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Attorney for the Commission Staff

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

ERIC CONRAD)	
)	CASE NO. INT-G-16-01
)	
COMPLAINANT,)	
)	COMMENTS OF THE
)	COMMISSION STAFF
vs.)	
)	
)	
INTERMOUNTAIN GAS COMPANY,)	
)	
)	
RESPONDENT.)	

The Staff of the Idaho Public Utilities Commission, by and through its Attorney of Record, Donald L. Howell II, Deputy Attorney General, submits the following comments in this case.

BACKGROUND

On December 27, 2015, Eric Conrad filed a formal complaint against Intermountain Gas Company. While building a home near Idaho Falls, Intermountain Gas required Mr. Conrad to install a meter protection structure at his own expense before the utility would install the gas meter and riser, thereby providing gas service to his new residence.

To rectify the meter protection issue, Mr. Conrad initially built a free-standing wooden structure that covered the meter when installed. According to Mr. Conrad, Intermountain Gas allegedly determined that the wooden structure was inadequate because it was not permanently affixed to the residence and was not approved by an engineer to accommodate heavy snow load for the area. Mr. Conrad subsequently contacted Intermountain Gas for additional information regarding protection structures. However, Mr. Conrad claims that the materials provided by Intermountain Gas did not have any technical specifications pertaining to what constituted an adequate structure for protecting the gas meter.

Mr. Conrad also alleged that he observed a number of homes that have been built in 2015 that did not appear to have meter protection structures in place. After Mr. Conrad contacted the Staff for assistance, Intermountain provided him with photographic examples of constructed and prefabricated meter protection structures.

In his formal complaint, Mr. Conrad requested that the Commission order Intermountain Gas to compensate him for his cost and labor in installing the protection structure (\$370) and \$1,010.82 in construction loan interest caused by the delay in timely installing his meter.

STAFF REVIEW

Staff shares Intermountain Gas Company's (IGC or Company) concerns about customer and employee safety and protection of gas meters in situations that pose a safety risk. Staff recognizes that snow or ice falling from a roof poses such a risk, and that in some circumstances, it is necessary to protect a customer's meter and piping from potential damage. Staff maintains that to adequately ensure the safety of customers and the Company's employees, IGC must: (1) establish specific criteria for meter placement and technical specifications for meter protection; (2) make the criteria publicly available, especially with respect to the construction industry; and (3) apply the criteria consistently across the Company's service territory.

Criteria and Technical Specifications

Staff maintains that Intermountain Gas' Answer did not adequately demonstrate that it has established any specific criteria regarding meter placement or meter protection. IGC's Procedures Manual provides some general guidance, but it lacks specific criteria that can be used to objectively determine if additional meter protection is needed. The manual also lacks technical specifications for meter protection structures. The Company states that precise meter

protection specifications do not and cannot exist at the level of detail that Mr. Conrad had requested. *See Answer at p. 7.* However, Staff believes that criteria and technical specifications do exist. Staff Attachments 1, 2 and 3 provide examples from Puget Sound Energy, Wisconsin Public Service, and Enbridge Gas Distribution. This information is publicly available through the utilities' respective websites and describes each company's requirements and technical specifications for placing and protecting meters in areas with snow-load. For example, Puget Sound Energy's information at pages 1 and 3 of Attachment 1 provide technical specifications, including diagrams for protecting meters utilizing the pre-existing structure of the home and building meter protection structures for the various meters installed by Puget Sound Energy.

Reliance on References to Various Codes

In its Answer, IGC relies heavily on the International Fuel Gas Code and CFR Title 49 Part 192 as guidelines for the proper placement and protection for gas meters. Staff maintains that neither of the codes referenced by the Company provide any substantive information pertaining to the technical specifications for protecting a meter from weather-related events. For example, 49 CFR Section 192.353(a) simply provides that "Each meter and service regulator, whether inside or outside a building, must be installed in a readily accessible location and be protected from corrosion and other damage, including, if installed outside a building, vehicular damage that may be anticipated." Likewise, Section 401.1 of the International Fuel Gas Code provides "Pressure regulators shall be protected from physical damage." *See Answer, Exhibit 4 p.1.* Furthermore, the Company's Answer states: "Builders and owners who don't often build in areas of snow should take the necessary steps to identify the unique building standards for these areas." *See Answer at p. 4-5.* Staff is not aware of any state or local building code that specifically addresses the construction of additional meter protection on homes in areas with heavy snow load.

Information Available to Customers, Contractors, Builders and Others

Staff maintains that the information provided by the Company to customers, contractors, builders, and other members of the construction industry is inadequate. According to the Company's response, customers are provided personalized communication pointing out potential environmental hazards. *See Answer at p. 4.* Mr. Conrad was provided an outdated generic form letter that was not personalized, did not address any potential hazards specific to his property,

and did not provide technical specifications regarding acceptable meter protection devices. *See* Complaint at p.30.

The Company also claims to regularly contact builders that consistently build in high snow areas. Staff finds this practice inadequate because it does not account for builders that may have lower construction volume, as in the case of Mr. Conrad's builder, JBK Construction, or do not consistently build structures requiring natural gas. Staff recommends that at least once each year, IGC advise builders and contractors within its service territory of its criteria. For example, Idaho Power uses local builder associations as a resource to compile a list of builders and contractors within its service territory, which it uses to distribute a brochure regarding the technical requirements associated with Idaho Power's Reduced Charge Option for installing the conduit for underground electrical service. *See* Attachment 4.

Whereas the CFR Title 49 Part 192 and the International Fuel Gas Code generally require protection of meters and piping from known hazards and are publicly available resources, IGC's Procedures Manual is an in-house document not currently made available to the general public. Staff identified several utilities, including Duke Energy, Pacific Gas and Electric, Madison Gas and Electric Co., Puget Sound Energy and Baltimore Gas and Electric that publish service requirements and guidelines on their websites in PDF format for the general public. Staff recommends that after the Company establishes its criteria and technical specifications, that such information should be made available to customers, contractors, builders and others on its website. In addition, printed information, e.g., brochures, flyers, booklets, etc., should be available for distribution to customers and others upon request.

IGC Procedures Manual and Employee Training

1. Manual Language: Staff finds the language in the IGC Procedures Manual to be in direct contradiction to the Company's Answer to the complaint. The manual states that "IGC will provide protection for the meter sets when required." Yet the Company states in its answer that a note on the Customers Service Line Work Order said "[Customer] advised may need meter protection. Already piped out." *See* Answer, Exhibit 5. That note implies meter protection may not be needed. However, at some later time the Company determined that meter protection was required and it must be provided by Mr. Conrad as a condition of receiving service. IGC maintains that the language in its manual regarding IGC providing meter protection should not be taken literally to mean IGC will provide such protection. *See* Answer at p. 7. Staff

recommends that the manual be revised to clarify the conditions under which meter protection will be provided by the Company without charge.

2. Training: In its Answer, the Company states that employees of IGC are trained to recognize that when a natural gas meter is located in the “Drip-line of a non-gabled end of a roof, the meter is unprotected and unsafe.” *See* p. 6. Staff was unable to find any language in the Company’s Procedures Manual that specifies the “drip-line” as the determinant factor for requiring additional meter protection. In addition, the manual seems to indicate that gutters may offer meter protection. *See* Answer, Exhibit 3, p. 2. However, when Mr. Conrad told IGC personnel that he intended to have gutters installed, he was told that gutters do not suffice as adequate meter protection.

It appears to Staff that employee training is not consistent with IGC’s Procedures Manual. This inconsistency could lead to employee confusion and contribute to a lack of consistent application of the Company’s safety requirements. Staff recommends that the Company reconcile any inconsistencies between its Procedures Manual and employee training. Staff also recommends that steps be taken to ensure consistent application of its meter protection criteria across the Company’s service territory.

STAFF RECOMMENDATION

(1) Staff recommends the Company establish specific criteria for determining the need for additional meter protection and technical specifications for meter protection structures.

(2) Staff recommends that after the Company establishes its specific criteria and technical specifications, that information be made available to customers, contractors, builders and others on its website. In addition, printed information, e.g., brochures, flyers, booklets, etc., should be available for distribution to customers and others upon request.

(3) Staff recommends that at least once each year, IGC advise builders and contractors within its service territory of its criteria and technical specifications for meter protection.

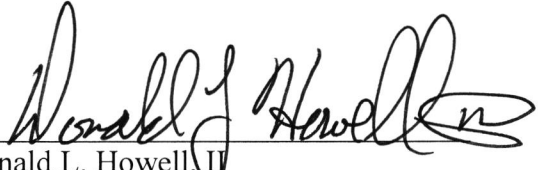
(4) Staff recommends that the Company’s Procedures Manual be revised to clarify the conditions under which meter protection will be provided by the Company without charge.

(5) Staff recommends the Company reconcile any inconsistencies between its Procedures Manual and the training provided to employees.

(6) Staff recommends that steps be taken to ensure consistent application of its criteria across the Company's service territory.

(7) Staff recommends that the Company be directed to work with Staff in complying with the Commission's order.

Respectfully submitted this 7th day of March 2016.


Donald L. Howell, II
Deputy Attorney General

Technical Staff: Johnathan Farley

i:umisc/comments/intgl6.1dhjf comments



Requirements for Gas Meters in Snow Country

- ◆ Contact your PSE Project Manager to determine if your property requires gas meter protection from falling ice, snow, and other conditions including snow accumulation that can result in gas meter damage or cause a regulator malfunction.
- ◆ The gas meter must comply with all of the information in this handout, as well as the location and clearance requirements defined in the following PSE publications available through your PSE Project Manager:
 - ☐ **Gas and Electric Underground Service Installation Requirements** handout (Form 3061)
 - ☐ **Gas Meter Clearances and Service Installation Requirements** handout (Form 3885)
 - ☐ **Gas Service Handbook** (commercial and multifamily installations only)
- ◆ PSE reserves the right to designate gas meter locations so that they comply with PSE standards.
- ◆ Submit the gas meter location and shelter design proposal (if applicable) to your PSE Project Manager for approval **before** construction begins.



Location of Gas Meters for Snow and Ice Protection

- ◆ The gas meter shall be located such that potential damage from falling ice and snow, snow accumulation, and other conditions is limited.
- ◆ The following snow and ice protection options are listed in order of priority. The gas meter may be installed without a shelter for either option.

OPTION 1: Locate the gas meter on a wall beneath the **gable-end** of the roof with **at least 16 inches** from the outer edge of the roof and **at least 24 inches** from where the gable intersects with a forward-sloping roof. (See **Diagram A**.) Locate a gas meter on a wall beneath a **flat roof** only if the **overhang is at least 24 inches** (see note below) and the gas meter can be placed **at least 16 inches** from the outer edge of the roof.

OPTION 2: Locate the gas meter on a wall beneath a **forward-sloping or hipped roof**, where the roofing material is either composite or metal, the **overhang is at least 48 inches**, and the wall height is **less than 25 feet**. (See **Diagram B**.)

NOTE: PSE must grant approval for alternate locations. A gas meter shelter may be required in some cases because sliding snow presents a risk to facilities and personnel.

OPTION 1: Gas meter location options beneath a gable-end or flat roof

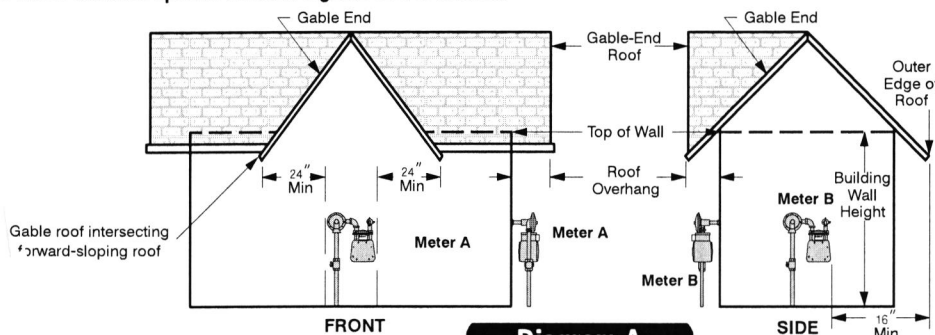


Diagram A

OPTION 2: Gas meter location options beneath a forward-sloping or hipped roof

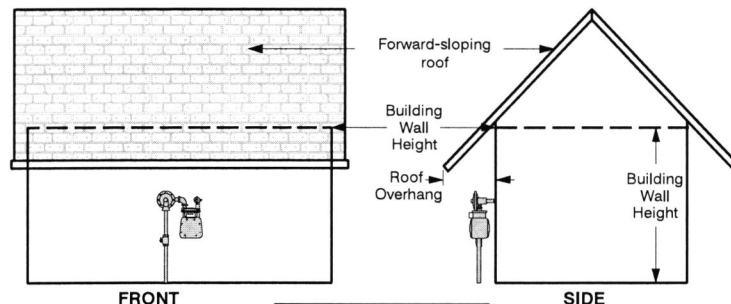


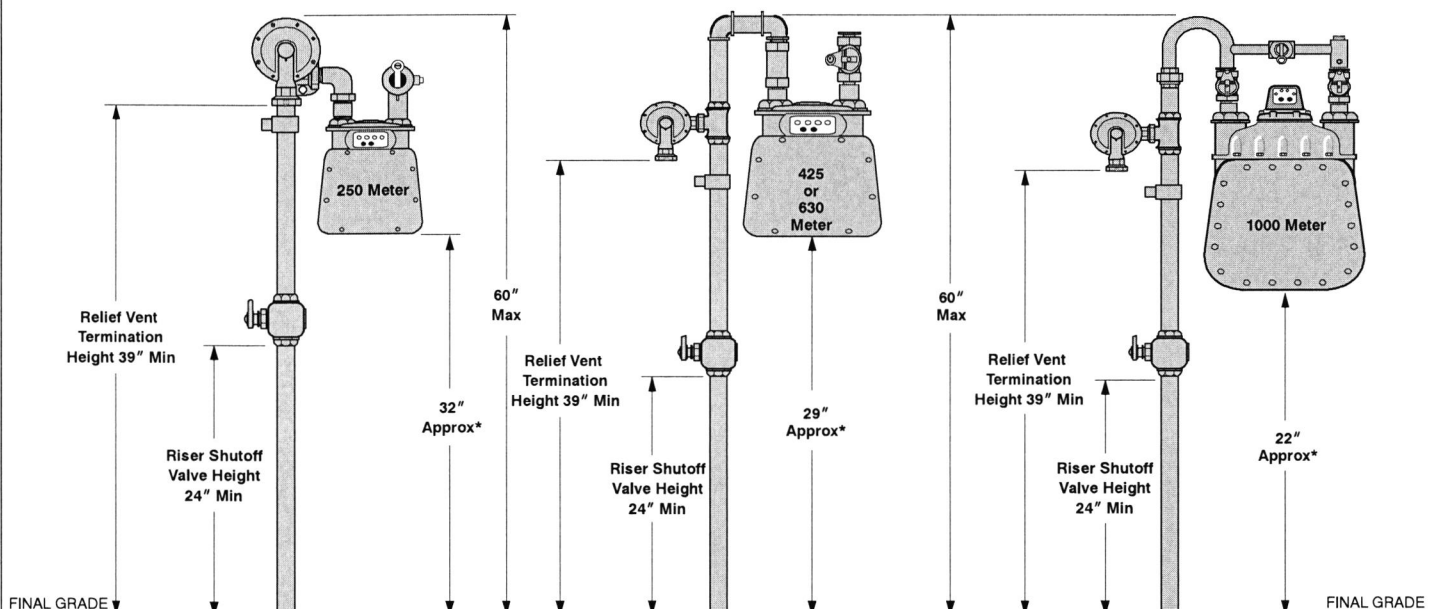
Diagram B



Gas Meter Set Assembly Installation Requirements

- ◆ PSE requires an approved mechanical/building permit to be posted and visible from the outside before the gas meter can be installed.
- ◆ The following shall be considered when installing the gas meter:
 - The sun exposure of the wall where the gas meter is located.
 - ✓ The gas meter should be located on the wall that faces, in order of preference: south, west, and lastly east.
 - ✓ The wall with northerly exposure should be avoided and used as a last alternative.
 - The typical direction of weather fronts, since this plays a role in how snow accumulates.
- ◆ To determine which meter type you need, contact your PSE Project Manager. (See **Diagram C** for typical gas meters.)
- ◆ The fuel line stubout should be installed **at 60 inches** from final grade.

Typical Snow Country Residential 250, 425, 630 and 1000 Gas Meter Installation



* The meter shall have **at least 20 inches** clearance from final grade.

Diagram C



Service Pipe Depth of Cover Requirements for Snow Country

- ◆ For properties in snow country, the minimum required depth of cover over the gas service pipe is **24 inches**.



Avoid These Problems That Can Delay Installation

- ◆ Requested gas meter location and clearances are not acceptable.
- ◆ Trench depth and installation do not meet PSE requirements.
- ◆ Trench bedding and shading do not meet PSE requirements.



**Know what's below.
Call before you dig.**

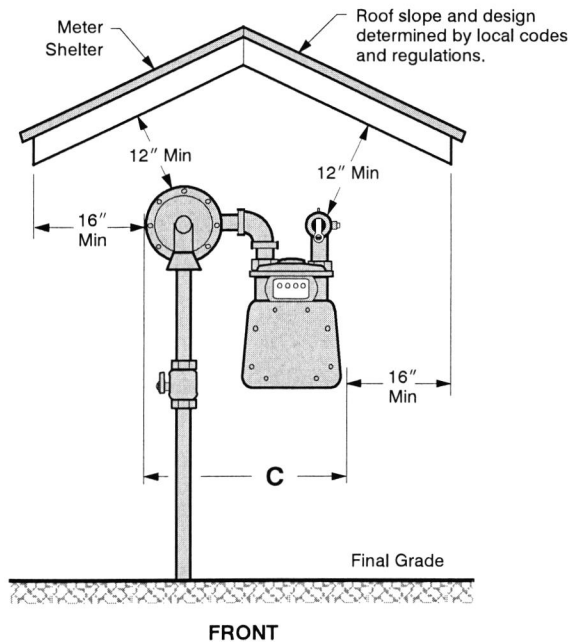


Gas Meter Set Assembly Shelter Requirements

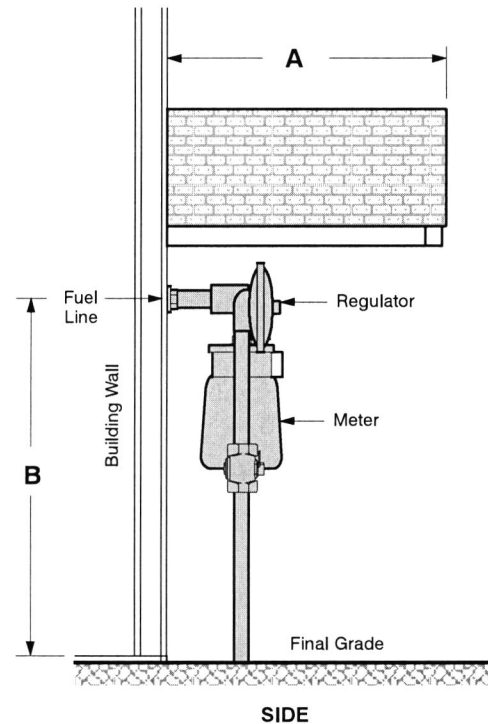
- ◆ The Customer is responsible for ensuring that the meter set assembly shelter design and construction comply with the following:
 - ☐ Provide adequate clearances for operations and maintenance of the meter set assembly (see dimensions below).
 - ☐ Do not enclose the meter set assembly.
 - ☐ Meet current building code requirements.
 - ☐ Shelter's roof must have a gable-end design and be adequately supported to protect the meter set assembly from snow loads. Roof support pillars may be necessary.
- ◆ The meter set shelter design variables include:
 - ☐ Roof materials
 - ☐ Roof pitch
 - ☐ Structural requirements for geographic snow loads
- ◆ The meter set assembly will not be installed until the shelter is installed.
- ◆ To determine which meter type you will need, contact your Puget Sound Energy (PSE) Project Manager.
- ◆ PSE requires an approved mechanical/building permit to be posted and visible from the outside before the meter set assembly can be installed.

Meter Type	A Shelter Depth	B Fuel Line Height	C Meter Set Assembly (Typ)
250	24" Minimum	55"	16"
425	24" Minimum	55"	24"
1000	28" Minimum	55"	26"

250 Meter Set Assembly (Front View)



250 Meter Set Assembly (Side View)



These diagrams are for dimensional references only.



Gas Meter Set Assembly Shelters

- ◆ Provide protection from falling/melting snow and ice and buildup on the meter.
- ◆ Provide a safe working environment during maintenance and emergency personnel access.
- ◆ Prolong the life of the meter.
- ◆ Do not have to be attached to the primary structure, provided they still offer adequate protection.



What To Do If You Suspect a Natural Gas Leak

- ◆ Leave the area immediately.
- ◆ Move to a safe distance where you do not smell the escaping natural gas.
- ◆ After you are at a safe distance, call Puget Sound Energy at **1-888-225-5773** or **call 911**.
- ◆ For emergencies, call **911**.

Questions?

Call PSE's Customer Construction Services 1-888-321-7779 or visit PSE.com/CustomerConstruction.

Before You Dig

Call Utilities Underground Location Center (811) Two Business Days Before You Dig.

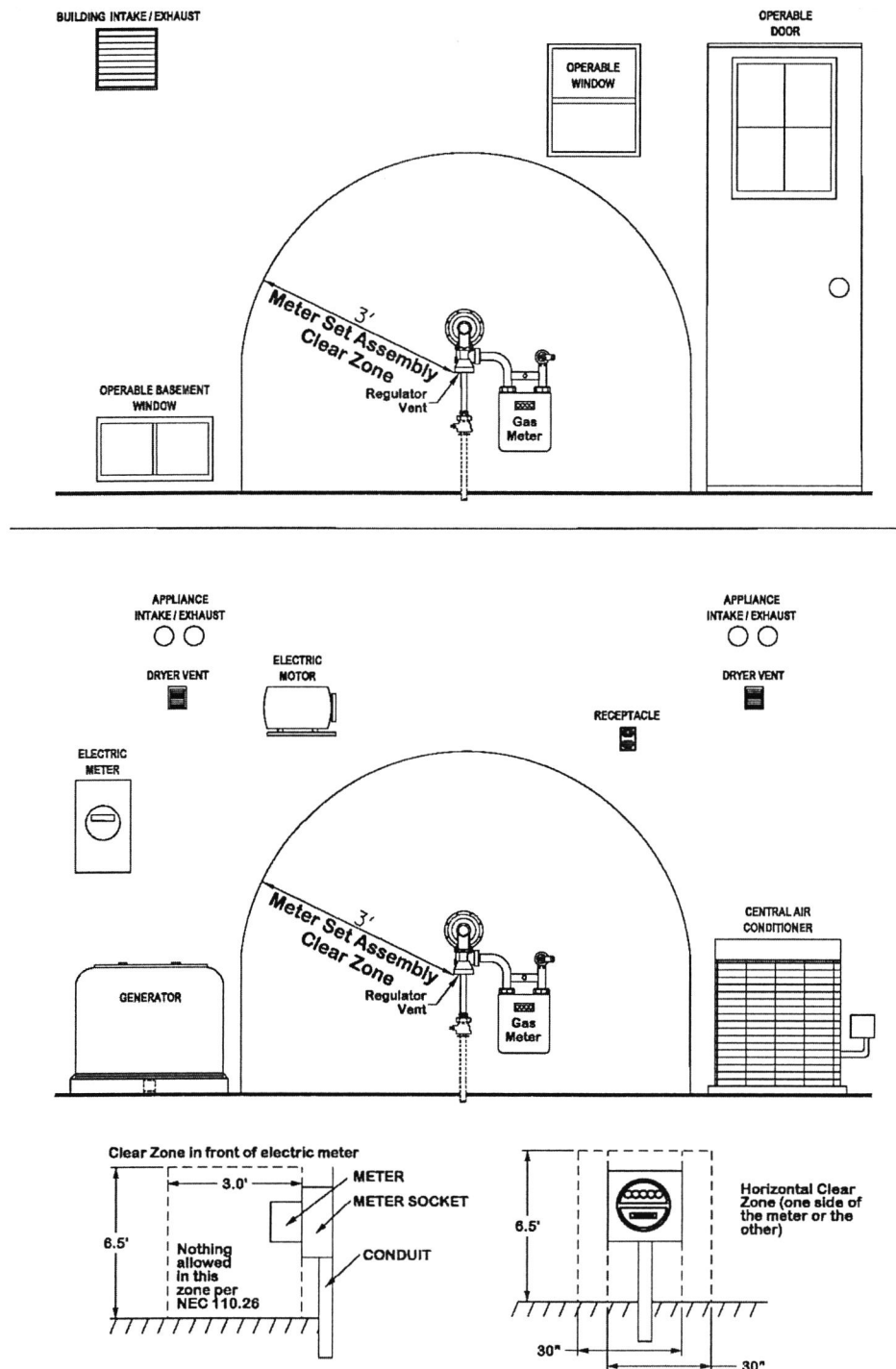


**Know what's below.
Call before you dig.**

Section 4 – Gas Metering

4-1	Clearance to Gas Meters	2
4-2	Meter Size Dimensions	3
4-3	Meter Protection from Vehicles.....	6
4-4	Mobile Home Installation	7
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4-6	Meter Protection from Snow and Ice	9

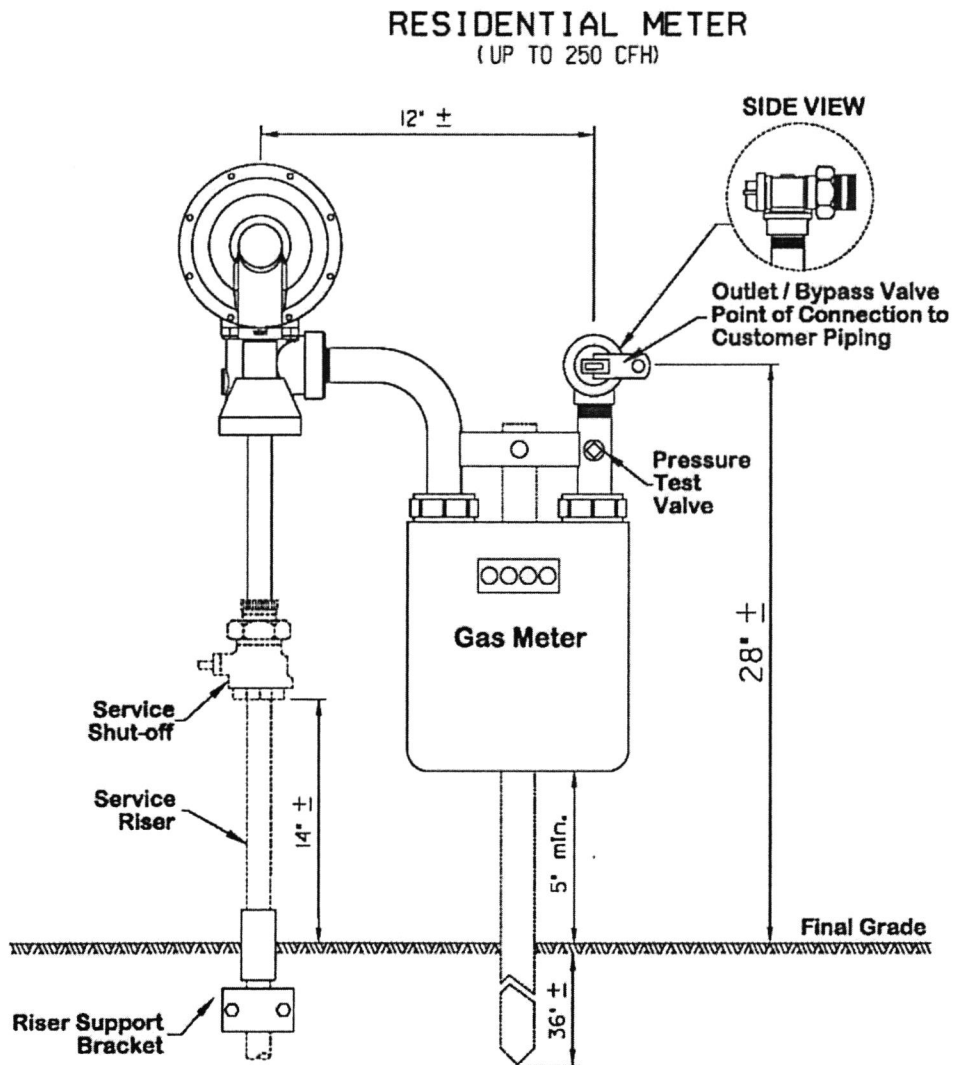
4-1 Clearance to Gas Meters



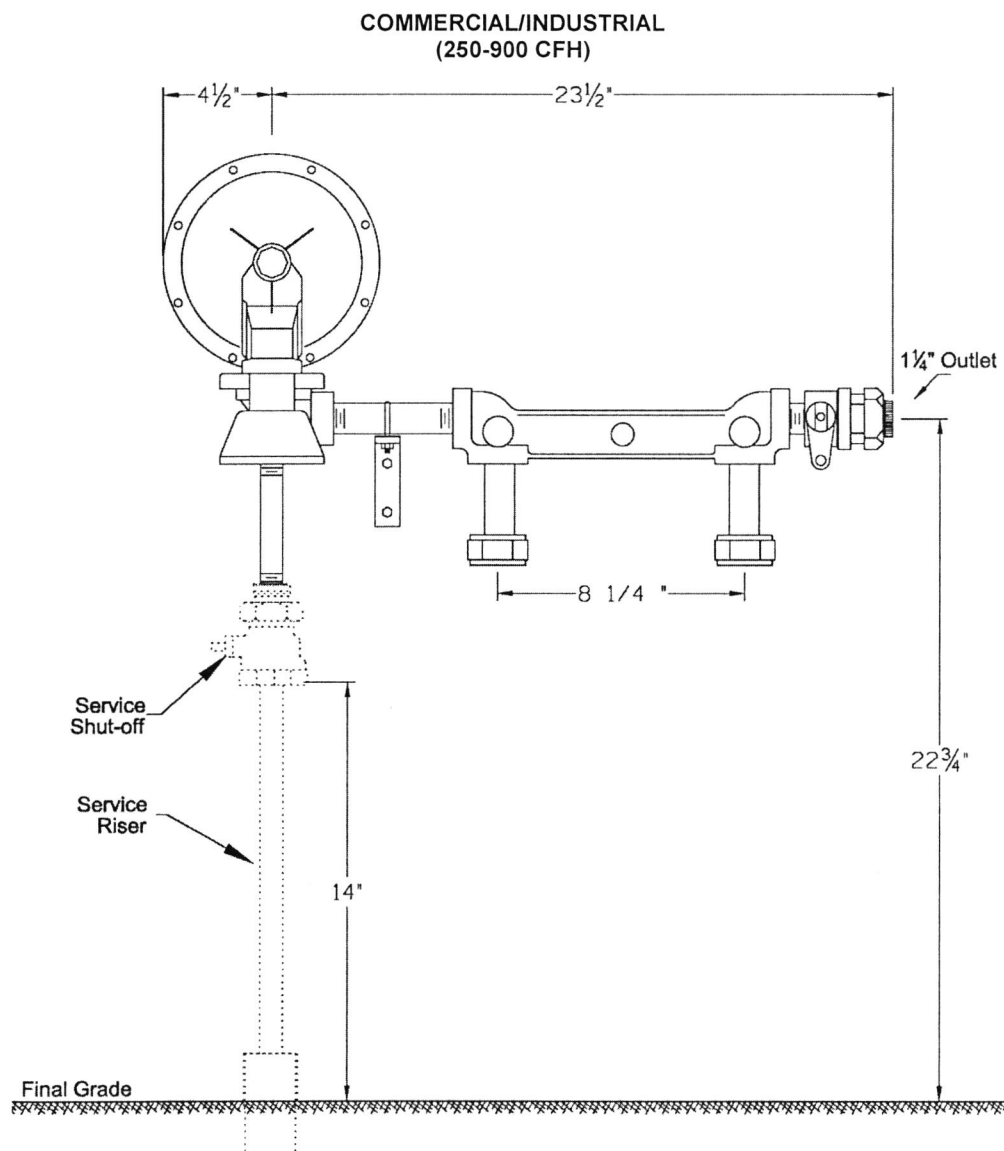
Notes:

1. Exhaust vents which may leak water, condensate, grease, oil, or other substances are not allowed above gas meters or other gas controls.
2. Avoid short overhangs which could cause ice problems in winter.
3. The National Electric Code 110.26 requires 3'-0" in front of electrical equipment including the electric meter socket. This clearance zone applies from the ground up to 6.5 feet.
4. The 3-foot radius clearance applies to clearances between the electric meter and the vents on LP regulators.

4-2 Meter Size Dimensions



4-2 Meter Size Dimensions (Cont'd)

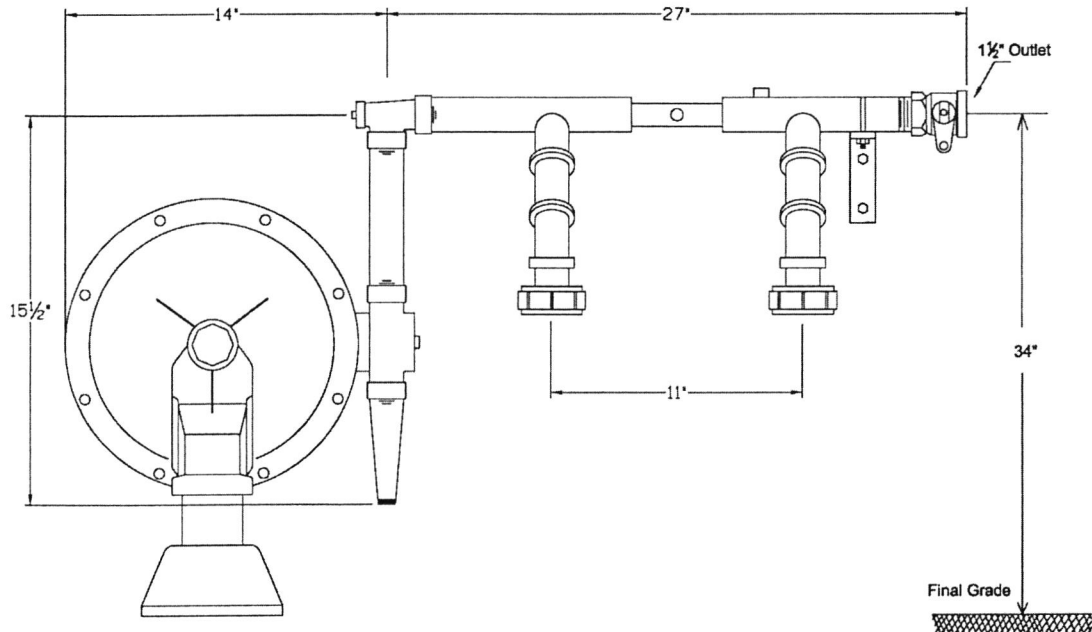


□ Notes:

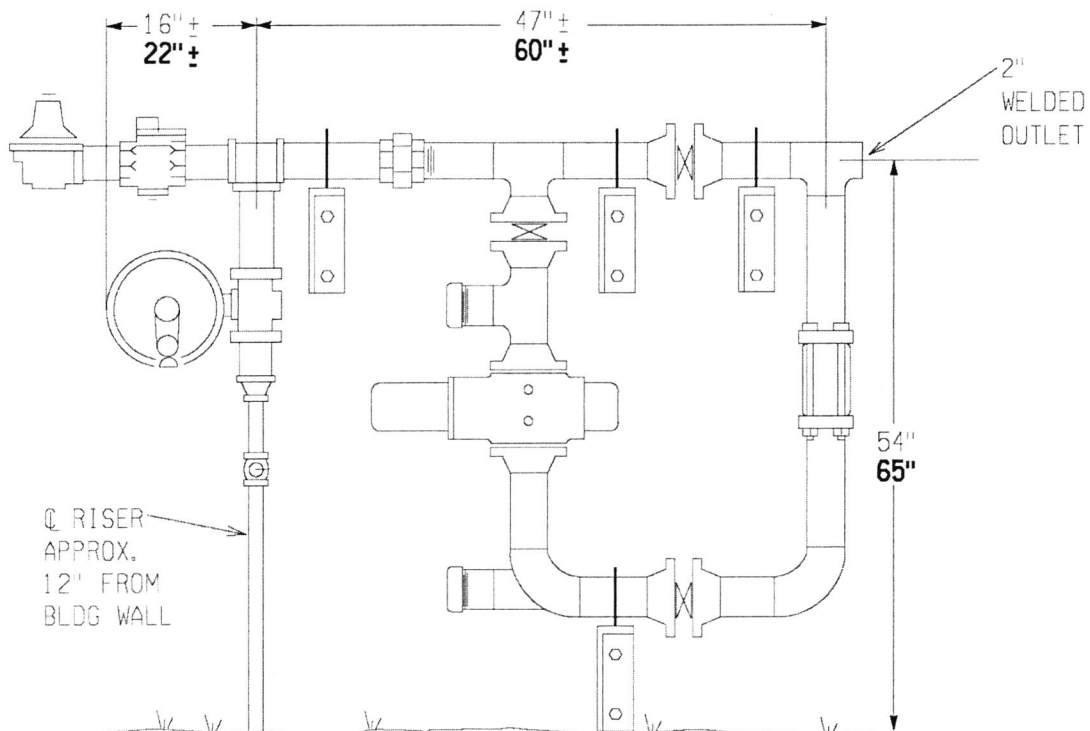
1. Customer piping must be electrically bonded per the National Electrical Code. See subsection 6-3 in the Web version of the manual.
2. The fuel run must be wrapped thru the wall. A double wrap of electrical tape is acceptable.
3. Protection of the gas meter/regulator may be required.
A four-inch or six-inch post filled with concrete may also be required in traffic/parking areas. See subsection 4-3. For protection from ice and snow, see subsection 4-6.
4. If flexible CSST tubing is used for fuel piping, additional meter support must be added. The use of 1" steel pipe at the outlet of the meter bar and through the wall is recommended for this purpose.

4-2 Meter Size Dimensions (Cont'd)

COMMERCIAL / INDUSTRIAL (900 – 2200 CFH)



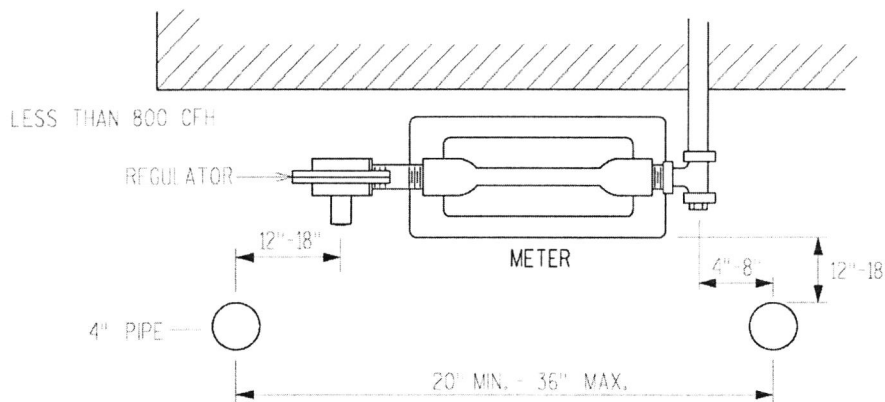
COMMERCIAL/INDUSTRIAL (2,200-3,500 CFH) (4,000-16,000 CFH)



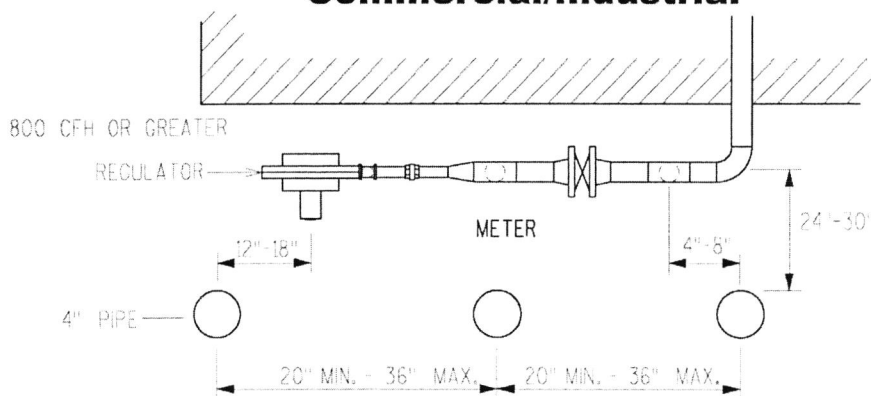
4-3 Meter Protection from Vehicles

Suggested Vehicular Protection for Meters and Regulators

Residential/Small Commercial



Commercial/Industrial



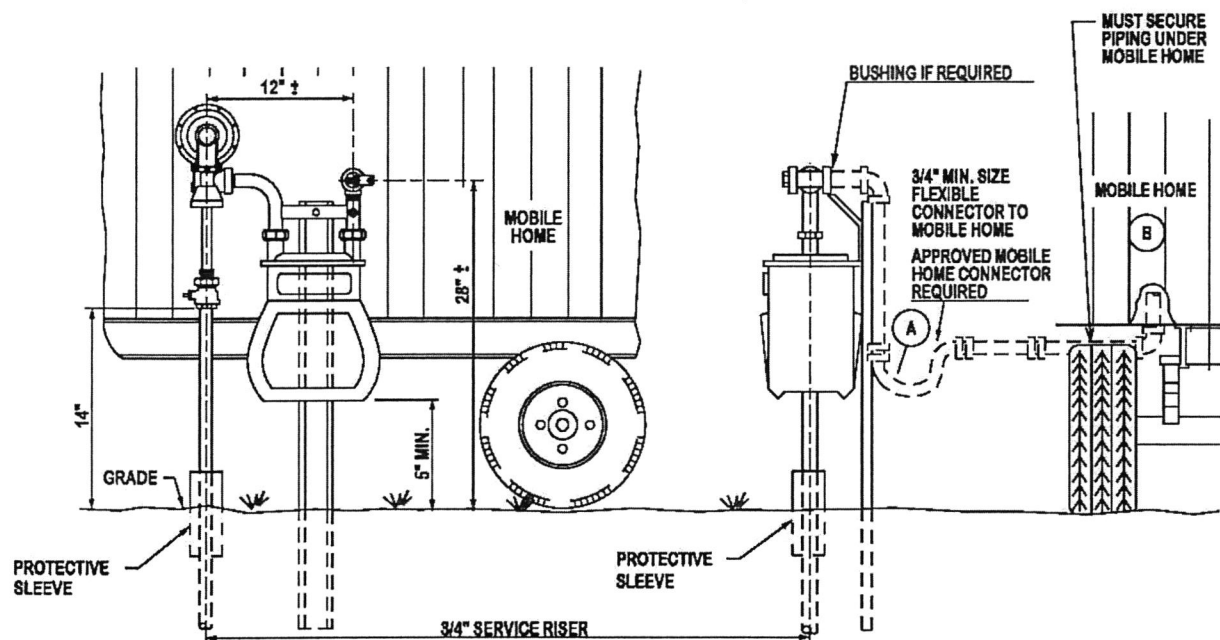
The best solution is to avoid installing the gas meter and piping where vehicles could accidentally run into the gas meter and piping. It is the responsibility of the customer to provide a safe location for new gas meters and regulators. If this is not possible, meter protection is usually needed. The customer, the building inspector, or the Company can determine if meter set protection is needed. Without it, vehicular traffic could accidentally collide with the gas facilities causing a potentially dangerous situation which could result in serious injury or damage. Protection usually consists of one or more 4" or larger steel posts. A 6" concrete curb can also be used. The customer can install either post or 6" curb. The Company will install posts for a fee. This usually consists of one or more posts or protectors.

Please call the Company for assistance if you have or think you may have a potentially dangerous meter location.

1. The drawings above are typical post layouts for areas where protection is needed.
2. When installing the posts, use good judgment in areas such as alleys, driveways, walkways, etc.
3. The post should be buried to a depth of 30" and should extend 36" above the ground. Tamped granular material shall be used around post or use approximately one foot of concrete or Speed-Crete, and fill the balance of the hole with tamped granular material. Posts shall not be driven. Always call Diggers' Hotline at 1-800-242-8511 prior to making any excavations.
4. Posts should be level and plumb with other posts. Fill the post with sand or gravel and cap off with concrete.

4-4 Mobile Home Installation

Mobile Home Requirements



1. An approved mobile home connector is required between the meter set and home. This connector must not pass through the skirting. Contact a plumbing or heating dealer for installation (NFPA 501A Part 4.4.1).
2. Furnaces and water heaters must have name plate stating: "Approved for mobile or manufactured home installation." The Company cannot provide gas to a water heater or furnace if not listed for installation in a mobile home (ANSI Code Z21.47 and Z21.10.1 (NFPA paragraph 10.30)).

Flexible CSST has not been approved as an acceptable joining material to a meter set on a mobile home, as governed by HUD.

Per standard for mfg. home installations NFPA - 501A.

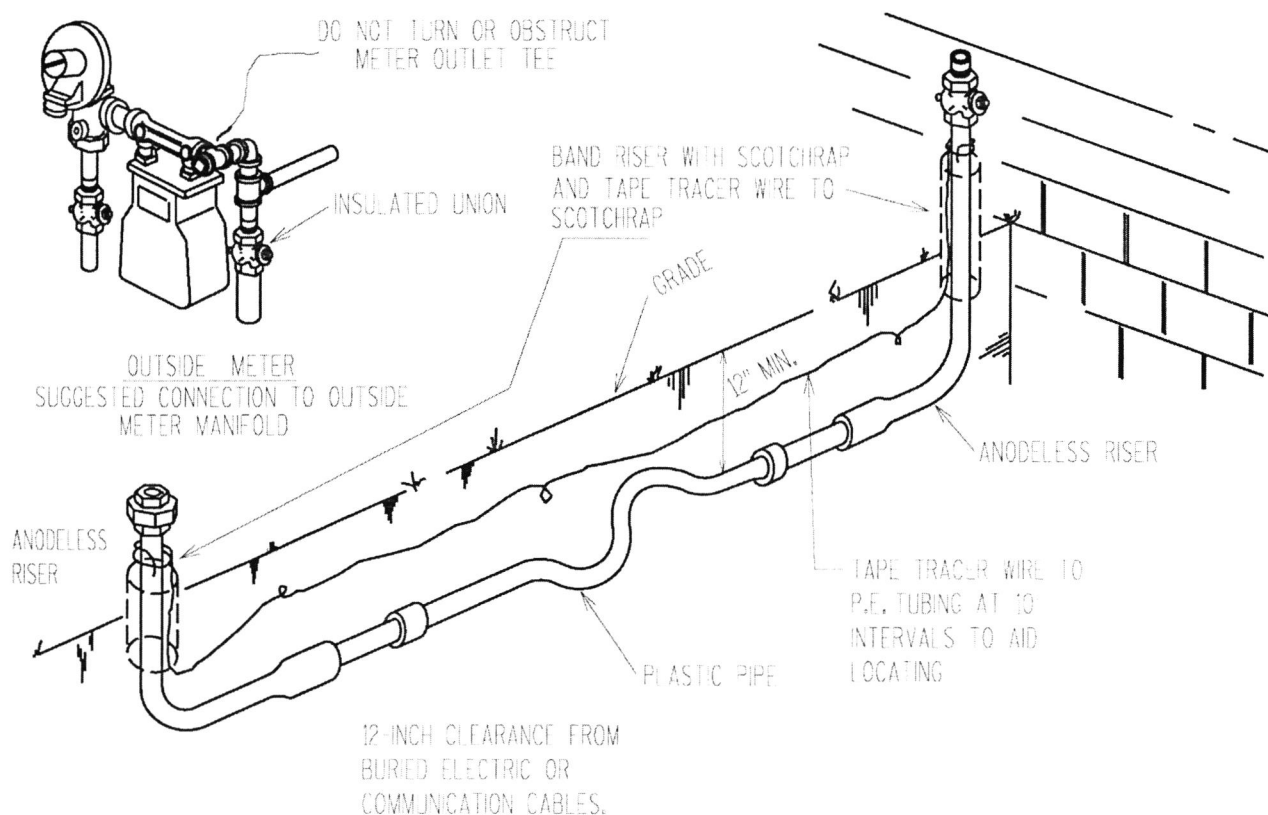
4-5 Underground Fuel Runs

Approved Underground Fuel Runs

Approved underground fuel runs. Needs to meet:

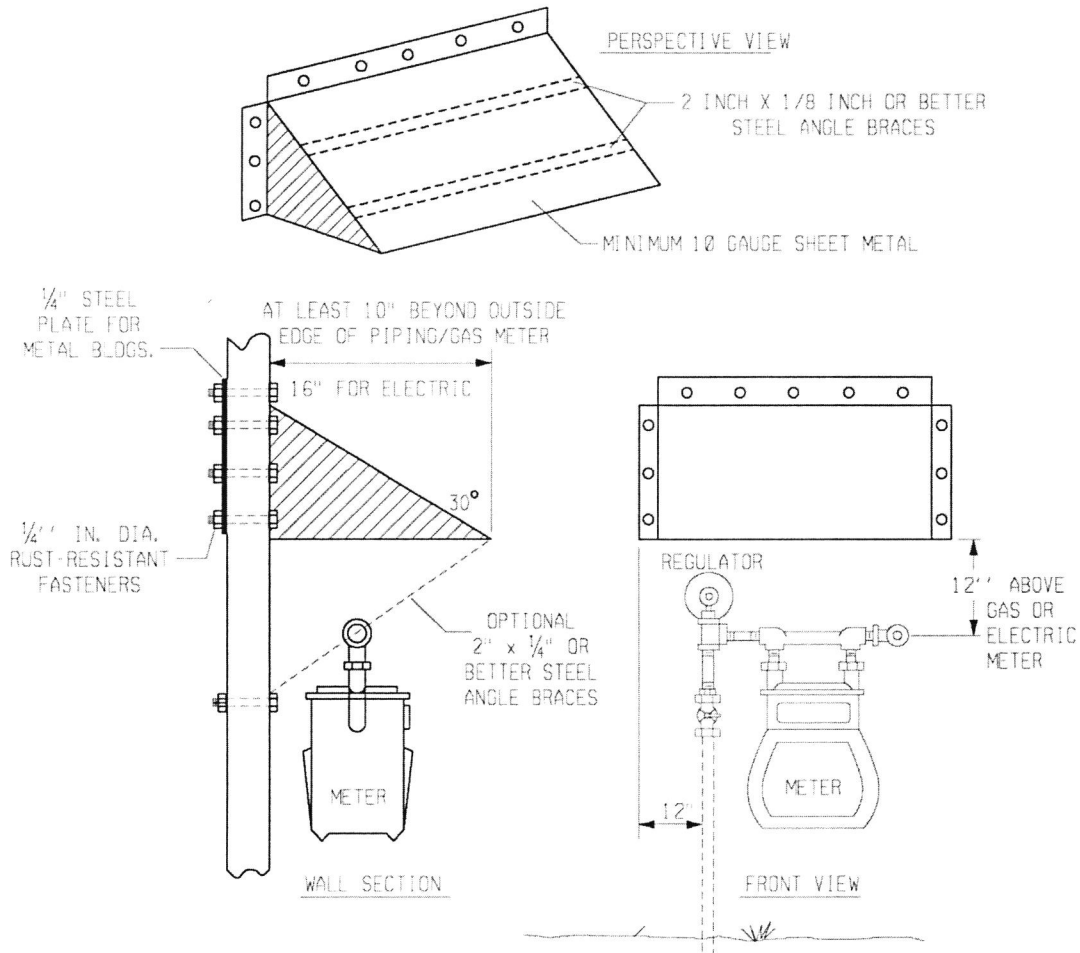
1. Approved plastic (ASTM D2513).
 - A. Requires approved steel riser where it exits ground. National Fuel Gas Code Chapter 7.
 - B. PVC pipe is not approved for gas fuel runs.
2. Steel protected against corrosion.
 - A. Wrapped or coated
 - B. Insulated on both ends
 - C. Cathodically protected (anodes)
 - D. Gas piping entering building below grade, follow National Fuel Gas Code, Paragraph 7.1.5.
3. Copper (gas grills) (National Fuel Gas Code Z233.1 Chapter 5, 6, and 7).
4. Pipe entering building above ground must be wrapped through the wall.
5. Corrugated stainless steel tubing (CSST) is not approved for direct burial.

Approved Plastic Installation



4-6 Meter Protection from Snow and Ice

Suggested Ice/Snow Protection over Meter and Regulator



Snow and Ice Protection

1. The customer is responsible to provide a safe location for the gas and electric meters to protect them from damage.
2. A snow and ice shield is mandatory on the pitched side of metal buildings (provided by the customer). A shield is highly recommended for other areas. The company will determine if protection is required for gas meters, as per code requirements (DOT 192).
3. The shield must be constructed to handle the force of falling ice/snow from a given height.
4. A metal shield should be constructed, primed, and painted with a minimum of 10 gauge metal.
5. The protective shield does not have to be constructed using metal, but must be constructed using good engineering and construction practices to complete #3 above.
6. The above is a recommended design and construction drawing.

ENBRIDGE GAS DISTRIBUTION METER BOX

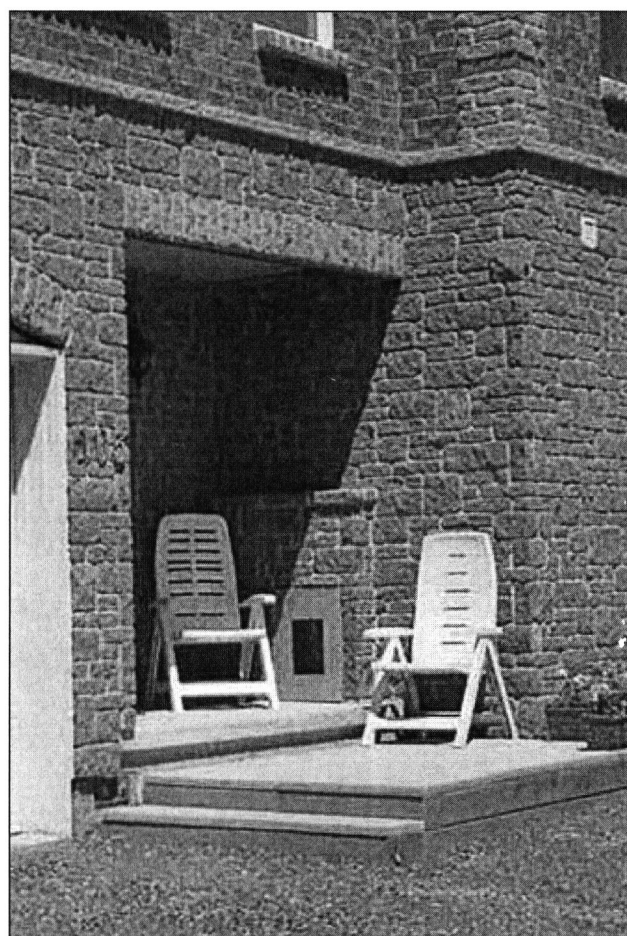
Builders' Installation Guidelines
September 2011

Meter Box

Builder's Guideline for Installations

Introduction

These guidelines are provided to communicate to Builders, the design criteria and installation requirements for the use of Meter Boxes in multi-dwelling units.



Above: Two different examples of Meter Box service installations in the Ottawa area.

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Scope

It is the responsibility of the Builder to ensure these guidelines and specifications are incorporated into the architectural design.

If a Meter Box installation is to be used, the Builder must consult with an Enbridge Gas Distribution New Housing Market Consultant for details on requirements when submitting a preliminary request for site servicing and layout.

Specifically, the following Enbridge Gas Distribution representatives may be contacted for more information:

Region	Contract (New Housing Market Consultant)
Barrie	Dorothy Stewart (705) 739-5227
Durham	Neil Saunders (905) 436-7017
Ottawa and Eastern Region	Leah Stiles (613) 748-6703 Natalie Armstrong (613) 747-4078
Toronto (Metro)	Margaret Ward (416) 753-6234
Niagara	Rick Porter (905) 984-4994
Kawartha	Don Armitage (705) 749-5200 x 5236
Peel	Michael McDonnell 1-866-820-6215 x 2137
York	Michelle Vestergaard (905) 887-4005 x 250

SECTION: SCOPE	DATED: SEPTEMBER 2011	PAGE: 4 OF 20
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These guidelines provide criteria for standard meter box installations. Applications outside the scope of these guidelines will require approval from Enbridge Gas Distribution's Engineering Department and further review of the Builder's architectural design. For example, the following installations will require additional approval:

- Stacked Meter Boxes
- Installations that do not provide protection of the conduit as specified in these guidelines
- Installations where the Meter Box may be adjoining to the interior living space of the dwelling
- All other locations outside the specifications provided in these guidelines (e.g. elevated Meter Box on Terrace Homes)

Failure to notify Enbridge Gas Distribution prior to the installation of Meter Boxes will result in delays or rejected requests for gas servicing for the project.

SECTION: SCOPE	DATED: SEPTEMBER 2011	PAGE: 5 OF 20
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Meter Box Application

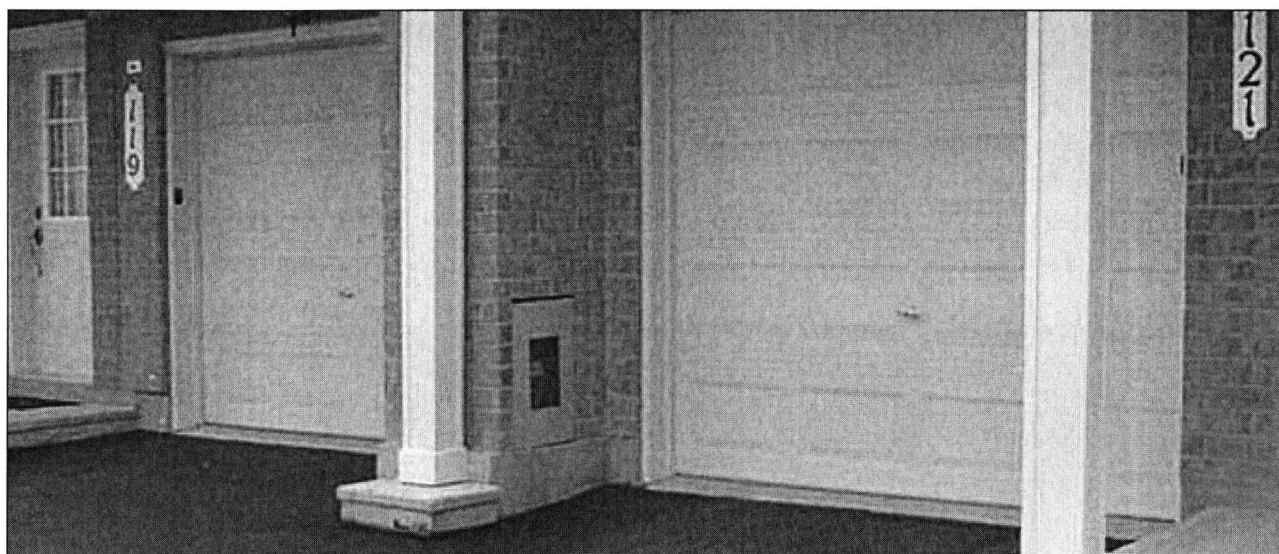
The Meter Box is designed to integrate the gas regulator, meter, and shut-off valve into the architectural detail of multi-dwelling units. The design contains two components: the Meter Box and the NPS 2 Grey PVC conduit.

The PVC conduit is installed in the foundation at the time of forming. The Meter Box is then framed in on top of the foundation wall and secured in place. This allows for the gas service and meter to be installed at a later time by Enbridge Gas Distribution.

Upon final installation, a gas-tight seal of the interior of the box must be ensured so any potential migration of gas may be vented through the screen opening at the front of the box.

The Builder is responsible for supplying the Meter Box and the PVC conduit as part of this installation.

Meter Box Suppliers	Ottawa Area	GTA and Elsewhere
	Convex Tel: (613) 723-3141 Fax: (613) 723-0190	Tecvalco Tel: (905) 353 0101 Fax: (905) 353 8778



Above: Meter Box Installation Example. The Meter Box is designed to integrate the gas regulator, meter, and shut-off valve into the architectural detail of the building.

SECTION: APPLICATION	DATED: SEPTEMBER 2011	PAGE: 6 OF 20
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Installation Procedures

Prior to the gas service installation, the Builder has the responsibility of ensuring the Meter Box and PVC conduit have been installed according to these specifications.

Installation of NPS 2 Grey PVC Conduit

The PVC conduit must conform to the following guidelines to ensure clear access to the gas meter, regulator, and shut-off valve.

Incorrect installations of the conduit, which compromise the integrity of Enbridge Gas Distribution's gas meter set, will be repaired by the Builder.

- 1) The piping used as the conduit for these installations is standard NPS 2 grey PVC pipe; compatible fittings must also be used.
- 2) The PVC conduit must be completely encased in concrete, with a minimum of 50 mm (2 in) of concrete encasement around the circumference of the piping.
- 3) All joints must be glued and taped before installation in the concrete to ensure continuity of the PVC conduit.
- 4) The PVC conduit must extend 50 mm (2 in) into the box through the precut hole provided in the bottom of the box. The top of the PVC conduit must be cut evenly; a damaged or fractured conduit will not be accepted.
- 5) The PVC conduit must be installed as illustrated in the drawings provided in the Appendix. Additional horizontal or vertical offsets of the conduit are not acceptable.
- 6) The Builder must ensure the integrity of the PVC conduit during the construction process and seal both ends to prevent contamination prior to the installation of the gas service.
- 7) The PVC conduit should exit the foundation at a minimum depth of 600 mm (24 in) below grade.
- 8) The PVC conduit should not exit the foundation under a driveway.

SECTION: INSTALLATION – PVC CONDUIT	DATED: SEPTEMBER 2011	PAGE: 7 OF 20
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Deviations from Standard Installations – PVC Conduit

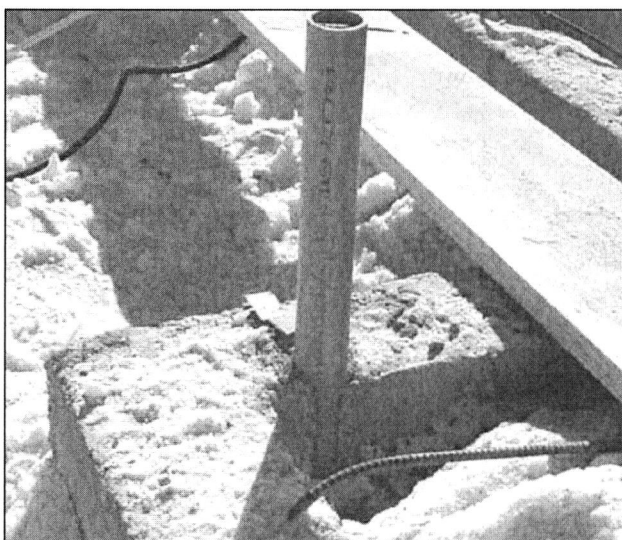
If the Meter Box can not be located on the foundation, for example as result of a poured concrete porch or steps, the conduit may extend a maximum of 300 mm (12 in) above top of the foundation without additional concrete encasement.

For installations with more than 300 mm (12 in) elevation above the foundation, approval from Enbridge Gas Distribution is required. These installations may require the PVC conduit to be completely encased in concrete from the top of the foundation to the bottom of the Meter Box.

Common Installation Pitfalls – PVC Conduit



UNACCEPTABLE



UNACCEPTABLE

Above: Two examples of common pitfalls and unacceptable installations of the PVC conduit.

Left: The PVC conduit extends more than 300 mm (12 in) above the base of the foundation. This type of installation requires additional consideration and approval by Enbridge Gas Distribution prior to the start of construction (i.e. when submitting a preliminary request for site servicing).

Right: This installation is unacceptable because the PVC conduit is not completely encased with a 50 mm (2 in) encirclement of concrete. Remedial action would be required prior to service installation.

SECTION: INSTALLATION – PVC CONDUIT	DATED: SEPTEMBER 2011	PAGE: 8 OF 20
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Installation of Meter Box

Proper installation of the PVC conduit in the foundation allows the Meter Box to be installed according to these guidelines and ensures an acceptable meter configuration for Enbridge Gas Distribution. Installations that do not conform to these guidelines must be corrected prior to the service installation.

The Meter Box is designed with precut holes, which align the PVC conduit with the gas regulator, meter, and supply line connection. Modifications to the precut openings in the box are not permitted. Exceptions are to be reviewed and approved by Enbridge Gas Distribution prior to the installation of the gas service.

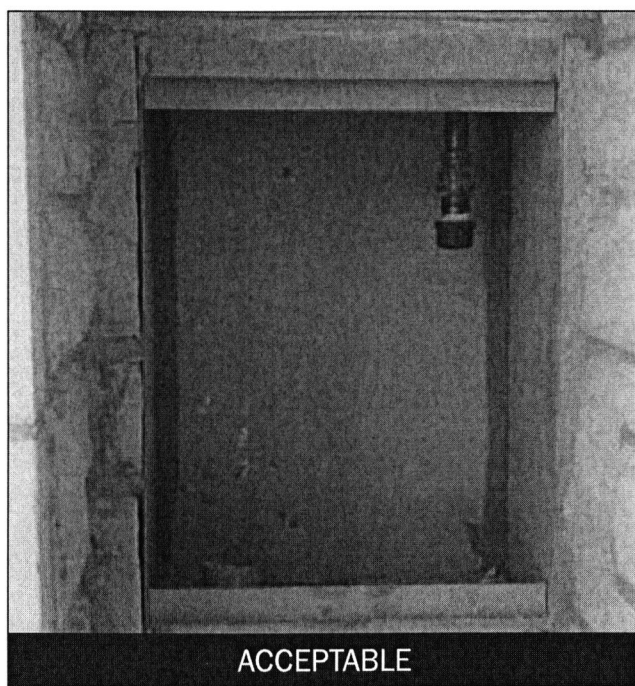
- 1) The Meter Box must be secured prior to the service installation to prevent movement of the box or PVC conduit. The Meter Box does not adequately support masonry. The Builder shall use lintel angles above the box in order to support masonry.
- 2) The location of the Meter Box must allow for 0.9 m (3 ft) clearance of building openings and 1.0 m (40 in) clearance from sources of ignition (measurements to be taken from edge of the screen on the front of the box to the building opening).
- 3) The Meter Box shall be installed such that the bottom of the box is on the foundation. If the Meter Box can not be located on the foundation, for example as result of a poured concrete porch or steps, the Meter Box may be elevated a maximum of 300 mm (12 in) above the foundation. For installations with more than 300 mm (12 in) separation, approval from Enbridge Gas Distribution is required (please also see "Deviations from Standard Installations - PVC Conduit" on page 8).
- 4) The Meter Box door must be accessible at all times and must be able to open freely. Clearance of 600 mm (24 in) in front of the door must be maintained to allow for access to Meter Box. Modifications to the door of the Meter Box are not permitted; the door shall not be fixed in place by any means.
- 5) The meter must be left in such a condition that the front portion of the box can be installed as designed.

SECTION: INSTALLATION – METER BOX	DATED: SEPTEMBER 2011	PAGE: 9 OF 20
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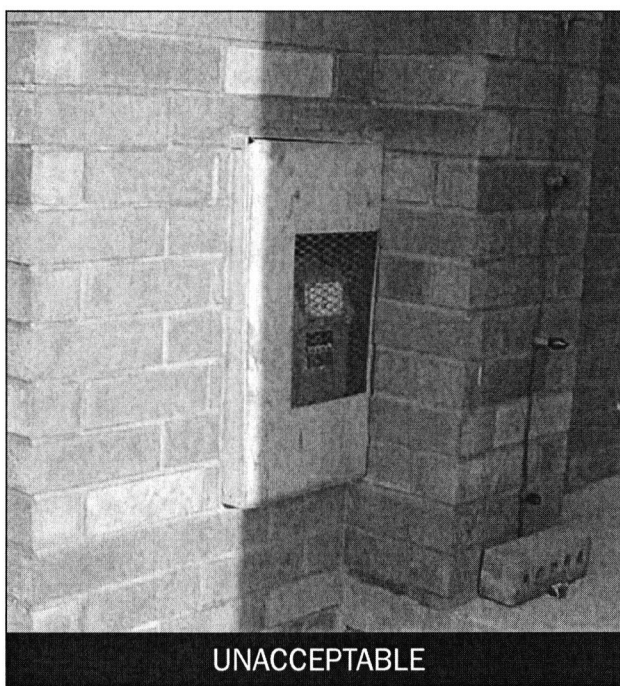
Deviations from Standard Installations – Meter Box

Stacked or clustered Meter Boxes are not be used without the approval of Enbridge Gas Distribution. These installations are to be considered as “non-standard” and will be evaluated on a case-by-case basis.

Installation Examples – Meter Box



ACCEPTABLE



UNACCEPTABLE

Above: An example of an acceptable and unacceptable Meter Box installation.

Left: An acceptable installation incorporates the following: a secured box (siting on foundation or otherwise secured), use of lintel angles, sufficient clearance from openings, and a door which opens freely (i.e. not fixed or tampered). In this instance, the supply line has been installed and capped. Enbridge Gas Distribution will be responsible for the tie-in.

Right: An example of an unacceptable installation. The door has been partially bricked over and access to the meter set is compromised. Remedial action would be required prior to service activation.

SECTION: INSTALLATION – METER BOX	DATED: SEPTEMBER 2011	PAGE: 10 OF 20
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Installation of Meter Set

Enbridge Gas Distribution is responsible for the installation of the following components of the Meter Box service:

- Installation of gas service, riser and shut-off valve, gas regulator, and gas meter
- Tie-in of supply line to meter if supply line is in the Meter Box at the time of service installation
- If the Builder has not installed the supply line at the time of service installation, Enbridge Gas Distribution will cap the service at the meter. The Builder will then be responsible for the tie-in of the supply line to the meter.
- For supply line piping, it is permissible to transition to corrugated stainless steel tubing (CSST) or copper within the box if the following criteria have been satisfied:
 - i. The connection is made with the use of fitting such as a coupling
 - ii. A pipe hanger must not be installed on the outlet meter tail piece
 - iii. The meter must be supported by a wooden block
 - iv. The meter must not be left in contact with any portion of the box.
 - v. The meter box cover must be left installed on the box in the manner that it was designed for
 - vi. All holes in the box must be sealed in order to eliminate the possibility of gas migrating into a structure in the event of a gas leak or regulator relief relieving. It is the responsibility of the builder to ensure that the meter box is sealed using caulking at all seams and at all points where piping enters and exits the box.
 - vii. If downstream piping must exit on the same side as the utility riser, it must not exit closer than 150 mm (6 in) from the riser and it shall not block access to the wing lock.
 - viii. Under no circumstances it is permissible to route downstream piping under the meter
 - ix. Under no circumstances shall the utility meter be left resting on downstream piping.

Meter box installations that do not meet the requirements of these guidelines must not be turned on

SECTION: INSTALLATION – METER SET	DATED: SEPTEMBER 2011	PAGE: 11 OF 20
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The Builder is responsible for the following:

- Installation of supply line piping 150 mm (6 in) straight into the box through the precut hole in the top of meter box. The piping is to be capped for future tie-in by Enbridge Gas Distribution.
- If Enbridge Gas Distribution has installed the gas service prior to the Builder installing the supply line piping, the Builder shall be responsible for bringing the supply line into the Meter Box and the tie-in of the supply line to the meter.

For supply line tie-in requirements, please refer to the “Enbridge Gas Distribution Home Builder Guidelines for Meter Tie-In” technical bulletin.

All connections to temporary construction heaters by the Builder must be made outside of the Meter Box. The impact of temporary construction heaters to meter box installations is currently under review. Guidelines will be provided in an additional bulletin.

SECTION: INSTALLATION – METER SET	DATED: SEPTEMBER 2011	PAGE: 12 OF 20
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Sealing of Meter Box Installation

It is the responsibility of the Builder to ensure that the Meter Box is gas tight and that any potential migration of gas will vent through the screen opening in the door of the Meter Box. This includes sealing the PVC conduit entrance into the bottom of the box, the Meter Box edges and corners, and the supply line exit at the top of the box.

Materials used to seal the Meter Box must ensure the long-term integrity of a gas-tight installation. The preferred sealant for the conduit entrance and supply line exit is a sealing slug. The preferred sealant for the box edges and corners is silicone exterior-grade caulking. Duct sealer caulking and spray foam insulation are also suitable sealants provided a gas-tight seal is ensured.

Fitter Turn-On and Inspection

During the final inspection (EBI), it is necessary to comply with these standards for Meter Box installations. Failure to meet these standards may result in delays in activating gas services.

Failed inspections of Meter Box installations will not be activated until corrective action has been taken. Damages to the meter set as a result of supply line tie-ins will be repaired at the Builder's cost. For example, any damages caused by connections to the meter outlet for winter construction heat will be repaired at the Builder's expense.

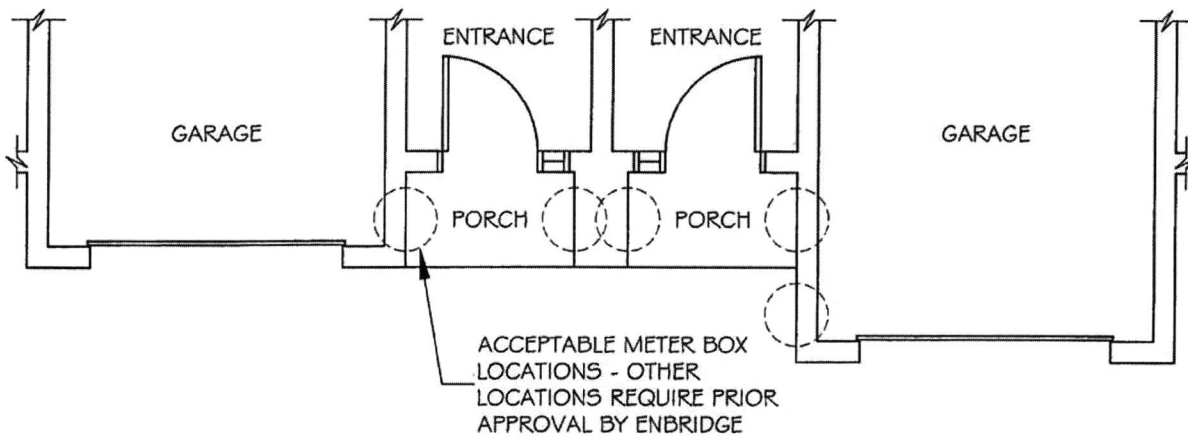
Final Grade Requirements

At time of service installation, final grade shall be within 150 mm (6 in) of construction grade. Please note that damages can occur after the installation of the gas service as a result of insufficient grade cover, use of heavy equipment above services, or the use of poor backfill material after the installation of the gas service. Any damages will be repaired by Enbridge Gas Distribution but will be charged back to the Builder.

SECTION: INSTALLATION – SEALING INSPECTION, FINAL GRADE	DATED: SEPTEMBER 2011	PAGE: 13 OF 20
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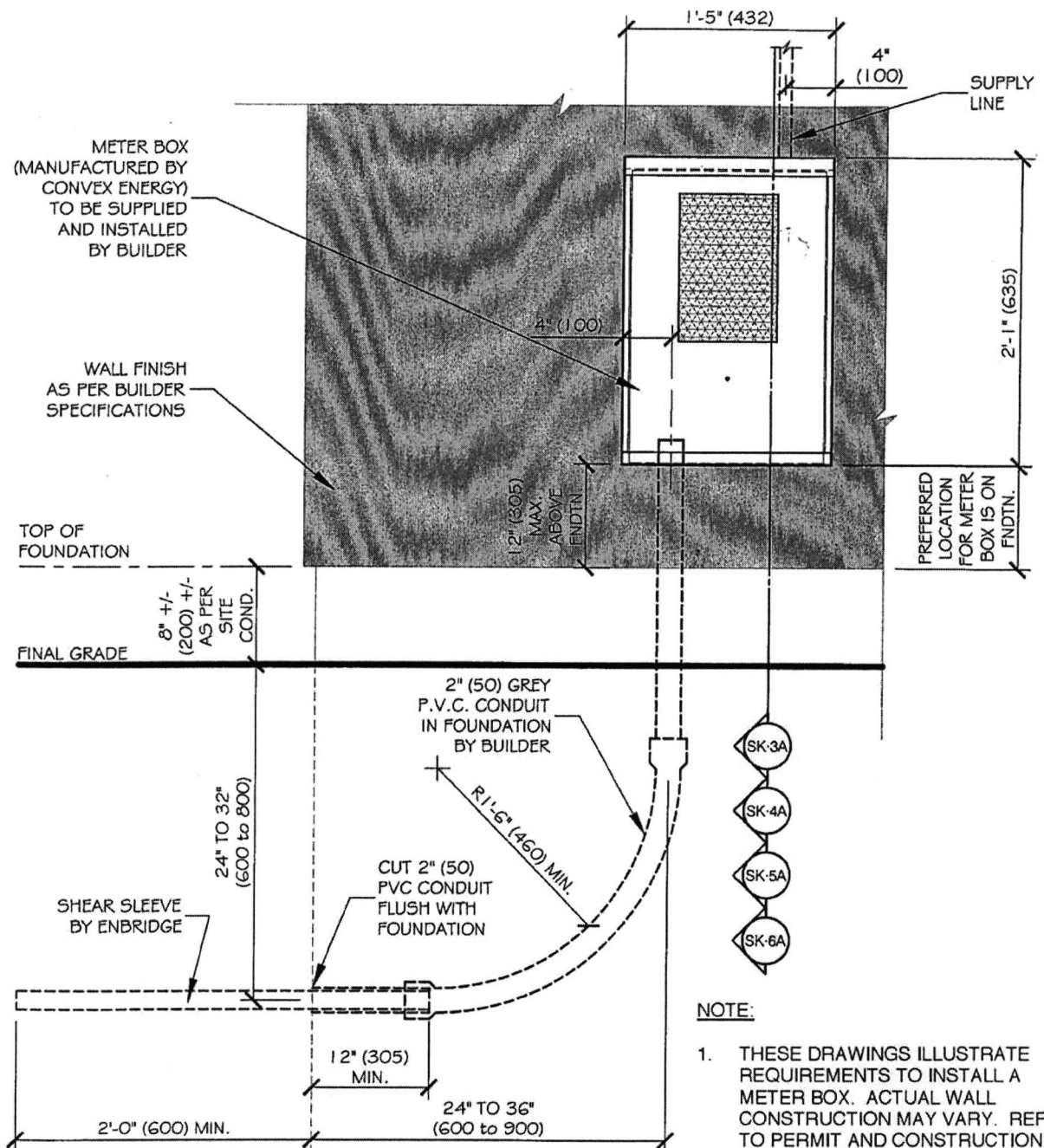
Appendix – Meter Box Drawings and Specifications



NOTE:

1. THESE DRAWINGS ILLUSTRATE REQUIREMENTS TO INSTALL A METER BOX. ACTUAL WALL CONSTRUCTION MAY VARY. REFER TO PERMIT AND CONSTRUCTION DRAWINGS FOR ACTUAL CONSTRUCTION.
2. ENSURE VAPOR RETARDER, AIR BARRIER & WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING: TYPICAL METER BOX INSTALLATION LOCATIONS	DATED: SEPTEMBER 2011	PAGE: 16 OF 20
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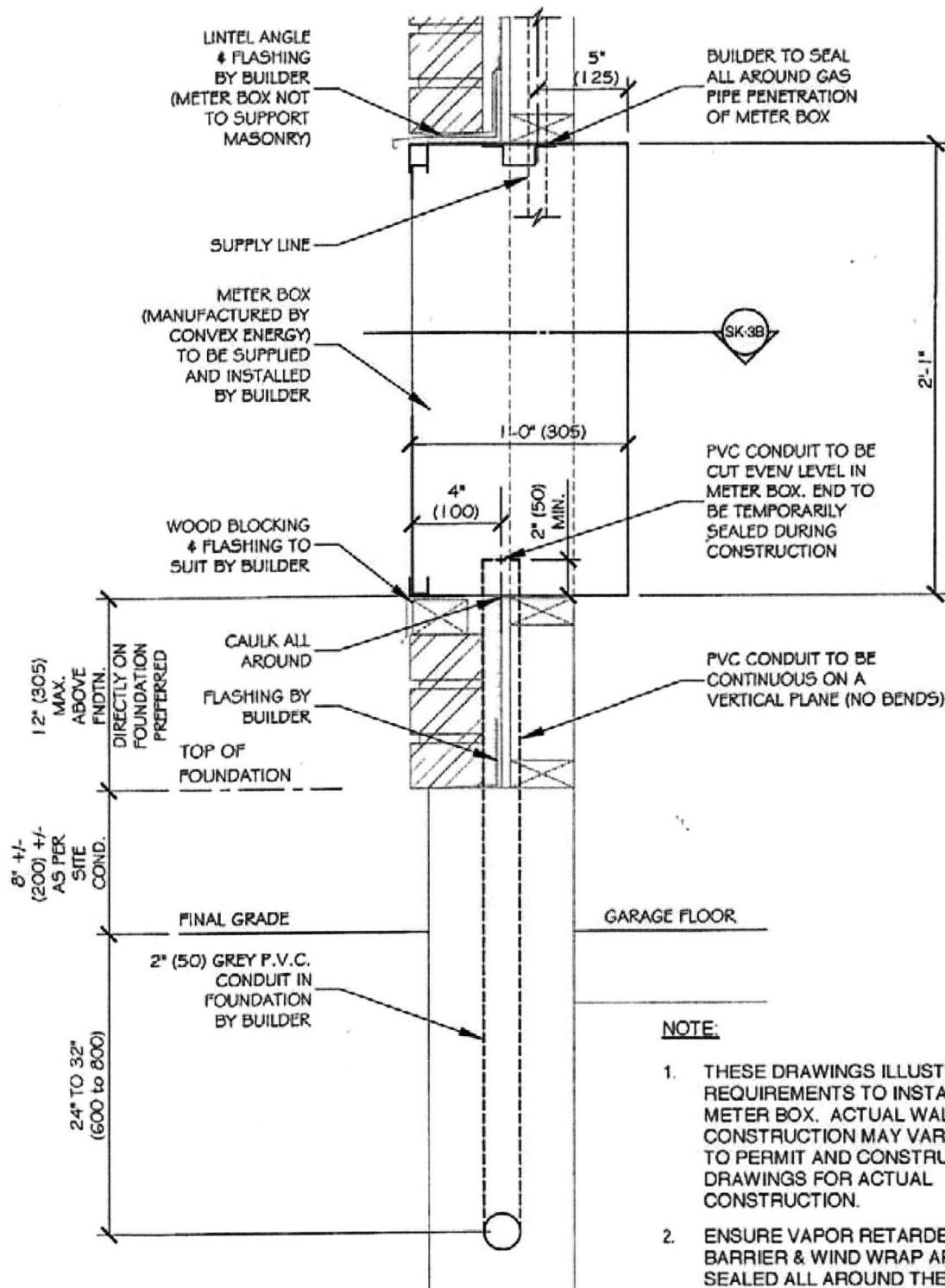
NOTE:

1. THESE DRAWINGS ILLUSTRATE REQUIREMENTS TO INSTALL A METER BOX. ACTUAL WALL CONSTRUCTION MAY VARY. REFER TO PERMIT AND CONSTRUCTION DRAWINGS FOR ACTUAL CONSTRUCTION.
2. ENSURE VAPOR RETARDER, AIR BARRIER & WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING:
TYPICAL METER BOX
INSTALLATION - ELEVATION

DATED:
SEPTEMBER 2011

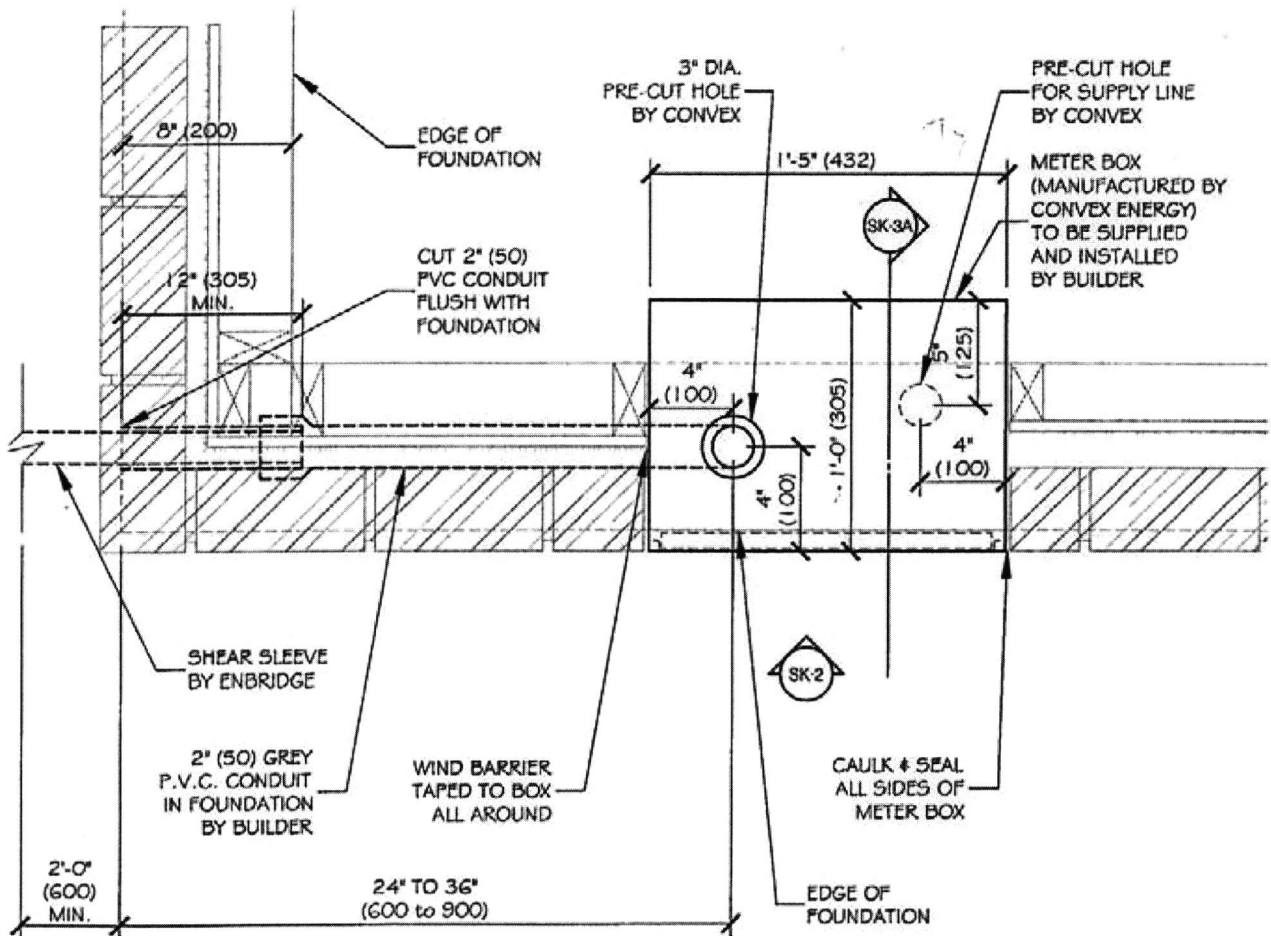
PAGE:
17 OF 20



NOTE:

1. THESE DRAWINGS ILLUSTRATE REQUIREMENTS TO INSTALL A METER BOX. ACTUAL WALL CONSTRUCTION MAY VARY. REFER TO PERMIT AND CONSTRUCTION DRAWINGS FOR ACTUAL CONSTRUCTION.
2. ENSURE VAPOR RETARDER, AIR BARRIER & WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

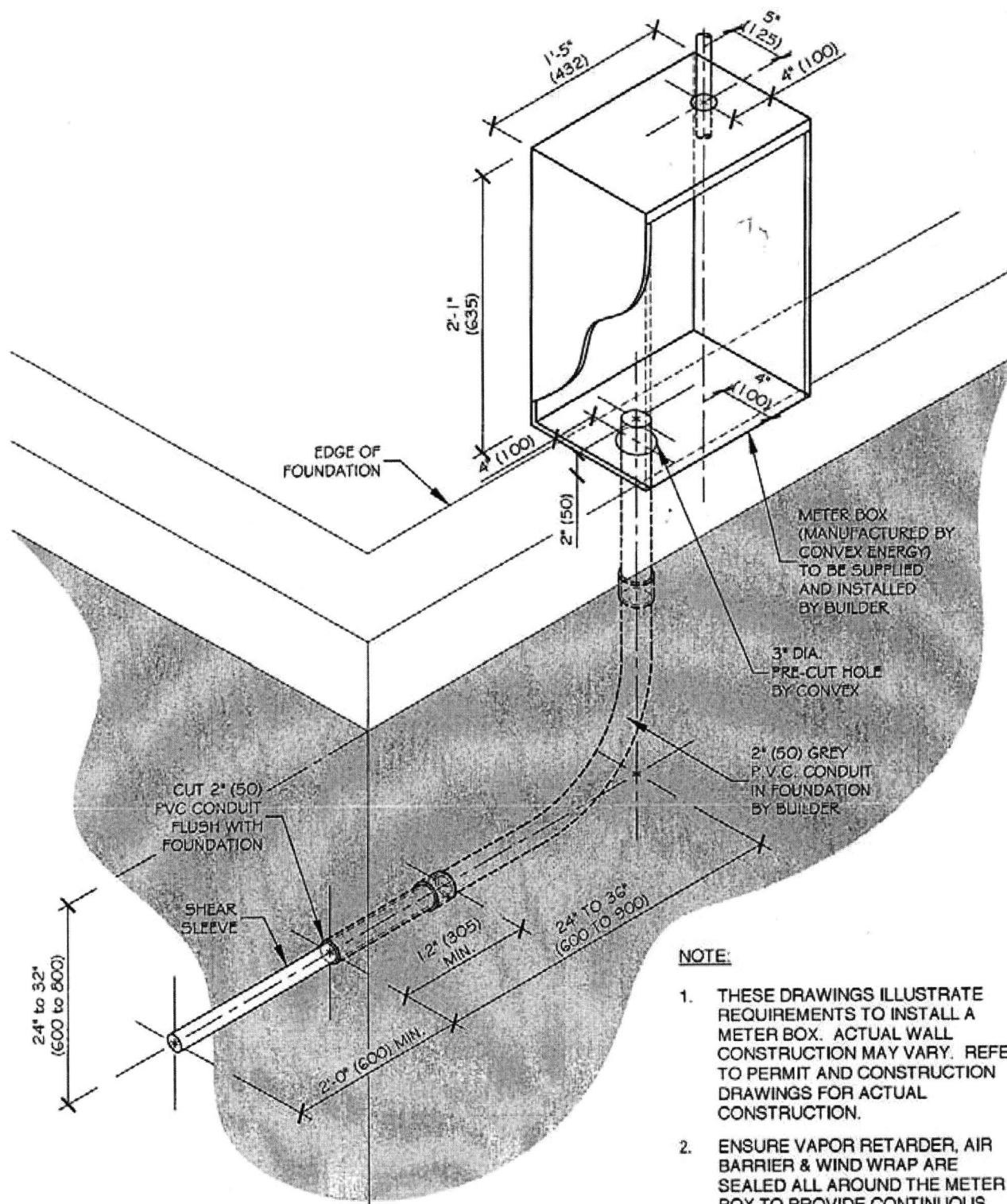
DRAWING: SECTION THROUGH GARAGE WALL WITH BRICK FINISH	DATED: SEPTEMBER 2011	PAGE: 18 OF 20
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NOTE:

1. THESE DRAWINGS ILLUSTRATE REQUIREMENTS TO INSTALL A METER BOX. ACTUAL WALL CONSTRUCTION MAY VARY. REFER TO PERMIT AND CONSTRUCTION DRAWINGS FOR ACTUAL CONSTRUCTION.
2. ENSURE VAPOR RETARDER, AIR BARRIER & WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING: PLAN DETAIL OF GARAGE WALL WITH BRICK FINISH	DATED: SEPTEMBER 2011	PAGE: 19 OF 20
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NOTE:

1. THESE DRAWINGS ILLUSTRATE REQUIREMENTS TO INSTALL A METER BOX. ACTUAL WALL CONSTRUCTION MAY VARY. REFER TO PERMIT AND CONSTRUCTION DRAWINGS FOR ACTUAL CONSTRUCTION.
2. ENSURE VAPOR RETARDER, AIR BARRIER & WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING: ISOMETRIC VIEW	DATED: SEPTEMBER 2011	PAGE: 20 OF 20
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Reduced Charge Option for Underground Electrical Service


Revised October 2015

Program Explanation

The Reduced Charge Option is available for new 1-Ø underground electrical services and allows the customer to install the conduit for the service cable. When the installation is complete, inspected, and all requirements have been met, Idaho Power will then install the cable and meter at a reduced charge.

Be sure to connect to the proper equipment.
Refer to the *Definitions* section or contact Idaho Power for clarification.

Call **Dig-Line** for locations
at least **2 business days** before digging.



Dial
811
Nationwide

Know what's below.
Call before you dig.

Conformance

Each installation is **subject to review and inspection** at any time by Idaho Power for conformance to these specifications.

If a non-conformance is discovered such as the conduit length, route, depth, etc., or if you are not ready when the installation crew arrives; the cable **WILL NOT BE INSTALLED** and **you may be assessed a return trip charge** for each return trip. See the Cost Information document for more information. After the non-compliance is corrected, contact Idaho Power to reschedule the installation.



Contact Idaho Power if:

- ◆ This is your first time using this program.
- ◆ Your service does not conform with the design limitations.
- ◆ A conduit stub cannot be found.
- ◆ You require service from a pole.

Design Limitations

200 Amp Service. For self-contained meter bases up through 200 amps that meet the following limitations, you do not need to contact Idaho Power until you are ready for your service to be installed.

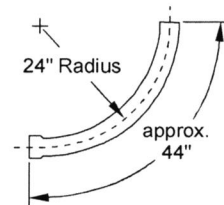
- ◆ **Use 2" gray, UL listed, Schedule 40 PVC**
Use 2" conduit, bends, and fittings unless Idaho Power specifically tells you to use 3".
- ◆ **125' maximum service length**
This is the horizontal distance measured along the service route between Idaho Power's equipment and the meter.
- ◆ **Up to 135° of conduit bends.**
Don't include the bends at the meter or Idaho Power's equipment in the 135° limit.

500 Amp Service. For services from 201 up through 500 amps, you must **contact Idaho Power for approval in advance** to ensure a proper design.

- ◆ **Self-contained meter bases 201-400 amps**
Use 3" gray, UL listed, Schedule 40 PVC conduit bends and fittings.
- ◆ **500 amp service with multiple meters**
Contact Idaho Power for size and quantity of conduit(s) required.

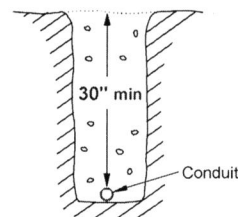
Additional Requirements

Conduit bends. Only use gray colored manufactured bends with a radius of at least 24" (See list of distributors on page 5). **Do not form your own bends!**



Trench and Backfill.

Minimum of 30" cover above conduit. No rocks larger than 2" or trash/rubbish in backfill material.



WARNING: Non-conformances may have to be corrected at the builder's expense.

Important Information

DO NOT heat the conduit in any way to shape it or to form bends.

DO NOT leave open trenches. Any open trench must be adequately barricaded or protected to ensure public safety as required by local, state, or federal rules and regulations. Keep open trenches to a minimum.

DO NOT change conduit sizes in the run.

DO NOT install conduit beneath buildings or other structures.

DO compact the trench particularly near the meter where settling could pull the conduit down and damage the meter base. Although compacting the trench is the builder's responsibility, the homeowner is responsible for any future settling.

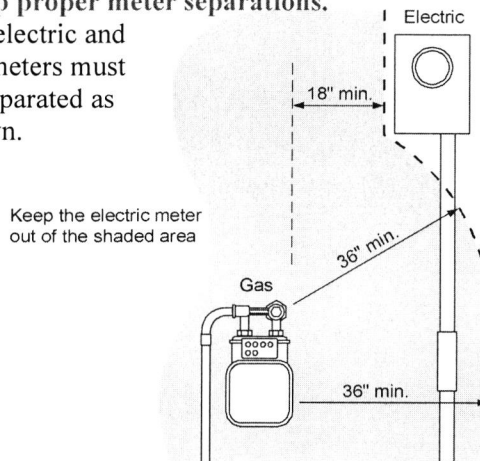
DO make square conduit cuts. Remove burrs from the inside and outside edges.

DO glue conduit joints. All joints must be completely seated and permanently glued with PVC cement.

DO keep dirt and debris out of the conduit.

DO keep proper trench separations. Keep a 12" horizontal and vertical clearance between the electrical conduit and all other utilities and any structures.

DO keep proper meter separations. The electric and gas meters must be separated as shown.



Ownership and Maintenance

Idaho Power assumes ownership of the builder-installed conduit when the electrical service cable is installed. However, the builder is responsible for the condition of the conduit and trench until the ownership of the home is transferred to the first buyer.

After the cable has been installed, **Idaho Power** will own and maintain:

- ◆ All conduit and fittings installed below the finished grade.
- ◆ The entire length of electric cable and the connections at Idaho Power's equipment.
- ◆ The meter.

NOTE. Idaho Power will connect the cable to the meter base but the homeowner will own and maintain the connections.

After the cable has been installed, the **builder** or **homeowner** will own and maintain:

- ◆ All conduit and fittings installed above the finished grade.
- ◆ The trench and any landscaping.
- ◆ The meter base and its connections to the electric cable.
- ◆ All wiring and electrical connections on the customer's side of the meter.

Meter Base Guidelines

Refer to the *Meter Base Identification Guidelines* located on www.idahopower.com.

Meter Base Requirements

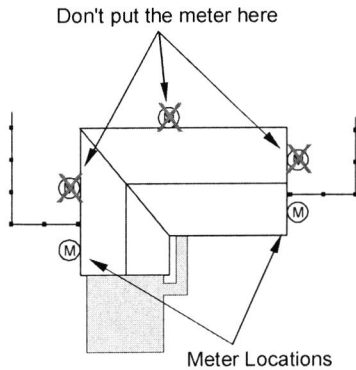
The meter base must accept 3" conduit if 3" conduit is used for the service.

The meter base and conduit must be on the outside of an exterior structure wall and remain accessible to Idaho Power.

Exceptions must be approved in advance!

Locate the meter on the side of the house toward the front.

- ◆ Do not place the meter behind a fence.
- ◆ Do not put the meter at the back of the house.



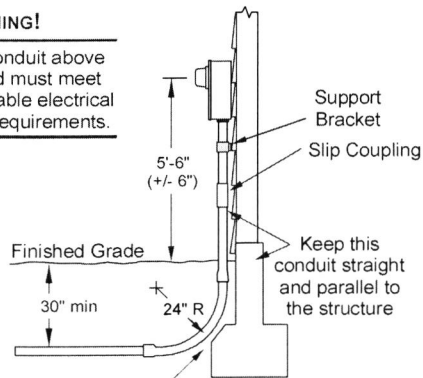
NOTE. Placing the meter in front of the fence will keep the meter reader out of the back yard.

The center of the meter must be 5'-6" (+/- 6") above the finished grade.

Meters installed on a pedestal require a minimum height of 3'-0".

WARNING!

Any conduit above ground must meet applicable electrical code requirements.

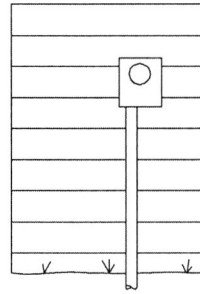


Suggestion. Block out a section of the footing for an easier installation.

NOTE:

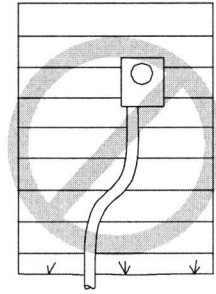
Slip coupling required for self-contained meter sockets on 1 or 2 family dwellings only.

OK



DO Keep the riser straight

NOT PERMITTED

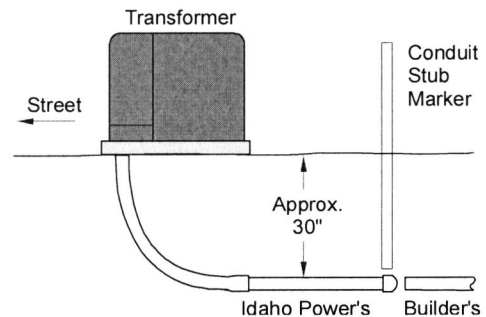
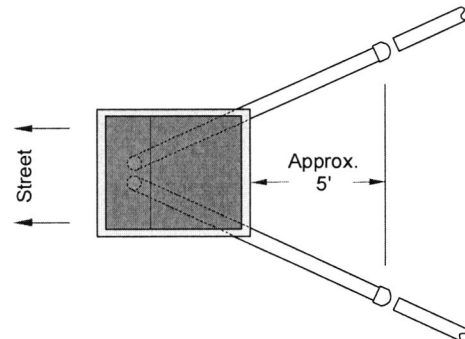


DO NOT form the PVC conduit with heat or add extra bends

Transformers

Most transformers have 2" or 3" conduit stubs as shown below. Expose the end of the stub and connect your new conduit. If the stub marker cannot be found, contact your Idaho Power representative.

DO NOT dig under a transformer!

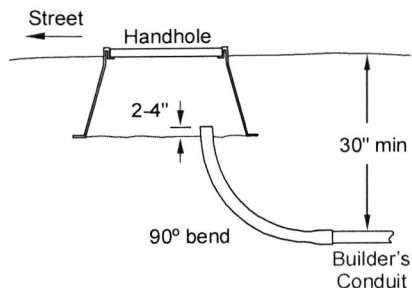
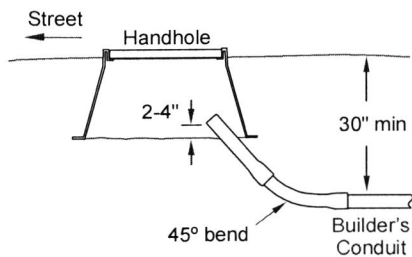
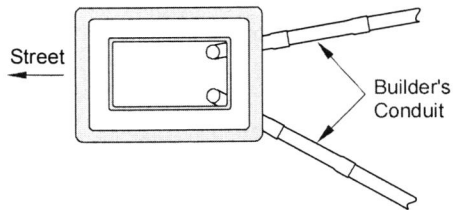


Handholes

Most handholes do not have conduit stubs.

- ◆ Plumb the conduit into the nearest corner of the handhole using a 45° or 90° bend with the end 2" to 4" above the handhole floor.
- ◆ Plug or cap the open end of the conduit to keep out dirt and debris.

If there is a conduit stub, expose the end and connect your conduit to it.



WARNING!

Call Dig-Line for locations
at least **2 business days** before digging.



Know what's below.
Call before you dig.

Dial
811
Nationwide

Contact Idaho Power
if your service involves a pole.

Special Requirements for Poles

You **must meet** with an Idaho Power representative **prior to digging the trench** to determine:

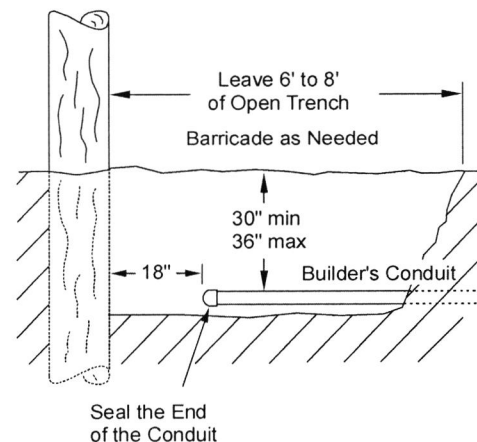
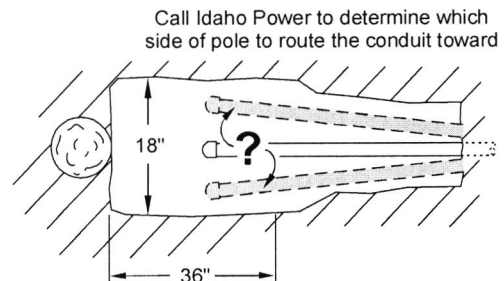
1. If the pole is adequate for your service.
2. Which side of the pole you must route the conduit toward.

Trench all the way to the base of the pole.

If the pole becomes unstable, contact Idaho Power immediately! When backfilling the trench, leave 6' to 8' open adjacent to the pole.

Any open trench must be adequately barricaded or protected for public safety.

After Idaho Power connects the pole riser and conduit, it is the builder's responsibility to backfill and compact any remaining trench.



Distributors of 2" and 3" Schedule 40 PVC 90° Bend w/ 24" Radius

Location	Distributor	Address	Phone	Notes
Blackfoot	Electrical Wholesale Supply Co.	560 Jensen Grove Dr.	(208) 542-4955	
Boise	Anixter Power Solutions	12070 W. Executive Dr.	(208) 362-7500	
	Columbia Electric Supply	8645 Westpark St.	(208) 322-1231	2" only
	Consolidated Electric Distribution	11589 W. Executive Dr.	(208) 377-4140	
	Electrical Wholesale Supply Co.	5185 W. Bethel St.	(208) 375-9900	
	Graybar	801 South 13 th St.	(208) 343-2594	2" only (3" special order)
	Grover's Pay & Pack	5730 W. Franklin Rd.	(208) 342-6576	
	Interstate Electric Supply	415 N. Phillippi St.	(208) 375-6880	
	Platt Electric Supply	5603 W. Bethel St.	(208) 367-5643	
	WESCO	5480 Irving St	(208) 362-7500	
Buhl	Gietzen Electric Inc.	125 9 th Ave. South	(208) 543-4610	
Burley	Ace Hardware	2256 Overland Ave.	(208) 678-5534	2" only
Caldwell	Electrical Wholesale Supply Co.	3409 Arthur St.	(208) 455-8400	
	Interstate Electric Supply	3705 Arthur St.	(208) 455-7760	36" radius on 3"
Eagle	Evan's Building Center	931 E. State St.	(208) 939-6435	2" only
Emmett	Mountain West Building Supply	2449 West Highway 52	(208) 365-7580	2" only
	Valley Pump & Equipment	608 N. Washington Ave.	(208) 365-2972	
Hailey	Consolidated Electric Distribution	1010 Business Park Dr.	(208) 485-8399	
	Platt Electric Supply	3990 Woodside Blvd.	(208) 788-3544	
Jerome	Consolidated Electric Distribution	220 W. Yakima # B	(208) 324-0281	36" radius on 3"
	Platt Electric Supply	2735 Tucker Ct.	(208) 324-4201	
Kuna	Kuna Lumber	175 School St.	(208) 922-3545	2" only
McCall	Consolidated Electric Distribution	102 Mission St.	(208) 634-7001	
	Interstate Electrical Supply	13788 ID-55	(208) 634-1366	36" radius on 3"
	May Hardware	809 N 3 rd St.	(208) 634-7665	2" only (on order)
Meridian	D&B Supply	1725 E. Fairview Ave.	(208) 887-0949	
	Interstate Electric Supply	760 N. Ralstin St.	(208) 287-3713	
	Platt Electric Supply	1300 E. Kalispell St.	(208) 855-0071	

Distributors of 2" and 3" Schedule 40 PVC 90° Bend w/ 24" Radius

Location	Distributor	Address	Phone	Notes
Mountain Home	P & C Plumbing and Electrical	950 Sunset Strip	(208) 587-2777	
Nampa	Consolidated Electric Distribution	1112 W. Hemingway Blvd.	(208) 467-2161	
	Grover's Pay & Pack	824 Caldwell Blvd.	(208) 466-8707	
	Interstate Electric Supply	1917 Industrial Rd.	(208) 466-8404	
	Platt Electric Supply	401 6 th St. North	(208) 461-3289	
Ontario	Interstate Electric Supply	287 SE 2 nd St.	(541) 889-9679	
Pocatello/ Chubbuck	D & S Electrical Supply Co.	363 W. Chubbuck Rd	(208) 237-8200	
	Electrical Wholesale Supply Co.	220 W. Maple St	(208) 233-1362	
	Platt Electric Supply	2815 Garrett Way Ste. A	(208) 233-2002	
	WESCO	2815 Garrett Way Ste. F	(208) 233-2003	
Salmon	Havemann Ace Hardware	720 S. Challis St.	(208) 756-3322	
Twin Falls	Colombia Electric Supply	455 4 th Ave W.	(208) 733-1033	36" radius on 3"
	Columbia Electric Supply	552 2900 East Rd.	(208) 733-6861	
	Electrical Wholesale	218 Blake St. South	(208) 734-2882	
	Grover's Pay & Pack	130 Eastland Dr. South	(208) 733-7304	
	Platt Electric Supply	294 2900 East Rd.	(208) 734-5413	


CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 7TH DAY OF MARCH 2016, SERVED THE FOREGOING **COMMENTS OF THE COMMISSION STAFF**, IN CASE NO. INT-G-16-01, BY MAILING A COPY THEREOF, POSTAGE PREPAID, TO THE FOLLOWING:

ERIC CONRAD
2277 HENDRICKS CIRCLE
REXBURG ID 83440
E-MAIL: ericwconrad@gmail.com

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WILLIAMS BRADBURY
1015 W HAYS ST
BOISE ID 83702
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MICHAEL P McGRATH
DIR – REGULATORY AFFAIRS
INTERMOUNTAIN GAS CO
PO BOX 7608
BOISE ID 83707
E-MAIL: mike.mcgrath@intgas.com



SECRETARY