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DISCLAIMER:
The information provided in this guide is designed to provide basic information about natural gas conversions, meters and more. This information may or may not pertain to your specific natural gas installation or conversion.

For job-specific information and more detailed information, please contact our Senior Technical Channel Specialist Luella Miles at lmiles@washgas.com or 703-750-4476.

This guide is designed to assist contractors working with natural gas lines and gas appliances. It is the contractor’s responsibility to maintain gas lines, regulators, valves, manifolds and appliances in a customer’s home after the outlet of the meter.

All materials prior to the meter and including the meter are the responsibility of Washington Gas and Washington Gas authorized subcontractors.

For any questions or concerns, contact Washington Gas.

METER AND REGULATOR CLEARANCES

OUTSIDE METERS

Meters should be installed in accessible outside locations so they can be easily read, changed and available for maintenance work.

- Location and Clearance Requirements:
  - A minimum distance of 1 foot from arc-producing electrical equipment or other sources of ignition must be maintained.
  - Residential meters should not be connected to underground piping downstream of the meter except for piping that serves gas utilization equipment located outdoors.

See meter drawings on page 5 for outside meter examples.

INSIDE METERS

Locations: Install the regulator as close as possible to where the service line enters the building.

- Maintain minimum clearance distances of:
  - 3 feet from sources of ignition.
  - 3 feet from sources of heat that could raise the temperature of the meter to 120 degrees Fahrenheit or otherwise damage the meter.

- Vent Requirements:
  - The meter room should be able to communicate either with the outside or with an occupied portion of the building.
  - The effective vent area should be a minimum of 3 square inches for:
    - A meter room with a floor area of 10 square feet or less containing three or fewer residential size meters.
    - A meter room with a floor area greater than 10 square feet.
    - A meter room containing three or fewer residential size meters.
    - A meter room with a floor area of 10 square feet or less containing more than three meters of any size.
    - A meter room or cabinet containing at least one commercial size meter 1.5M rotary or larger or more than three meters of any size.
    - An undercut door is not considered to be a vent in compliance with these requirements.
    - If the meter is installed in a cabinet or closet, the interior of the cabinet or closet should not communicate with a floor, ceiling or wall cavity or with a room or building story other than the one containing the cabinet or closet.

REGULATORS

A typical residential meter build-up has a regulator that reduces main pressure down to 5.5 to 7 inches water column (approximately 1/4 of one psi) to deliver a safe pressure into the customers’ house line. In some cases where the main pressure is already inches water column a regulator is not required and would not be present on a meter build-up.
MERCURY REGULATORS

Mercury-sealed regulators are still in use within Washington Gas’ service territory. In these regulators, the mercury acts as the relief valve and serves as overpressure protection. While only a small amount of mercury is used, over pressurization can disturb the mercury, resulting in a release of gas from the regulator vent.

Historically mercury was used for thermostats, gauges and regulators, all of which have been very reliable.

Mercury-sealed regulators can be identified easily. They are always positioned in the horizontal position to contain the liquid mercury content. The mercury cup and inspection plate are unique for these regulators.

When working on appliances in a home with a mercury regulator, please take precautions. If gas has been turned off, reinstate gas slowly. If gurgling occurs when gas is turned on to a mercury regulator vent, notify Washington Gas at 703-750-1400 immediately.

- A 5-foot clearance from a relief valve larger than 1-2 inches.
- A 3-foot clearance from an IRV regulator with ¾ inch inlet connection.
- A 3-foot clearance from a 1 inch or smaller relief valve.
- A 3-foot clearance from an IRV regulator with inlet connection larger than 2 inches.
- Maintain the same clearance from direct vent appliance intake as from sources of ignition.
- Maintain a minimum of 12 inches clearance from any horizontal surface directly below the vent.
- Allow gas to vent freely away from building openings such as windows, doors or air intakes.
- Minimum vent clearances from sources of ignition should maintain:
  - Position the termination point so that vent flow is downward to prevent entry of rainwater into the vent. Gas will contact the customer and schedule an appointment to change the regulator.

VENT LINES AND TERMINATIONS

Vent lines may only be installed aboveground. All vent terminations must:

- Terminate outdoors at least 12 inches above grade with an insect-resistant screen.
- Maintain a minimum of 12 inches clearance from any horizontal surface directly below the vent.
- Allow gas to vent freely away from building openings such as windows, doors or air intakes.
- Minimum vent clearances from sources of ignition should maintain:
  - A 3-foot clearance from an IRV regulator with ¾ inch inlet connection.
  - A 3-foot clearance from a 1 inch or smaller relief valve.
  - A 5-foot clearance from a relief valve larger than 1-2 inches.

Note: Contact Washington Gas Senior Technical Channel Specialist Luella Miles for relief valves larger than 2 inches.

- Terminate above the high-water mark in areas known to flood. If known, terminate above the 100-year flood level.
- Certain jurisdictions have meter location specifications. For instance, Virginia has additional vent clearance requirements.
- The regulator vent must be located a minimum of 3 feet horizontally away from any openings into buildings, and the regulator vent or vent outlet shall not be installed underneath any openings located on the first floor of the building. The regulator vent or vent outlet must also be located a minimum of 3 feet horizontally away from any rotating electrical equipment and cannot be installed underneath any such equipment. The regulator vent or vent outlet must be at least 10 feet horizontally away from any powered intake vents. Where possible, the operator shall maintain a minimum of 3 feet of radial separation between the regulator vent or vent outlet and any electric meters, electrical equipment disconnecting boxes, electrical outlets, etc. However, at no time should a regulator vent or vent outlet be installed with less than 1 foot of radial separation from any electric meters, electrical equipment disconnecting boxes, electrical outlets, etc.

METER BANKS

- Location and Clearance: Meter banks must be installed outside unless there are no practical outside locations. If it is not practical to install the meter bank outside, position the meter bank as close to the point where the gas line enters the building as possible.
- Outside Installations: The meter bank installation should be located at close as possible to the outside building wall of the building it is serving. The outlet of each meter shall enter the building without going back underground.
- Inside Installations: Meter banks should not be installed inside buildings or other structures unless there are no other practical alternatives. All regulator and relief valve vents should be extended to the outside and will terminate where gas can vent freely away from building openings.

For more information, contact Washington Gas Senior Technical Channel Specialist Luella Miles.

PROTECTING METER INSTALLATIONS

At the time of installation, meters and regulators should be located in areas where damage from floods or external forces, such as vehicle traffic, is minimized and the necessary meter protection installed.

- Flood Areas: Meters and regulators installed in areas known to flood should be located above the high water mark. If it is not practical to locate meters and regulators above the high water mark, the regulator vent should terminate 12 inches above the high water mark.
- Vehicle Traffic: Meters and regulators are usually installed away from roads, driveways, parking areas or other locations exposed to vehicle traffic or other external forces. Where it is not practical to install meters and regulators away from such hazards, guards must be installed to protect the installation. Guards may consist of, but are not limited to, posts, bollards, railings, etc. If you discover a meter that needs to be protected, please take a photo and send the address to contractorservices@washgas.com.

METER ROOMS

- Whenever practical, an inside meter bank should be installed in a meter room separate from electrical service equipment. Each meter room must be ventilated and should be located as close as possible to the point where the gas line enters the building.
- Ventilation Requirements:
  - The vent must allow the meter room to communicate either with the outside or with an occupied portion of the building.
  - The effective vent area should be a minimum of:
    - 3 square inches for a cabinet containing three or fewer residential size meters.
    - 3 square inches for a meter room with a floor area of 10 square feet or less.
containing three or fewer residential size meters.
- 10 square inches for a meter room or cabinet containing at least one commercial size meter 1.5M rotary or larger or more than 3 meters of any size.
- 10 square inches for a meter room with a floor area greater than 10 square feet.
- 1 foot above the floor of the meter room.
- An undercut door is not considered to be a vent in compliance with this section.

Parking Garage Locations: If a meter bank is located in a parking garage, the meter bank shall be protected from traffic with appropriate meter guards.

- Rooftop Installations: Meter banks shall not be located on rooftops unless there is no other practical alternative and the location is approved by Washington Gas’ Corporate Engineering department.

### METER SIZING/SPECIFICATIONS

<table>
<thead>
<tr>
<th>Meter Size</th>
<th>Low Pressure System**</th>
<th>Meter Downstream of Regulator</th>
<th>Meter Upstream of Regulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC250</td>
<td>240</td>
<td>325</td>
<td>354</td>
</tr>
<tr>
<td>AL425</td>
<td>240</td>
<td>325</td>
<td>354</td>
</tr>
<tr>
<td>AL425</td>
<td>405</td>
<td>550</td>
<td>1,010</td>
</tr>
<tr>
<td>AL425</td>
<td>405</td>
<td>550</td>
<td>1,010</td>
</tr>
<tr>
<td>AC425</td>
<td>405</td>
<td>550</td>
<td>1,010</td>
</tr>
</tbody>
</table>

**Note: Meters that are 3M and larger must be supported by a concrete pad.

**2psi Split Not Available

Contact Washington Gas Trade Relations Account Manager Luella Miles to determine if a rotary or turbine meter should be used in these sizes.

<table>
<thead>
<tr>
<th>Meter Size</th>
<th>Low Pressure System**</th>
<th>Meter Downstream of Regulator</th>
<th>Meter Upstream of Regulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>16M</td>
<td>24,300</td>
<td>26,500</td>
<td>31,900</td>
</tr>
<tr>
<td>23M</td>
<td>35,000</td>
<td>38,500</td>
<td>45,800</td>
</tr>
<tr>
<td>38M</td>
<td>57,900</td>
<td>63,000</td>
<td>75,700</td>
</tr>
<tr>
<td>56M</td>
<td>85,300</td>
<td>92,800</td>
<td>111,600</td>
</tr>
<tr>
<td>102M</td>
<td>155,400</td>
<td>169,300</td>
<td>203,200</td>
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<tr>
<td>118M</td>
<td>270,000</td>
<td>30,000</td>
<td>36,000</td>
</tr>
<tr>
<td>135M</td>
<td>53,200</td>
<td>58,000</td>
<td>70,000</td>
</tr>
<tr>
<td>160M</td>
<td>91,600</td>
<td>100,000</td>
<td>120,000</td>
</tr>
<tr>
<td>180M</td>
<td>213,800</td>
<td>233,000</td>
<td>281,000</td>
</tr>
</tbody>
</table>

**2psi Split Not Available

Note: Please contact Washington Gas at 703-941-HEAT to determine main service pressure.

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**Contact Washington Gas Trade Relations Account Manager Luella Miles to determine if a rotary or turbine meter should be used in these sizes.

**Fixed factor is applied by the billing system for 2 psig metering. A correcting instrument is required for meters 16M and greater.

**A correcting instrument is required for metering at service line pressure.

**A 7 in. w.c. pressure drop is allowed for across rotary meters in a 5.5 in. w.c. systems.

*Note: Meters that are 3M and larger must be supported by a concrete pad.
CONTRACTOR GUIDE

METER OUTLET VALVE INSTALLATIONS
A meter outlet valve may be installed when the customer’s house line has not been inspected or it has not been installed.

Note: This installation process applies to new constructions only.

- The meter will be set and gas left on.
- The meter outlet valve will be plugged and left off.
- A meter outlet valve information tag will be attached to the outlet of the meter to inform the customer that:
  - Gas has been left on.
  - The regulator has been adjusted and set at either 2psi or seven inches water column.

METER BONDING AND GROUNDING
Bonding devices are used to provide a continuous electrical path around a cutout, disconnection, tie-in or other separation between two sections of metal pipe. Grounding consists of the removal of an electrical charge from steel, plastic piping system, tools or equipment. Customers cannot ground or bond any of their equipment to Washington Gas-owned equipment or piping, including Corrugated Stainless Steel (CSST) piping systems.

METER SHUT OFFS
A meter may be shut off for safety or billing issues. If a meter is shut off, changes should not be made to the service. For assistance with a meter shut off, please contact Washington Gas at 703-750-1000.

For Maryland Only: As required by Maryland law, when theft-of-service is suspected, the gas is turned off at the meter or at the street and a Turn-Off Notice is provided in a visible location at the premise or with an occupant at the premise if safety permits.

TAGS
Washington Gas uses two tags to note faulty or improperly installed equipment on the customer side of the meter.

- Red Danger Tag: Used when equipment or piping is non-repairable or presents an immediate hazard.
  - The gas is left on and the warning tag is placed on the equipment or piping.
  - The customer’s hard copy is left on the equipment presenting the potential violation.
  - The customer’s hard copy is left on the equipment presenting the potential violation.
- Orange Warning Tag: Used when a condition does not present an immediate hazard.

- The gas is left on and the warning tag is placed on the equipment or piping.

EXCESS FLOW VALVES
An excess flow valve (EFV) may reduce the consequences of a gas leak in the event of a break in the outside service line. The valve is designed to shut down the gas service to your home and reduce the likelihood of unrestricted gas flow from the broken line. Since January 1999, in response to government regulation, Washington Gas has been installing EFVs at no additional charge to customers on all new residential natural gas service lines and in cases where residential service lines must be replaced. We will install an EFV on an existing natural gas service line for a cost to the customer of approximately $2,000-$3,000, depending on the time and labor necessary for the installation.

For more information about EFVs, or if you want an EFV installed on an existing residential service line, please call our Customer Service department at 703-750-1000.

BRANCH SERVICE
Branch services are identified by a yellow metal or plastic washer that is installed between the meter riser and regulator of a branch service. Contact Washington Gas Service Technical Channel Specialist Luella Miles at lmiles@washgas.com to confirm the combined load of both services does not exceed the capacities. Prior to its installation, owner permission and Washington Gas approval is required when branch service is provided to a customer.

CROSS BORES
A cross bore could be created when a natural gas line is unknowingly installed through an unmarked sewer line. Cross bores can lay dormant for months or even years, and can result in a sewer blockage or backup. Call Before You Clear a sewer blockage with a mechanical cutting tool. Call 811 and request an emergency ticket and reference the key phrases, Sewer Clearing or Cross Bore. By making this reference, a Washington Gas representative will be dispatched to locate the natural gas lines on your property to make certain there is no conflict between natural gas and sewer facilities.

Note: Washington Gas does not charge for these services.

SERVICE ABANDONMENTS
Before abandonment, determine if there is an existing service feeding the building to be demolished. Abandon services not in use (NIU) during associated main replacement if the owner does not intend to use gas within the next 12 months. When a leak or other service violation such as evidence of tampering is found on an NIU service, abandon the service if the owner does not intend to use gas within the next 12 months.

STRUCTURE OVER SERVICE
Structure Over Service (SOS) is defined as an enclosed building intended for human occupancy built over an existing service line. Examples of SOSs are home additions, attached/detached garages, workshops, etc. Before digging or building a structure that may be over a service line, be sure to call Miss Utility at 811.

FOR MORE INFORMATION, CONTACT WASHINGTON GAS AT 703-750-1000.
CONTACTS

Customer Service and Service-Related Issues ................................................. 703-750-1000
Reporting Gas Leaks ....................................................................................... 911 and 703-750-1400
Gas Availability and Service Line Capacity ...................................................... 703-941-HEAT
Damage Prevention ............................................................................................. 800-428-5364
Miss Utility – Call Before You Dig ................................................................. 811
Service Abandonments ..................................................................................... svcabandonments@washgas.com

For all other Washington Gas-related inquiries, please contact Luella Miles at 703-750-4476 or lmiles@washgas.com.

DEFINITIONS

Abandonment – a pipeline is abandoned when it is determined the pipeline is no longer required as a source of supply to feed other lines or supply customers in the present or future and is permanently removed from service.

Bonding Devices – devices used to provide a continuous electrical path around a cutout, disconnection, tie-in or other separation between two sections of metal pipe.
- Bonding devices consist of a length of copper wire with clamps or magnets on both ends to allow attachment to the separated pipes.

Branch Service – a service line that branches to serve two customer meters.

Branch Service Washer – a yellow metal or plastic washer that is installed between the meter riser and regulator of a branch service.

CGA – Can’t Gain Access.

Combustible Mixture – a mixture of natural gas and air in a proportion that will burn or explode when a source of ignition is introduced.

Distribution Line – any of the individual main or service lines in the distribution system.

Grounding – removal of an electrical charge from a steel or plastic piping system, or from tools or equipment.

High Pressure (HP) – pipelines operating greater than 60 psi and less than 20 percent specified minimum yield strength.

Inches Water Column (W.C.) – a measure of pressure, usually in a pipeline.
- 1 inch w.c. is the amount of pressure needed to force a column of water to rise 1 inch - 1 psi equals about 277 inches w.c.
- Pipeline pressure that is measured in inches w.c. is considered to be low pressure.

Low Pressure Line (LP) – low pressure lines operate below 10 psig and at approximately 78 inches w.c.

Liquefied Petroleum Gas (LPG) – petroleum gas in a liquid state that includes propane, butane or mixtures of these gases.

LP gases are denser than air and LP gas-air mixtures are used to supplement supplies in a natural gas distribution system.

Main – a distribution line that serves as a common source of supply for more than one service line.

Maximum Allowable Operating Pressure (MAOP) – the maximum pressure at which a line can be operated.
- The MAOP for every line is established by WG according to DOT criteria.

Mechanical Coupling/Fitting – couplings and fittings designed to be installed in the field with standard tools such as wrenches and without welders or fusion equipment.

Medium Pressure (MP) – medium pressure pipelines operate between 10 psig and 60 psig inclusive and less than 20 percent specified minimum yield strength.

Meter Bank – multiple meters served by a single regulator where all meters are located in close proximity connected by a manifold and serving multiple units or customers in the same building or contiguous buildings.

Plastic Pipe – polyethylene pipe used in gas pipelines.

psig – pounds per square inch gauge.

Service Line – the line that runs from the main to the customer meter(s).
- Except for branch services and meter banks, service lines serve only one customer meter.

Service Regulator – a single IRV pressure regulator that serves a single building with one or more customers, or contiguous buildings with one or more customers, or a regulator with a second device serving only one customer.
- When a regulator with a second device serves a single customer through a master meter or multiple meters where the customer has multiple buildings in a campus-type arrangement, the regulator installation is classified as a regulator station.