is assured work will be performed safely, efficiently, and by qualified personnel.

13 Who Repairs a Broken or Damaged Service

LG&E performs all service line repairs or replacements. The decision to repair or replace a gas service line will be at LG&E's discretion.

13.1.1 Third-Party Damages

LG&E will replace OR repair the Customer- or LG&E-owned service line (at LG&E's discretion).

LG&E will charge the party responsible for damage (excavator, locating company, Customer, etc.).

14 What do I Need to do if My Service Requires Relocation

14.1 Planned Relocation

Planned relocations are relocations that are needed or requested due to property improvements, alterations, or conflicts with other work.

Please Contact Gas Designer/Locator (see section 3.3) first. LG&E will review the situation.

If the service was installed by LG&E after January 1, 2013, the cost of the relocation will typically be the responsibility of the Customer or property owner.

If the service was installed by a private party working for the Customer before January 1, 2013 (typically a plumber or mechanical contractor), the full or partial replacement will typically be the responsibility of LG&E.

14.2 Un-Planned or Un-informed Relocation

Unplanned relocations are relocations that must be completed immediately or scheduled quickly due to safety concerns or code violations. An example of this may be the discovery of a building, structure, or piece of industrial equipment (generator, boiler, etc.) over the service line.

Gas Service may be discontinued until the relocation can be scheduled. The cost of relocation will likely be the responsibility of the Customer.

15 How Do I get Natural Gas Service Turned On

15.1 Turn-Ons

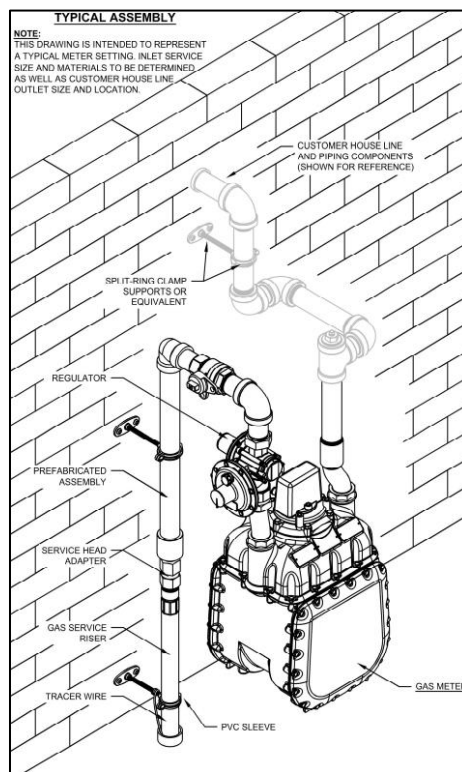
15.1.1 Do you have an existing gas meter?

The process for a turn-on for Customers with an existing gas meter is usually less involved than the process for Customers without an existing gas meter.

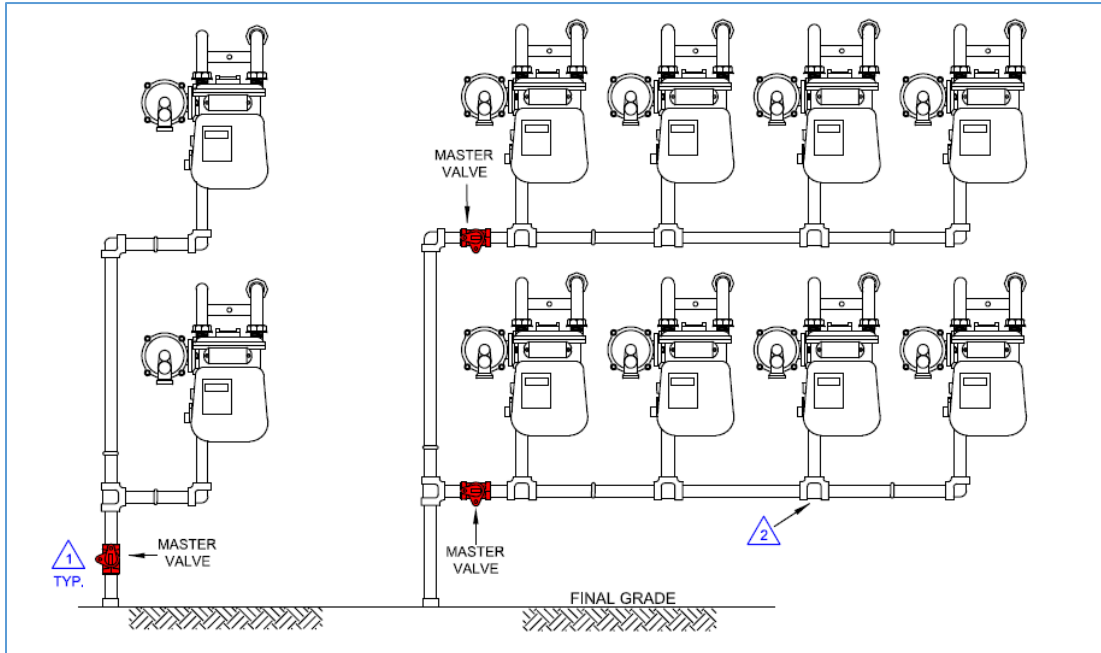
15.1.1.1 What does a gas meter look like?

A gas meter is typically above ground and outside of buildings. It can usually be distinguished from other utility meters by the steel piping in and out of the meter. When installed, LG&E meters are gray in color, but Customers may choose to paint the meter set other colors.

A typical non-commercial/residential Customer gas meter is shown below. A typical commercial gas meter may look similar (but larger) than a non-commercial meter.



A typical manifold gas meter is shown below.



15.2 Making the Call

If you have an existing meter and an active gas account you may just need to contact our Customer Service Line at 502-589-1444 (Outside Louisville, call 1-800-331-7370).

15.3 Someone must be home

For safety reasons, someone over the age of 18 years old, designated as the representative of the Customer, must be on-site for an LG&E representative to relight appliances.

Please note LG&E representative may not be able to relight any of your appliances if you are a commercial or industrial Customer.

15.4 There are Limitations on the Appliances the Company Can Relight

LG&E representatives are qualified to relight standard, residential type, gas appliances. Nonstandard and/or commercial and industrial appliances must be activated by a qualified technician of the Customers choosing (at the Customer's cost).

LG&E will not perform initial activation of new or newly installed appliances.

16 How Do I get Natural Gas Service Turned Off

Emergency and Non-Emergency turn-offs should be coordinated with **Gas Trouble (502-589-1444)**.

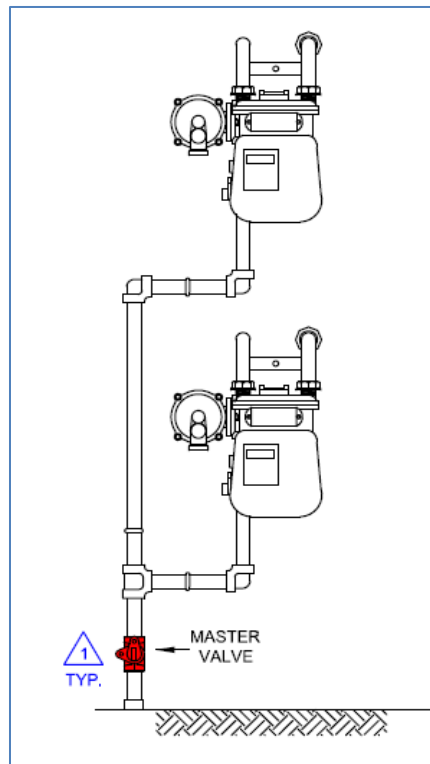
If you suspect a natural gas leak, such as smelling a gas odor, leave the area immediately and get to an area where you cannot smell gas. Then call 911 and LG&E at 502-589-1444 and press 1-1-1. Do not attempt to turn off the meter as that does not make the area safe. **Never report a gas leak by email.**

In the event of a life threatening or endangering emergency, customers and emergency responders may turn-off the service to the meter loop at the aboveground master valve or service valve.

For routine maintenance, house line additions, and other similar work, the meter must be turned off by LG&E.

Never attempt to open or close underground pipeline valves. Doing could cause dangerous pressure changes or outages in the system. Only qualified LG&E personnel are authorized to operate underground valves.

LG&E must be contacted to schedule meter turn on after any meter turn-off event.



17 I Don't Have a Natural Gas Meter: How do I get Natural Gas Service?

17.1 STEP 1: Determine your desired gas load

- Use 'Section 9: What Type of Customer am I Considered?' to help determine your natural gas load.

17.2 STEP 2: Apply for Natural Gas Service

- Please call 502-589-1444 or visit www.lge-ku.com to begin the natural gas service application process.
- Once you have applied for service we will verify natural gas is available and review the particulars of your natural gas load.
- After your application has been received, you will be contacted by a Gas Designer/Locator (see Section 3.3) who will lead you through the remainder of the process. Gas Designer/Locator will be your single point of contact with LG&E. Please contact the Gas Designer/Locator directly with any questions or concerns. See Section 3.3: Contact Information.

17.2.1 Customer options if natural gas is not available

- Request an estimated cost for a natural gas main extension
- Withdraw your application for service

17.3 STEP 3: Sign and Return any applicable Contracts

- After the initial contact from the Gas Designer/Locator (see Section 3.3), LG&E may be waiting on you to return signed contracts. If you are uncertain of the status, please call the Gas Designer/Locator.

17.4 STEP 4: Install 'Customer installed' facilities

17.4.1 Service casing

- Reference Section 23 for details on requirements for Customer installed sleeve/ conduit.

17.4.2 House Line Pipe

- Reference Sections 29 through 37 for details on requirements for this portion of 'Customer installed' facilities.

17.5 STEP 5: Contact LG&E for Inspection

- Contact the Gas Load Designer/Locator (section 3.3) to request an inspection of the 'Customer installed' facilities.

17.6 STEP 6: Wait for KY 811 Locates and Construction Crew

- You will be contacted by LG&E to inform you of the date and time window for the 'company installed' facility installation and inspection/testing of the 'Customer installed' facilities.

Gas service can be activated once the 'Customer installed' facilities pass inspection/testing.

There may be limitations on the types of appliances that LG&E representatives can relight. Reference section 15.4 for details.

18 I Have an Existing Gas Meter on My Property or Building, How do I Get Service Activated?

18.1 Apply for Natural Gas Service

Please call 502-589-1444 or visit www.lge-ku.com to activate your service.

19 What are the Customer Responsibilities?

19.1 Install House Line and Appliances

Customer is responsible for maintenance and installation of all piping and appliances downstream of the gas meter.

Reference Sections 29 through 36 for additional House Line Requirements.

19.2 Install Service Conduit or Trench

19.2.1 Services smaller than 2 inches: Service Conduit Required

For new services smaller than 2 inches in diameter, a conduit is required. The Customer is responsible for installation of conduit and conduit terminations in accordance with this book.

Reference Section 23: Customer Installed Conduit Specifications.

19.2.1.1 Services 2 inches and Larger: Trench Required

For new services 2 inches and larger in diameter a trench is required. The Customer is responsible for excavation of trench in accordance with this Handbook.

With approval from the Gas Designer/Locator (see Section 3.3), LG&E may allow conduits to be installed by the Customer for services 2 inches and larger in diameter.

Reference Section 22: Customer Supplied Trench Specifications.

19.3 Mark Final Grade of Land at Riser Location/Meter Set

The Customer is responsible for indicating the level of final grade (of landscaping, hardscape, concrete, etc.) in the area that the riser will be located. This level is used to adjust the height and placement of the service riser.

19.4 Backfill and Protect the Service Riser

Customer is responsible for backfilling and final restoration of all areas needed to install the gas service. Customer is also responsible for ensuring that any gas service riser that passes through hard pavement or concrete is protected from damage by a conduit or sleeve.

20 What are the Restrictions on Gas Services?

20.1 Service Line Location within Property or Right-of-Way

Each Customer gas service line must be located within the property being served, recorded easement, or common space in which the rights to install, maintain, and operate the service line have been legally granted.

A minimum of one foot (1') horizontal distance should be maintained between the gas service line and the edge of the property line. Note: This applies when the gas service line and the property line are parallel to each other.

20.2 Services Underneath Buildings or Other Structures or Equipment

New or replacement gas service lines shall not be routed under buildings, structures, or large equipment.

Buildings or other major structures, such as in-ground swimming pools, large industrial process machinery, generator yards, commercial HVAC equipment etc., shall not be constructed or placed over existing service lines.

If special conditions exist, in the sole judgment of LG&E, the service line may be installed under a building or structure. However, the service line must extend to a normally accessible part of the building and be encased in a gas tight conduit. The conduit must be vented to open air outside of the building where vented gas would not be a hazard. The vent must be terminated with a rain and insect resistant fitting.

The Gas Designer/Locator (see Section 3.3) in your area must be consulted for specific requirements and written approval by an LG&E gas representative must be obtained prior to any construction over a service line.

20.3 Number of Service Lines per Building or Property

20.3.1 Single Family Dwellings

Lots that are zoned for single family dwellings shall be entitled to one gas service line per lot provided the Customer has installed a major gas appliance. Single-family dwellings include homes, manufactured homes, etc.

20.3.2 Separate Buildings on One Parcel

Each building containing one or more complete residential dwelling or commercial business units located within a single parcel of land may be entitled to one service line.

This entitlement does not apply to garages, storage sheds, or other outbuildings that serve as satellites to the principal units served.

Individual units that share a common wall or are otherwise connected are to be considered collectively as one building.

LG&E reserves the right to limit the number of service lines within a single parcel of property when necessary to ensure safe operation or when separate buildings can be properly served from a single meter location.

20.3.3 Common Building on Separately Deeded Parcels

Each common building structure that contains units on separately deeded land parcels is generally entitled to a single service line per building. In the event the common building contains nine or more units, a second service line may be provided at LG&E's discretion. The second service will be located at the opposite end of the building as the first service.

It is the Customer's responsibility to ensure easements or common ground is established through which the right to install, operate, and maintain the service line is legally granted.

20.3.4 Entitlements and Restrictions

The entitlements and restrictions stated above are based upon typical residential and small commercial installations. The number of service lines allowed for large lots, industrialized farmland, industrial property, large freestanding gas appliances, etc., will be determined by the Gas Load Designer/Locator (see Section 3.3) in your area based upon the merits of each request.

21 Service Size - What Size Service will LG&E Install?

The LG&E Gas Load Designer/Locator (see Section 3.3) will have final sizing authority on gas services, and should be consulted before any plans are made or material is purchased. In general, LG&E will install the minimum service size that will satisfy the load listed on the Load Data Sheet.

Note: For new gas service lines requiring a rotary meter(s) the minimum service line size is 2-inch NPS.

22 Customer Supplied Trench Specifications

22.1 General

LG&E will determine the shortest and/or the most practical route for the Company service to be installed. The Customer supplied trench must be routed to the location of the company service.

The Gas Designer/Locator (see Section 3.3) must be consulted on, and agree to, the trench route.

22.2 Safety

The Customer/property owner or representatives of these parties shall be responsible for maintaining site safety and integrity of the open trench until LG&E begins the installation of the gas service

Rocks and excavation spoils shall be moved away from the trench back so as not to present a danger to the structure of the trench or to persons who may be working inside the trench installing the service. LG&E and its representatives shall have final authority on minimum safe distance for spoil piles from trench banks. A minimum of 2 feet spoil/bank separation will be required in all circumstances.

22.3 Routing

It is the Customer's responsibility to ensure easements or common ground is established through which the right to install, operate, and maintain the service line is legally granted.

22.4 Trench Dimensions

22.4.1 Trench Depth

Trench depth shall be sufficient to permit 18 inch depth to top of the pipe minimum and 36 inches to top of pipe maximum from final grade. Service depth requirements may be adjusted by LG&E to ensure service is protected from damage. These depths do not account for trench

foundation/embedment requirements; these requirements shall be considered by the (Competent Person) excavator when excavating the trench.

Special care must be exercised to assure that all soil in contact with the gas pipe is free from foreign materials, including rocks, bricks, nails, building materials, etc. that may damage the pipe surface.

The trench bottom for gas service lines installed by direct burial must be smooth and free of abrupt changes in elevation.

The soil in the trench bottom must be free of sharp rock or foreign material that may damage the pipe.

22.4.2 Trench Width

The following minimum trench widths are required in stable soils based upon the size of service required to serve the gas load. Loose soils or manufactured fill may require greater widths for structural stability. The widths below reference the clear dimensions at the bottom of the trench.

- 2" nominal diameter or smaller Service Pipe = 12 inch trench width minimum
- 4" nominal diameter Service Pipe = 24 inch trench width minimum
- 6" nominal diameter Service Pipe = 24 inch trench width minimum
- 8" nominal diameter Service Pipe = 24 inch trench width minimum

22.4.3 Trench Bed Foundation/Embedment

A 6" inch layer of approved backfill material shall be placed on the bottom of the trench bed. The depth of the foundation/embedment shall not reduce the minimum trench depth clearances required.

22.5 Backfill and Final Restoration

LG&E will backfill to cover pipe with 12 inches of fill and install warning tape for Customer-supplied trench installation.

Customer is responsible for remaining final backfill, landscaping, topsoil, and hard surface restoration.

Customer is responsible for providing proper backfill material (Reference section 22.5.1).

Customer is responsible for notifying LG&E to protect the gas service riser with conduit or casing if it passes through concrete, asphalt, or hardscape.

Consult with Gas Design for additional specifics for your particular case.

22.5.1 Backfill Material

Sand, manufactured sand, and sifted (clean of debris) soil are acceptable backfill material.

Backfill materials must be free of contaminants and foreign materials, which could cause a negative environmental impact or otherwise damage the service line.

Approved backfill shall extend a minimum of 12 inches above the gas pipe.

In general, flowable fill, concrete, or #57 stone are NOT permitted as backfill.

23 Customer Installed Conduit (Casing) Specifications

23.1 General

LG&E will determine the shortest and/or the most practical route for the Company service to be routed. Gas service casings, sleeves, or conduits shall not branch. Gas service casings, sleeves, or conduits shall not contain elbows, reducers, or fittings not necessary for joining the casing. The Customer is responsible for final backfill, see Section 22.5.

23.2 Installation Using Trenchless Technology

Trenchless technologies include horizontal directional drilling, punching and plowing operations. In the installation of gas conduit (casing) by trenchless technology, unknown subsurface facilities present a degree of uncertainty and the associated risk of operational problems occurring due to this uncertainty. The risk of damaging a sewer and/or septic facility can be mitigated with a subsurface survey inspection program. Conduit installed by trenchless technology should be at least 3" in diameter.

The installer shall ensure that all work necessary to identify the presence and/or location of sewer and septic facilities has been performed. Identification and inspection of sewer and septic facilities includes but is not limited to:

- Basement/Crawlspace access for sewer lateral location identification;
- Sewer lateral inspection and location using a beacon;
- Sewer lateral camera inspection.

23.3 Utility Easement Crossings

Service conduits that cross other utilities (such as rail roads or oil transmission pipelines) may be required to meet minimum specifications required by that utility. When unique crossings exist, and

are unavoidable, consult the Gas Designer/Locator (see Section 3.3). In these cases, the site specific design will take precedence over the guidelines below.

It is the responsibility of the Customer to obtain, maintain, and record (on a deed/plat) any easements necessary for installation of the gas service. It is the Customer's responsibility to ensure easements or common ground is established through which the right to install, operate, and maintain the service line is legally granted.

It is the responsibility of the Customer to coordinate any and all construction activities encroaching on other utility easements with the easement holder.

23.4 Insertion: Use of Existing Gas Service as Conduit

LG&E may opt to reline or insert a new service through an old service for Customers with an established gas account and existing service. Abandoned services cannot be reactivated, unless approved by LG&E on case-by-case basis.

Existing steel service lines may be renewed by insertion with a smaller size polyethylene service line, if the reduced size will carry sufficient capacity to meet present and anticipated future demand, and provided that the length, load, and pressure restrictions are met.

The existing service line must meet minimum depth requirements and may not pass under buildings or go through other prohibited locations. Refer to Service Line Location Requirements section within this handbook.

23.5 Conduit Material and Construction

Gas service casings, sleeves, or conduits shall be one continuous piece, or shall be glued (solvent welded) or otherwise chemically bonded – per manufacturer's guidelines - such that conduit is water tight.

Corrugated drain tiles made of thin wall HDPE are not acceptable.

The conduit must be labeled by the manufacturer for direct earth burial and/or concrete encasement.

Bell end of conduit pipe should face street line for ease of service installation.

23.5.1 PVC

3" Conduit shall be minimum Schedule 40 PVC, NEMA TC-8. These materials are limited to services that do not cross other easements or right of ways.

ASTM designation D1785 or dual rated D1785/D2665 solvent welded pipe(46 psi/sq. in is standard strength PVC)

23.5.2 HDPE

HDPE used to fulfill these requirements should meet LG&E specifications. Consult the Gas Designer/Locator (see Section 3.3) for more information.

23.6 Conduit Installation Depth

18 inches minimum, 36 inches maximum to the top of the conduit.

23.7 Warning Tape

Shall be supplied by and installed by the Customer 6 inches above conduit Warning tape shall be yellow and marked with "CAUTION" or "WARNING". Do not wrap warning tape around conduit or pipe.

23.8 Tracer wire

Will be supplied and installed by LG&E during service installation. Do not wrap tracer wire around conduit or pipe.

23.9 Minimum Conduit Size

Service Size	Minimum Conduit Size	Maximum Distance between Run Connection Boxes
Up to 1 inch	3 inch	200 feet
1-1/4 inch	3 inch	
2 inch	6 inch	
4 inch	8 inch	
6 inch	12 inch	
8 inch	12 inch	

23.10 Pull Rope Required

Customer supplied pull rope must be installed inside conduit for service lines:

A 100 PSI (minimum) pull strength is required. Ends of the pull rope should be able to be extended 10 feet on either end of the conduit.

23.11 Casing Bends/Minimum Radius/ Maximum Deflection

Customer is responsible for installing a casing pipe sufficient to allow the installation of the gas service by LG&E.

If bends are required in the conduit, HDPE/MDPE coiled pipe is the preferred conduit material.

If pipe will not pull through conduit, it is the responsibility of the Customer to correct the issue.

23.11.1 Deflection

Casing shall not be installed or backfilled such that it is subjected to permanent ring deflection.

23.12 Run Connection Box Details

Straight, continuous conduits runs are required wherever possible. For services longer than 200 feet, a box or hole must be left open to pull the service pipe through the conduit at least every 200 feet. The box or hole must be a minimum of 3 feet by 3 feet by 6 inches below the existing facility or Customer installed conduit.

For conduit runs that require offsets (vertical or horizontal) to cross or route around an obstacle, easement, or other utility, consult with the Gas Load Designer/Locator (see Section 3.3) for specific requirements.

23.13 Ends Sealed and Labeled

Conduit must be sealed to prohibit water and dirt/debris intrusion before LG&E installs service. Ends must be sealed with rubber line caps or other similar mechanical sealing means that are readily removable (i.e. not glued). The caps need to be removed to verify conduit depth.

Labels must be placed on ends of conduit and marked GAS to prevent unauthorized use by other utilities.

23.14 Terminate the Ends of the Conduit Above Ground

To aid in identification of conduit termination location, the ends of the gas conduit shall terminate above ground, at least 18-inches above grade. Customers will be required to maintain the above ground termination until the gas service can be installed. Conduit must terminate within 10 inches of the building and a maximum of 3 feet from the termination of the houseline. Customer is responsible for removing any obstruction that prohibits the installation of the riser.

The portions of the conduit that extend above grade will be removed by the Company unless deemed necessary to protect the service line from damage.

23.15 Parking Lots, Sidewalk, and Driveways

The casing, sleeve, or conduit should extend past the paved area with sufficient clearance to insert the gas service and set the service riser. Gas casings, sleeves, or conduits must be clear of dirt, rock, and debris before inserting a gas carrier pipe.

23.16 Creek Crossings and Drainage Ditches

Gas services crossing creeks and drainage ditches must be installed with a casing, sleeve, or conduit. Gas services crossing creeks or drainage ditches must be adequately protected against damage that may result from erosion or dredging.

For creeks and ditches in which water is normally present or flowing, the service line must be encased in a High density plastic pipe (HDPE) or steel pipe or otherwise protected in accordance with a method acceptable and approved by LG&E.

The encasement must be visually inspected by an LG&E representative.

24 Meter Specifications

24.1 Meter Location Hazards

24.1.1 General

If the clearances described below cannot be attained, a deviation may be requested from the area Gas Operations Center. If a deviation is approved in writing by LG&E, the following criteria apply:

- The regulator vent and relief valve (overpressure protection) outlet piping (if applicable) must be piped to a location that meets the separation requirements listed above.
- Additional separation may be required for large volume pressure regulators with built-in internal relief devices.

24.1.2 Ignition Sources

Meter loop must have a minimum of 3'-0" clearance from the nearest meter loop part to any possible ignition source. In addition, the gas meter shall maintain 3'-0" horizontal clearance from electric meter installations regardless of the electric meter vertical mounting height. All service and meter loop locations are subject to LG&E approval. Additional clearance may be required for large volume pressure regulators with built in relief devices. Possible ignition sources include but are not limited to:

- Electric meter and meter pan
- Electric circuit breakers
- Electric receptacles
- Junction boxes
- Cable and telephone boxes
- Lights
- Electric transformers
- Emergency generators
- Air conditioning units
- Outdoor fire pits
- Electric grounding rods and cable
- Dryer Vents

Refer to Figure 4 , *Meter Loop Acceptable Locations – Ignition Source Restrictions*, located at the end of this book.

24.1.3 Air Intakes/ Vents

No vents or air intakes may be located within one foot of the service riser and an 18-inch radius as measured from the highest bend or elbow of the service side of the meter loop. All service and meter loop locations are subject to LG&E approval.

Additional clearance may be required for large volume pressure regulators with built in relief devices (Commercial and Industrial Customers). Refer to Figure 3 , *Meter Loop Acceptable Locations – Air Intake/Vent Restrictions*

24.2 Acceptable Meter Locations

24.2.1 General

Gas meters shall be located outside unless approved by the area Gas Designer/Locator (see Section 3.3) and Gas Operational Supervisor.

Gas meters shall be located in ventilated spaces readily accessible for examination, reading, replacement, or necessary maintenance.

Gas meters shall not block normal passage on sidewalks or block ingress or egress through doors or emergency exits.

Gas meters shall not be placed in locations where they will be exposed to excessive dirt or corrosive materials from manufacturing processes, or beneath condensate drains or roof drains.

Gas meters must not be in contact with soil or standing water.

Gas meters must not be located in a drive way or areas of vehicular traffic unless protected by barricades. Refer to Meter Loop Protection requirements.

Construction shall not occur around, over, or under any existing meter loop that creates a conflict with the requirements, policies and guidelines outlined in this handbook

24.2.2 Commercial/Industrial Gas Service (> 500,000 BTUH) Additional Requirements

The location of meters shall allow for a medium-sized commercial truck to park within a few feet of the meter loop and not disrupt normal traffic flow or emergency egress. This requirement will allow LG&E SR&O trucks to access the meter loop during testing and maintenance.

Customer is responsible for maintaining this egress.

Larger commercial customers, who qualify for special rates as outlined in the tariff, may be required to have space available for other power and communication equipment. Such equipment

will be supplied and maintained by LG&E with electrical power and communication lines supplied and installed by the Customer.

24.2.3 Existing Installations

When it is necessary, in the sole judgment of LG&E, to relocate a gas meter currently located inside a building for a replacement service line, the area Gas Operations Center should be consulted for specific installation requirements.

Replacement gas meters located inside buildings or under roofs may require additional regulator/relief valve vent piping and may have specific requirements for installation not covered in this handbook.

24.2.4 Multiple Meter Locations

Multiple meters should be served from a common manifold, and should be located at a common location near a building.

The meter manifold location should be adjacent to the building nearest the gas main, unless the meters are located at the property line.

24.2.5 Meter Loop Protection

Installation of traffic bollards to protect the Meter Loop from vehicular traffic is the responsibility of LG&E. Commercial (non-residential) freestanding meter loops or meters not attached to a building or structure must be protected by barricades and fencing. Single meters, serving residential customers, are the exception to the fencing requirement.

Installation of standard chain link (or other industrial type, non-decorative) fencing around the meter loop, when required by LG&E to protect the facilities from damage or theft, is the responsibility of LG&E.

Protection of the meter loop from vegetation (vegetation management), rodent, and insect infestation is the responsibility of the Customer. Failure of the Customer to maintain a safe operating environment may result in a termination of the gas service until the unsafe situation is resolved.

Construction shall not occur around, over, or under an existing meter loop that creates a conflict with the requirements policies and guideline outlined in this handbook.

24.2.5.1 Barricades

Gas meters located within three feet (3') of vehicular traffic must be protected by barricades.

Where barricades in front of the meter are more than 24 inches from the building, or the meter loop is located on a corner of the building and is exposed to traffic, additional bollards shall be placed to protect the side(s) of the meter loop.

Meters located farther than three feet (3') from driveways serving commercial or industrial operations require barricades if subject to contact by trucks, forklifts, or other mobile equipment. Barricades will be constructed of structural steel tubing, steel beams, or steel piping, anchored at least 24 inches into the ground.

If, in LG&E's judgment, an unusually high risk of vehicular damage exists or past evidence of vehicular damage exists, LG&E will install a barricade system.

High visibility PVC jacket "bumper" covers are recommended in areas near parking lots and loading/unloading zones.

24.2.5.2 Fence Enclosures

Meter loops must be protected from vandalism and theft. All enclosures must be approved by LG&E on a case by case basis.

LG&E must have full (24 hour /7 days a week) access to the metering facility. The locks must be either a double- lock arrangement or another acceptable method to allow access by LG&E and the Customer with separate locks.

24.3 Meter Accessibility

24.3.1 Clearances & Vegetation

Sufficient space must be available to permit safe working conditions for LG&E personnel performing maintenance to the meter and service regulator.

Generally, a clear, open area with a radius of three feet (3') should be maintained in front of the meter to allow sufficient room for meter loop maintenance. This general radius shall include clearances from vertical growth vegetation. Commercial meter sets (large diaphragm and rotary meters) may require more clearances to facilitate maintenance and operations of the facility.

24.3.2 Height

Gas meters shall not be installed under decks, in crawl spaces, or in other areas with less than six feet (6') of headroom.

The height from the grade to the bottom of the elbows entering the meter should be between 36 to 48 inches as shown in the appropriate meter loop drawing. The height restriction for manifold

meter arrangements differs slightly, requiring 40-48 inches from the grade to the bottom of the elbows entering the meter. An exception may be made to clear expected high water elevation in areas prone to flood; these exceptions must be approved by LG&E and have accommodations to allow the same vehicular and personnel access as described in other sections of this handbook.

24.3.3 Concealment

Meter areas must be open to the outdoors unless otherwise approved by LG&E.

Meter loops must not be surrounded by more than three (3) walls.

Gas meters must not be enclosed by decks, sunroofs, overhangs, etc.

Meters must not be located behind fences or other barriers that only the Customer can lock and unlock. Refer to requirements under Meter Protection.

24.3.3.1 Commercial/Industrial Gas Service ($\geq 500,000$ BTUH) Additional Requirements

A commercial/industrial meter loop shall be visible from a publicly accessible area, such as a road, alley, or parking lot unless otherwise approved by LG&E.

Concrete pads required for rotary meter installations will be supplied by LG&E (see section 25).

24.4 Meter Rooms (Commercial/Industrial Only)

24.4.1 General

In general, meter rooms are not permitted.

Where specifically permitted or required by LG&E, the Customer shall provide a designated room to house the LG&E gas metering equipment.

No other material may be stored in the meter room.

The meter room must be well lit, with either natural lighting or an artificial equivalent.

24.4.2 Meter Room Accessibility

Meter loops within meter rooms must be accessible at all times to LG&E via the outdoor or areas that are accessible to the general public.

The meter room must be locked with either a double lock arrangement or another acceptable method to allow access by LG&E and the Customer using separate locks.

24.4.3 Meter Room Ignition Sources

Ignition sources are strictly prohibited in meter rooms.

Ignition sources include, but are not limited to, the following:

- Electric meters not rated for Class 1 Division 2 area.
- Lighting sources not rated for Class 1 Division 2 area.
- Electric outlets not rated for Class 1 Division 2 area.
- Open flame heaters.

24.4.4 Meter Room Venting

The meter room must be naturally vented to the outdoors as prescribed in the International Mechanical Code or other applicable design standard.

Operable windows shall not be considered as part of the natural vent area.

All regulation and overpressure protection equipment shall have rigid vent piping and terminate outdoors.

24.5 Meter Loop Regulator Venting

24.5.1 General

In cases where it is not possible to locate the meter outdoors, the service regulator and overpressure protection devices (e.g. relief valves) shall be located outdoors.

Indoor service regulators are prohibited on new installations.

On existing installations, where regulators cannot be located outdoors, indoor regulators must be vented to the outdoors.

Venting of the service regulator will be performed by LG&E.

24.5.2 Meter Loop Regulator Vent Material Specifications

All regulator vent piping must be made of rigid metallic tubing that complies with NFPA 54 2021 Section 5.5 Acceptable Piping Materials and Joining Methods.

CSST is prohibited as regulator vent piping. The roughness of the interior wall of the CSST pipe reduces the effective flow capacity of the pipe in many relief situations.

24.5.3 Meter Loop Regulator Vent Sizing

The size of the vent should be adequate to allow the full relief of the regulator or overpressure protection device in the event of a failure.

Vent must be at least as large as the regulator vent or over-pressure protection device opening.

24.5.4 Meter Loop Regulator Vent Maximum Length

For tubing runs over nine feet (9') in length, consult the LG&E Gas Operation Center in your area or the Gas Load Designer/Locator (see Section 3.3), as applicable, in your area for design criteria.

Customers must have approval from LG&E before installing vent tubing to help verify the vent solution is viable. LG&E is not responsible for sizing or designing the vent solution.

The entire vent line should be designed in accordance with all regulator manufacturer recommendations.

25 Meter Loop Support

Please note - LG&E must anchor the meter loop and associated equipment to structure or to approved structural supports. The Customer is responsible for providing structure or structural supports capable of supporting the weight of the gas facilities needed.

For freestanding, non-rigid, and pole barn style buildings, the Customer is responsible for providing sufficient backing to attach the gas facility to the building at the expense of the Customer. Bracing inside sheet metal buildings must be marked by the Customer.

Residential Customers will typically need to have anchors installed by LG&E into or through the exterior façade of the building into structural supports. LG&E will furnish concrete pads or structural concrete supports capable of supporting the equipment without failing.

26 Meter Capacity

To ensure proper operation, each gas meter must be the proper size and type for the maximum gas demand and required pressure.

The maximum gas demand is determined by adding the BTU input ratings of all gas-burning devices that may possibly be operated simultaneously. LG&E will determine the meter size based on the Gas Load Data Sheet.

Furnaces, space heaters, water heaters, boilers, pool heaters, fireplace logs, gas lights, gas clothes dryers, and gas generators should be included at their maximum input ratings.

26.1 Diverse Load Requiring Multiple Meters

At the discretion of LG&E, Customers with variable loads, such as process and heating that differ by an order of magnitude, may require multiple meters for the same building, serving the same Customer. This requirement will typically force Customers to have separate, distinguishable, runs of house line.

27 Meter Loop Delivery Temperature

The gas delivery temperature shall be assumed to be as stated in the Gas Tariff applicable to the Customer.

LG&E reserves the right, for billing purposes, to correct as necessary for the actual temperature of gas supplied through the meter.

28 Delivery Pressures

28.1 General

Only LG&E representatives are authorized to make adjustments on the meter loop pressure regulation equipment.

Unauthorized adjustment of meter loop pressure regulation equipment may result in civil or criminal action against the Customer, or a discontinuation of service.

28.2 Standard Delivery Pressure

Standard delivery pressure for commercial and residential services is 7 inches W.C. (4 ounces per square inch or 0.25 psig) to the meter.

Please note: depending on the flow through the meter and exact configuration of the meter loop, it is unlikely that 7 inches of W.C. will be available downstream of the meter. LG&E recommends that Customers anticipate a pressure range of approximately 5 to 7 inches of W.C. downstream of the meter.

Equipment with a minimum starting pressure of 7 inches of W.C should not be used on a Standard Delivery pressure house line.

28.3 Delivery Pressure Higher than Standard Delivery Pressure – “High Pressure Delivery”

The Gas Load Designer/Locator (see Section 3.3) or Gas Operations Supervisor must review and approve all requests for high pressure delivery (i.e. higher than standard delivery pressure).

If necessary (i.e. due to equipment fuel gas requirements, process loads, or other design requirements), LG&E may approve and supply a Customer with higher than standard delivery pressure.

Higher than standard delivery pressures or “high pressure” deliveries are limited by the characteristics and operating restraints of the particular main supplying gas to the service.

Customers served by elevated or low-pressure gas mains are limited by the operating characteristics of the main. Requests for higher than standard delivery pressure on these systems will be denied. LG&E can only provide a standard delivery pressure to the inlet of the meter to these Customers.

28.3.1 Operational Need for “Higher than Standard Pressure” Delivery

Customers must demonstrate an operational need for “higher than standard pressure” delivery. Delivery pressure higher than the standard will not be supplied to the Customer to compensate for inadequately sized house line piping.

28.3.2 Higher than standard pressure within a building:

The Customer-supplied house line regulator(s) shall reduce the pressure to standard delivery pressure (0.25 psig, 4 ounces per square inch, or 7 inches W.C.) before entering a building.

Industrial Customers (manufacturing facilities, laboratories, large warehouses, etc.) are the exception to this rule and have typically been allowed to have higher pressure enter the building, provided the piping complies with this handbook as well as NFPA and all applicable building codes.

Commercial buildings with a common meter location may request up to 2.5 psig delivery to compensate for multiple house line runs, or previously installed house line that is undersized for the equipment installed during property renovations.

These “high pressure” house lines typically must be located outside of the building(s).

Approval for this higher than standard delivery pressure will be granted by LG&E (depending on Customer Total Connected Load) on a case-by-case basis.

NOTE: Special requirements may exist for house lines within a building that operate above standard delivery pressure. Please Reference the House Line section of this handbook.

28.3.3 Billing

Customers with higher delivery pressures will be billed with a meter multiplier to account for the actual gas used during the billing period. Special requirements may exist for 'higher than standard delivery pressures'.

28.3.4 Materials

Refer to the House Line section of this handbook for requirements on materials and joining pipe at higher than standard delivery pressure.

28.4 The following delivery pressures may be available::

Gas delivery pressures: 7 inches W.C., 11 inches W.C., 2.5 psig, 5 psig, 10 psig, or 15 psig .

Consult the Gas Designer/Locator (see Section 3.3) for pressure availability above standard delivery pressure (i.e., 4 ounces per square inch, 7 inches W.C., or 0.25 psig). In no cases will pressure above standard delivery pressure be permitted to enter a residence or dwelling unit.

29 House Line Stub-Out Specification – Meter Tie-in Point

Customers must leave a minimum of 1" diameter threaded connection for tie in to diaphragm meter loop. Customers must leave a minimum of 2" diameter flanged connection for tie in to a rotary meter loop. This connection must be steel pipe, or a manufactured CSST termination (transition) plate that meets specifications in this handbook.

Location for stub shall be approved by LG&E and shall not create conflict with other clearance requirements outlined in this handbook.

Consult the Gas Designer/Locator (see Section 3.3) for approval of the tie-in stub location.

29.1 Minimum and Maximum Clearance from Structure and Minimum/Maximum Vertical Distance above Grade

Meter Loop Type		Houeline Connection Size	Houeline Stub Out Clearance	Houeline Final Grade Clearance
1"	Bypass	1"	3" - 6"	30"
	No Bypass		3" - 6"	
1-1/2"	Bypass	1-1/2"	3" - 6"	44"
	No Bypass		3" - 6"	
Rotary		2" or Larger	15"	15"

29.2 Horizontal Locations

Horizontal locations for stub out shall be confirmed with Gas Designer/Locator (see Section 3.3) prior to installation.

In general, 1 inch prefabricated loops (standard residential meters) require 6 inches horizontal clearance from the riser location; 1 ½ inch meter loops (425 and larger diaphragm meters) require 10 inches horizontal clearance.

For multi-meter loop (manifold) installations, 1" meter loops must be placed on 16" centers, 1 ½" meter loops must be on 30" centers.

Rotary meter loop required horizontal clearances for house lines will vary greatly, dependent upon the meter size and main pressure. Consult with the Gas Designer/Locator.

29.3 1-1/2" Meter Loop Installations

Customers that need a 1 ½" meter loop are responsible for the house line side of the meter loop. See Figures 6 and 7 in the back of this publication for Customer and company responsible piping.

30 House Line Tagging

When multiple meters are to be placed in the same location, *a piping floor plan must be submitted to the Gas Designer/Locator (see Section 3.3) identifying each address or unit number prior to meter installation.* For work requests on existing multiple meter manifolds, the house lines must be clearly identified (i.e., labeled, tagged, etc.) by the Customer prior to LG&E starting work.

31 House Line Leak Test

31.1 In Service Testing

To test for leaks in a house line system that is presently in service, perform the following steps:

- Completely shut off all connected gas utilizing devices, including their pilot lights if so equipped.
- Shut off all manual valves preceding connected gas utilizing devices.
- Mark the position of the test hand on the meter index glass. A felt tip pen, wax pencil, etc. may be used.
- Observe the test hand for a minimum of ten minutes; any movement indicates that a leak exists.
- Locate and identify leaks so that proper repairs or replacement can be implemented. To locate gas leaks, only use gas leak detecting solution or gas detecting instruments. Never use a match or lighted flame to locate gas leaks.

If a leak is already suspected or obvious, do not perform the above test. Call the LG&E Gas Emergency Operations at (502) 589-1444.

If you shut off the service valve preceding the meter because of a suspected leak, do not turn it on after the leak has been repaired; notify LG&E. LG&E will confirm that the house line system is free from leaks and then turn on the gas.

32 House Line Code Requirements

32.1 General

It is not the responsibility of LG&E to assure compliance with the applicable codes pertaining to installation of house line piping, appliance installation, or appliance operation.

This handbook provides code requirements based upon the *National Fuel Gas Code* and good practices applicable to most residential and small commercial gas house piping installations. However, additional code requirements specific to your situation may exist or there may be exceptions applicable to your situation.

Since the *National Fuel Gas Code* is referenced in the Kentucky Building Code and Kentucky Residential Code for gas piping in all buildings covered by their jurisdiction, LG&E recommends that installers of gas piping obtain the latest edition of the *National Fuel Gas Code* and follow its provisions when installing gas house lines.

32.2 Manufactured Homes

Manufactured homes and other manufactured housing units that are certified by the manufacturer or authorized dealer as being piped in accordance with federal regulations (i.e., Title 24, Code of Federal Regulations, Parts 3280 and 3282) will qualify for gas service without any additional modification.

Manufactured homes or other manufactured housing units that are not certified by the manufacturer or authorized dealer as being piped in accordance with federal regulations (i.e., Title 24, Code of Federal Regulations, Parts 3280 and 3282) will not qualify for gas service unless the gas piping is installed in accordance with the local code requirements applicable to buildings with the same intended usage.

32.2.1 Flexible Connections

Connections from the meter loop to manufactured homes may be made with an approved, listed flexible connector, provided the manufacturers of the connectors rate the piping for outdoor service and such a connection.

This listing should include certification for Manufactured Home connector use by ANSI Z21.75.

All connections must be properly supported and protected from shearing forces of the home (such as siding edges).

32.3 Underground House Piping Requirements

Underground house piping shall be installed with sufficient clearance from any other underground structure to avoid contact therewith, to allow maintenance, and to protect against damage from proximity to other structures.

Underground house piping shall be installed with at least eighteen inches (18") of cover. The cover shall be permitted to be less than eighteen inches (18"), but at least twelve inches (12"), if external damage to the pipe is not likely to result. If a minimum of twelve inches (12") of cover cannot be maintained, the pipe shall be installed in a conduit.

Underground metallic piping shall require a dielectric fitting above ground at building penetration.

The trench shall be graded so that the pipe has a firm and substantially continuous bearing on the trench bottom.

The trench bottom must be free of rocks or foreign materials that may damage plastic pipe or the coating on steel pipe. The trench bottom may be padded with sand or sifted soil if necessary.

Backfill material shall be free of rocks or other material that may damage the pipe or coating. Sand or sifted soil may be used to pad the top and sides of the pipe if necessary.

32.4 House Line Valve Requirements

32.4.1 General

Each house line valve will be subject to pressure testing with the piping system and must withstand this test without leaking. It is the responsibility of the Customer to ensure that valves are rated for the appropriate house line test pressure.

32.4.2 House line Valve Material

Each house line valve must be designed for natural gas service and be marked with the manufacturer's name or trademark and must show visible indication of open or closed position.

Brass valves are permitted to be used on house line piping if the valves are rated for gas service and comply with standard installation practices.

32.4.3 Final Appliance Valves

Every gas outlet and appliance shall have an easily accessible shutoff valve, and within six feet (6') of the appliance served unless otherwise noted below.

Where appliances are connected with flexible connectors or semi-rigid tubing, the valves must be ahead of the appliance connector, on the steel pipe.

32.4.4 Shutoff Valves

An exterior, accessible, and identifiable shutoff valve with appropriate label shall be provided for each structure served with gas.

Gas outlets in fireplaces designed to burn wood or other solid fuel shall have shutoff valves located outside of the firebox and accessible.

Shutoff valves serving decorative gas appliances may be installed in fireplaces if listed for such use (by the manufacturer) and if protected from exposure to excessive heat.

Valves shall not be installed in concealed spaces or in spaces used for air plenums.

House lines that serve multiple individual dwelling units must have shutoff valves, accessible to the tenants served, and marked with identification tags.

Valves need to be rated for the appropriate test pressure for applicable delivery pressure and be in accordance with the manufacturer's recommendation.

32.5 House Line Pressure Regulators

32.5.1 General

Pressure regulators are required when the house line piping system operates at pressures greater than 10 inches W.C. nominal pressure, unless there are specific equipment or design requirements for greater pressure.

Pressure reduction, in non-industrial applications, should be made outside of the building.

Line pressure regulators must be listed to ANSI Z21.80 and gas appliance regulators must be listed to ANSI Z21.18.

LG&E prohibits the use of ventless or vent-limiting regulators on house line piping, even those that meet ANSI Z21.80.

All house line pressure regulators shall have a ½ inch NPS valve test point and an isolation valve on each side of the pressure regulator. These isolation valves should be in between the test points and pressure regulator. The Customer is responsible for ensuring that the bypass piping and jumper has been installed at the time of the house line pressure test. This allows the regulator to be

bypassed and isolated during the house line pressure test. Manufacturer supplied regulators downstream of the final appliance valve will not be included in the pressure test.

Reference Figure 13 included at the end of this book, House Piping – House Line Regulator Installation Details.

32.5.2 House Line Pressure Regulator Venting

LG&E prohibits the use of a vent manifold for house line regulator vents. Each regulator must have a separate vent line to the outdoors.

Pressure regulators must be vented to the outside.

The vent lines must terminate with vent screens and face downward to prevent entry of insects or water.

Vent terminations must be located a minimum of twelve inches (12") above grade and 3 feet (3') from a source of ignition.

32.5.3 Houseline Pressure Regulator Venting Material Specifications

All regulator vent piping must be made of rigid metallic tubing or pipe that complies with NFPA 54 2021 Section 5.5 Acceptable Piping Materials and Joining Methods, except as listed below.

Rigid copper tubing is permitted as vent piping provided it complies with the NFPA standards. Per NFPA 54 2021 Section 5.5, copper tubing shall comply with standard Type K or Type L of ASTM B88 or ASTM B280.

All regulator vent piping must be at least as large as the regulator vent opening.

The Customer should confirm all vent piping sizes and maximum lengths with the regulator manufacturer.

32.6 Check Valves and Back Pressure Protection

The Customer may be required to install additional regulation and check valves at a suitable location approved by LG&E downstream of the company gas meter to prevent backflow into Company facilities (ex. Cutting torches, gas pressure boosters, etc.). Installation of these devices must satisfy all applicable codes and regulations such as ANSI Z223.1 as applicable. Customers required to install may include, but are not limited to, the following:

1. Customers with certain pressure requirements.
2. Customers using LP (Propane) as a backup or alternate fuel.

3. Customers who utilize natural gas in combination with other gases (examples: cutting torches).
4. Gas pressure booster
 - a. If the Customer's piping or equipment is equipped with a gas booster:
 - i. A check valve shall be installed on the booster inlet piping to prevent a back pressure, and
 - ii. A low pressure shutoff device shall be installed between the booster and the gas meter(s) to provide protection against a reduction in gas pressure.
 - iii. The shutoff device shall be set to a pressure specified by LG&E.
 - iv. Such shutoff devices include but are not limited to:
 1. Mechanical, diaphragm or electrically operated shutoff valves, or,
 2. Low pressure switch (manual reset type)
 - v. To mitigate momentary low pressures caused by the booster start-up, locate the low pressure switch a minimum of 10ft upstream of the booster. A flow restrictor (orifice) may also be necessary to help dampen surges.

The Customer is responsible for installation, code verification, and maintenance of the check valves and back pressure protection equipment.

32.7 House Line Sub-Meters

House line sub-meters are the sole responsibility of the Customer.

Piping of these facilities must be arranged with the same construction standards that are specified for a Customer meter.

All sub-meter loops, regardless of size, must be constructed with a bypass to allow for house line pressure testing around the sub-meters.

32.8 Appliance Connections

32.8.1 General

Uncoated brass connectors (uncoated brass corrugated tubing) are prohibited.

Final connections to appliances must be in accordance with local building codes and may vary between communities.

Vertical branch connections dropping to appliances should be provided drip legs (or sediment traps) at the bottom of each drop.

- The drip leg may be assembled using a tee of the same size as the drop, with the side outlet serving the appliance, and using a nipple with a three inch or longer clear spacing between the cap and the bottom outlet of the tee.
- Drip legs should not be used outside or in locations subject to freezing.

Rigid connection with steel pipe is generally recommended for boilers, furnaces, water heaters, and other stationary equipment not subject to movement or excessive vibration.

Flexible connectors may not be routed through the appliance walls; the vibrations from the appliance and the sharp cabinet walls present a potential safety hazard.

Final connections must be made with approved flexible appliance connectors, outside of the appliance cabinet, preceded by a valve connected to the rigid piping.

For certain moveable appliances, flexible connectors may be located within the appliance cabinet provided they do not come in contact with edges of the cabinet and are protected against damage.

Flexible appliance connectors must be located entirely within the same room as the appliance and may not pass through walls, floors, ceilings, or be subject to shearing forces from rigid structures.

Flexible appliance connectors shall not be installed within a concealed location.

32.9 Natural Gas Fired Electric Generators

32.9.1 General

In many cases, the installation of gas fired generators on an existing residential house line will require a delivery pressure above standard delivery pressure. Not all gas systems will be able to support an increase in Customer delivery pressure (reference definitions of low and elevated pressure systems).

Customers must complete and submit the Gas Load Data Sheet to the Gas Designer/Locator (see Section 3.3) to allow LG&E to determine if the system can support the generator load.

32.9.2 Special Rates and Charges

32.9.2.1 Generator Rate

The tariff approved by the Kentucky Public Service Commission requires that non-residential gas Customers (in terms of building type, not gas load) adding natural gas fired generators which have a total connected load of more than 2000 scfh, meter the generator load separately under standard

rate Distributed Generation Gas Service (DGGS). Other conditions may apply. Please reference the Company Gas Tariff for more information.

The purpose of separate metering of gas generators is to ensure that the service is billed properly. If the meters are not separate and the non-residential Customer is billed under a different rate (not DGGS), facilities would be in place to serve the generation loads, but no demand charges would be collected from the Customer.

Without these demand charges, LG&E does not recover the costs associated with larger (but often unused) facilities required to serve these generation loads.

A separate meter is required for new, non-residential generator installations.

32.9.2.2 Special Notice and Considerations

It is of critical importance for Customers to understand the BTU input rating for their generator and the required delivery pressure. The Company standard delivery pressure is 7 inches water column (or 4 ounces per square inch, or 0.25 psig) to the meter.

- A meter commonly has 2 inches W.C. pressure loss across it (and possibly more). Additional losses due to downstream piping may lower fuel line pressures below the minimal inlet pressure required to start the generators.
- It is the responsibility of the Customer to verify that the generator will operate properly with the specified delivery pressure to the meter.

32.9.2.3 Installation Requirements

Reference manufacturer's recommendations for installing house line regulators.

Gas Generators should be installed per manufacturer recommendations.

Reference Figure 11 and 12, House Piping – Generators and Pool Heaters, for more guidelines and installation requirements.

32.10 House Line (Indoor) Piping Installation

32.10.1 General

All gas outlets that do not connect to appliances must be terminated with a valve followed by a gastight cap or plug.

It is understood that the same pipe materials used for gas houseline piping may be acceptable for use with other contents. While pipe content labeling is not required, pipe content labeling or pipe

stenciling present shall not inaccurately reflect the contents of the pipe (i.e. gas piping may not be labeled as sprinkler piping).

32.10.2 Concealed Locations

Unions, tubing fittings, bushings, swing joints, and compression couplings shall not be installed in concealed locations.

Manifolds, valves, and pressure regulators must be installed in accessible areas and may not be concealed.

When gas piping that is to be concealed is being installed, elbows, tees, and couplings shall be permitted. However, the number of concealed joints should be kept to a minimum.

Gas piping shall not be installed in solid partitions such as concrete (e.g., floors), unless it is laid in channels that permit access to the piping with minimum damage to the building. Where piping in channels could be exposed to excessive moisture or corrosive substances, the piping shall be protected in an appropriate manner.

Piping that is installed in a fire-rated chase is not considered to be concealed.

32.10.3 Connections

Vertical branch connections from horizontal house lines should be taken from the top or side only.

32.10.4 Prohibited Locations

Gas piping shall not be run through or inside of air ducts, clothes chutes, elevator shafts, fireplace ash dumps, chimneys, or concealed air plenums. This prohibition does not apply to air spaces used for plenums above suspended ceilings.

32.11 House Line Pipe Material and Joining Methods

All indoor house line piping, not certified under the manufactured housing code (NFPA 54 3.3.63), shall be constructed using steel pipe, or an approved corrugated stainless steel system.

32.11.1 Mobile Home Connections

The final flex connection from the meter loop to the mobile home must be approved for outdoor use for mobile homes.

32.11.2 Steel House Line Pipe

32.11.2.1 Material Specifications

Steel pipe must comply with a listed specification, typically ASTM A53 or ASTM A106 and must be standard weight (Schedule 40) or larger.

32.11.2.2 Threads

All threads on pipe and fittings shall be tapered and conform to ASME B1.20.1.

All-thread nipples (straight non-tapered threads) shall not be used.

32.11.2.3 Close Nipples

Close nipples (tapered threads not separated by a shoulder) are not recommended.

32.11.2.4 Bushings

Malleable iron bushings are not recommended. If used, malleable iron bushings should be limited to low stress applications with a reduction of two or more nominal pipe sizes.

32.11.2.5 Joining

Steel pipe and fittings may be joined by welds, threads, press-connect, or bolted flanges (subject to the requirements below).

Press-connect fittings listed to ANSI LC4/CSA 6.32, Press-Connect Metallic Fittings for Use in Fuel Gas Distribution Systems, and installed according to the manufacturer's installation instructions. Press-connect fittings must not be used within six (6) linear feet of pipe from the meter loop outlet unless alternate means of mechanical disconnection are provided.

Compression fittings using gasket materials which are subject to failure when exposed to heat from a fire shall not be used indoors.

Sealing materials are required for all thread joint sealing. The sealing materials must be compatible with the pipe and fittings and the material must be non-hardening and suitable for natural gas service. Pipe joint sealing materials shall be applied to the male threads only.

Welded joints should be made using established procedures and welders qualified under specification API 1104, Standard for Welding Pipelines and Related Facilities; AWS B2.1, Standard for Welding Procedure and Performance Qualification; or the ASME Boiler and Pressure Code, Section IX.

32.11.2.6 Additional Requirements

LG&E recommends that house lines 2" NPS and larger be welded, regardless of the delivery pressure, to reduce the possibility of leaks at joints.

Valves, regulators, connections to equipment, etc., may be flanged or threaded.

32.11.3 Prohibited Locations

Steel house line pipe may not be buried beneath buildings, or be in contact with the ground beneath buildings, unless fully encased in a gas tight conduit.

The Gas Load Designer/Locator (see Section 3.3) must be consulted for specific requirements if steel pipe is used underground.

32.11.4 Polyethylene (Plastic) House Line Pipe

32.11.4.1 Specifications

Polyethylene pipe must comply with ASTM D2513. The same material grades that are acceptable for service line installations are acceptable for house line piping.

An insulated copper tracer wire shall be installed adjacent to the polyethylene pipe with the ends terminating aboveground at each end. Contact between the tracer wire and the polyethylene pipe should be avoided.

32.11.4.2 Joining

Joints may be made in polyethylene plastic using approved mechanical fittings or heat fusion.

Properly trained and qualified installers should follow qualified written joining procedures.

32.11.4.3 Polyethylene to Steel Transitions

- All transitions to steel pipe must be outside.
- Aboveground transitions may be made using service head adapters or anodeless risers in the same manner and type as used for service risers.
- Alternately, transition to mill coated and cathodically protected house lines may be made directly below ground.
- Refer to Figure 9, House Piping - Polyethylene to Steel Transition.

32.11.4.4 Prohibited Locations

Polyethylene pipe shall not extend into a building or be installed inside to serve appliances; polyethylene (plastic) pipe shall only be installed outside for an underground house line application.

Polyethylene pipe may not be buried beneath buildings, or be in contact with the ground beneath buildings, unless fully encased in a sleeve vented to the outside of the building. The Gas Operations Center in your area must be consulted for specific requirements.

32.11.5 Corrugated Stainless Steel Tubing (CSST) System House Line Pipe

32.11.5.1 General

It is the responsibility of the Customer and/or Customer representatives to ensure that CSST systems are installed according to the manufacturer's instructions and comply with all applicable codes.

32.11.5.2 Specifications

Corrugated stainless steel tubing (CSST) systems must be tested, listed, and installed in accordance with ANSI LC 1/CSA 6.26, Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST).

CSST may be used for installation of new house line systems or for addition to existing systems.

CSST may also be used for repair of existing systems as allowed by the manufacturer.

CSST is prohibited through an appliance's metal housing where the appliance is also connected to a metallic vent that terminates above the roof.

32.11.5.3 Joining

Only qualified installers, trained by authorized agents for the respective brands of CSST system, are allowed to install CSST piping systems.

32.11.5.4 Connections

Connection of the CSST to the meter outlet piping must be made using a suitable transition fitting supported by the outside building wall, such that the tubing is not exposed. See Figure 10, House Piping – Corrugated Stainless Steel Transition, for a typical installation.

Refer to bonding requirements of CSST found within this handbook.

Refer to Manufactured Homes requirements of CSST found within this handbook.

32.11.5.5 Labeling

The corrugated stainless steel tubing (i.e., Wardflex, Titeflex, GasTite, TracPipe, etc.) used on fuel gas manifolds shall be tagged and/or labeled in a fashion by plumbers so that the appliance served by the tubing is permanently and clearly marked.

32.11.5.6 Prohibited Locations

CSST may not extend into the fireboxes of fireplaces designed to burn solid fuel. CSST or fittings may not be installed in any manner or locations where they will be subjected to heat from solid fuel fires.

32.11.6 Copper Tubing House Line Pipe

32.11.6.1 Specification

Copper tubing shall comply with standard Type K or L of ASTM B88, Specifications for Seamless Copper Water Tube, or ASTM B280, Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.

32.11.6.2 Joining

Joints in copper tubing shall be made with fittings approved by the manufacturer for natural gas service or shall be brazed using materials with higher than 1,000°F melting point.

32.11.6.3 Connections

Copper house line pipe should satisfy all corrosion requirements in Corrosion Control under House Line Piping Protection within this handbook.

Copper house line pipe may not extend through any wall, except as an existing condition that is free of leaks.

The transition to underground copper house line should be preceded by an identifiable and accessible isolation valve located above grade. Interior valves should not be located in a crawl space or a space not readily accessible.

If any part of the copper tubing house line is buried underground, a dielectric fitting must be used to electrically isolate the copper tubing from the steel or CSST house line piping. If the transition to steel is made underground, the steel pipe must be coated, cathodically protected, and electrically insulated from the copper house line piping.

32.11.6.4 Existing installations

Existing aboveground copper tubing may remain in service, provided it does not leak when tested, and all sections are visible and accessible.

32.11.6.5 Temporary Connections

LG&E can approve the use of temporary heat connections and hoses on a case-by-case basis. The Customer is required to submit the temporary full connected load and equipment specifications for

all hoses, heaters, and associated equipment to be used for temporary heat. Approved temporary connections and hoses must be rated for natural gas, protected from damage, and used only in well-ventilated areas. Ventless regulators are recommended at the appliance connection.

32.12 House Line Support

32.12.1 General

Gas house line piping must be adequately and independently supported to prevent stress on fittings, appliance connections, or meter connections; and to prevent excessive vibration or movement.

32.12.2 Steel Pipe Support

The maximum distances between supports are as follows:

When oriented vertically, use at least one support for each floor level.

When oriented horizontally, follow these requirements:

- ½" NPS pipe shall not exceed six feet (6'),
- ¾" or 1" NPS pipe shall not exceed eight feet (8').
- 1¼" NPS or larger pipe shall not exceed ten feet (10').

32.12.3 CSST Support

All provisions for supporting and protecting CSST must meet manufacturers' written procedures.

33 House Line Piping Protection

33.1 Piping Through Concrete, Asphalt or Masonry

When the house line passes through a concrete or masonry wall, floors, or ceilings, a nonmetallic sleeve must be provided. In addition, the spaces between the pipe, sleeve, and masonry must be sealed to prevent entry of water, insects, rodents, or gas into the building. See Figure 2, Gas Service/House Piping - Sleeve through Floors/Driveways/Walls. Sealants must be compatible with the piping and sleeve materials.

33.2 Protection from Physical Damage

Means shall be provided to prevent excessive stressing of underground piping where there is heavy vehicular traffic or soil conditions are unstable and settling of piping or foundation walls could occur.

Any above grade copper tubing must be protected against physical damage.

Steel pipe installed outside and aboveground must be protected against damage from anticipated forces.

CSST must be protected according to manufacturer recommendations and standard industry practices.

33.3 Corrosion Prevention

Refer to Section 38: Corrosion Prevention.

34 House Line Pressure Testing

34.1 General

Prior to requesting natural gas service, house line piping systems must be pressure tested to detect the existence of leaks ("pressure test").

Each run of piping that terminates at an appliance must have an appliance isolation valve. Customers must have these valves installed to facilitate the pressure test.

For Commercial and Industrial (non-Residential) Customers, provisions must be made for LG&E to install LG&E's pressure gauge to verify the test pressure and conditions. This can be done with ½" NPS valve test points, an appliance termination valve, etc. This test point must be accessible at time of service activation. LG&E prefers that the test point be in the same location as the house line stub-out.

On systems with "high pressure" or higher than standard delivery pressures, house line regulators should be isolated and bypassed during the pressure test. The entire house line system will be pressure tested to satisfy the requirements for the maximum delivery pressure.

All house line pressure tests should be performed against the appliance valve, appliance controls, or a valve with a plug installed at the outlet of the valve.

Pressure test higher than delivery pressure is not permitted against appliance controls.

It is the responsibility of the Customer to ensure appliance controls are isolated (if necessary) during a pressure test.

34.2 Isolation

The service line regulator and meter must be removed or isolated during house line pressure tests.

Skillets, where applicable, must be installed prior to a house line pressure test.

34.3 Master Meter Operators

Inspections and testing of piping downstream of LG&E meter must comply with requirements established by 807 KAR 5:022 Section 3. The scope of the pressure test and inspection may differ for Master Meter Operators from other Customers.

The Gas Designer/Locator (see Section 3.3) shall be consulted for site specific inspection and testing requirements downstream of LG&E Meter.

34.4 Test Pressure & Duration

As a general rule of thumb, house lines should be tested 30 minutes for every 500 cubic feet of pipe volume in the system. Contact LG&E for test pressures and duration for house piping volumes greater than 500 cubic feet.

The following table is for PRESSURE TESTING REQUIREMENTS ONLY and is NOT indicative of available delivery pressures. Refer to Section 28 Delivery Pressures.

Houeline Type	Meter Size	Delivery Pressure *	Test Medium	Test Pressure
New Construction or Increased Delivery Pressure	All	14" w.c. or less	Air or inert gas (gauge test)	3 psig
	All	Greater than 14" w.c.	Air or inert gas (gauge test)	Greater of 15 psig or 1.5 x delivery pressure
Existing Construction, above ground house lines	Diaphragm meter with ½ foot or smaller test hand	All	Natural gas (Meter Test)	Delivery pressure
	All	All	Air or inert gas (gauge test)	Delivery Pressure
Existing Construction, buried house lines	All	All	Air or inert gas (gauge test)	Greater of 1 psig or delivery pressure
* Delivery pressures shown in this table are not indicative of available delivery pressures provided by the Company. Refer to Section 28 Delivery Pressures.				

34.5 Test Failures

Natural gas service will not be turned on to a house piping system believed to be unsafe or leaking.

34.6 Additions, Repairs, and Other Changes

New construction is considered to be: a new houseline in a new structure, first-time gas in an existing structure, a wholesale replacement of the houseline in an existing structure, a portion of houseline exposed to increased delivery pressure, or a previously existing gas service that has been disconnected due to a house fire and/or notification of demolition

Increasing delivery pressure of existing construction requires re-testing of houselines if the original pressure test does not meet the test requirements for new construction higher than standard.

Existing construction is considered to be: minor repairs and additions to an existing houseline system in an existing structure or existing houseline that is physically separated or isolated from new houseline. A new branch to a new appliance on existing construction must be tested as new construction. Repairs and additions on existing houselines must be tested as new construction if no isolation method is available between the additional piping and the other house piping. If an isolation point is available, then only the additional pipe will be tested as new construction.

35 House Line Inspections

35.1 General

It is the ultimate responsibility of the building inspector, fire marshal, and/or other jurisdictional authority to inspect house line piping installations for code compliance.

- Installation of gas-burning furnaces, boilers, space heaters, and other permanently installed equipment is subject to permit and inspection by the local building inspection authority.
- The installer has the responsibility of obtaining the necessary permits and post installation inspections.

LG&E reserves the right to inspect house line system and to refuse to activate service to any house line that LG&E representatives deemed unsafe, an obvious violation of manufacturer's installation guidelines, obvious code violation, or that does not comply with the guidelines set forth in this handbook.

LG&E cannot install a meter and activate an account until house lines are installed and complete to at least one appliance location in the building.

36 House Line Sizing

36.1 General

It is the responsibility of the Customer to ensure house lines are properly sized to handle equipment gas loads.

LG&E will not size or advise Customers on house line sizing.

36.2 Reference Sources

For systems operating at higher pressures or for other sizing methods, the NFPA 54 *National Fuel Gas Code*, *International Mechanical Code*, or other applicable standards should be consulted.

36.3 Pipe Sizing

In order to assure adequately sized house piping, LG&E recommends designing gas house line systems to operate with a pressure drop of not more than one-half inch (0.5") W.C. from the meter to the last appliance at the maximum demand of all connected appliances subject to simultaneous operation.

The possibility of increased gas demand should be considered. Increased gas demand could result from installation of additional appliances or replacement of existing appliances with higher BTUH input appliances.

Standard engineering methods, using industry accepted formulas or tables published in national codes for determining pressure drop in piping systems with natural gas of 1,000 BTU per standard cubic foot per hour (SCFH) heating value and 0.6 specific gravity may be used.

Corrugated stainless steel tubing systems must be designed with sufficient tubing size to operate with low pressure gas, unless the availability of greater pressure is confirmed by the Gas Operations Center in your area. Delivery pressure in excess of 7 inches W.C. cannot be provided from low or elevated pressure gas distribution systems.

36.4 Pipe Sizing Method

NFPA 54 National Fuel Gas Code provides guidance on determining proper pipe size. Visit <https://www.nfpa.org/> for free access to the most recent edition of NFPA 54.

37 How Do I Read My Gas Meter?

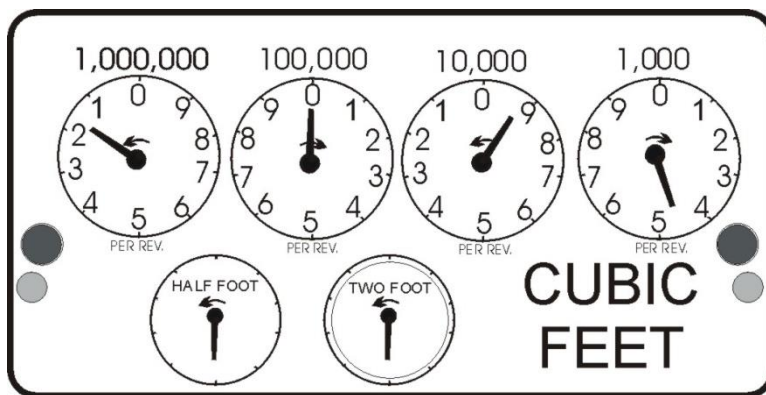
Your natural gas meter is an accurate automatic measuring instrument. It measures the natural gas used to operate all of your natural gas appliances (e.g., hot water heater, furnace, range, etc.) by counting the filling and emptying of the compartments inside the meter. The natural gas used is measured in units of hundred standard cubic feet. A standard cubic foot is the volume of gas at a specific pressure (i.e., 4 ounces per square inch, 7 inches W.C., or 0.25 psig) and temperature (i.e., 60°F).

The amount of gas measured is displayed on the meter index. The meter index is located on the front of the meter and may consist of either dials or an odometer. It consists of a reading and test portion. The reading portion will be described in the “Reading Dial Type Index Meters” and “Reading Odometer Type Index Meters”. The test portion is used for the following four applications:

1. Confirm that a meter is operable,
2. Test a gas house line system that is in service for leakage at operating pressure,
3. Calculate the rate of gas consumption for a gas utilizing device, and
4. Enable the accuracy of the meter to be tested in a certified meter proving facility.

Your consumption can be determined by subtracting your previous meter reading from your present meter reading. This amount will give you the volume of gas used in units of hundred cubic feet (CCF).

37.1 Reading Dial Type Index Meters



Normally, a dial type index will have four (4) dials in a horizontal line with the dials labeled from left to right as “1 million,” “100 thousand,” “10 thousand,” and “1 thousand,”. These four dials are used in reading the meter.

Note that the dials alternate between counter-clockwise and clockwise rotation

Also, the index will have two dials labeled “half foot” and “two foot”. The dials are used for meter tests and should be ignored in reading the meter.

To read your dial type index meter, look at the four dials with their curved arrows. Read the dials from right to left as follows using the example above:

Read the “1-million” dial as 1.

Read the “100-thousand” dial as 9.

Read the “10-thousand” dial as 9.

Read the “1-thousand” dial as 4.

When a dial pointer is between two numbers, always record the number that the pointer has passed, which will always be the smaller number of the two numbers.

If a dial pointer is directly on a number, check the dial immediately to the right. The pointer on the right dial must have reached or passed zero to record the number on the left dial. If the pointer on the right dial has not passed zero, use the smaller number from the left dial.

Following these guidelines, the correct reading for the meter dial shown above is 1994 hundred cubic feet (CCF).

37.2 Reading Odometer Type Index Meters

The odometer type index is a direct read. It reads like an odometer on a car. However, instead of measuring miles traveled, it measures the amount of natural gas used. Similar to a dial type index, it also will have two dials labeled “half foot” and “two foot”. The dials are used for meter tests and should be ignored in reading the meter.

To read your odometer type index meter, read the number displayed. Each of the number would correlate to one of the four dials illustrated above.



Following these guidelines, the correct reading for the meter index shown above is 1094 hundred cubic feet (CCF):

37.3 Meter Operability

To confirm that a meter is operable, place any gas utilizing device served by that meter into operation and observe the test dial. Movement of the hand should be apparent, the speed of which will depend upon the rate of consumption for the device.

38 Corrosion Prevention

38.1 Corrosion Prevention - General Corrosion Protection Requirements

38.1.1 Protection for Aboveground Steel Piping

All aboveground steel piping, such as service riser, house line, or meter loop piping, installed outdoors or indoors in damp locations shall be protected from atmospheric corrosion as required by state and federal pipeline safety regulations. Require a minimum of 3 ½" clearance from grade or rooftop for any aboveground piping to allow for debris to pass underneath rather than be caught.

38.1.2 Protection for Underground Steel Piping

All underground (i.e., buried) steel piping, such as service lines, shall be mill coated and cathodically protected as required by state and federal pipeline safety regulations.

38.2 Protection for Underground Copper House Line Tubing.

If any part of the copper tubing is buried underground, a dielectric fitting must be used to electrically isolate the copper tubing from the steel or CSST house line piping. If the transition to steel is made underground, the steel pipe must be coated, cathodically protected, and electrically insulated from the house line piping.

For underground copper tubing installations, the vertical portion, from approximately six inches (6") below grade to the transition fitting above grade, must be encased in a steel pipe or sunlight resistant plastic pipe securely mounted to the building wall. The space between the copper tube and protective sleeve shall be filled with expanding foam, or otherwise sealed at the top, to prevent entry and accumulation of water. Insulation must be used, if necessary, to prevent a steel casing pipe from electrically shorting the dielectric transition fitting.

38.3 Corrosion Prevention – Steel Coating Requirements

38.3.1 Coating for Aboveground Applications

A good quality paint intended for exterior use on metal is an acceptable aboveground coating.

A rust inhibiting primer shall be applied to bare metal.

38.3.2 Coatings for Underground Applications

It is RECOMMENDED that All steel pipe used for underground applications shall be purchased with mill applied Fusion Bonded Epoxy (FBE) coating. Fusion Bonded Epoxy (FBE) is the only approved mill applied coating for steel piping in underground applications.

It is RECOMMENDED at pipe joints and where defects in the pipe coating exist, the underground coatings on steel piping be one of the approved coatings listed below.

1. Poly-Butyl Tape. The tape must have a total thickness of at least 25 mils that shall consist of a 20 mil tar based mastic or synthetic elastomeric coating backed by a polyethylene film. It is applicable between the temperatures of -20°F and +130°F.
2. Wax Tape (i.e., Plastic-fiber felt, saturated with a blend of petrolatum waxes, plasticizers, and corrosion inhibitors, forming a tape wrapper).

38.3.3 Pipe Surface Preparation and Coating Installation

38.3.4 Aboveground Piping

Clean the piping surface of all dirt, oil, grease, moisture, and other foreign matter.

Oil and grease should be cleaned using a cleaning solvent.

Remove all paint that is not tightly adhered.

Remove rust and loose mill scale. Power tool cleaning is recommended. However, hand tool cleaning (e.g., wire brushing) is acceptable. Use a cleaning solvent as required to ensure a clean piping surface.

Paint the piping surface with an acceptable aboveground coating.

The proper protective clothing, gloves, and mask should be worn during the surface preparation and coating installation process.

38.3.5 Underground Piping (at Joints and for Defects in Coatings)

38.3.5.1 Poly-Butyl Tape

For defects in the coating, remove all damaged coating to a point where it is firmly bonded to the pipe.

Clean the piping surface (i.e., the welded joints and the defects in the coating) of all dirt, oil, grease, moisture, and other foreign matter. Oil and grease should be cleaned using a cleaning solvent.

Remove all rust, paint, and loose mill scale. Power tool cleaning is recommended. However, hand tool cleaning (i.e., wire brushing) is acceptable. Use a cleaning solvent as required ensuring a clean piping surface.

File or grind smooth all sharp edges or burns to prevent protrusion through the Poly-Butyl tape.

Apply a thin uniform coating of primer to the clean piping surface and to the mill coated piping surfaces within the area to be wrapped. The primer used shall be compatible with the coating. The piping surface must be moisture free prior to the priming procedure and remain moisture free throughout application of the Poly-Butyl tape.

Allow primed piping surface to dry to a “tacky” stage before application of the Poly-Butyl tape.

Follow Manufacturer’s guidelines for installation of tape.

38.3.5.2 Wax Tape

For defects in the coating, remove all damaged coating to a point where it is firmly bonded to the pipe.

Clean the piping surface (i.e., the welded joints and the defects in the coating) of all dirt, oil, grease, moisture, and other foreign matter. Oil and grease should be cleaned using a cleaning solvent.

Remove all rust, paint, and loose mill scale. Power tool cleaning is recommended. However, hand tool cleaning (i.e., wire brushing) is acceptable. Use a cleaning solvent as required ensuring a clean piping surface.

File or grind smooth all sharp edges or burns to prevent protrusion through the underground coating.

Apply a thin uniform coating of primer to the clean piping surface and to the mill coated piping surfaces within the area to be wrapped. The primer used shall be compatible with the coating. While it is preferred that the piping surface be moisture-free prior to the priming procedure, a damp or wet surface is tolerable when applying wax primer and tape. Where moisture is present, rub and press primer into the piping surface, displacing the moisture and ensuring that the primer adheres to the piping surface.

Follow Manufacturer’s guidelines for installation of tape.

38.3.6 Coating Placement

Underground applied coating shall extend, at a minimum, six inches (6") above grade on any steel piping that enters or leaves the ground.

38.3.7 Coating Damage Prevention

Care should be exercised in the handling of coated pipe.

38.4 Corrosion Prevention - Electrical Isolation

In order for cathodic protection to be effective, all protected pipe must be electrically separated from any electrically grounded metallic structure or piping.

Dielectric couplings, dielectric unions, or dielectric flanges may be used at each point where the protected piping extends out of or into the ground.

38.5 Corrosion Prevention - Anodes

38.5.1 General

Cathodic protection can normally be provided to the coated and electrically isolated underground steel piping by means of a magnesium anode.

Magnesium anodes have an insulated lead wire that must be electrically attached to the protected piping by thermite welding, brazing, or with an approved mechanical grounding clamp.

The connection to the piping must be coated with approved mastic or with tape and primer in the same manner as a joint or defect in the coating.

38.5.2 Anode Spacing

For maximum effectiveness, one five pound (5 lb.) standard potential magnesium anode should be used for each fifty foot (50') section of underground steel piping.

To the extent practical, the anodes should be evenly spaced over the length of the piping being protected.

38.5.3 Anode Installation

Anodes should be installed vertically at least three feet (3') away from the piping with the top of the anode even with or lower than the elevation of the buried piping.

39 Drawings & Customer Forms

See following pages.

DIN: GCPH-001
Title: Natural Gas Customer Piping Handbook

Effective Date: 5/21/2025
Revision Number: 6.0



a PPL company

Gas Load Data Sheet

Please Provide Two Copies of Site Plan



a PPL company

*Facility Name: _____ *Date: _____

*Address: _____ City/State/Zip: _____

*Directions or nearest intersecting street: _____

Items with an asterisk * are required information, failure to provide any information may result in delays regarding your project.

This sheet should be submitted in addition to the LG&E/KU/ODP Electric Load Data Sheet if applicable. This sheet does not fulfill the requirement of an application of service. You must contact LG&E-KU Customer Service to apply.

Please fax or email your completed load sheet to 502-217-3000 or new.biz@lge-ku.com. The appropriate locator/designer will contact you concerning your submittal.

Service Request Type: New Construction Existing Construction

This facility's intended use will be (e.g. residential, office, space, etc.)? _____

If requesting new service installation, please confirm that the following has been completed:

- PVC, Schedule 40 sleeve installed (check with locator for proper sizing diameter)
- Pull rope and caution tape installed
- Sleeve has elbows installed at each end and are at least 18" above grade
- House lines installed, stubbed outside and hold pressure test
- Estimated length of service = _____ feet

Preliminary Information

Note: All preliminary submissions must be resubmitted as final when the customer applies for service. All plan revisions that affect total loading must be resubmitted.

Revision

Revision Date: _____

Total Gas Connected Load (TCL) on Property

	Building 1	Building 2	Building 3	Building 4
* Requested House Line Delivery Pressure	<input type="checkbox"/> Standard (7" w.c.) <input type="checkbox"/> Higher pressure**	<input type="checkbox"/> Standard (7" w.c.) <input type="checkbox"/> Higher pressure**	<input type="checkbox"/> Standard (7" w.c.) <input type="checkbox"/> Higher pressure**	<input type="checkbox"/> Standard (7" w.c.) <input type="checkbox"/> Higher pressure**
Gas Load Type	(BTUH)	(BTUH)	(BTUH)	(BTUH)
Space Heating, Comfort Conditioning, Make Up Air				
Water Heaters				
Boilers				
Cooking Equipment				
Production/Manufacturing Process Equipment				
Other				
Emergency/Standby Electricity Generator				
Full Time Electricity Generator				
Fire Place				
Pool Heater				
* Total Connected Meter Load (TCL)				

****If requesting higher than standard delivery pressure (>7" w.c.): specify the requested pressure, explain the need, and attach supporting documentation** _____

Note: LG&E offers higher than standard delivery pressures of 11" w.c., 2.5 PSIG, and higher, as needed. Contact your locator/designer for more information.

Contact Information*

*Customer/Owner: _____ *Contractor/Developer: _____

*Phone: () - _____ *Phone: () - _____

Email: _____ Email: _____

*Address: _____ *Address: _____

*City/State/Zip: _____ *City/State/Zip: _____

Comments: _____

*Submitted by: _____ Date: _____

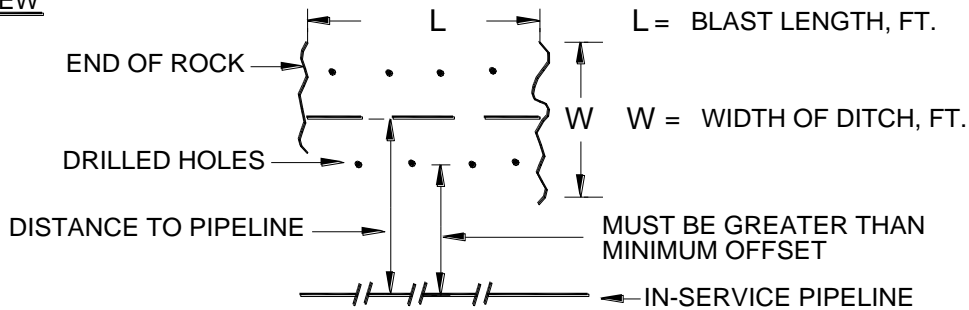
Please refer to LG&E Natural Gas Customer Piping Handbook for more information

<https://lge-ku.com/residential/guides>

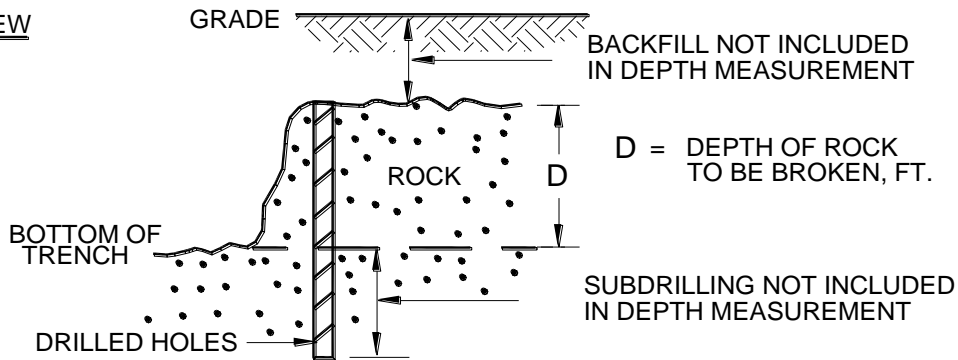
BLASTING OPERATION FORM		<input type="checkbox"/> PRE-BLASTING INFORMATION <input type="checkbox"/> DAILY BLASTING REPORT				
PROJECT:		BLASTING DATE:	TIME:			
CONTRACTOR:		AM/PM				
BLASTER NAME:		LICENSE NO.:				
EXACT LOCATION OF BLASTING OPERATIONS (ATTACH DRAWING):			811 LOCATE REQUEST #			
BLAST DATA						
DISTANCE FROM PIPELINE TO NEAREST CHARGE:		MATERIAL TO BE BLASTED:		TYPE OF MATTING:		
NAME, TYPE, AND MANUFACTURER OF EXPLOSIVE:		WEIGHT STRENGTH (CAL/GM):				
TYPE OF DELAY:		DELAY INTERVAL:				
TOTAL NO. OF DELAYS:		CHARGE WEIGHT PER DELAY:				
TOTAL NO. OF HOLES:		NO. HOLES PER DELAY:				
HOLE SPACING:		DIAMETER, DEPTH, AND LAYOUT OF HOLES:				
SPECIFIC GRAVITY OF EXPLOSIVE:		METHOD OF INSTALLATION AND DETONATION:				
FROM PAGE 2:		SHOT NO.				
		1	2	3	4	5
1. CUBIC YARDS OF ROCK IN SHOT:						
2. TOTAL LBS. OF EXPLOSIVE:						
3. POWDER FACTOR:						
SEISMOGRAPHIC DATA COMPLETE FOR DAILY BLASTING REPORT						
TESTING FIRM:			OPERATOR:			
INSTRUMENT NO.		LOCATION		PART. VELOCITY (IPS)		
COMPANY REPRESENTATIVE NAME (PRINT):						
SIGNATURE				DATE:		

1. DETERMINE CUBIC YARDS OF ROCK IN SHOT:

TOP VIEW



SIDE VIEW



2.

DIAMETER = _____ Inches
 LENGTH = _____ Inches
 SPECIFIC GRAVITY OF EXPLOSIVE = _____
 ENERGY RELEASE OF EXPLOSIVE = _____ Cal/Gm

LBS. OF EXPLOSIVE STICK = (DIAMETER)² x LENGTH x SPECIFIC GRAVITY x ENERGY RELEASE x CONVERSION FACTOR

LBS./STICK = (_____)² x _____ x _____ x _____ x 0.0000315 = _____

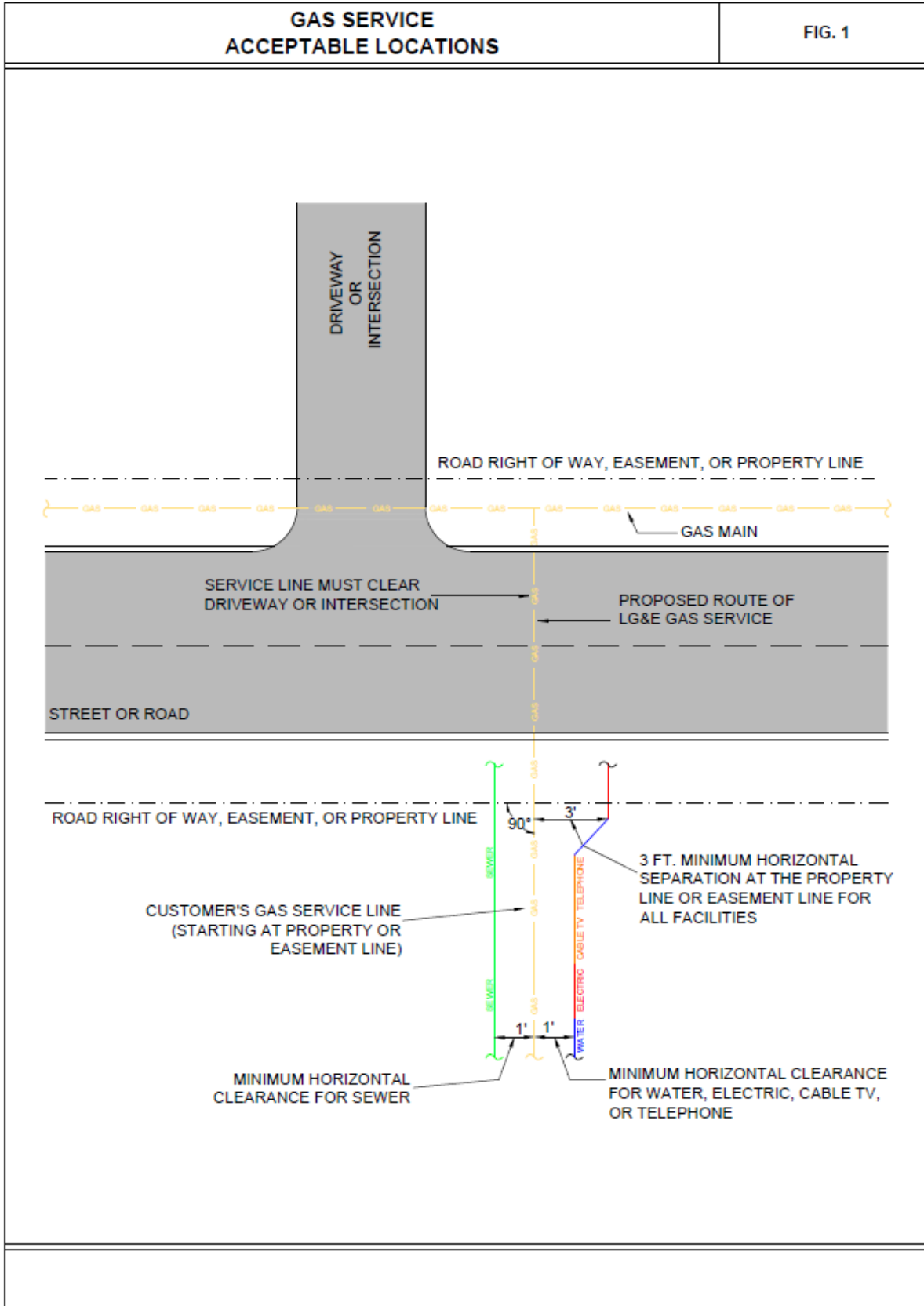
LBS OF EXPLOSIVE IN SHOT = LBS./STICK x NO. STICKS

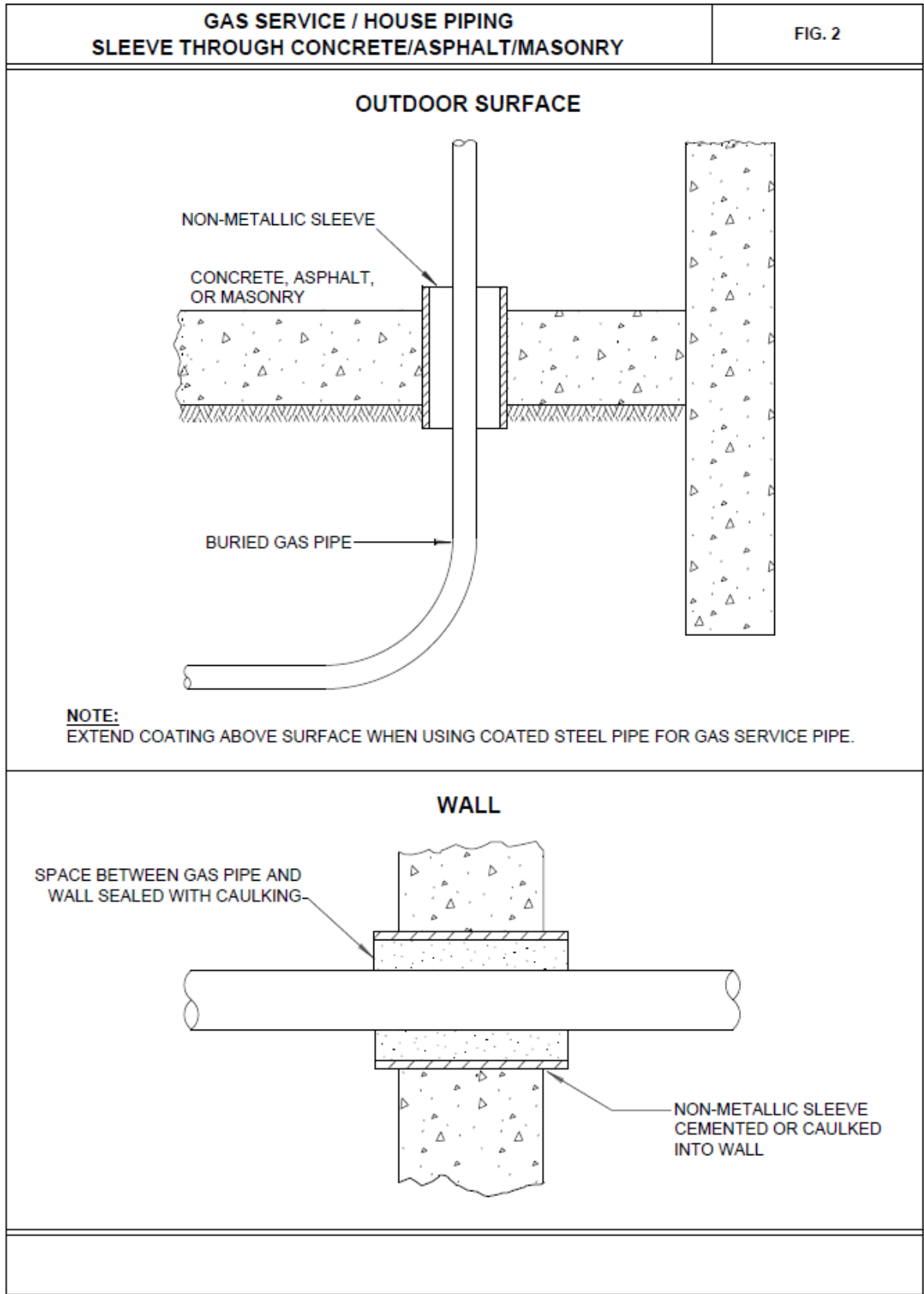
LBS OF EXPLOSIVE IN SHOT = _____ x _____ = _____ LBS

3. DETERMINE POWDER FACTOR:

POWDER FACTOR = $\frac{\text{LBS OF EXPLOSIVE IN SHOT (FROM 2 ABOVE)}}{\text{YD}^3\text{s OF ROCK IN SHOT (FROM 1 ABOVE)}}$

POWDER FACTOR = _____ / _____ = _____ LBS/YD³

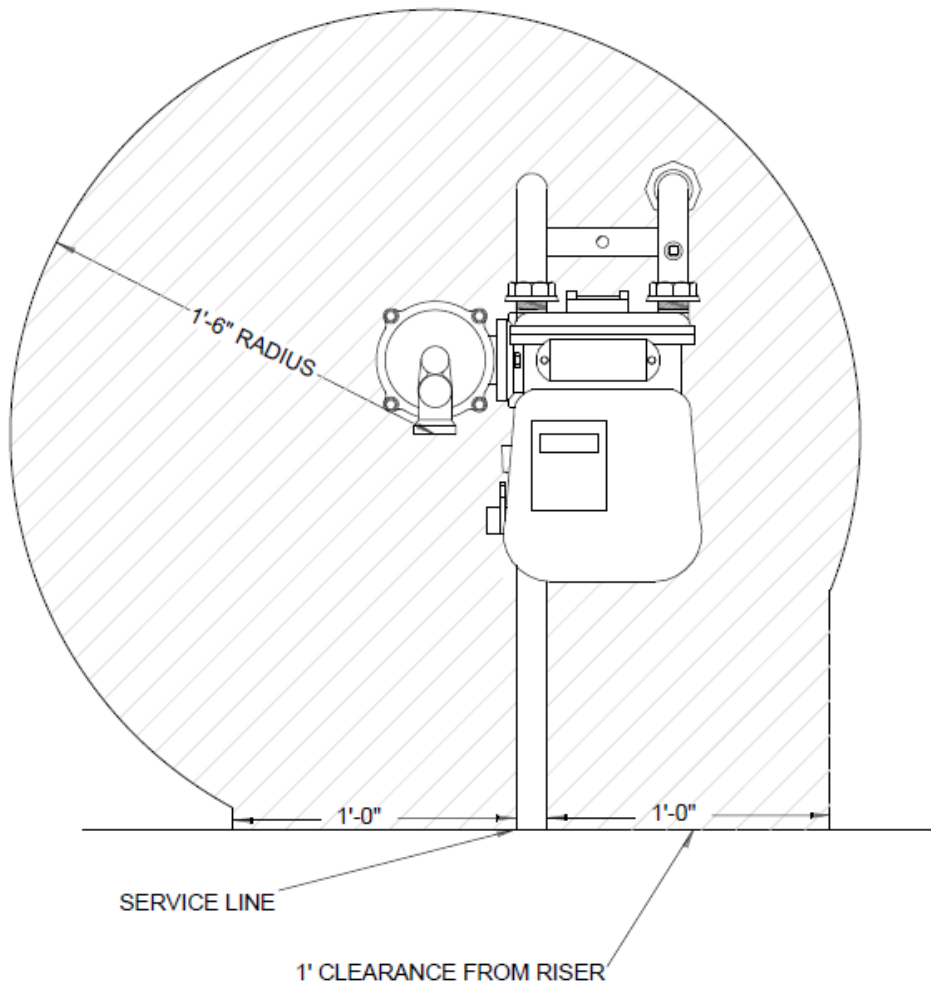


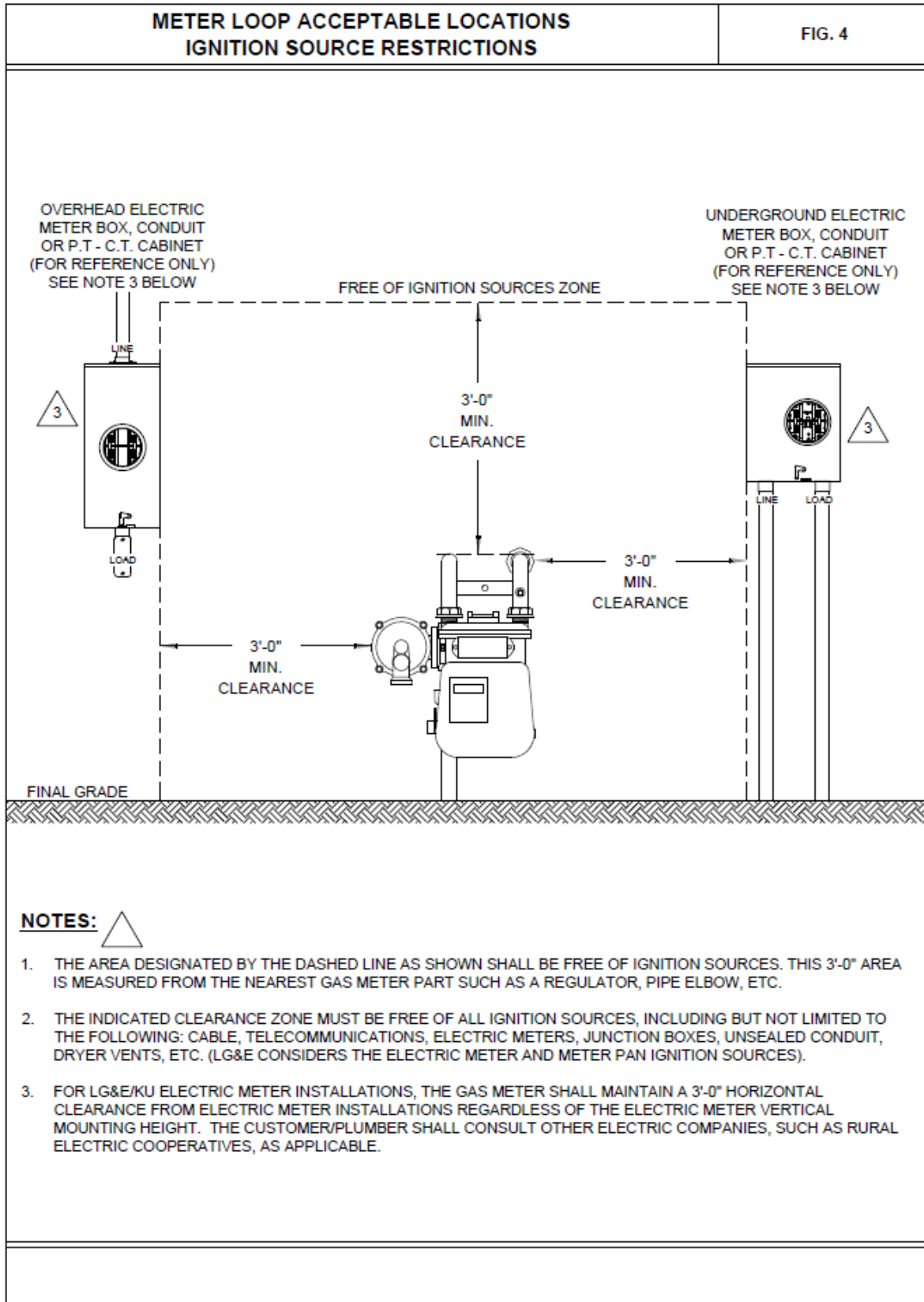


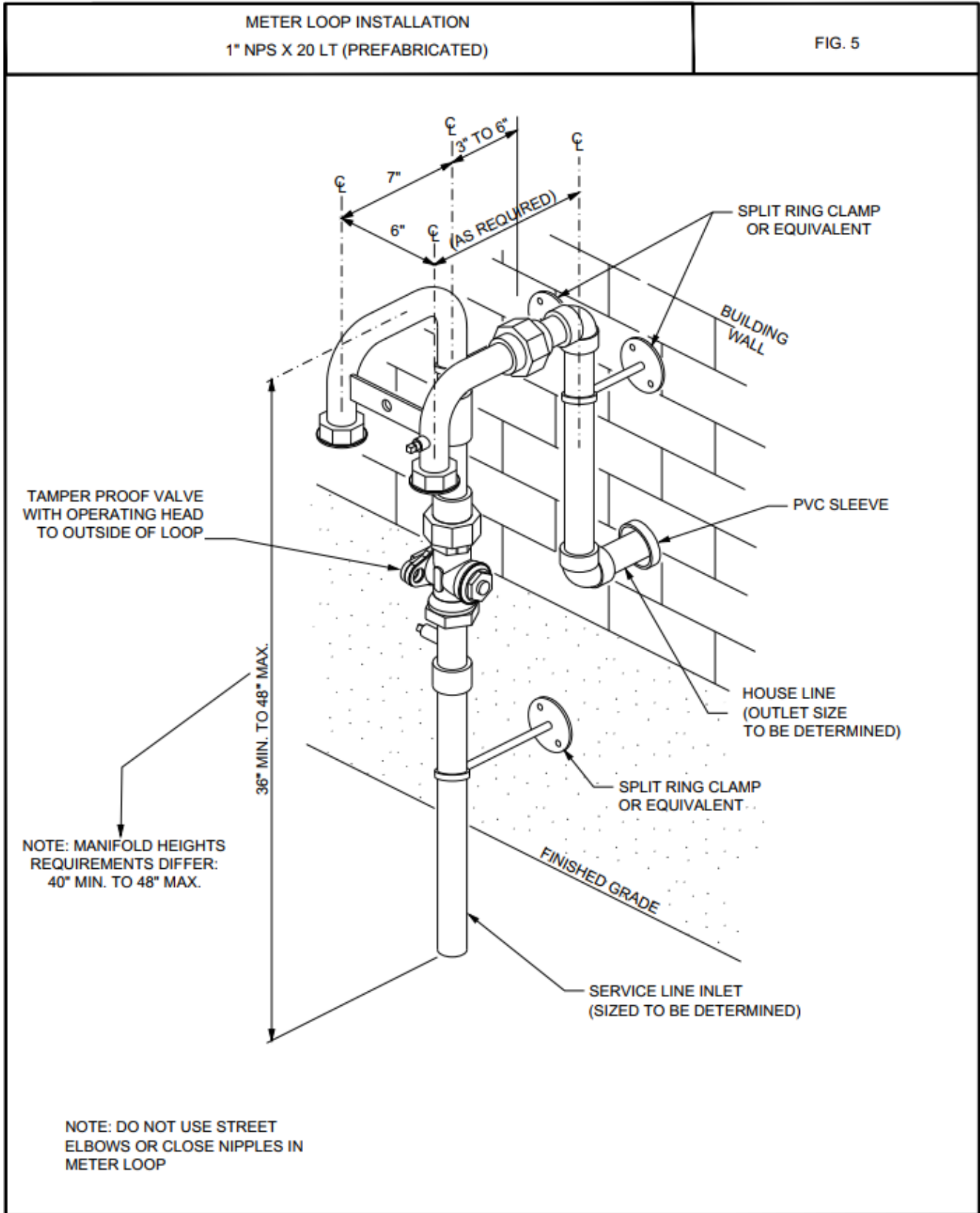
**METER LOOP ACCEPTABLE LOCATION
AIR INTAKE/VENT RESTRICTIONS**

FIG. 3

SHADED AREA TO BE FREE OF AIR INTAKES OR VENTS.







**METER LOOP INSTALLATION
 1-1/2 WITH BYPASS (HAND BUILT)**

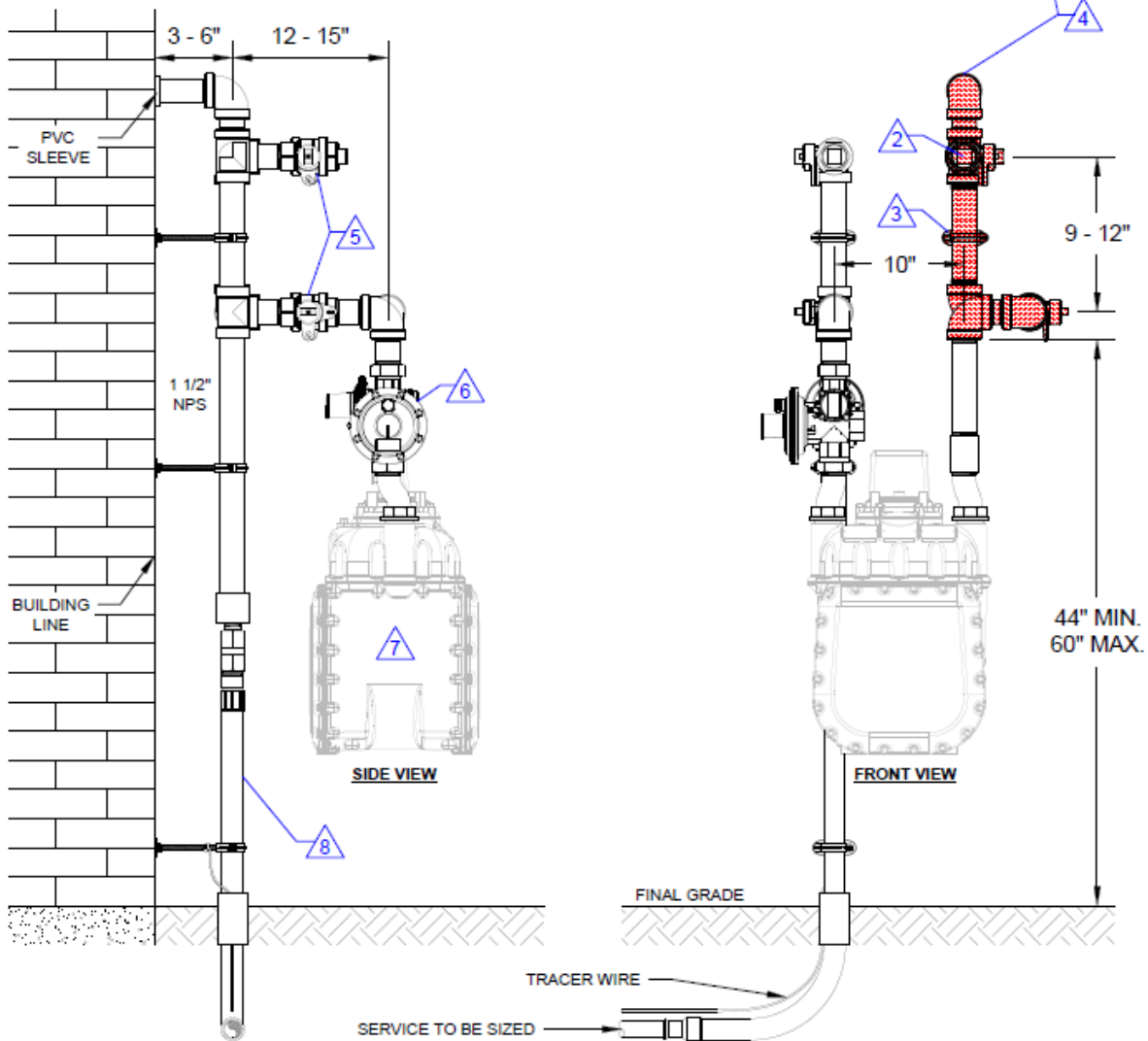
FIG. 6

CUSTOMER TO INSTALL:

1. 1-1/2" GAS VALVES
 - ALL VALVE STEMS SHALL BE POINTED TOWARDS THE OUTSIDE OF THE METER LOOP
2. 1-1/2" PIPE PLUG
3. SPLIT RING CLAMPS OR EQUIVALENT
 - INSULATE FROM GAS PIPE WHEN ATTACHED TO A METAL STRUCTURE
4. BYPASS PIPING ON HOUSE LINE SIDE OF METER LOOP (SHADED)
 - HOUSE LINE OUTLET SIZE AND LOCATION TO BE DETERMINED

LG&E TO INSTALL:

5. 1-1/2" GAS SERVICE VALVES RATED FOR A MINIMUM OF 100 PSI
6. REGULATOR
7. GAS METER
8. ANODELESS GAS SERVICE RISER
 - SIZE AND CONFIGURATION AS NEEDED



**METER LOOP INSTALLATION
 1-1/2 WITHOUT BYPASS (HAND BUILT)**

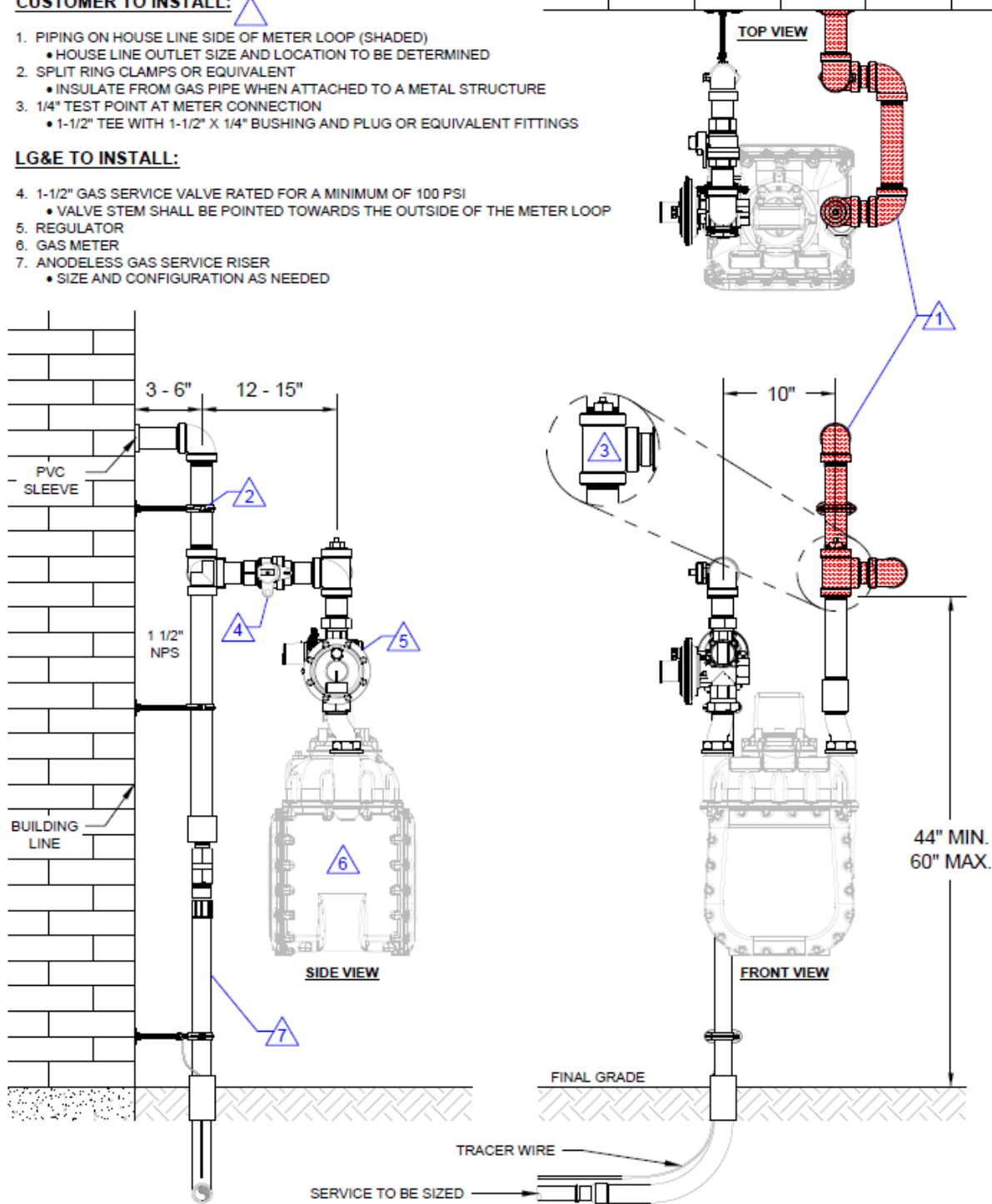
FIG. 7

CUSTOMER TO INSTALL:

1. PIPING ON HOUSE LINE SIDE OF METER LOOP (SHADED)
 - HOUSE LINE OUTLET SIZE AND LOCATION TO BE DETERMINED
2. SPLIT RING CLAMPS OR EQUIVALENT
 - INSULATE FROM GAS PIPE WHEN ATTACHED TO A METAL STRUCTURE
3. 1/4" TEST POINT AT METER CONNECTION
 - 1-1/2" TEE WITH 1-1/2" X 1/4" BUSHING AND PLUG OR EQUIVALENT FITTINGS

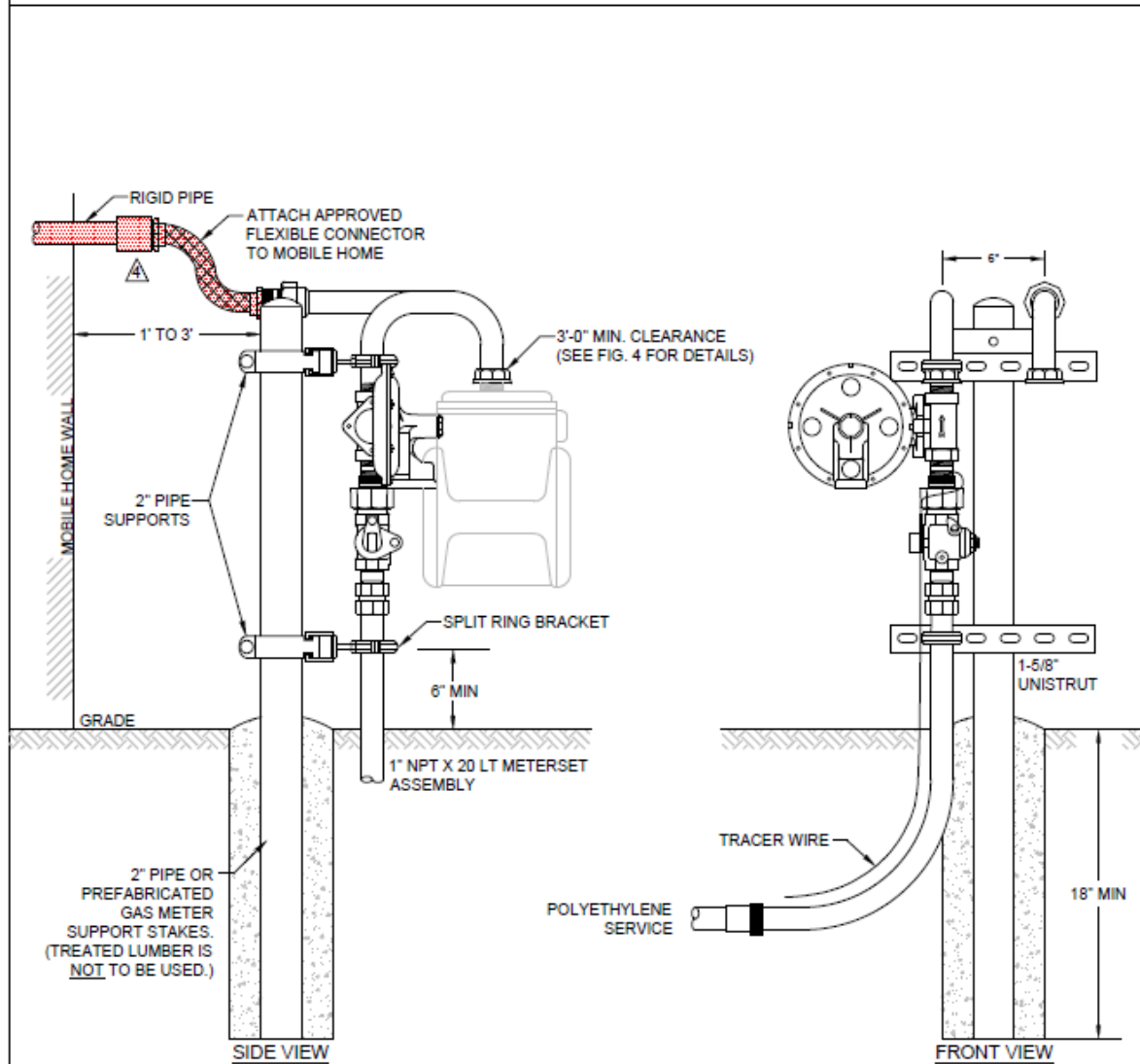
LG&E TO INSTALL:


4. 1-1/2" GAS SERVICE VALVE RATED FOR A MINIMUM OF 100 PSI
 - VALVE STEM SHALL BE POINTED TOWARDS THE OUTSIDE OF THE METER LOOP
5. REGULATOR
6. GAS METER
7. ANODELESS GAS SERVICE RISER
 - SIZE AND CONFIGURATION AS NEEDED



**METER LOOP INSTALLATION
 1" NPS X 20 LT (PREFABRICATED)**

FIG. 8

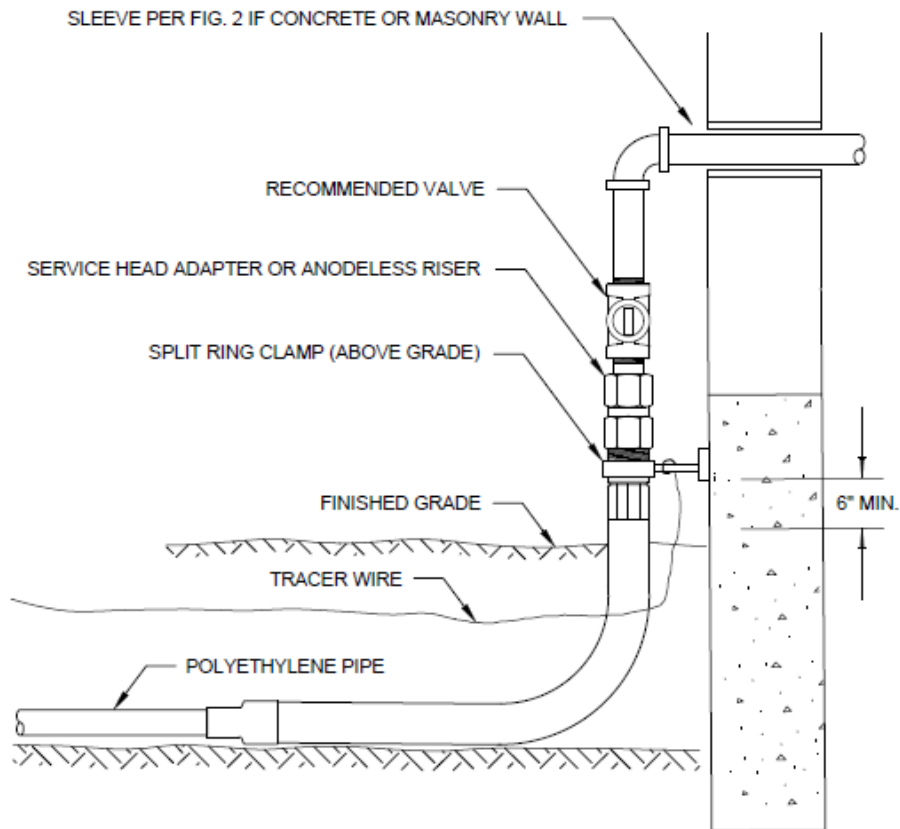


NOTES: 

1. SERVICE RISER SHALL BE 1" IN SIZE.
2. METER MUST NOT BLOCK INGRESS OR EGRESS INCLUDING EMERGENCY EXITS.
3. SERVICE LINE SHALL NOT BE PLACED UNDER MOBILE HOME.
4. CUSTOMER TO PROVIDE SHADED GAS COMPONENTS.

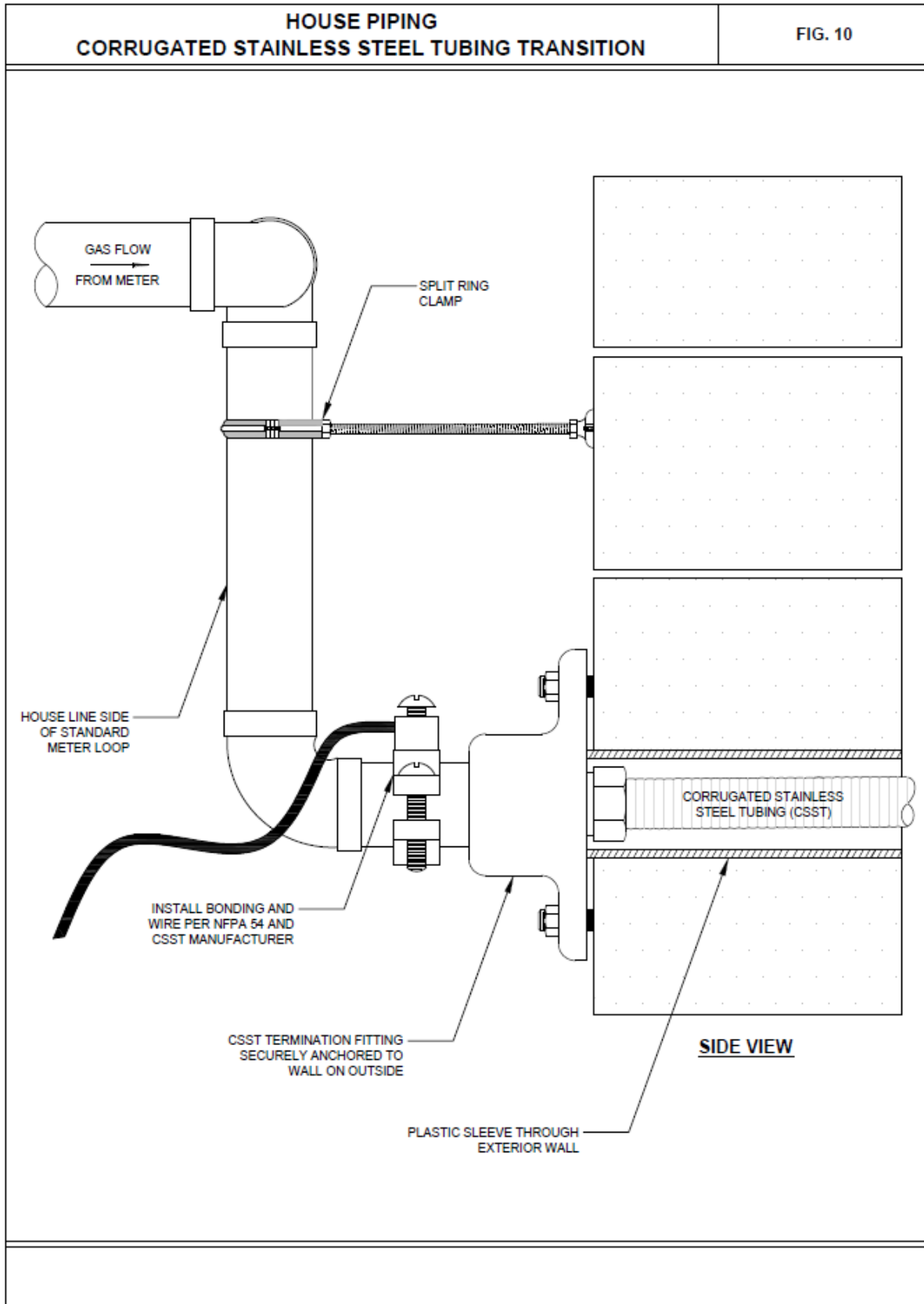
**HOUSE PIPING
POLYETHYLENE TO STEEL TRANSITION**

FIG. 9



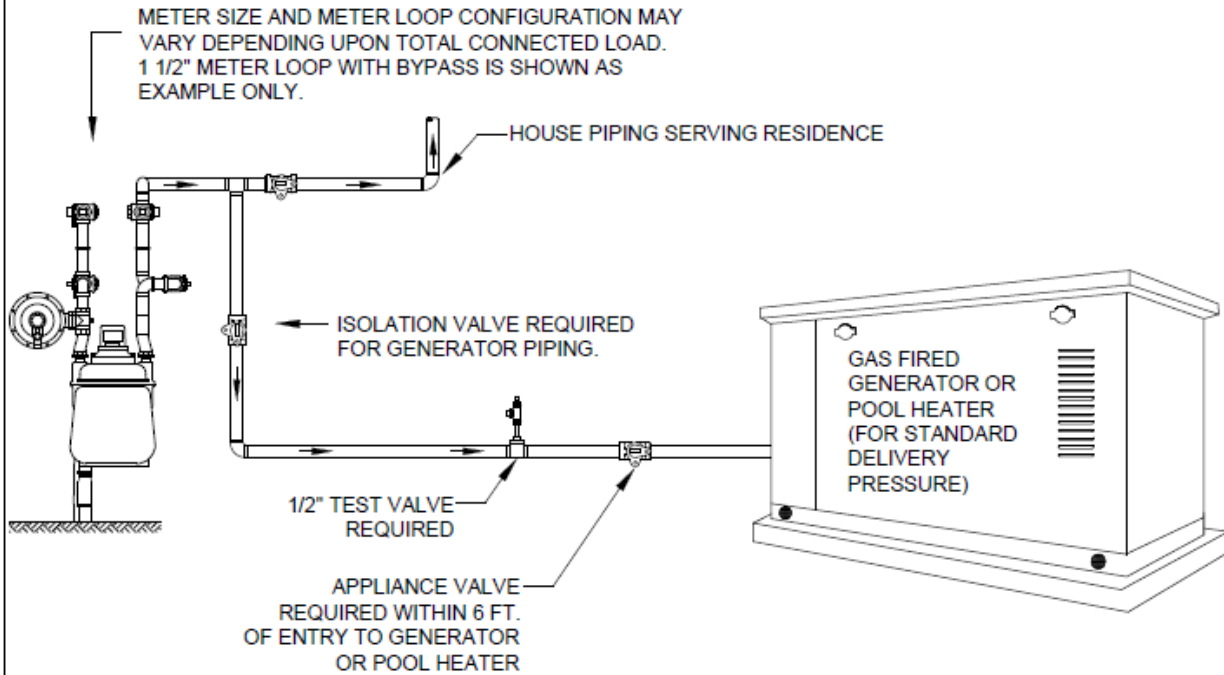
NOTES:

1. BOTTOM OF SERVICE HEAD ADAPTER MUST BE AT LEAST 6" ABOVE THE FINISHED GRADE.
2. IF AN ANODELESS RISER IS USED THE GRADE LEVEL MARK MUST BE ABOVE THE FINISHED GRADE.



**HOUSE PIPING
GENERATORS AND POOL HEATERS FOR STANDARD DELIVERY**

FIG. 11



NOTES:

1. LG&E **DOES NOT** PERMIT SEPARATE SERVICES FOR GAS GENERATORS ON STANDARD RESIDENTIAL SERVICES.
2. DEPENDING UPON THE TOTAL CONNECTED LOAD, THE CUSTOMER-OWNED SERVICE PIPING (I.E. PIPING FROM THE PROPERTY LINE TO THE METER) MAY REQUIRE REPLACEMENT. CUSTOMERS ARE RESPONSIBLE FOR VERIFYING THAT THEIR SERVICE PIPING IS ADEQUATELY SIZED FOR THE INTENDED LOAD. FOR ASSISTANCE, CONTACT LG&E.
3. REFERENCE CUSTOMER PIPING HANDBOOKS FOR ADDITIONAL DETAILS.

EXISTING SERVICE PROCEDURES:

STEPS FOR ADDING GAS GENERATOR OR POOL HEATER TO AN EXISTING SERVICE:

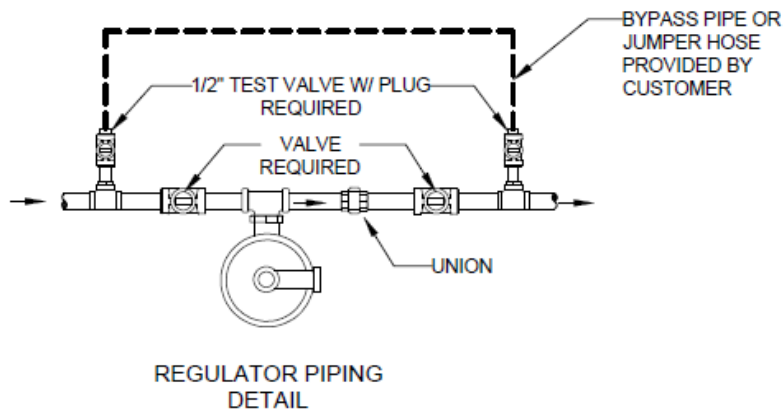
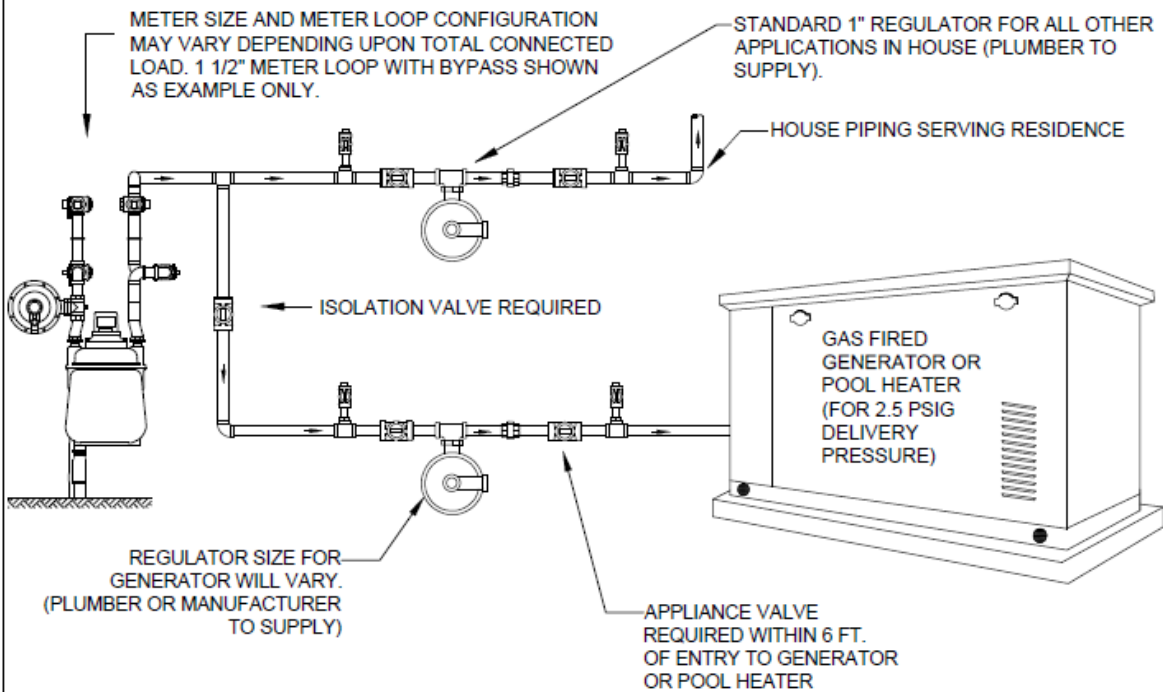
1. OBTAIN THE FUEL CONSUMPTION RATE/LOAD (IN BTUH) FOR ALL EXISTING NATURAL GAS APPLIANCES. (EXISTING LOAD)
2. OBTAIN THE FUEL CONSUMPTION RATE/LOAD (IN BTUH) AND THE MINIMUM PRESSURE REQUIREMENT FOR DESIRED NEW GENERATOR/POOL HEATER (NEW LOAD).
3. CONTACT GAS LOCATOR/DESIGNER WITH TOTAL CONNECTED LOAD FOR METER LOOP REQUIREMENT.
4. WHEN CALLING LG&E, HAVE THE FOLLOWING INFORMATION READY:
 - A. TOTAL CONNECTED LOAD (IN BTUH).
 - B. ADDRESS OF PROPOSED GENERATOR.
 - C. REQUIRED DELIVERY PRESSURE FOR GENERATOR.

**HOUSE PIPING
 GENERATORS AND POOL HEATERS FOR 2.5 PSIG DELIVERY**

FIG. 12

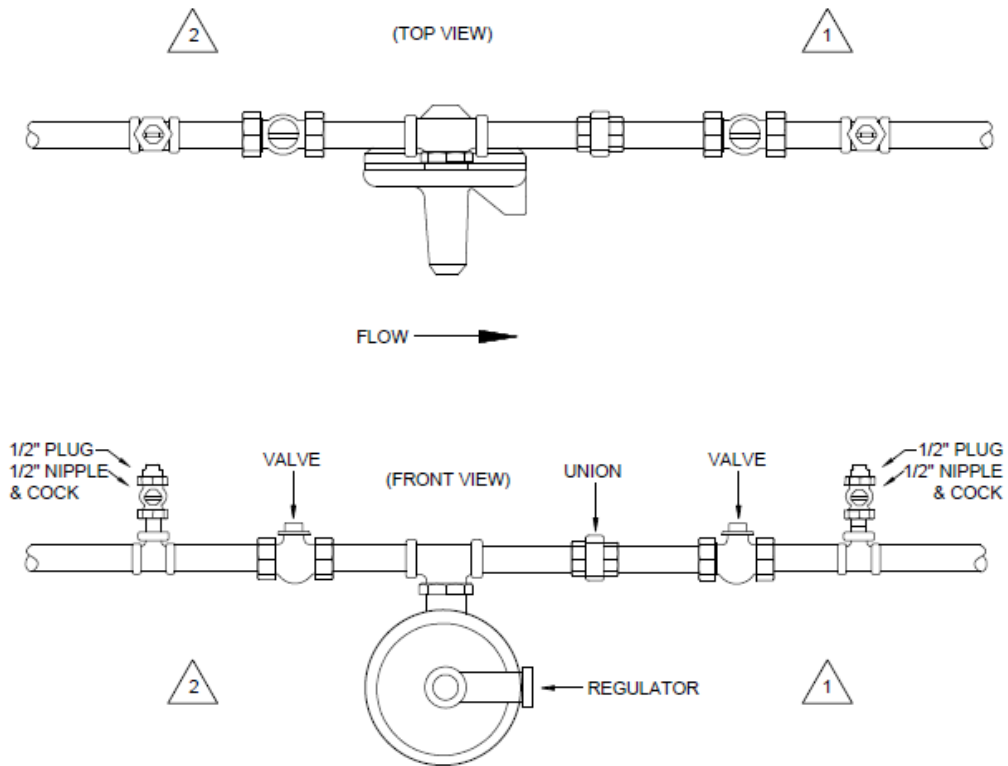
NOTES:

1. HIGH PRESSURE GAS (2.5 PSIG) SHALL NOT ENTER A BUILDING.
2. CUSTOMER IS RESPONSIBLE FOR SIZING, MAINTENANCE AND PROPER OPERATION OF ALL REGULATORS DOWNSTREAM OF THE METER.
3. REFERENCE NOTES ON PAGE 1.
4. VALVES SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 15 PSIG.



**HOUSE PIPING
HOUSE LINE REGULATOR INSTALLATION DETAILS**

FIG. 13

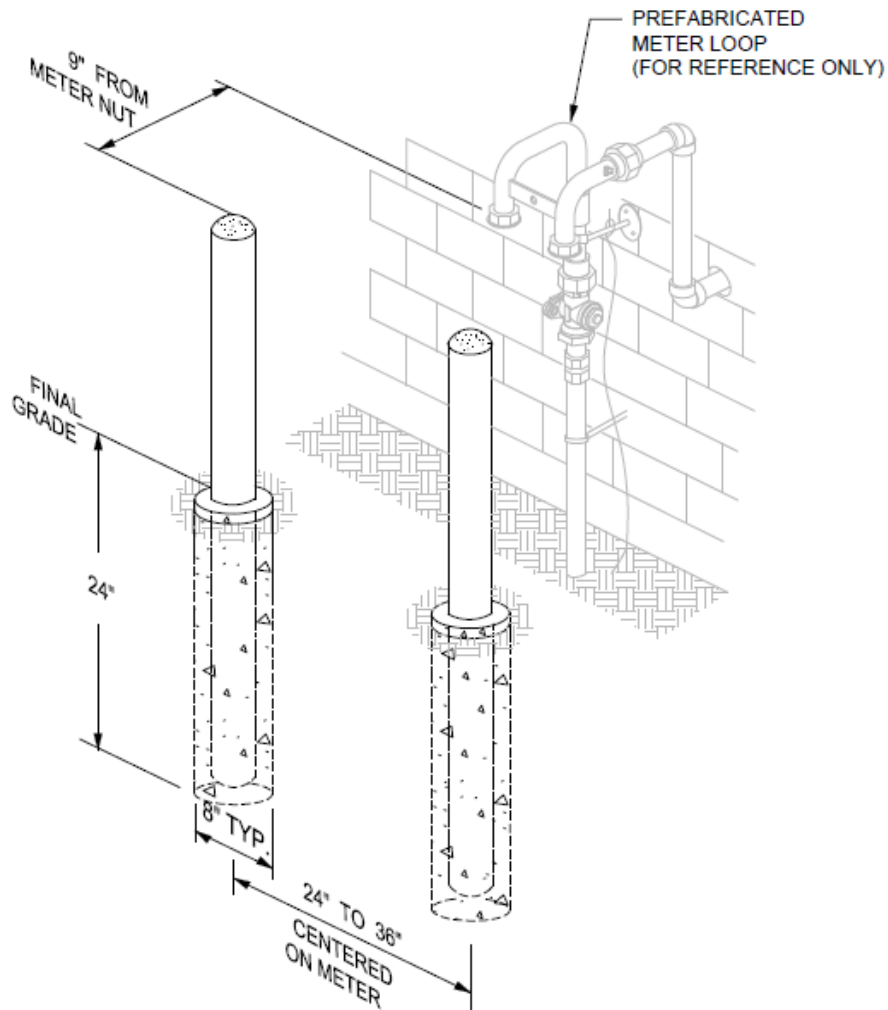


NOTES: △

1. DOWNSTREAM PIPE JOINING REQUIREMENTS MAY VARY DEPENDING UPON HOUSE PRESSURE. REFER TO CUSTOMER PIPING HANDBOOK AND COMMERCIAL LOAD DESIGNER.
2. ALL PIPE AND FITTINGS ON HOUSE PIPING OPERATING ABOVE 5 PSIG MUST BE WELDED. VALVE, REGULATORS, AND FINAL CONNECTIONS TO EQUIPMENT MAY BE THREADED.

**BARRICADE
METER LOOP**

FIG. 14



1. GAS METERS LOCATED WITHIN THREE FEET (3') OF DRIVEWAYS OR OTHER DRIVING AREAS SHALL BE BARRICADED OR OTHERWISE PROTECTED FROM VEHICULAR DAMAGE.
2. METERS LOCATED FARTHER THAN THREE FEET (3') FROM DRIVEWAYS OR COMMERCIAL/INDUSTRIAL OPERATIONS SUBJECT TO CONTACT BY TRUCKS, FORKLIFTS, OR OTHER MOBILE EQUIPMENT REQUIRE A BARRICADE.
3. LG&E WILL INSTALL BOLLARDS/BARRICADES.

Revision 0.0 - 12/2012 – Initial date is unknown, this is the oldest revision and effective date listed.

Revision 1.0 – 3/2013 –

3 Reorganized and clarified contact information for gas emergency and gas outage.

3.2 Included “Gas Outage (Gas Turn On)” in the description for 502-589-1444 contact number.

3.3 Added reference to website for Gas Locator Contact Information.

3.4 Updated Gas Designer/Locator zip codes

4.1 Changed contact number to 502-589-1444.

5 Changed contact number for unmarked gas lines to 502-589-1444.

10.4 Clarified customer and LG&E responsibilities for renovation jobs:
LG&E to provide squeeze off hole.

LG&E will relocate meter up to 3-feet, beyond that distance customer may need to provide trench and/or conduit for lengthening service line – consult with Gas Locator for your job specifics.

19.2 Clarified customer responsible for trench and/or conduit installations.

23.8 Revised conduit sizing for ½” and 1-1/4” service lines.

23.9 Revised specifications for presence of pull rope.

23.10 Revised minimum bending radius required for casing installations.

23.13 Revised conduit termination requirements.

24.1.3 Revised meter loop required clearances from air intakes.

29.4 Revised customer responsibilities for 1-1/2” meter loop – specifically the houseline side of the bypass.

40.0 Construction Drawings and Customer Forms:

Gas Load Data Sheet – revised e-mail and fax numbers for submission, added comment section.

Inserted drawing of 1” prefabricated meter loop.

Inserted drawing of 1-1/2” meter loop with bypass – customer responsibility for houseline side of bypass clarified.

GCS 80 10 000 – Replaced with Revision A.

Revision 2.0 – 5/2015 –

3 Reorganized and clarified contact information for gas emergency and gas outage.

3.2 Included “Gas Outage (Gas Turn On)” in the description for 502-589-1444 contact number.

3.4 Added reference to website for Gas Locator Contact Information.

4.1 Changed contact number to 502-589-1444.

5 Changed contact number for unmarked gas lines to 502-589-1444.

10.4 Clarified customer and LG&E responsibilities for renovation jobs:

□ Customer/ contractor to provide squeeze off hole.

□ Customer/ contractor is required to provide trench and/or conduit for relocating service line – consult with Gas Locator for your job specifics.

19.2 Clarified customer responsible for trench and/or conduit installations.

23.2 Added inspection information for trenchless installation of gas service conduit.

- 23.9 Revised conduit sizing for ½" and 1-1/4" service lines.
- 23.10 Revised specifications for presence of pull rope.
- 23.11 Revised minimum bending radius required for casing installations.
- 23.14 Revised conduit termination requirements.
- 24.1.2 Revised meter loop required clearances from ignition sources.
- 24.1.3 Revised meter loop required clearances from air intakes.
- 29.1 Revised min/max clearances from structures and vertical distances above grade for house lines.
- 29.3 Revised customer responsibilities for 1-1/2" meter loop – specifically the house line side of the bypass.
- 32.6. Added information and requirements for gas pressure boosters.
- 32.11.1 Added requirements for mobile home connections.
- 34.4 Revised houseline pressure testing requirements for higher than standard delivery pressure.
- 39.0 Construction Drawings and Customer Forms: Updated gas load data sheet and drawings.

Revision 3.0 - 9/1/2019

- 4.6 Removed bonding/grounding clarifications
- 20.2 Clarified wording and added insect and rain resistant fitting requirement.
- 21 Removed service line capacity tables.
- 22.4.1 Specified trench depth is from final grade.
- 23.2 3" minimum conduit size for trenchless installation.
- 23.5 Specified material grade for service conduit. Added clarification of bell end pipe installation direction.
- 23.9 Removed 1-1/4" conduit. 3" is minimum. Added 6" service size to table.
- 23.11 Removed service bending example and added responsibility to customer.
- 23.13 Clarified that termination caps need to be readily removable.
- 23.5 Specified conduit minimum thickness and color.
- 23.7 Added specification for marker tape.
- 24.1.2 Clarified wording to match construction standard. Added electric grounding rods and cables to list of potential ignition sources.
- 29.1 Houseline connection changed to match meter loop. 44" minimum height of houseline connection.
- 29.2 Increased meter spread from 14" to 16" for 1" meter loops and 24" to 30" for 1 ½" meter loops to accommodate larger regulator.
- 30.4 Updated to current NFPA Fuel Gas Code version.
- 33.4.1 Added customer responsibility to use appropriately rated valves.
- 33.4.4 Added customer responsibility to use appropriately rated valves.
- 33.5.1 Added customer responsibility to install bypass piping and jumper for house line pressure test.
- 33.8.1 Further specified acceptable uses of flexible appliance connectors.
- 33.9.2.1 Added separate meter requirement for new non-residential generators.

35.4 Formatted house line test pressures into table.

40.0 Drawings and Customer Forms: Revised Figures 1-14.

Revision 4.0- 11/30/2021- MOC Form Number 2021-04280847-

8 Updated Appliance definition to include any device that compresses fuel gas.

9.5.2.3 Updated to current NFPA Gas Code version.

23.12 Defined a minimum box or hole size for conduit connection box.

24.5.2 Updated to current NFPA Gas Code version.

28.3.2 Removed above standard delivery pressure note.

28.4 Added 11 inches W.C. and added above standard delivery pressure note.

29.3 Clarified 1 ½" meter loop installation requirements.

30.4 Updated to current NFPA Gas Code version.

33.3 Removed allowance of shielded house line piping less than 12 inches deep. Added requirement for dielectric fitting above ground for metallic piping.

33.4.4 Added requirement for shutoff valve label. Added statement that valve shall be used according to manufacturer's recommendation.

33.5.1 Updated code reference for line pressure regulators and gas appliance regulators.

33.5.3 Updated to current NFPA Gas Code version.

33.11.2.5 Added press connect fittings and code reference. Added requirement for sealing material at all threaded joints.

33.11.5.2 Clarified where the use of CSST is prohibited.

34.1 Added sealants must be compatible with piping and sleeve materials.

35.4 Revised table.

35.6 Changed section title "Additions, Repairs, and Other Changes".

35.6 Revised language in "Additions, Repairs, and Other Changes".

37.4.1 Updated to current NFPA Gas Code version.

39.1.1 Added 3 ½" clearance requirement.

40 Updated Figure 6 notes and Figure 7 to include test location on 1 ½" meter loop and notes.

Revision 5.0 – 7/31/2024 – MOC Form Number 2024-04110736

2.1.2 Clarified customers covered under this Handbook

3.1 Updated phone number for gas emergencies in Louisville

5.1.1 Relocated tampering to Section 5

5.1.2 Relocated tracer wire to Section 5

6.2 Updates blasting notifications, minimum notice period and required notice

6.4 Added blasting operation information

6.5 Removed LG&E service map and added responsibilities of blasting contractor

6.6 Added LG&E provisions for monitoring of blasting operations

- 6.7 Added documentation requirements for blasting
- 7.1 Updated hyperlink to rates/tariffs
- 8 Added definition for delivery pressure and interruption of service
- 10.2 Added expiration date for notification without additional correspondence
- 11.3 Clarified existing service line scenarios that require new construction
- 15.1.1.1 Updated residential gas customer meter figure
- 22.4.1 Clarified service depth adjustments
- 23.4 Clarified abandoned services
- 23.7 Clarified use of warning tape
- 23.8 Clarified installation of tracer wire
- 24.3.2 Clarified height requirements and updated manifold heights to 40" min to 48" max
- 25 Added requirements for free-standing, non-rigid, and pole-barn style buildings
- 29 Clarified flange size required for rotary meters
- 30 Removed duplicate section
- 30 Clarified house line identification on manifolds
- 32.6 Clarified check valve location needs to be approved by LG&E
- 32.10 Clarified gas piping labeling
- 32.11.2.5 Added location restrictions for press-connect fittings
- 32.11.6.5 Added explanation for temporary heat connections
- 34.1 Clarified pressure test to requirements for maximum delivery pressure
- 34.6 Updated new construction examples
- 35.1 Specified LG&E right to inspect
- 36.4 Removed pipe sizing method, reference NFPA 54 for sizing methods
- 39 Revised Gas Load Data Sheet
- 39 Fig 5. Revised 1" meter loop height requirements: 36" min to 48" max with manifold note

Revision 6.0 – 5/21/2025 – MOC Form Number 2025-03311521

- 4.1 Updated "What to Do if you Smell Natural Gas" language
- 4.4 Clarified Kentucky811 contact information
- 5 Clarified Kentucky811 steps to dig safely
- 16 Clarified turn off for emergency vs. non-emergency
- Updated formatting to align with company branding standards