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# CONTRACTOR GUIDE



WASHINGTON GAS | TECHNICAL INFORMATION

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**Disclaimer:**

The information provided in this booklet 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 Trade Relations Specialist Luella Miles at [lmiles@washgas.com](mailto:lmiles@washgas.com) or 703-750-4476.

## 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:
  - Maintain a minimum distance of 1 foot from arc-producing electrical equipment or other sources of ignition.
  - Residential meters should not be connected to underground piping downstream of the meter except for piping that serves gas utilization equipment located outdoors.

*Note: Certain jurisdictions have meter location specifications. Please check with your local jurisdiction.*

### Inside Meters

**Locations: Install the regular 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 cabinet containing three or fewer residential size meters
    - A meter room with a floor area of 10 square feet or less containing three or fewer residential size meters
  - A minimum of 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.
  - A minimum of 10 square inches for a meter room with a floor area greater than 10 square feet.

- A minimum of 1 foot above the floor of the meter room.
- 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 closet or cabinet.

## Protecting Meter Installations

**At the time of installation, meter 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.**

**Any existing installations found to be inadequately protected from floods or external forces must be reported and the deficiency corrected.**

- **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 inch above the high water mark. If floating debris is anticipated during a flood, guards should be installed.
- **Vehicle Traffic:** Install meters and regulators away from roads, driveways, parking areas or other locations exposed to vehicle traffic or other external forces. Where 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.

## Vent Lines and Terminations

Vent lines may only be installed above ground.

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 must maintain:
  - A 3 foot clearance from an IRV regulator with  $\frac{3}{4}$  in 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
  - Contact Washington Gas Trade Relations Specialist Luella Miles for relief valve larger than 2 inches

- Maintain the same clearance from direct vent appliance intakes as from sources of ignition.
- Maintain at least a 10 foot clearance from fan-induced ventilation air intakes to a building (This requirement does not apply to ventilation air intakes serving a single residential unit or to combustion air intakes.)
- Maintain clearance above the roof surface if terminating a relief valve vent or an IRV vent above a flat roof:
  - Maintain at least a 3 foot clearance for a vent from an IRV regulator with a  $\frac{3}{4}$  in inlet connection.
  - Maintain at least a 4 foot clearance for a vent from an IRV regulator with inlet connection larger than a  $\frac{3}{4}$  in or from a separate relief valve.
- Orient the termination point so that flow from the vent is downward to prevent entry of rain-water into the vent.
- Terminate above the high-water mark in areas known to flood. If known, terminate above the 100-year flood level.

## 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, locate the meter bank as near as practical to the point where the gas line enters the building.

- **Outside Installations:** The meter bank installation should be located as near as practical 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 Trade Relations Specialist Luella Miles.

## Meter Rooms

- Whenever practical, an inside meter bank should be installed in meter room separate from electrical service equipment. Each meter room must be ventilated should be located as near as practical 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 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 Corporate Engineering.

## Meter Bonding and Grounding

**Bonding devices are used to provide a continuous electrical path around a cutout, disconnection, tie-in or other separation between 2 sections of metal pipe. Grounding consists of the removal of an electrical charge from a steel, plastic piping system, tools or equipment.**

Customers cannot ground or bond any of their equipment to Washington Gas-owned equipment or piping, this includes Corrugated Stainless Steel (CSST), piping systems.

## Meter Sizing/Specifications

	Meter Size	METERING PRESSURE					
		Low Pressure System**	Meter Downstream of Regulator		Meter Upstream of Regulator		
			7.0 in w.c.	2 psig <sub>2</sub>	5 psig <sub>3</sub> (20 psig system)	10 psig <sub>3</sub> (30 psig system)	15 psig <sub>3</sub> (50 or 55 psig system)
<b>Residential</b>	AL250 AL425(20t) AL425 (30t)	240 425 425	325 550 900	354 <sub>5</sub> 1,010 1,010			
<b>Residential and Light Commercial</b>	1.5M	1,500	1,500	1,700	2,000	2,500	3,000
<b>Light Commercial</b>	2M	2,000	2,000	2,200	2,600	3,300	4,000
	3M	2,600	3,000	3,400	4,000	5,000	6,000
	5M	4,000	5,000	5,600	6,600	8,300	10,000
	7M	5,100	7,000	7,800	9,300	11,600	13,900
	11M	7,000	11,000	12,300	14,500	18,200	21,900
<b>Commercial and Industrial</b>	16M				21,200	26,500	31,900
	23M <sub>1</sub>				30,400	38,100	45,800
	38M <sub>1</sub>				50,300	63,000	75,700
	56M <sub>1</sub>				74,100	92,800	111,600
	102M <sub>1</sub>				134,900	169,100	203,200
	T18 <sub>1</sub>				24,000	30,000	36,000
	T35 <sub>1</sub>				46,000	58,000	70,000
	T60 <sub>1</sub> T140 <sub>1</sub>				79,000 185,000	100,000 233,000	120,000 281,000

<sup>1</sup>Contact Washington Gas Trade Relations Specialist Luella Miles to determine if a rotary or turbine meter should be used in these sizes.

<sup>2</sup>A fixed factor is applied by the billing system for 2 psig metering. A correcting instrument is required for meters 16M and greater.

<sup>3</sup>A correcting instrument is required for metering at service line pressure.

<sup>4</sup>A 0.7 in w.c. pressure drop is allowed for across rotary meters in a 5.5 in w.c. systems.

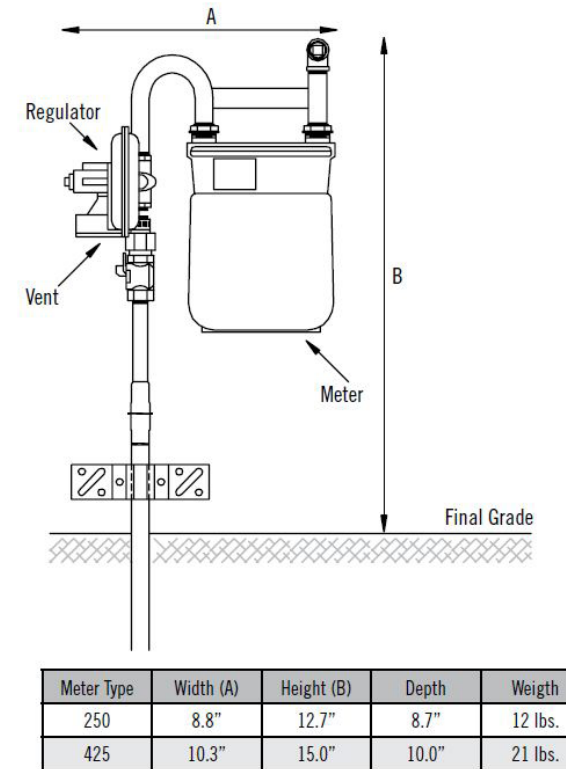
<sup>5</sup>The regulator used with the AL250 in a 20 psig system limits the capacity to 290 cfh.

\*\*2 PSI Split Not Available

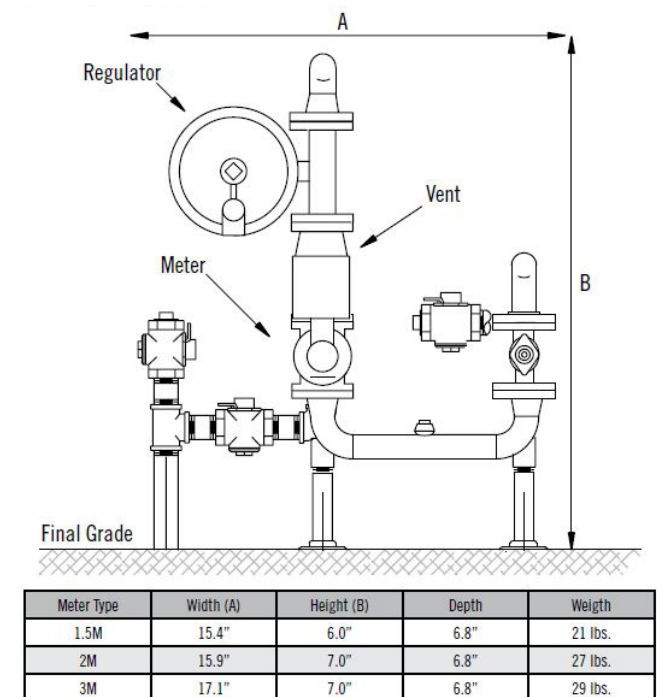
Note: Please contact Washington Gas at 703-941-HEAT to determine main service pressure.

## Meter Drawings

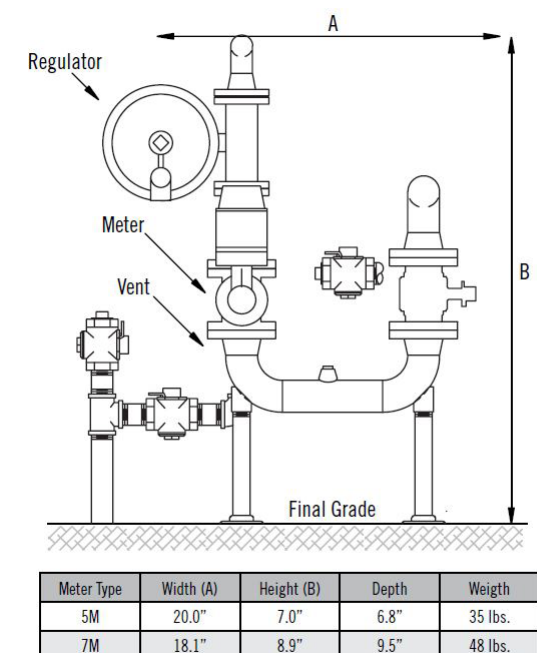
METER TYPE 250 AND 425



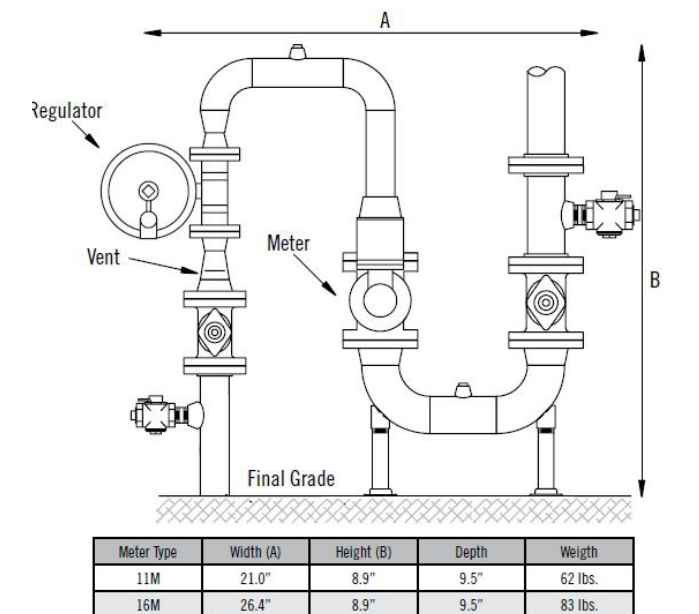
METER TYPE 1.5M, 2M AND 3M



METER TYPE 5M AND 7M



METER TYPE 11M AND 16M



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

## 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.

## Tags

Washington Gas uses 2 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 turned off to the faulty equipment or piping and place a red danger tag on it. The customer's hard copy is placed on the faulty equipment.

- **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. The customer's hard copy is left on the equipment presenting the potential violation.

*Note: There are 3 parts to the tags: customer copy, company copy and the tag attached to the equipment.*

For more information, contact Washington Gas at 703-750-1000.



## Branch Service

Branch service is identified by a yellow metal washer that is installed between the meter riser and regulator of a branch service.

Contact Washington Gas Trade Relations Specialist Luella Miles at [lmiles@washgas.com](mailto:lmiles@washgas.com) to confirm the combined load of both services does not exceed the capacities.

Prior to its installation, owner permission and WG approval is required when branch service is provided to a customer.

## Cross Bores

Cross bores refers to a natural gas pipeline or facility reported to be inside of a sewer line. If this is suspected, please notify Washington Gas immediately. An investigation will be conducted until it can be confirmed where a sewer line intrusion is present or there is no conflict.

## Can't Gain Access (CGA)

CGA indicates that Washington Gas employees cannot safely access the meter and service. Customers are notified of the issue with a CGA card.

If a leak is suspected and the meter cannot be obtained, actions must still be taken to ensure public safety and to protect life and property. Actions such as turning gas off at the meter, turning gas off in the street and contacting the local fire department may be necessary. If a gas leak is suspected, call 703-750-1400 immediately.

## Structure Over Service (SOS)

SOS is defined as an enclosed building intended for human occupancy built over an existing service line. Examples of SOS 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.



## 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 2 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 2 customer meters

**Branch Service Washer** – a yellow metal 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 60psi and less than 20 percent SMYS

**Inches Water Column** – inches wc; a measure of pressure, usually in a pipeline

- 1 inch wc is the amount of pressure needed to force a column of water to rise 1 inch 1 psi equals about 2.77 inches wc Pipeline pressure that is measured in inches wc is considered to be low pressure

**Low Pressure Line (LP)** – low pressure lines operate below 10 psig and at approximately 78 inches wc

**LPG** – liquefied petroleum gas; petroleum gas in a liquid state that includes propane, butane, or mixtures of these gases

- LP gases are denser than air 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 1 service line

**MAOP** – maximum allowable operating pressure; 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 SMYS

**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 1 customer meter

**Service Regulator** – a single IRV pressure regulator that serves a single building with 1 or more customers, or contiguous buildings with 1 or more customers, or a regulator with a second device serving only 1 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



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