
ENBRIDGE GAS DISTRIBUTION METER BOX

Builder Installation Requirements
November 2013

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Meter Box Builder Installation Requirements

Introduction

This document describes the design criteria and installation requirements builders must follow when installing meter boxes in multi-dwelling units.



Figure 1: Examples of meter box service installations in the Ottawa area.

The builder is responsible for ensuring these guidelines and specifications are incorporated into the architectural design of the units.

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Contact Information

For technical questions on meter box installations, contact Enbridge's Call Centre at 1-877-362-7434. For any other builder-related questions, contact your local Channel Consultant.

Region	Channel Consultant	Telephone
Barrie	Dorothy Stewart	(705) 739-5227
Durham / Peel	Scott Bullock	(416) 495-5795
Ottawa and Eastern Region	Natalie Armstrong	(613) 747-4078
Toronto (Metro)	Margaret Ward	(416) 753-6234
Niagara	Rick Porter	(905) 984-4994
Kawartha	Don Armitage	(705) 749-5200 ext. 5236
York	Michelle Vestergaard	(905) 927-3250

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Scope

These requirements provide criteria for standard meter box installations. Applications outside the scope of these requirements require approval from Enbridge Gas Distribution's Engineering Department and further review of the builder's architectural design.

Installations that do not conform to these requirements must be corrected before the gas service is turned on and supplied to the residential unit.

The following installations will require additional approval:

- Stacked meter boxes
- Installations that do not provide protection of the conduit as specified in these requirements
- 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 (for example, an elevated meter box installed in a terrace home)

Failure to notify Enbridge Gas Distribution prior to the installation of meter boxes will result in delays or rejected gas servicing requests.

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Meter Box PVC Configuration

The meter box is designed to integrate the gas regulator, meter, and shut-off valve into the architectural detail of multi-dwelling units.



Figure 2: Meter box installation example

The meter box has four components:

- Meter box
- NPS 2 grey PVC conduit
- NPS 2 grey PVC coupling
- NPS 2 45° standard grey PVC elbow

The PVC conduit and coupling are installed in the building foundation during forming. The meter box is then framed in on top of the foundation wall and secured in place. The 45° PVC elbow is connected to the PVC coupling once the foundation is solidified. Enbridge Gas Distribution installs the meter and gas service at a later time.

On final installation, the interior of the meter box must have a gas-tight seal, so any potential migration of gas can be vented through the screen opening at the front of the box. The builder is responsible for supplying all meter box components. Refer to the table below for supplier contact information.

Region	Supplier	Contact Information
Ottawa Area	Convex	Tel: 613-723-3141 Fax: 613-723-0190
Greater Toronto Area and elsewhere	Tecvalco	Tel: 905-353-0101 Fax: 905-353-8778

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Meter Box Installation

PVC Conduit, Coupling, & 45° Elbow Installation Requirements

The builder is responsible for repairing incorrect installations of the meter box and the conduit assembly which affect the integrity of Enbridge Gas Distribution's gas meter set. Gas will not be turned on and supplied to the customer if incorrect installations are not repaired.

The NPS 2 grey PVC conduit, coupling, and 45° elbow must conform to the following guidelines to ensure clear access to the gas meter, regulator, and shut-off valve:

- Ensure that the wall thickness of the NPS 2 grey PVC conduit, coupling, and elbow measures 4.0 mm (0.154") and is installed as shown in the drawings and figures in the [Appendix](#). Additional horizontal or vertical offsets of the conduit are not acceptable.
- Use standard NPS 2 long radius grey PVC pipe as piping conduit; compatible fittings must also be used.
- Ensure that the grey PVC conduit is completely encased in concrete, with 50 mm (2 inches) of concrete encasement around the circumference of the piping.
- Glue and tape all joints of the conduit assembly to ensure continuity prior to pouring the foundation.
- Ensure that the grey PVC conduit extends 50 mm (2 inches) into the box through the pre-cut hole provided in the bottom of the box. Cut the top of the PVC conduit evenly; a damaged or fractured conduit will not be accepted.
- Install the PVC coupling at the end of the PVC conduit within the foundation.
- Once the foundation has solidified, connect the 45° PVC elbow to the PVC conduit using the coupling. It is recommended that silicone is used as the sealant to connect the 45° elbow to the coupling.
- Once the conduit assembly is completed, cover the top end of the conduit and the end of the elbow to prevent contamination prior to the installation of the gas service.
- Ensure the PVC conduit and the coupling exit the foundation at a minimum depth of 600 mm (24 inches) below grade. See [Appendix Figure A-2](#).
- Ensure the PVC conduit and coupling does not exit the foundation under a driveway.

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Deviations from Standard PVC Conduit Installations

If the meter box cannot 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. See [Appendix Figure A-2](#).

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



Figure 3: 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 before construction starts (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 is required prior to service installation.

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Meter Box Installations

The meter box is designed with precut holes to align the PVC conduit with the gas regulator, regulator assembly, meter, and supply line connection. Modifications to the precut openings in the meter box are not permitted. Any alteration to the manufactured meter box is subject to gas not being provided to the customer.

[Appendix Figure A-7](#) illustrates the meter box manufactured by Convex and Tecvalco.

- Install the meter box either on the porch or beside the garage of a building (see [Appendix Figure A-1](#)).
- Secure the meter box prior to service installation to prevent movement of the box or PVC conduit. Use lintel angles above the meter box to adequately support masonry.
- Ensure the following clearances are observed (measurements to be taken from edge of the screen on the front of the box to the building opening):
 - The meter box is at least 0.9 m (3 ft) clear from building openings.
 - The meter box is at least 1.0 m (40 in) clear from sources of ignition.
 - The meter box is situated 3.0 m (10 ft) from a mechanical air supply inlet of a building (including a heat recovery ventilator).
- Inform Enbridge Gas Distribution if these clearances cannot be met.
- Install the meter box such that the bottom of the box is on the foundation. If the meter box cannot be located on the foundation (for example, as a result of a poured concrete porch or steps) the meter box can 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.
- Ensure the meter box door is accessible at all times and can be opened freely, with a clearance of 600 mm (24 in) in front of the door.
- Modifications to the meter box door are not permitted; the door cannot be fixed in place by any means.
- The meter must be left in such a condition that the front portion of the box can be installed as designed.

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Deviations from Standard Meter Box Installations

Stacked or clustered meter boxes cannot be used without the approval of Enbridge Gas Distribution. These installations are considered non-standard and will be evaluated on a case-by-case basis.

Meter Box Installation Examples



Figure 4: Examples of acceptable and unacceptable meter box installations

Left: An acceptable installation incorporates the following: a secured box (sitting on foundation or otherwise secured), use of lintel angles, sufficient clearance from openings, and a door which opens freely (not fixed or nor tampered).

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

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Meter Set Installations

Enbridge Gas Distribution is responsible for the installation of the following components in meter box assemblies:

- Installation of the gas service, riser and shut-off valve, gas regulator, regulator assembly, and gas meter
- Tie-in of the supply line to the 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 are met:
 - The connection must be made with the use of fittings (such as a coupling).
 - A pipe hanger must not be installed on the outlet meter tail piece.
 - The meter must be supported by a wooden block.
 - The meter must not be left in contact with any portion of the box.
 - The meter box cover must be installed on the box in the manner for which it was designed.
 - The meter box must be sealed using caulking at all seams and at all points where piping enters and exits the box. (see Preferred and Acceptable Sealants table)
 - All holes in the box must be sealed to eliminate the possibility of gas traveling into the unit in the event of a gas leak or regulator relief relieving.
 - If downstream piping has to exit on the same side as the utility riser, it must not exit closer than 150 mm (6 in) from the riser and does not block access to the wing lock.
 - Downstream piping must not be routed under the meter.
 - The utility meter must not be resting on downstream piping.

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Meter box installations that do not meet these requirements will not be turned on.

The builder is responsible for the installation of supply line piping 150 mm (6 in) straight into the box through the precut hole in the top of the meter box. The supply line must be sleeved or double-wrapped with a waterproof wrap. 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 is 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, refer to the Enbridge Gas Distribution Home Builder Guidelines for Meter Tie-In technical bulletin.

Note: 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 upcoming bulletin.

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Meter Box Sealing Requirements

The builder must ensure that the meter box is gas-tight and that any potential migration of gas will vent through the meter box screen door. This includes sealing:

- the PVC conduit entrance into the bottom of the box
- the meter box edges and corners
- the supply line exit at the top of the box

Preferred and Acceptable Sealants

Sealant	Use
Sealing Slug	Preferred sealant for the conduit entrance and supply line exit.
Silicone exterior-grade caulking	Preferred sealant for box edges and corners.
Duct sealer caulking	Acceptable sealant. Ensure a gas-tight seal is achieved.
Spray foam insulation	Acceptable sealant. Ensure a gas-tight seal is achieved.
Silicone cement	Preferred sealant to connect the 45° elbow to the coupling.

Fitter Turn-On and Inspection

When Enbridge conducts its final appliance inspections (EBI), the builder must comply with the standards for meter box installations. Failure to meet these standards will result in delays in activating gas services.

Gas service will not be activated until corrective action has been taken for failed inspections of meter box installations.

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.

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Final Grade Requirements

At time of service installation, final grade shall be within 150 mm (6 in) of construction grade.

Note that damages can occur after the installation of the gas service as a result of:

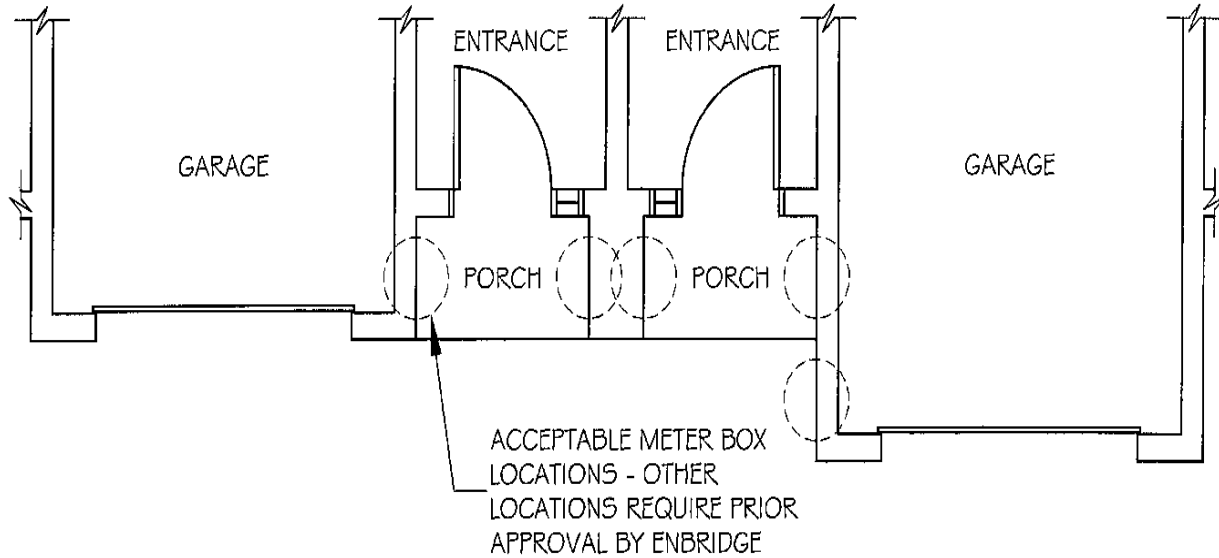
- Insufficient grade cover
- Use of heavy equipment above services
- Use of poor backfill material after the installation of the gas service

Any damages will be repaired by Enbridge Gas Distribution but will be charged back to the builder.

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Appendix: Meter Box Drawings and Specifications

Figure A-1: Acceptable Meter Box Locations

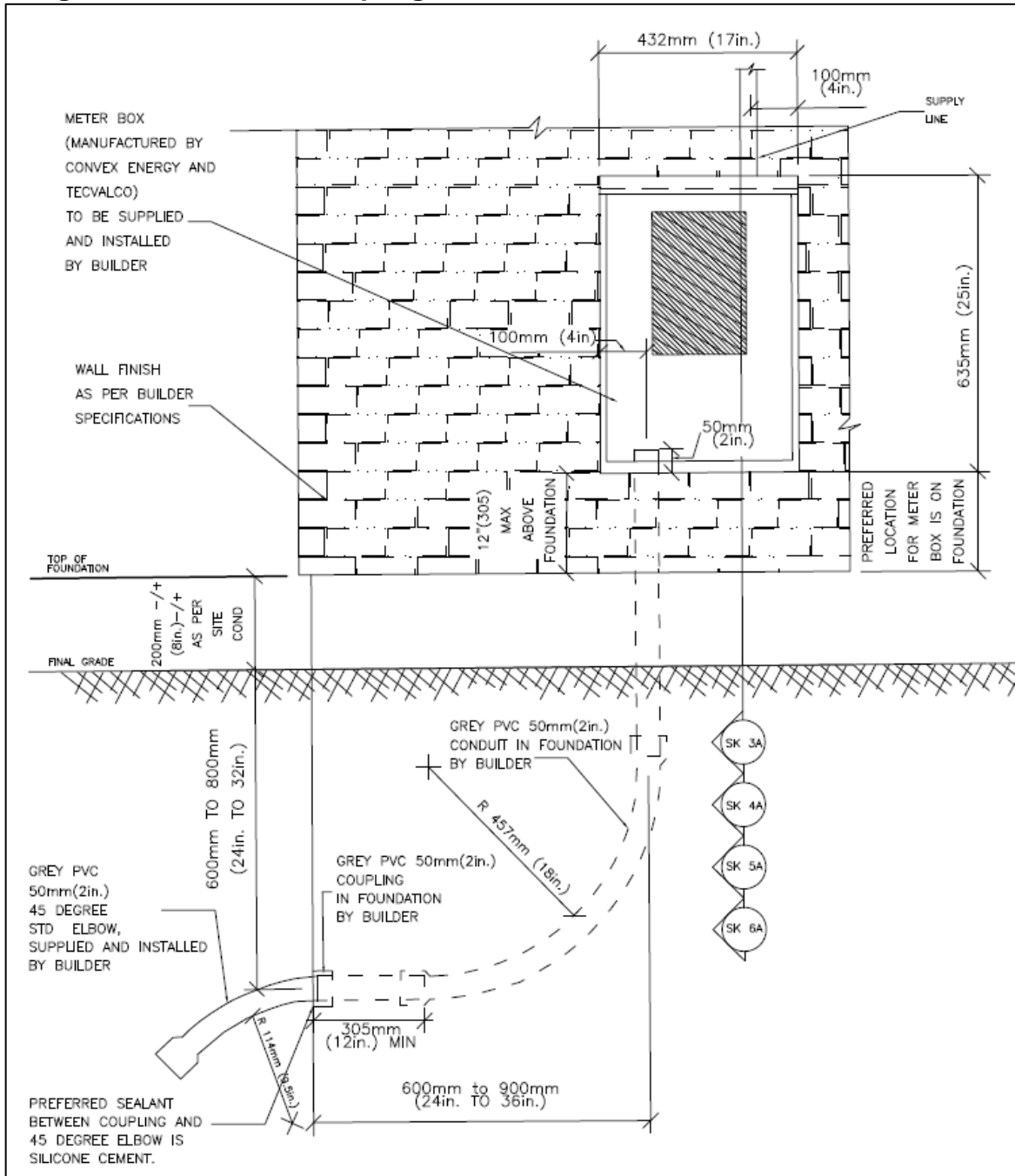


NOTES:

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

<p>DRAWING: ACCEPTABLE METER BOX LOCATIONS</p>	<p>DATED: NOVEMBER 2013</p>	<p>PAGE: 13 OF 20</p>
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Figure A-2: Conduit, Coupling, and 45° Elbow installation



NOTES:

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

DRAWING: CONDUIT, COUPLING, AND 45° ELBOW INSTALLATION	DATED: NOVEMBER 2013	PAGE: 14 OF 20
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Figure A-3: Conduit Support Requirements

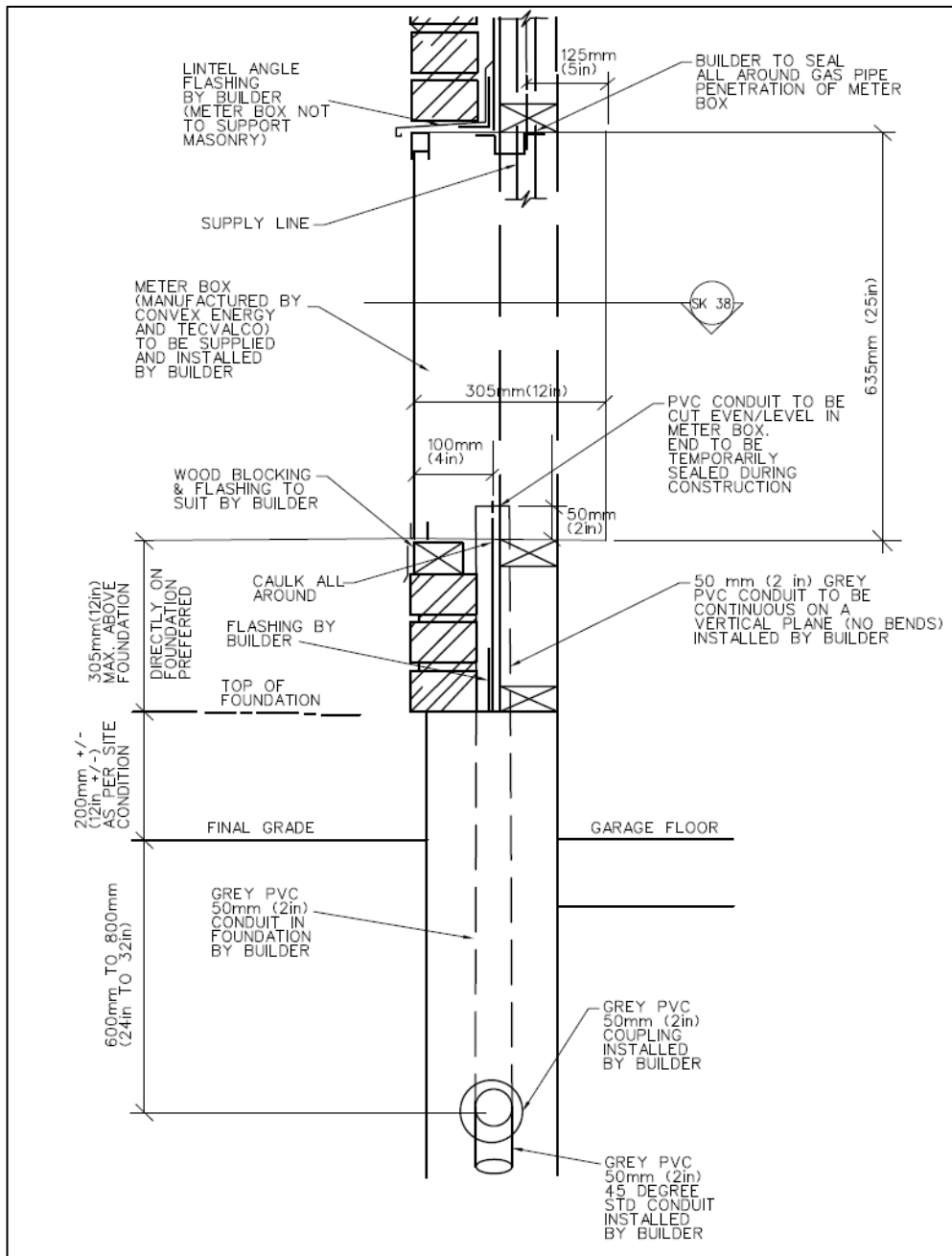


NOTES:

1. THESE PHOTOGRAPHS ILLUSTRATE THE ALIGNMENT AND SUPPORT REQUIREMENTS FOR THE PVC CONDUIT, PRIOR TO POURING THE CONCRETE FOR THE FOUNDATION. CONSTRUCTION MAY VARY. REFER TO THE PERMIT AND CONSTRUCTION DRAWINGS FOR ACTUAL CONSTRUCTION SPECIFICATIONS.
2. ENSURE THE VAPOR RETARDER, AIR BARRIER, AND WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING: CONDUIT SUPPORT REQUIREMENTS	DATED: NOVEMBER 2013	PAGE: 15 OF 20
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Figure A-4: Meter Box Requirements (Front View)



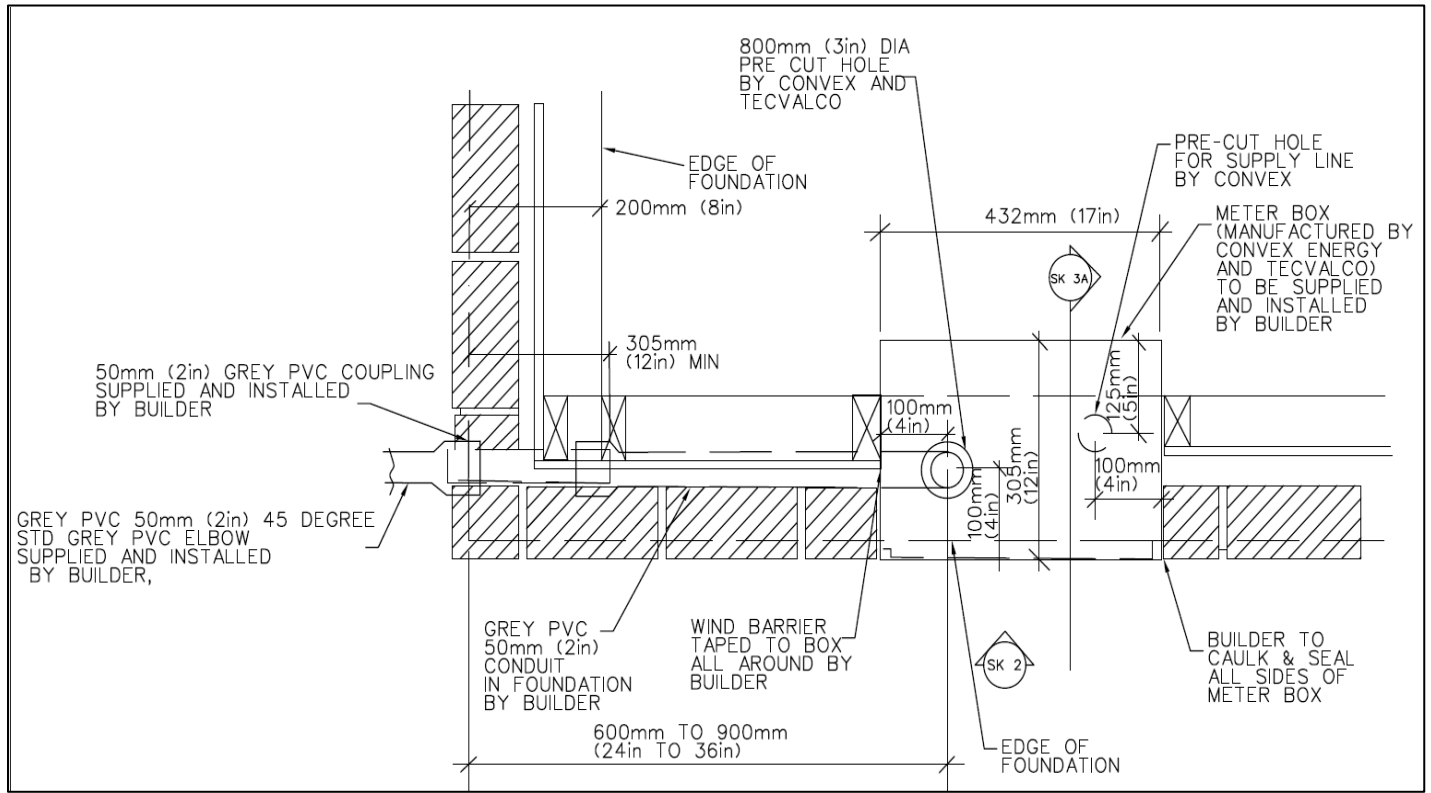
NOTES:

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2. ENSURE THE VAPOR RETARDER, AIR BARRIER, AND WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING: METER BOX REQUIREMENTS (FRONT VIEW)	DATED: NOVEMBER 2013	PAGE: 16 OF 20
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Figure A-5: Meter Box Requirements (Top View)

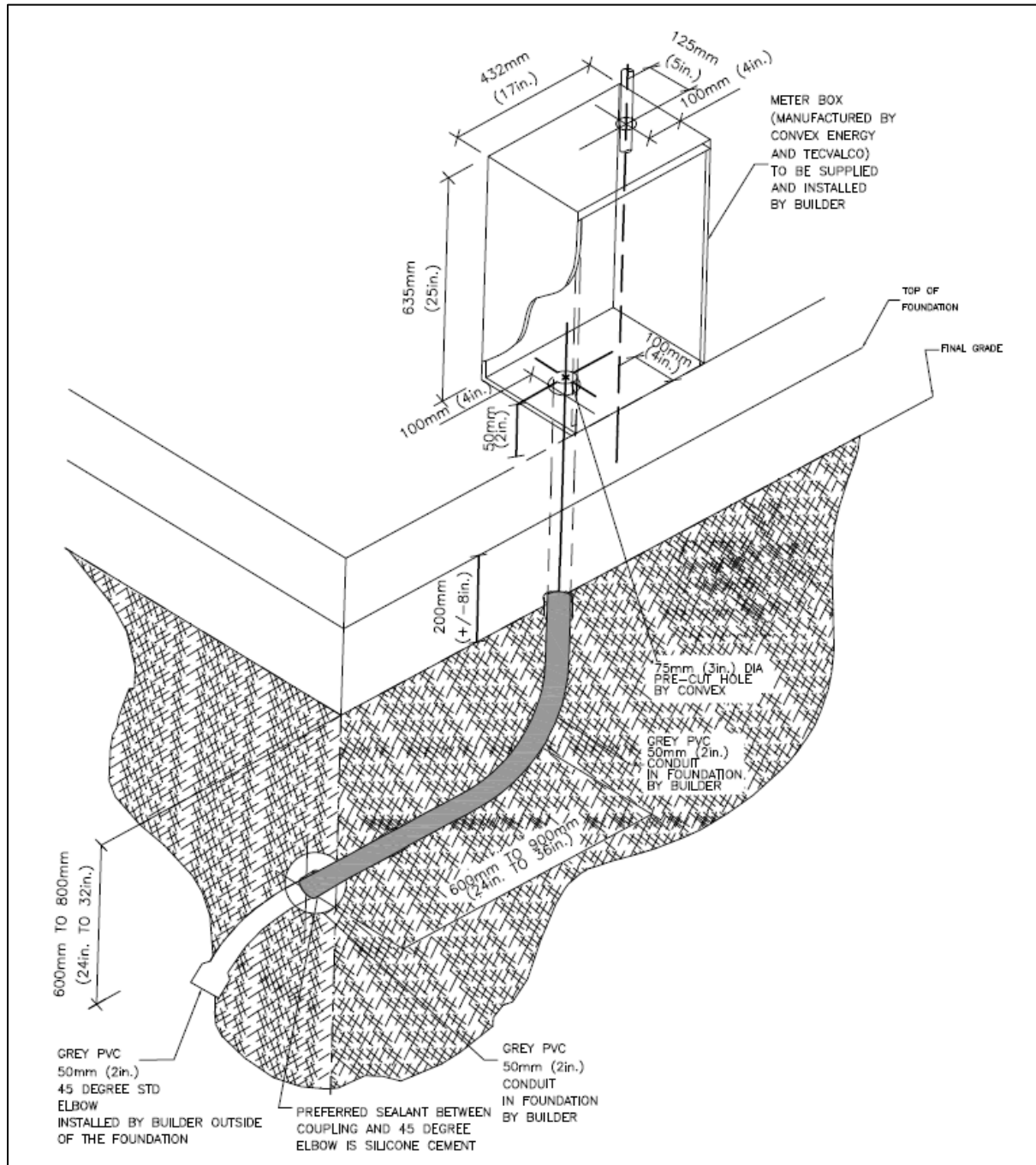


NOTES:

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

DRAWING: METER BOX REQUIREMENTS (TOP VIEW)	DATED: NOVEMBER 2013	PAGE: 17 OF 20
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Figure A-6: Meter Box Requirements (Isometric View)



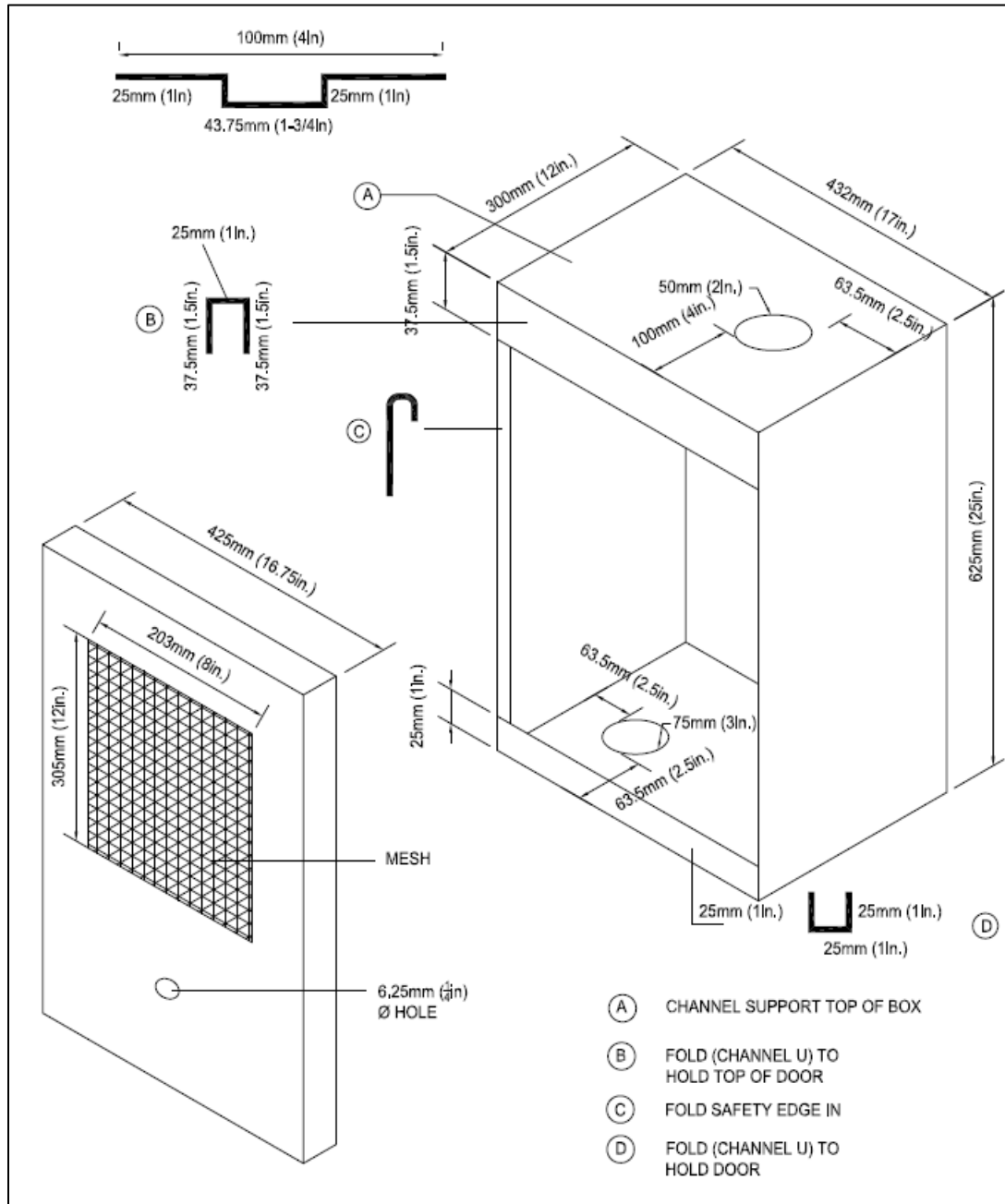
NOTES:

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

DRAWING: METER BOX REQUIREMENTS (ISOMETRIC VIEW)	DATED: NOVEMBER 2013	PAGE: 18 OF 20
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Figure A-7: Meter Box Specifications



NOTES:

1. THIS DRAWING ILLUSTRATES THE MANUFACTURING DETAILS OF THE METER BOX SUPPLIED BY CONVEX AND TECVALCO.
2. ENSURE THE VAPOR RETARDER, AIR BARRIER, AND WIND WRAP ARE SEALED ALL AROUND THE METER BOX TO PROVIDE CONTINUOUS BARRIERS.

DRAWING: METER BOX SPECIFICATIONS	DATED: NOVEMBER 2013	PAGE: 19 OF 20
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Meter Box Installation Requirements – Updates and Revisions

Version	Change History	Approved By	Date
MB2013V2	Corrections made to Appendix Figures. Added silicone cement to the list of preferred sealants for connecting the 45° elbow conduit to the coupling.	Enbridge Gas Distribution, Engineering Department	November 2013
MB2013V1	Meter Box Guidelines renamed to Meter Box Installation Requirements Changes made to reflect new supply and installation requirements for builders	Enbridge Gas Distribution, Engineering Department	October 2013
MB2011V1	Initial version of the document.		September 2011

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