

CHAPTER VII

PROPER LOCATION AND DESIGN OF CUSTOMER METER AND REGULATOR SETS

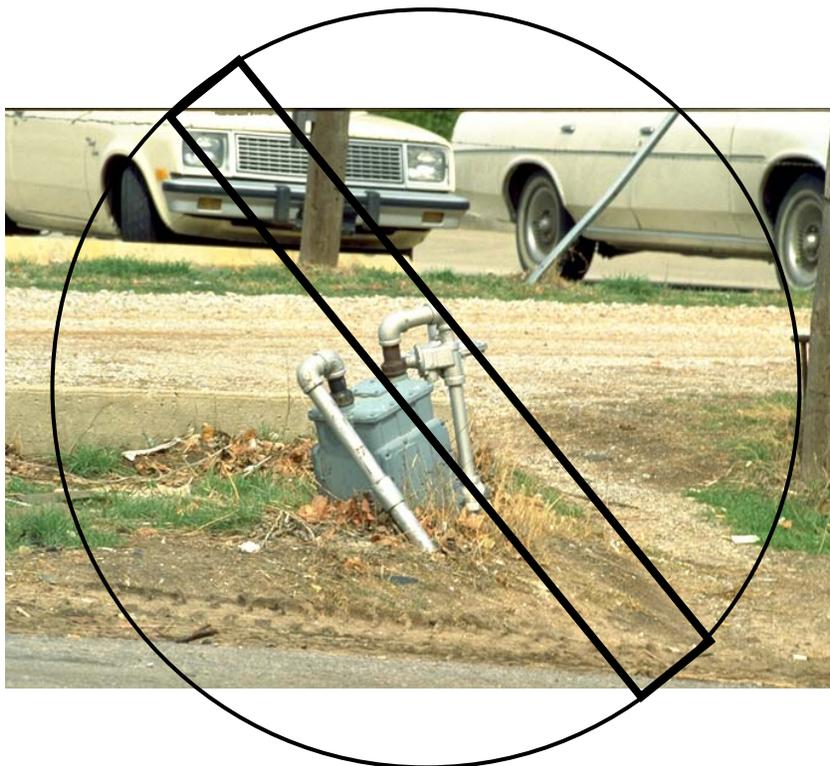
Before locating customer meters and regulators, three points must be considered: accessibility, protection of meter sets from damage, and protection of people from release of gas at the meter set.

CUSTOMER METERS AND REGULATORS: LOCATION

Install meters and service regulators in a readily accessible location. Protect the meters and regulators from corrosion and other damage. Whenever a vehicle could damage meter sets, a suitable barricade must be installed. Always ensure that the meter sets are properly supported. Install meters outside wherever possible (see FIGURE VII-1).

FIGURE VII-1

This meter may be readily accessible, but is neither protected from outside damage nor properly supported.



Service regulators installed inside a building must be placed as close as practical to the point of service entering the building. The operator must vent the regulator to the outside.

Meters installed inside a building must be located in a ventilated place. A meter must be more than 3 feet from any source of ignition or any source of heat that might damage the meter.

It is best to locate the upstream regulator (in a series) outside the building. However, the operator may locate regulators in a separate metering or regulating building.

CUSTOMER METERS AND REGULATORS: PROTECTION FROM DAMAGE

Protection from vacuum or backpressure. If customer equipment might create either a vacuum or a backpressure, protection devices must be installed on the gas system.

Service regulator vents and relief vents. The outside terminal of each service regulator vent and relief vent must be:

- rain, snow, ice and insect resistant;
- located where gas from the vent can escape freely into the atmosphere (vent it 3 feet or more away from any opening into the building);
- protected from water damage in areas where flooding may occur (put it where it will not be underwater in a flood).

The meters and regulators must be installed to minimize stresses on connecting piping.

Each pit or vault in a road, driveway, or parking area that houses a customer's meter or regulator must be able to support the vehicle traffic that could use that road, driveway, or parking area.

CUSTOMER METERS INSTALLATIONS: OPERATING PRESSURE

A meter may not be used at a pressure that is more than 67 percent of the manufacturer's shell test pressure ($0.67 \times$ shell test pressure).

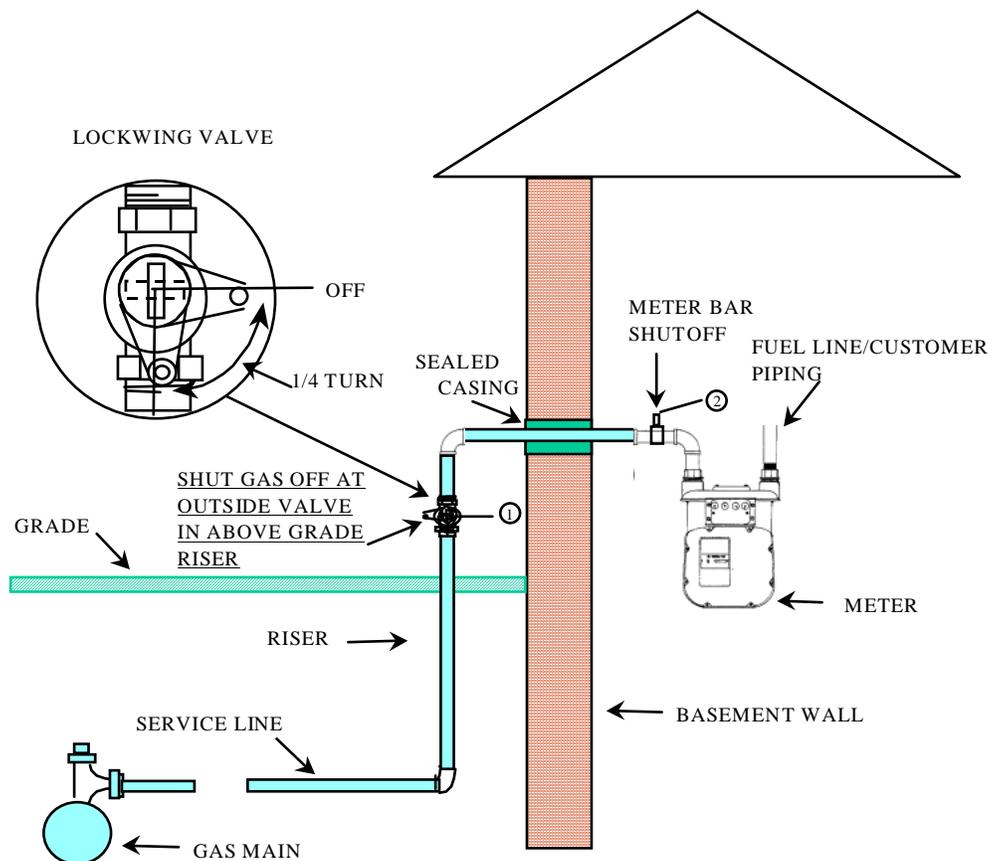
The operator must ensure that each newly installed meter has been tested to a minimum of 10 psig.

SERVICE LINES: LOCATION OF VALVES

- Relation to regulator or meter. Each service line valve must be installed upstream of the regulator. If there is no regulator, install the valve upstream of the meter (see FIGURES VII-2 through VII-5).
- Outside valves. Each service line must have a shut-off valve in a readily accessible location outside of the building (see FIGURE VII-2).
- Underground valves. Each underground service line valve must be located in a covered, durable curb box or standpipe that allows ready operation of the valve. **The box or standpipe must not put stress on the service line** (see FIGURES VII-3 and VII-4).

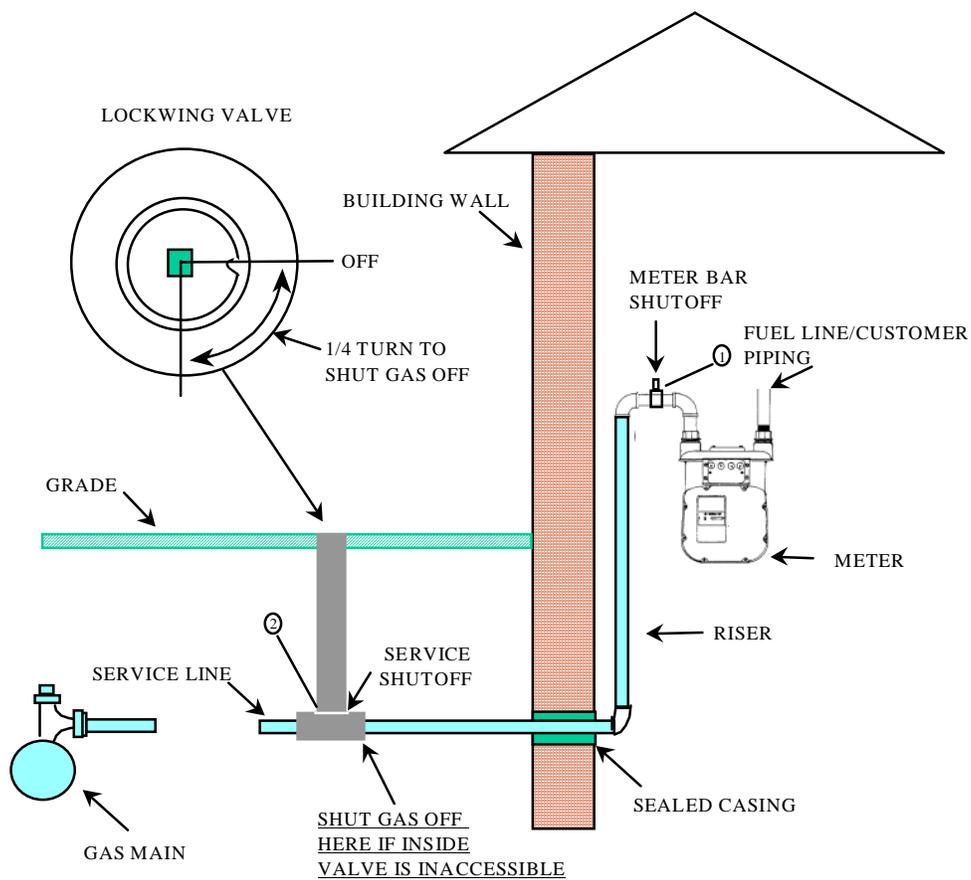
Services should not be installed under buildings or mobile homes. If a service is installed under a building, it must be encased in a gas-tight conduit. This conduit must vent to the outside at a point where gas would not be a hazard and must terminate aboveground in a rain, snow, ice and insect resistant fitting.

FIGURE VII-2



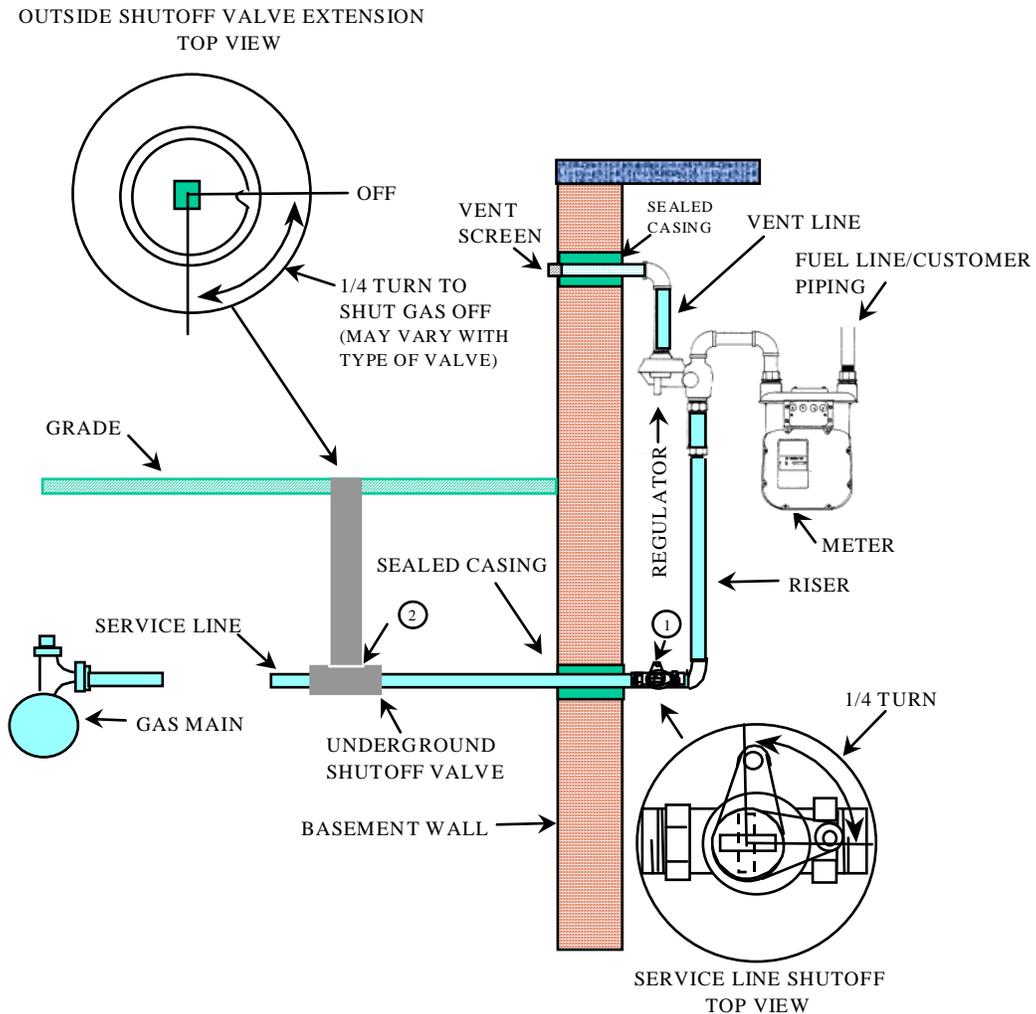
This is a typical low-pressure service (pressure in main and service are essentially the same as customer utilization pressure). Note that this service can be shut off at either (1) or (2) as shown on drawing. This service would be in compliance with 49 CFR 192.365. The valve at either points (1) or (2) must be designed so that it can be locked in a closed position. Depending on the type of valve, more than a quarter turn may be required to shut off gas.

FIGURE VII-3



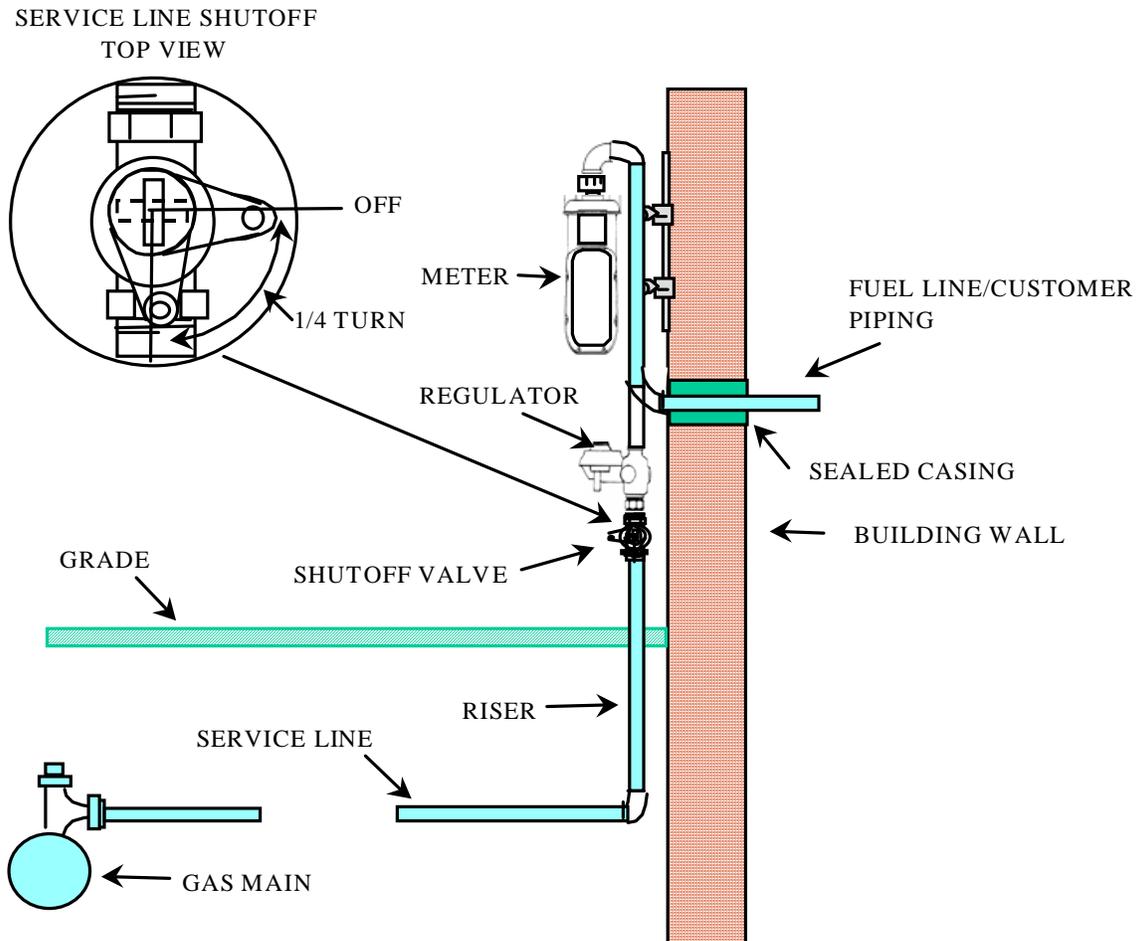
Note that this service can be shut-off at either points (1) or (2). The valve at point (1) must be designed so that it can be locked in a closed position. The valve at point (2) is installed in a valve box. Depending on the type of valve, more than a quarter turn may be required to shut-off gas.

FIGURE VII-4



The service can be shut off at either point (1) or (2). Note that the shutoff valve at point (1) is installed before the regulator. The valve at point (1) must be designed so that it can be locked in a closed position. Depending on the type of valve, more than a quarter turn may be required to shut off gas.

FIGURE VII-5



Note that the shutoff valve is before the regulator and meter. This valve must be designed so that it can be locked in the closed position. Depending on the type of valve, more than a quarter turn may be required to shut off gas.

COMMON PROBLEMS AT SERVICE RISER AND HOUSE REGULATORS

- **Regulator vandalism or damage.** This can be very hazardous. If the regulator fails to function for any reason, high-pressure gas may enter the appliances. Tall flames at the burner or escape of gas could cause a fire or explosion.
- **Obstructed vents.** The vent on the regulator should be free of any obstructions. A wire screen installed at the vent should prevent the accumulation of dirt, the intentional insertion of foreign objects by children, or the build up of insect nests (e.g., wasp nests). If the screen is removed, a new one must be inserted in its place. A non-functioning vent could cause regulator failure and present a serious fire hazard. The vent should be away from windows and air intakes and protected from the elements.
- **Tenants move out.** The valve on the meter riser should be equipped with a locking device to be controlled by authorized personnel only. When tenants move out, the gas must be shut off and the valve locked until new tenants move in. The locking device on the shutoff valve also allows the repair of appliances without the gas being accidentally turned on.
- **Riser misuse.** The tenants or customers should not be allowed to use the riser and its components for other purposes. Never use the riser as an anchor for laundry lines, plant supports, or bicycle racks (see CHAPTER III, FIGURE 17).
- **Corrosion.** Check for corrosion on the service riser at ground level (see CHAPTER III, FIGURE 24).
- **Flex Lines.** Flex Lines should be UL approved and must be installed aboveground.