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GAS DESIGN STANDARD GAS METER LOCATIONS

J-15

Publication Date: 09-18-13 Rev. #08

Purpose and Scope

This gas design standard outlines the requirements to comply with applicable federal and state codes when installing gas meter sets for residential and commercial premises.

This document includes definitions, references, and standard designs to comply with the regulations and codes for gas meter set locations. Local jurisdictions may have adopted codes and ordinances relating to customer facilities that could require consideration when designing gas meter sets. Compliance with applicable federal and state codes is mandatory for PG&E ("Company") facilities. Compliance with local codes is mandatory for customer facilities.

General Information

Applicability

Per [Gas Rule 16, "Gas Service Extensions,"](#) all gas meter set equipment must be located at some protected location on Applicant's premises as approved by the Company. **PG&E is responsible for the design and final approval of the location for metering facilities. The preferred meter set location is outside and adjacent to the building being served.** Customers need to submit the requested meter set location with the application early in the planning stage to avoid delays.

New or customer requested relocated meter sets must be installed in compliance with current regulations, standards, and codes.

Existing meter sets may be repaired, altered, or rebuilt in their existing location provided the clearance requirements meet or are brought up to current standards.

These requirements do not mandate retroactive compliance of existing meter sets unless unsafe conditions exist as determined by the Company.

1. Applicable Regulations and Codes

Listed below are the pertinent excerpted Title 49 Code of Federal Regulations (49 CFR) that apply to gas meter set locations:

[Title 49 CFR 192.353 - Customer Meters and Regulators: Location](#)

[Title 49 CFR 192.355 - Customer Meters and Regulators: Protection From Damage](#)

[Title 49 CFR 192.357 - Customer Meters and Regulators: Installation](#)

[Title 49 CFR 192.363 - Service Lines: Valve Requirements](#)

[Title 49 CFR 192.365 - Service Lines: Location of Valves](#)

2. Definitions

Breezeway – A passage or walkway that may or may not have a roof covering and is adequately ventilated to the outside atmosphere.

Cabinet – A structure, not deeper than 36", with a solid or closed top that is freestanding, attached or recessed into a building exterior wall, vapor proof from the building, with access doors for the purpose of containing/protecting a gas meter set or meter set components.

Enclosure – A structure with an open top that is freestanding or attached to a building exterior wall with access doors; a cage; or walls and gate for the purpose of containing/protecting a gas meter set or meter set components.

Gas Meter Room – A space within a building that is solely used to house natural gas metering equipment in accordance with Gas Design Standard J-16, "Gas Meter Room."

Meter Set – The gas meter, service regulator, overpressure protection devices, and all associated Company piping and fittings between the service riser valve and the customer house line.

Readily Accessible Location –

- For a gas meter set: The preferred location can be accessed immediately and does not require contact with the owner or occupant. If the preferred location is unavailable, the Company may approve a lock box with key for access.
- For a service shut-off valve: The preferred location is outside and aboveground. If the preferred location is unavailable, the Company may approve a curb valve in which no permanent structure prevents immediate valve access or operation.

Show Window – A ground floor window in the wall of a commercial building, including any permanent elevated display floors or platforms associated with the window, where the purpose of the window is to present a display to the public.

Source of Ignition – As defined by the National Fuel Gas Code Handbook, sources of ignition are defined as "devices or equipment that, because of their intended modes of use or operation, are capable of providing sufficient thermal energy to ignite flammable gas-air mixtures." This includes electric wiring, switches, and circuit breakers that do not meet the requirements of the National Electric Code for installation in Class 1, Division 2 areas.

3. Requirements

The following requirements comply with the regulations and codes:

A. General Meter Set Requirements

(1) Meter Set Locations - General

Listed in order of preference, as follows:

- (a) Meter set located outside a building: See Item 3B for specific requirements.
- (b) Meter set located outside in an alcove or enclosure: See Item 3B for specific requirements.
- (c) Meter set located in a breezeway: See Item 3C for specific requirements.
- (d) Meter set located in a cabinet: See Item 3D for specific requirements.

[(e) and (f) will only be considered by the Company when (a) – (d) are not available]

- (e) Meter set located in a buried vault, pit, or box: See Item 3E for specific limitations and requirements.
- (f) Meter set (excluding service shutoff valve) located inside a building in a gas meter room: See Item 3F for specific requirements.

(2) Prohibited Meter Locations

Gas meter sets must not be located in inaccessible areas, such as:

- (a) rooftops,
- (b) garages,
- (c) crawl spaces,
- (d) inside buildings without a dedicated gas meter room designed in accordance with Gas Design Standard J-16; or
- (e) under display platforms or show windows (with or without enclosures or cabinets).

(3) SmartMeter™ Requirements

The SmartMeter™ Advanced Meter Reading system uses a wireless radio frequency (RF) communication network to transmit gas meter reads automatically. To minimize the potential of RF signal transmission interference, gas meters should not be located:

- (a) In a cabinet or enclosure made of metal or with a metal door.
- (b) In close proximity (6-inches or less) of any metallic pipe, conduit, communications wire, TV cable, electric wire or box.
- (c) Within 5 feet of a large metal object such as HVAC duct, steel cabinet, refuse container or metal ceiling.
- (d) With less than a 6 inch clearance between the meter and the established, finished grade.

(4) Gas Meter Working Space

Gas meter locations must be selected to allow for a minimum clear and level working space of 3 feet in front of the meter, with 2% or less grade, 78 inches high and 48 – 54 inches wide, depending on the meter size. (Figure 1 and Figure 2) For a large meter set or multi-meter manifold this working space will extend 12 inches beyond the farthest Company meter set equipment.

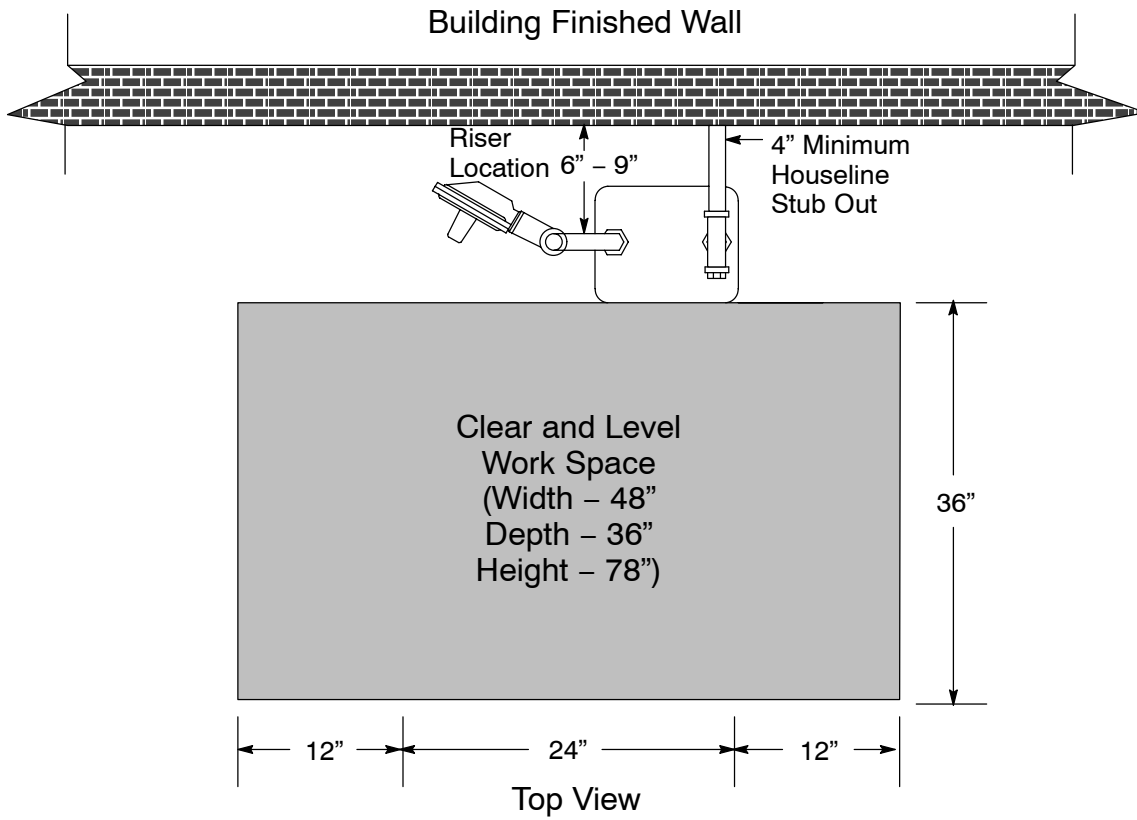


Figure 1
Typical Residential Gas Meter Connection

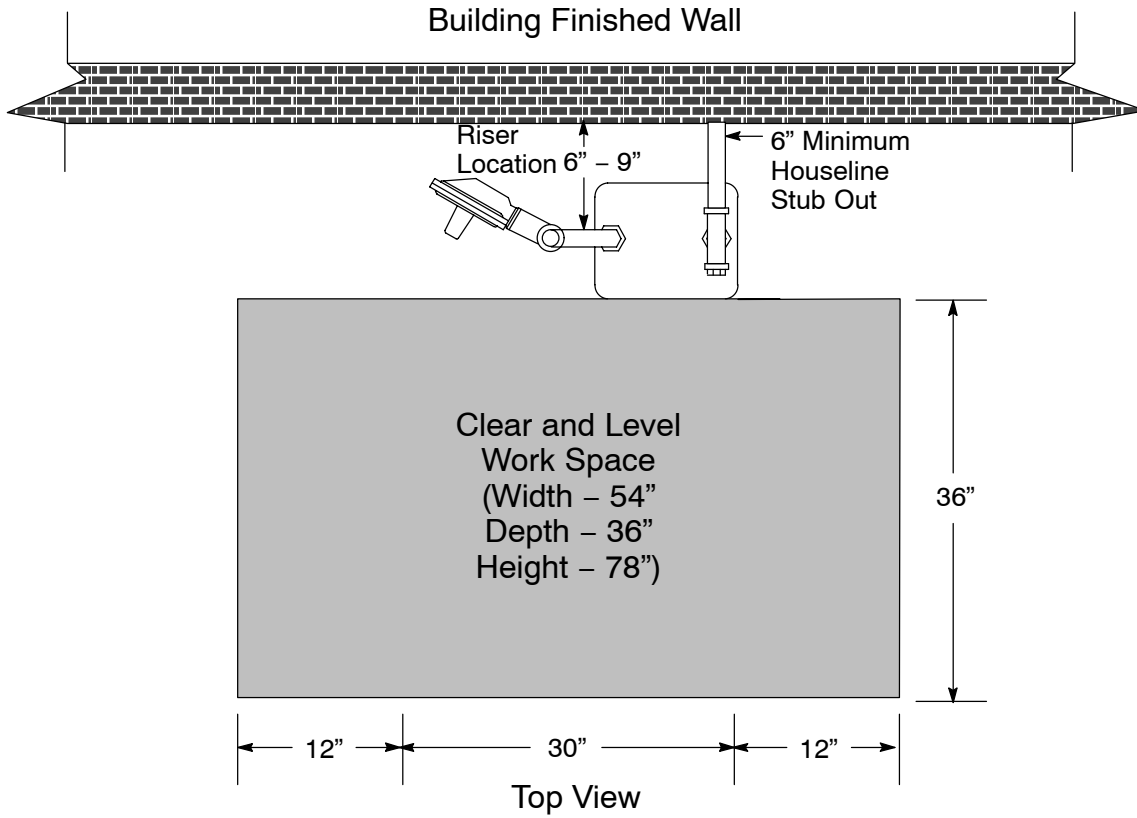


Figure 2
Typical Gas Meter Connection for 400 to 1000 Class Meter

(5) Meter Set Location Relative to Service Line

The meter set is typically located so that the service line is the minimum possible length, measured in a straight line perpendicular to the main. The Company may consider an alternate route if it results in significantly lower construction costs or facilitates construction.

(6) Meter and Regulator Accessibility

Each meter set must be in a "readily accessible location" for reading, maintenance, and replacement. Large meter sets or multi-meter manifolds will require adequate space for installation and maintenance and require drive-up access for the Company's service trucks.

(7) Service Shut-Off Valve Locations

(a) Each service line must have a shut-off valve in a "readily accessible location" when:

- services or risers are newly installed, relocated, or completely replaced; or,
- work is performed under the Meter Protection Program.

(b) The location for the service shut-off valve is above ground on an outside riser in a "readily accessible location".

Service risers must not be installed inside buildings or meter rooms, except where special circumstances prevent outside installation as determined by the Company in accordance with Gas Design Standard J-16. If the riser is located inside a building or an outside riser valve is not readily accessible, then a curb valve must be installed in a location that is readily accessible.

(8) Meter Set Separated From Service Shut-Off Valve

If the meter set (or meter and regulator assembly) is located remotely from the service shut-off valve, then install an additional service shut-off valve at the meter set when performing new installations, replacing the meter, or altering or replacing the service. The additional valve will facilitate maintenance and operation procedures.

(9) Meter Set Clearance Requirements

The meter set and service regulator vents must terminate in a safe outside location that complies with the following criteria:

- (a) The regulator vent must not terminate near any sources of ignition or openings into the building. The riser must be a minimum distance of 36 inches from sources of ignition and openings into the building, and this clearance area will extend 10 feet above and 36 inches below the regulator vent termination. (Figure 3) For a large meter set or multi-meter manifold this clearance requirement will extend 12 inches beyond the farthest Company meter set equipment, 10 feet above the highest regulator vent, and 36 inches below the lowest regulator vent.
- (b) The regulator vent will not be within any location under building overhangs, where the overhang is likely to direct gas into a building opening.
- (c) The riser must be a minimum lateral distance of 8 feet from a forced air intake. (Figure 4) For a large meter set or multi-meter manifold this clearance requirement will extend 8 feet beyond the farthest Company meter set equipment.
- (d) The meter set will not be within any location that is under display platforms or show windows in non-residential buildings, including any permanent, elevated, display floors or platforms associated with the window.

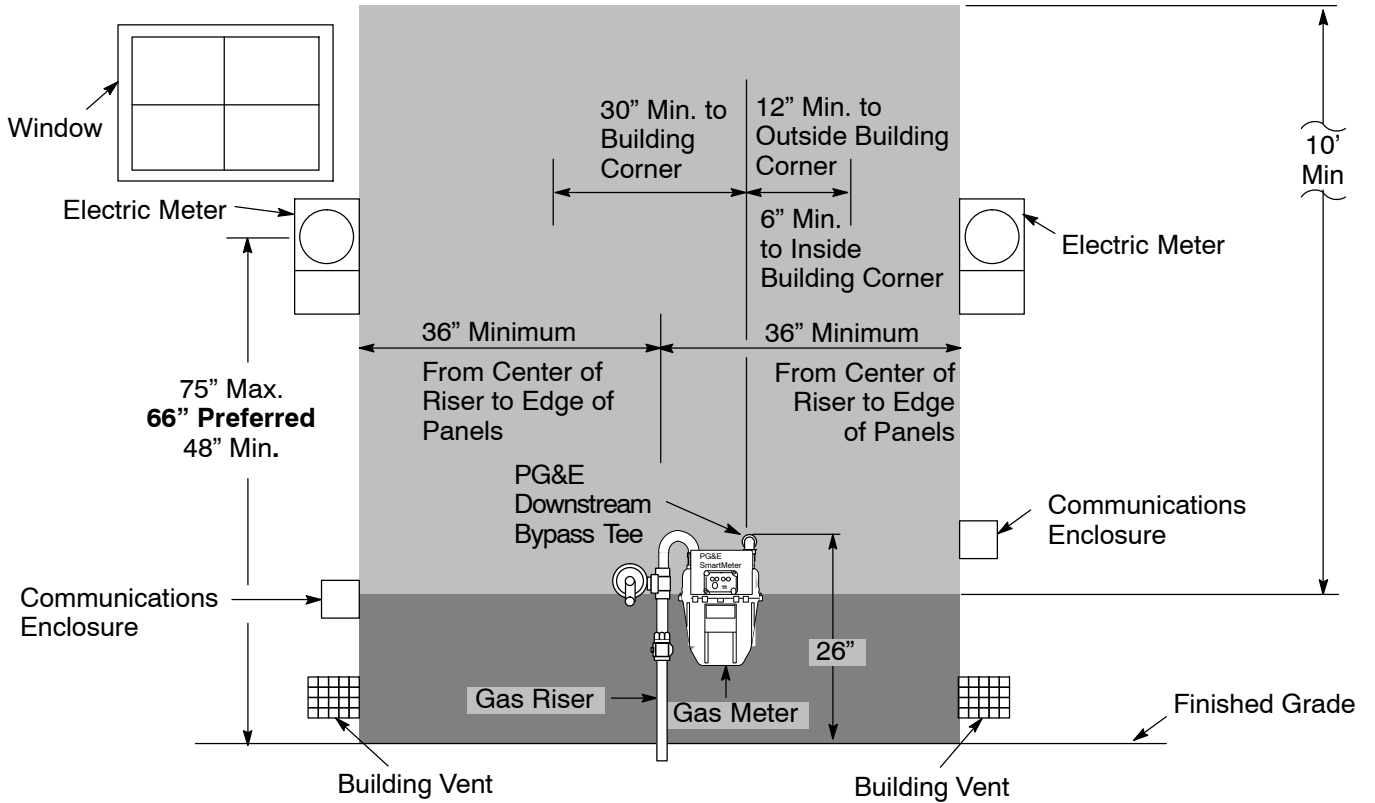


Figure 3
Gas Meter Set Separations

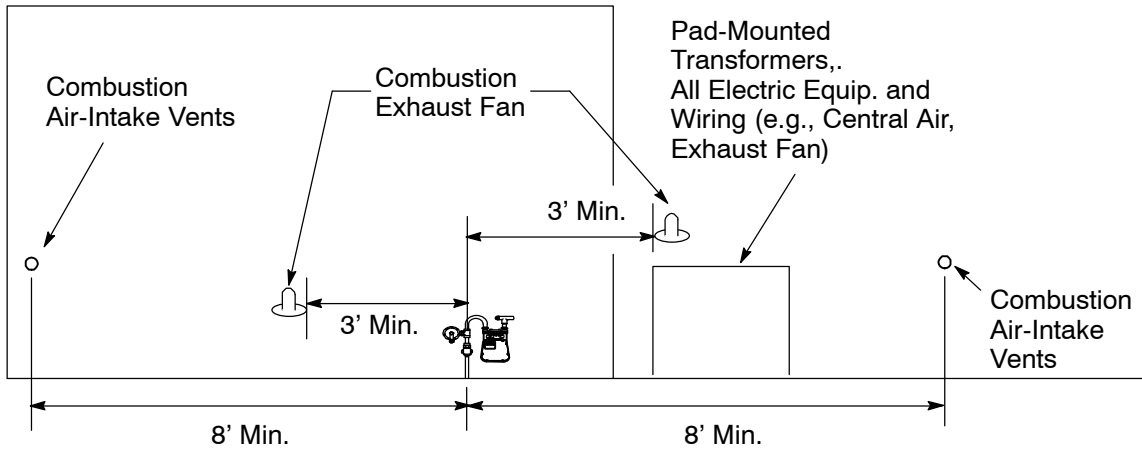


Figure 4
Gas Regulator Set Clearance Requirement from Sources of Ignition

(10) Corrosion Protection

Each meter set and service line must be installed and maintained in a manner to provide protection from corrosion.

(11) Meter Sets in Contact with Soil

Meter sets must not be installed in contact with the soil, in a depression below general ground level (curb meters are an exception), or where potentially corrosive materials are likely to contact the meter set. The potential for accidental electrical shunting of the insulating fitting must be minimized.

(12) Buried Service Lines Downstream of the Shut-Off Valve

On an exception basis, as approved by the Company, if it is necessary to bury any segment of the service line downstream of the service shut-off valve, see Gas Design Standard O-16, "Corrosion Control of Gas Facilities" for specific corrosion control requirements. Any metallic, Company-owned service line in such locations must have adequate corrosion protection.

(13) Service Risers

Company approved prefabricated, non-corrodible risers must be used and must be installed with the appropriate protective sleeve or "sunshield." A minimum 3 inch casing will be required for the placement of the gas riser in areas that will be paved with concrete or asphalt. Gas service risers will not be directly embedded in concrete or asphalt pavements.

If it is necessary to pave (concrete or asphalt) before installing the gas service, refer to Gas Design Standard A-75, "Gas Service and Mains in Plastic Casing."

(14) Overpressure Protection

When any overpressure protection devices are required in addition to the final service regulator, refer to Gas Design Standard H-15, "Design Requirements for Company-Owned Gas Regulating Systems Serving Customers."

(15) Potential for Damage from Vehicles

Meter sets should be installed in locations where they are not exposed to damage from vehicular traffic. If there is a potential for damage to the meter set from vehicular traffic, refer to Gas Design Standard J-95, "Meter Guard Design and Installation Arrangement."

(16) Working Space around Electric Meter Sets

To provide required working space around an electric meter, the gas service riser may not be located less than 36 inches laterally from the closest edge of the electric meter panel, extending from a point 9 inches above the center of the electric meter to the finish grade. (Figure 3) For a large gas meter set or multi-meter manifold this clearance requirement will extend 12 inches laterally beyond the farthest Company gas meter set equipment.

(17) Other Hazards

When selecting the meter set location, it is necessary to be alert to any potential hazards not specifically indicated in this document, including potential risk to others caused by the meter set, and exercise reasonable care to avoid any hazards. Electric grounding or bonding wires must not be attached to any part of the gas meter set.

(18) Service Delivery Point

All customer-installed equipment must be installed downstream of the Company point of connection as shown in Figure 5. Customer-installed equipment may include: earthquake valves, seismic shutoffs, remote monitoring equipment, or flex hoses. Any customer-installed equipment on Company facilities will be removed at the customer's expense.

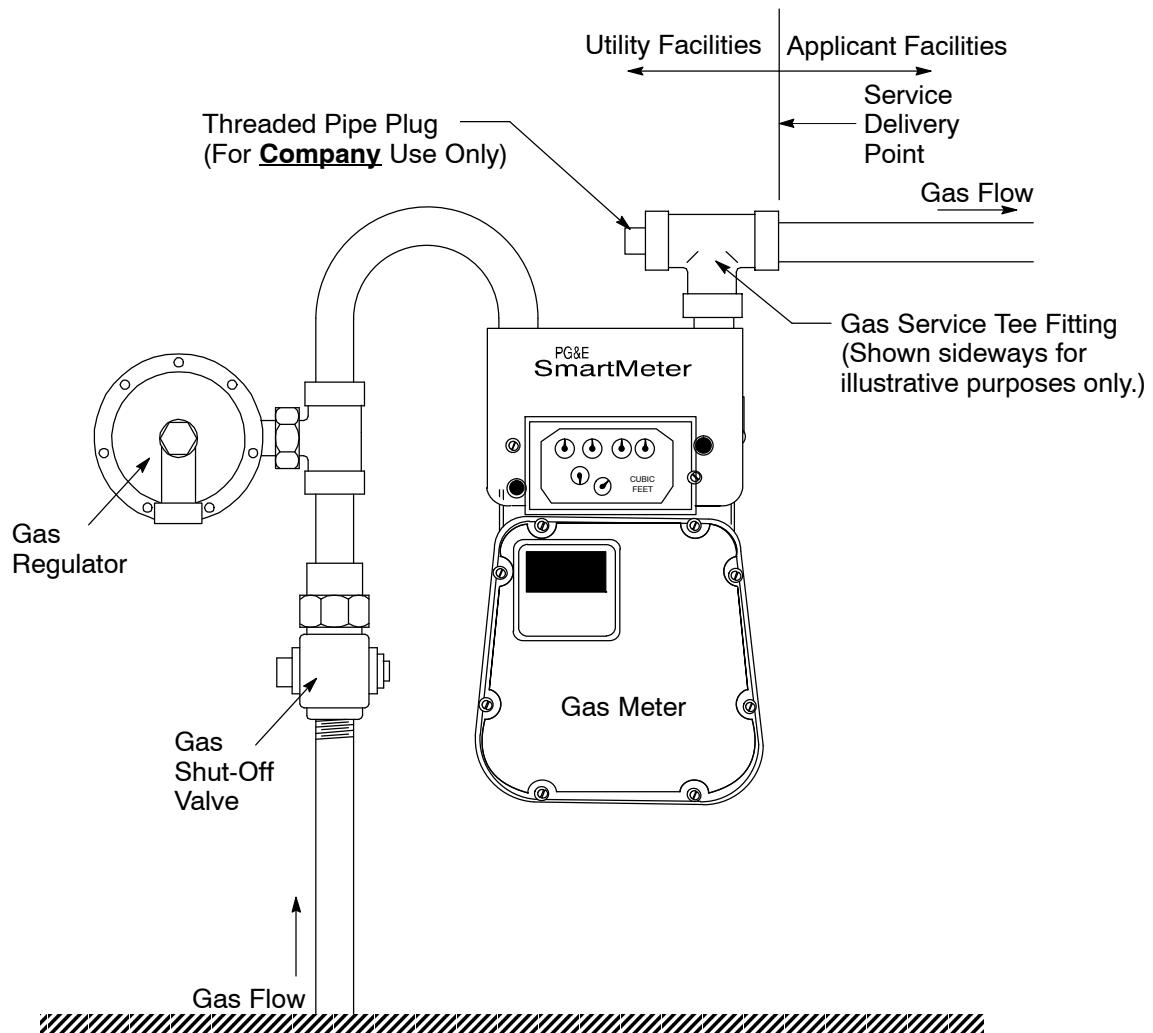


Figure 5
Typical Residential/Small Commercial Meter

B. Specific Requirements for Outside, Aboveground Meter Sets

(1) Location

Meter sets should be located at the building and as near as practical to the point where the gas service pipe enters the property. The meter set location typically should be near the side of the building from which the customer will be served. The order of preference for locating the outside, aboveground meter set is:

- (a) In a protected location adjacent to the building served (Figure 6). An exception to this requirement is for schools, where it is required to protect the meter set from vandalism by installing it in a location that is separated from buildings and playground areas. It will be necessary to install a wire cage or other suitable protective enclosure, with a cover, around the meter set in these cases. (Figure 8)
- (b) At the customer's property line if a location exists where the meter set can be properly protected from vandalism and/or damage by vehicles. (Figure 9)

(2) Meter Set Accessibility

For ease of access, avoid locations behind fences or other barriers that may be kept locked by the customer.

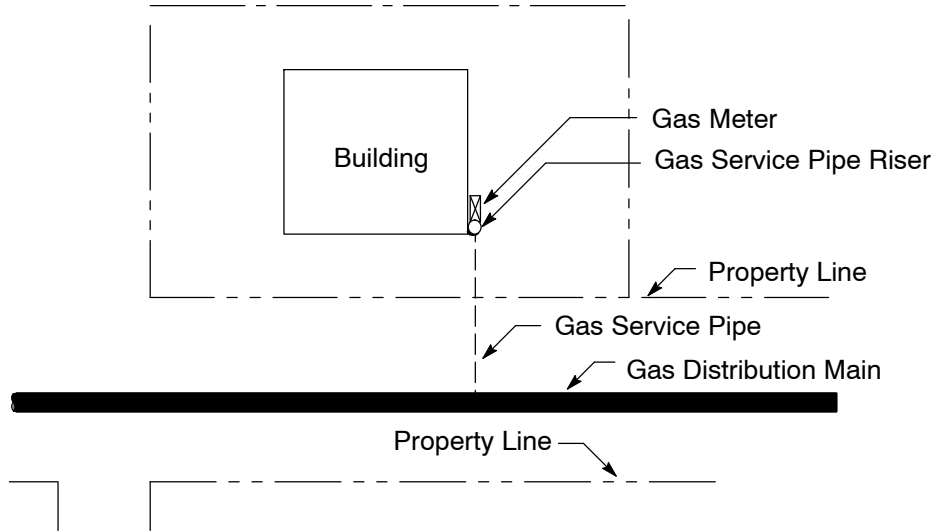


Figure 6
Gas Service

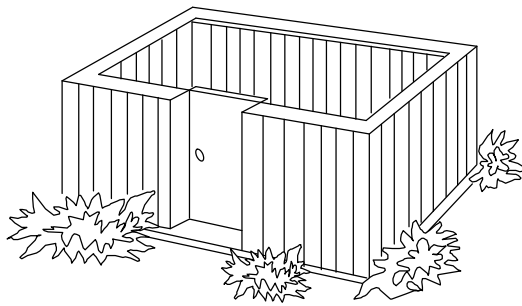
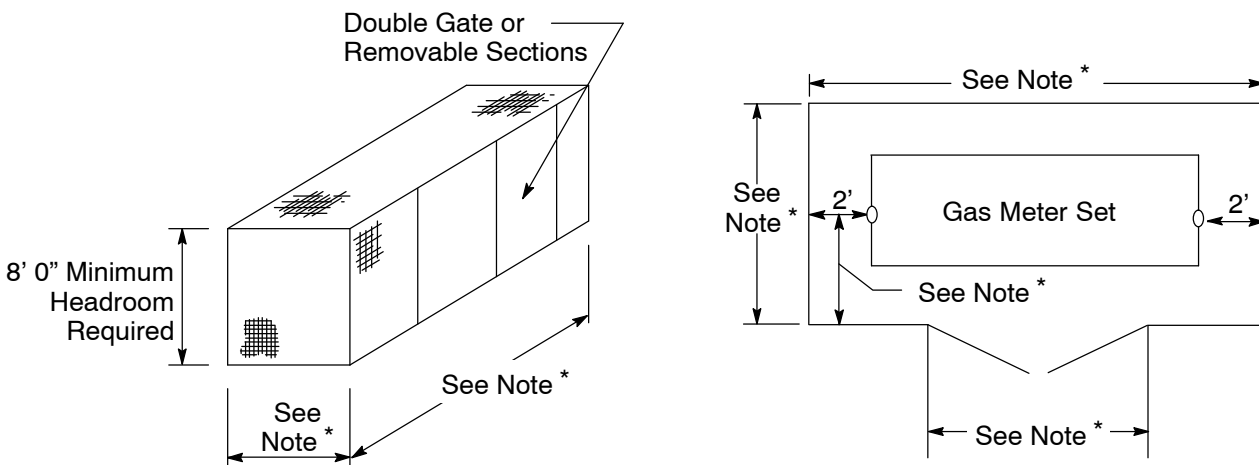


Figure 7
Typical Detached Enclosure



* - The enclosure's width and length will vary depending on the meter set. Contact your local PG&E project coordinators (formerly service planners) for more information.

Figure 8
Typical Enclosure Dimensions

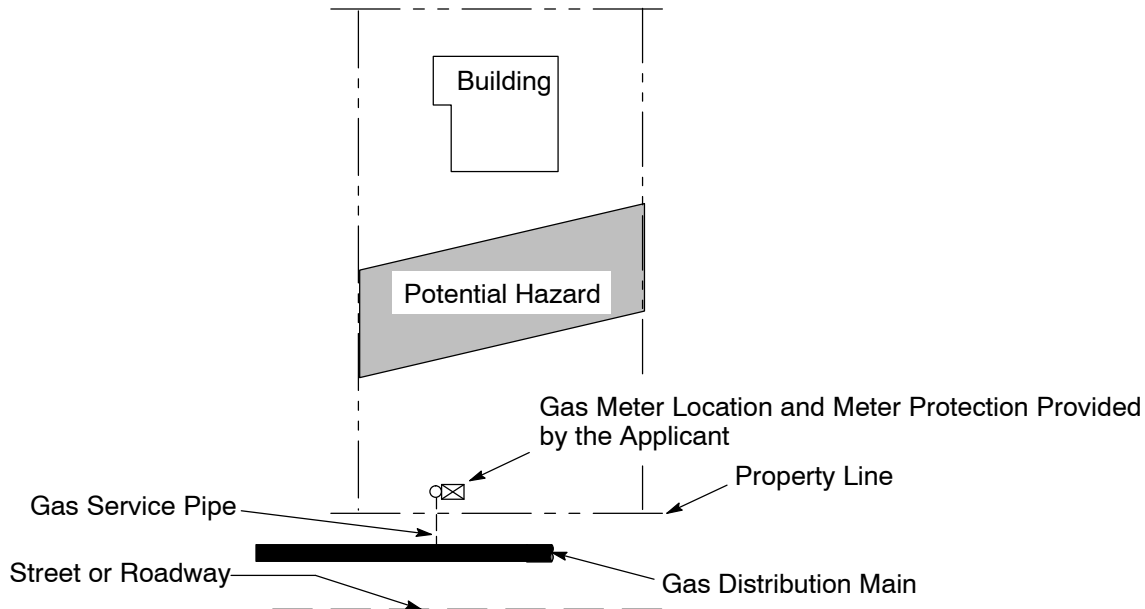


Figure 9
Property Line Installation

C. Specific Requirements for Meter Sets Located in Breezeways

(1) Isolation from Living Spaces

Meter sets installed in breezeways must be located so that gas cannot migrate into building openings.

(2) Ventilation

Meter sets may be installed in breezeways that are adequately ventilated to the outside atmosphere. At least one end of the breezeway is to be open and the other end should have at least two vents, one located at the top and the other at the bottom. Vents must be fixed, and be a minimum of 12 inches by 12 inches or equivalent.

(3) Separation from Sources of Ignition

No sources of ignition will be allowed in the breezeway. Any electric wiring, switches, light fixtures, and circuit breakers must meet the requirements of the National Electric Code for installation in Class 1, Division 2 areas.

CI. Specific Requirements for Meter Sets Located in Cabinets

(1) Meter cabinets are not a preferred method of installation. Meter cabinet installations require prior approval from the local Field Services Manager. When approved they must comply with the requirements in this section.

(2) It is preferred to have regulators installed on the outside of the cabinet. Additional space will be required for larger regulators and dual-head regulators. The local Field Services Manager may approve to install the regulators in a cabinet. Regulators in a cabinet require the vents to be piped out of the cabinet per Gas Design Standard H-93, "Regulator Vent Lines - Above Ground."

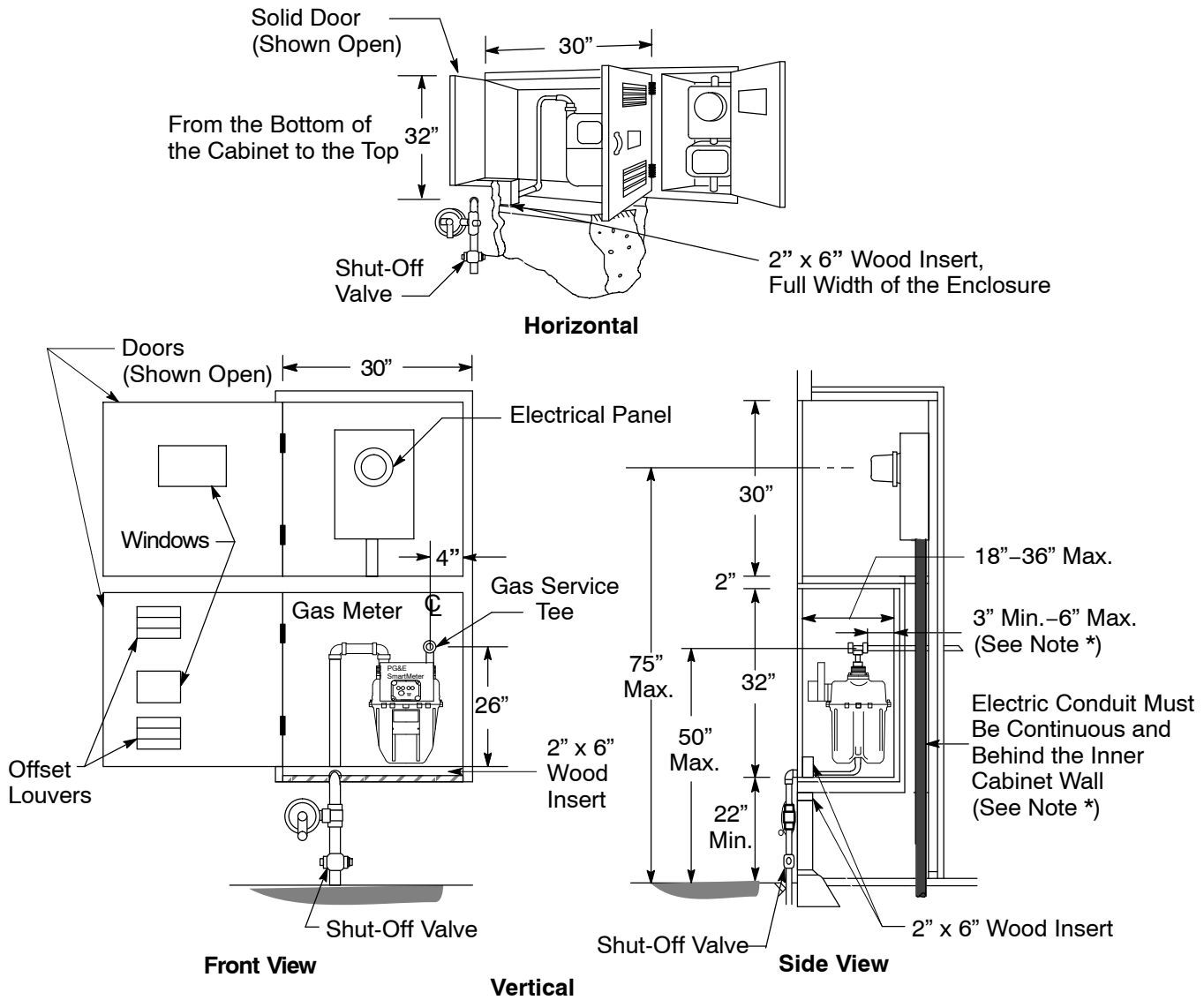
(3) Meter sets and meter set components located in a cabinet must have adequate working space, no source of ignition and be properly ventilated. See Gas Design Standard K-51, "Single Meter Enclosure for Domestic Gas Meters" for single meter cabinet requirements and details. Final dimensions must be approved by Company prior to construction.

(4) Cabinets must be designed to be vapor proof and prevent migration of gas into the interior of a building or other location where gas may create a hazard. The cabinet must be constructed of non-metallic and non-combustible material with non-metallic doors.

(5) Meter cabinets that have been constructed prior to acceptance by Company may not be approved. Customers should submit these requests with the application early in the planning stage to avoid delays.

(6) Modifications to meter sets in cabinets will require compliance with current codes and standards.

(7) Cabinets are limited to a minimum depth of 18 inches and a maximum depth of 36 inches. A cabinet deeper than 36 inches will require conforming to the requirements of Gas Design Standard J-16.



* - The gas meter cabinet may be enlarged and the electric conduit may pass between the inner cabinet wall and the interior back of the gas meter section either if the conduit is continuous (i.e., without joints or fittings), or if the wiring meets the requirements of the [National Electric Code](#) for Class I, Division 1 areas. A gas-tight seal also must be provided where the conduit passes through the enclosure partition. When the electrical conduit passes through the gas section, the houseline must extend a minimum of 4 inches and a maximum of 6 inches past the electrical conduit toward the cabinet door. Applicants must ensure that when installing the service disconnect and distribution section in the cabinet, the installation complies with the requirements of the inspection authority having jurisdiction.

Figure 10
Recessed Individual Meter Cabinet, Horizontal or Vertical

E. Specific Limitations for Curb Meter Sets

(1) The Company considers curb meter installations undesirable because they are costly and difficult to maintain. See Gas Design Standard J-14.1, "Curb Meter Installations" for a description of the policy and design considerations for curb meter installations.

(2) Large Meter Installations for Commercial or Industrial Loads

(a) On an exception basis a vault or meter box may be located on the customer's property, either adjacent to the building served or near the property line.

F. Specific Requirements for Meter Sets Located Inside Buildings

(1) Meter sets and all meter set components located inside buildings must be contained within a dedicated gas meter room as specified in Gas Design Standard J-16.

G. Multi-Meter Manifolds

Multiple meters will be at one approved location for each property or location. Number of meters, tiers and size of piping will be designed by Company. (see Gas Design Standard J-52.1, "Gas Meter Manifolds (1-1/4" and 2" Sizes)," Gas Design Standard J-52.2, "Brackets for Gas Meter Manifolds," Gas Design Standard J-52.3, "Gas Meter Manifolding"). Company limits gas meter manifold configurations to one-tier or two-tier meter manifolds not exceeding 60 inches high. These manifolds are measured from the final, level, standing surface to the top of the manifold.

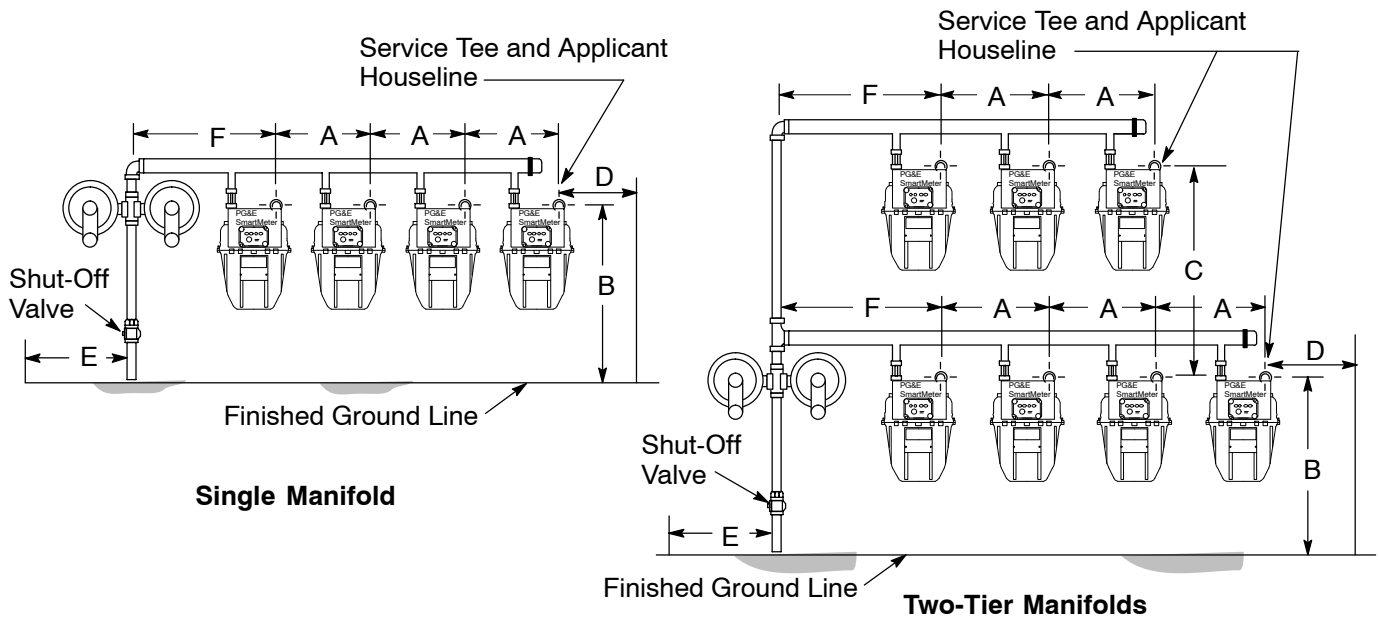


Figure 11
Dimensions for Typical Multimeter Installations

Table 1 Dimensions to Figure 11

Dimension	Installation	Comments
A	12" for residential 15" for cabinet installations 20" for all commercial up to 1000 class meters	Custom design dimensions will be provided by the Company for mixed meter sizes and larger than 1000 class meters.
B	26" (typ.) for unenclosed 32" (typ.) for cabinet installations	-
C	24" (ALL)	-
D	6" min. to inside building corner, 12" min. to outside building corner	-
E	30" minimum to inside or outside corner of building	-
F	24" (typ.) for residential 36" (typ.) for 400 to 1,000 class meter commercial	Custom design dimensions will be provided by the Company for mixed meter sizes and larger than 1000 class meters.

Notes in reference to Figure 11

1. The applicant's houselines must be stubbed out 4 inches to 6 inches from the finished wall at the locations shown.
2. Clearly mark each houseline and meter position when they are hooked into multimeter installations per Item H.

H. Marking Houselines

The Company requires that buildings, dwellings, occupancies, or other facilities or locations be marked to identify gas lines that are serving locations or supplying equipment. Applicants must ensure that the following rules for marking houselines are enforced.

- (1) The Company requires that lines are marked by attaching an embossed, durable, metal or plastic tag to each houseline. The Company must approve of the tag.
- (2) Markings must be legible and specific.
- (3) Marking information must include an authorized apartment or street number and a use or location designation.
- (4) The houseline must be permanently, clearly, and prominently marked at the point of the service connection (i.e., service delivery point).

NOTE: The Company will not install meters unless the permanent address, the location, or the area being served (if applicable) is marked at each meter location.

I. Protecting Meter Sets From Vehicular Damage

(1) Meter Sets in Traveled Areas

If any portion of a gas meter set must be located in or adjacent to traveled areas where there is the probability of vehicular damage, physical protection acceptable to the Company must be provided by the customer. The Company must determine when such protection is required. If the meter set is being relocated at Company convenience and the only practical new location requires physical protection, then the Company must install protection. Physical protection must be provided for any gas meter per Gas Design Standard J-95, "Meter Guard Design and Installation Arrangement."

(2) Returning Damaged Meter Sets to Service

If a meter set is damaged by a vehicle or other equipment and there is a potential for a recurrence, temporary barricading must be installed before service is restored, and until permanent protection is installed per Gas Design Standard J-95 or the meter is relocated.

Target Audience

Design, engineering, estimating, field services, M&C crews, gas T&R, general construction

Definitions

NA

Acronyms and Abbreviations

AMR: automatic meter reading
 CFR: *Code of Federal Regulations*
 CPUC: California Public Utilities Commission

Compliance Requirement/ Regulatory Commitment

[Customer Meters and Regulators: Location](#) 49 CFR 192.353
[Customer Meters and Regulators: Protection From Damage](#) 49 CFR 192.355
[Customer Meters and Regulators: Installation](#) 49 CFR 192.357
[Service Lines: Valve Requirements](#) 49 CFR 192.363
[Service Lines: Location of Valves](#) 49 CFR 192.365

References

Gas Service and Mains in Plastic Casing A-75
 Plastic Main and Service Installation A-90
 Design Requirements For Company Owned Gas Regulating Systems Serving Customers ... H-15
 Vent Cover for Regulator on Curb Meter Sets H-91
 Plastic Vent Caps H-92
 Regulator Vent Lines - Above Ground H-93
 Curb Meter Installations J-14.1
 Gas Meter Room J-16
 Gas Meter Manifolds (1-1/4" and 2" Sizes) J-52.1
 Brackets for Gas Meter Manifolds J-52.2
 Gas Meter Manifolding J-52.3
 Meter Guard Design and Installation Arrangement J-95
 Precast Concrete Pit K-10
 Precast Concrete Vaults & Pits K-10.1
 Plastic Valve Box for 3/4" - 4" Valves K-40
 Method of Installing Concrete Curb Boxes in Concrete Sidewalk K-40.1
 Precast Boxes 24" x 36", 30" x 48", and 30" x 60" K-42
 Precast Boxes 13" x 24" and 17" x 30" K-42.1
 Single Meter Enclosure for Domestic Gas Meters K-51
 Corrosion Control of Gas Facilities O-16
 Vault Inspection Procedure S4446
[Gas Service Extensions](#) [Gas Rule 16](#)
 CPUC General Order 112-E
Electric and Gas Service Requirements (Greenbook), Section 2, "Gas Service."
[National Electric Code](#)

Appendices

NA

Attachments

NA

Revision Notes

Revision 08 has the following changes:

1. Updated Purpose and Scope.
2. Updated Applicability.
3. Added figures from Electric and Gas Service Requirements (Greenbook).
4. Added language requiring meter sets in cabinets to be approved by Field Services Manager.
5. This document is part of Change 66.

Asset Type: Gas Metering

Function: Design and Construction

Document Contact: Gas Design Standard Responsibility List