



**TERMINATING UNDERGROUND ELECTRIC SERVICES
0-600 VOLTS IN CUSTOMER-OWNED FACILITIES**

058817

Asset Type: Electric Distribution **Function:** Design and Construction

Issued by: Alexander P. Yan (APY1) **Date:** 06-29-12

Rev. #07: This document replaces PG&E Document 058817, Rev. #06. For a description of the changes, see Page 10.

This document is also included in the following manual:

- [Electric and Gas Service Requirements \(Greenbook\)](#)

Purpose and Scope

This document shows methods and requirements for terminating PG&E-owned underground service conductors in customer-owned service terminating facilities.

General Information

1. Underground service conductors will normally be run in a joint trench with gas and communications service facilities. Where possible, a single service trench will be used to serve two adjacent premises. In order that the most satisfactory meter location may be determined, PG&E should be consulted while the building is in the planning stage.

2. Residential Service Termination Enclosures

The customer may provide any of the following as a service termination enclosure for residential service.

A. Single Family

- (1) Combination service pull termination and meter socket, 0 through 200 amp (see Figure 1 on Page 3), or 201 through 320 amp (see Figure 2 on Page 4).
- (2) Combination service pull section, meter, and CT mounting enclosure, 201 through 400 amp, for single-phase service (see Figure 6 on Page 7).
- (3) Wall-mounted underground service pull and termination box, 401 through 600 amp, single-phase (see Figure 7 on Page 7).
- (4) Floor-standing underground service pull and termination box, 601 and above, single-phase, 401 and above, three-phase (see Figure 10 on Page 9).
- (5) Meter post, for a typical underground service to a mobile home, 0 through 200 amp (see [Document 052521](#)).

B. Multi-Family

- (1) Wall-mounted underground service pull section and termination box for service 0 through 600 amp (see Figure 9 on Page 8), or combination service termination enclosure and meter socket panel, 0 through 600 amp (see Figure 8 on Page 8).
- (2) Underground service pull and termination section of a floor-standing switchboard (see [Document 063929](#) to determine when bus duct termination equipment is required).

3. Non-Residential Service Termination Enclosures

The customer may provide any of the following as a service termination enclosure for non-residential service.

A. Single Customer

- (1) Typical safety socket meter panel, 0 through 200 amp (see Figure 3 on Page 5).
- (2) Combination service pull, meter, and CT mounting enclosure, 201 through 400 amp, for single or three-phase service (see Figure 5 on Page 6).
- (3) Underground service pull and termination box (see Figure 10 on Page 9).
- (4) Underground service pull and termination section of a floor-standing switchboard (see [Document 063929](#) to determine when bus duct termination equipment is required).

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B. Multiple Customers

- (1) Underground service pull and termination box (see Figure 10 on Page 9).
- (2) Underground service pull and termination section of a floor-standing switchboard.

4. Service Termination, Bus Stubs, and Connectors

Termination bus stubs and connectors shall be furnished and installed in the termination enclosure as follows.

A. Enclosures Rated 0 – 200 Amps

- (1) The customer shall provide approved range-taking connectors suitable for aluminum conductors.
- (2) One-bolt bus attachment connectors are acceptable for 0 – 200 amp services provided they are anchored to prevent twisting of the connector assembly.

B. Enclosures Rated 201 Amps and Larger

- (1) Aluminum termination bus stubs with NEMA standard mounting bolts (see Paragraphs 4B(3) and 4B(4)) shall be provided for the connection of service lateral conductors in customer's service equipment where the main disconnect (or service equipment rating, if there is no main disconnect) is rated more than 200 amps. PG&E will furnish and install the termination connectors.
- (2) The standard provisions for terminating either phase or neutral conductors shall consist of one pair of 1/2-inch bolts on 1-3/4 inch vertical centers for equipment rated 201 – 400 amp panels. An additional pair of 1/2-inch bolts (on 1-3/4 inch vertical centers) shall be provided on 2-inch horizontal center for each additional 400 amp increments, or multiples thereof, of service capacity up to 2,500-amp panels (e.g., 1 pair for 400 amps, 2 pairs for 600 and 800 amps, 3 pairs for 1,000 and 1,200 amps, etc.) See Figure 4 on Page 5.
- (3) Cable termination mounting bolts shall be 1/2-inch cadmium-plated steel or equivalent and shall extend a minimum of 2 inches from the mounting surface. They shall be supplied with nuts, flat washers, and a pressure maintaining spring washer and shall be secured in place in such a manner that a termination connector can be positioned and connected with the washers and nuts, using one tool only from the front. Bolts shall have a head behind the termination pad and be of a recognized captive or swedge restrainer design.
- (4) A radial clearance of 1-1/2 inch is required between any termination facility (including bolts) and any other termination facility, bus, or grounded surface in the terminal mounting area except (1) the minimum clearance to the back of the pull section or to the front pull section cover may be 1 inch and (2) the neutral termination facility may have a minimum clearance of 1 inch from any grounded surface.

5. Metering Requirements

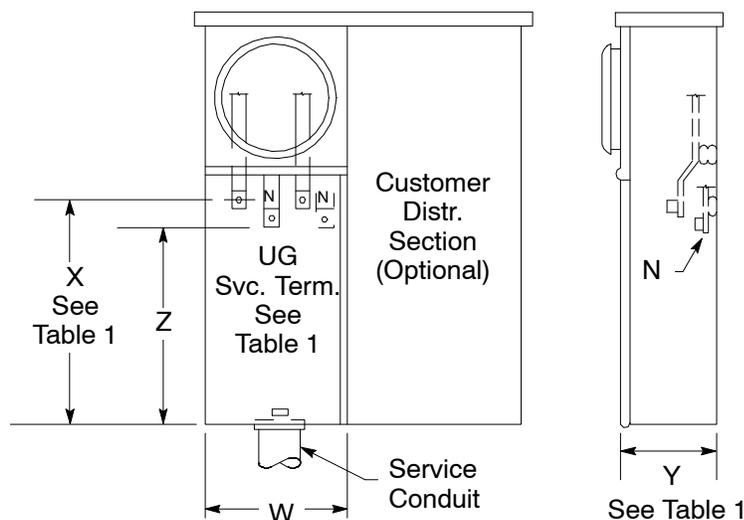
A. Meters will be furnished by PG&E.

B. When a multi-unit residential meter panel services either a three-phase or a larger than 200-amp single-phase house (utility) load, it shall be equipped with approved test-bypass facilities (see Figure 9 on Page 8).

References	Location	Document
Electrical Service Requirements for Mobile Home Developments	UG-1: Services/Greenbook	052521
Electric Revenue Meters	OH: Meters	062208
Methods and Requirements for Installing Residential Underground Electric Services 0 - 600 V to Customer-Owned Facilities	UG-1: Services/Greenbook	063927
Methods and Requirements for Installing Commercial Underground Electric Services 0-600 Volts to Customer-Owned Facilities	UG-1: Services/Greenbook	063928
Requirements for Bus Duct Entrance Termination Unit for Use With Pad-Mounted Transformers	UG-1: Services/Greenbook	063929
Engineering Material Specification 99, "Underground Electric Duct System (installed by applicant)"	TIL	EMS99
EUSERC Manual	TIL	

**Terminating Underground Electric Services
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Residential Services



**Figure 1
Typical UG Service Termination Enclosure
Combination Meter Socket Panel
(residential 0 - 225 amp)**

Table 1 Capacity and Dimensions (see Figure 1 above)

Maximum Capacity	W	X	Y	Z
	Minimum Dimension (Inches)			
125 Amp	7	8	4	6
225 Amp	7	11	5-1/2	8-1/2

Residential Services (continued)

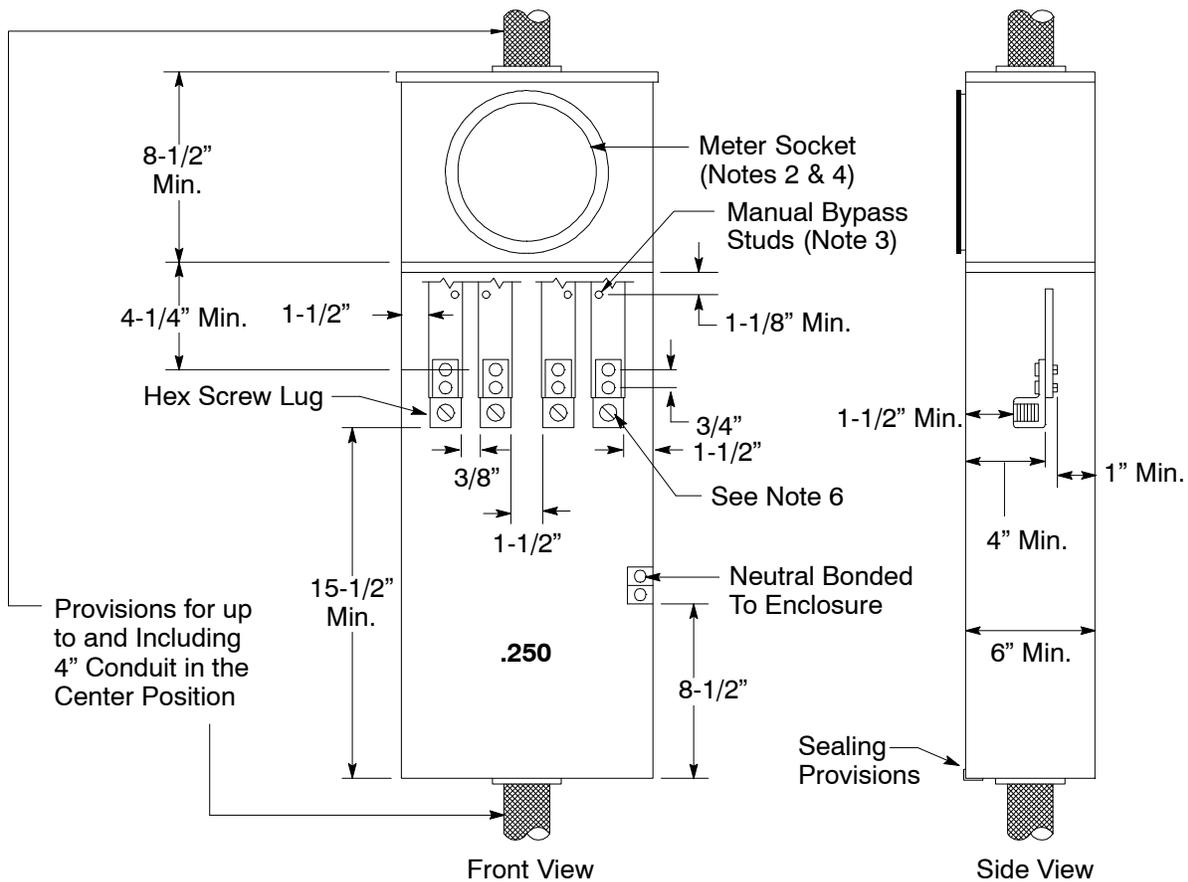


Figure 2
Typical Service Termination Enclosure
Combination Meter Socket Panel for Class 320 Meter
(residential 120/240 V, 201 – 320 amp service)

Notes

1. This service equipment shall be marked with continuous amp rating of 320 amps. Alternatively, it may be marked "400 amp" (320 amps continuous).
2. Ring-type socket only is acceptable per EUSERC Drawing 300.
3. 12-24 bypass studs, 1/2 inches in height with 1/2-inch hex nut (measured across the flat) shall be provided on each phase bus section. The studs shall have a horizontal spacing of 1-1/2 inch (measured from centers) between the line and load bus sections and shall be offset from the line side termination lugs to permit cable entry from the top without interference with the utility-provided manual bypass links.
4. The socket meter panel shall be provided with a sealing ring and shall not be removable with meter in place.
5. The bypass/cable termination compartment cover panel shall be independent of the meter panel, and removable with the meter in place.
6. Terminations for service conductors shall be aluminum-bodied mechanical lugs with a range-taking ability of #1 AWG through 600 kcmil. The lugs shall be secured to assure vertical alignment and line side lugs shall be offset from the face of the bus to permit cable entry from the top. The line and load positions shall be identified in 3/4" high block letters.

Terminating Underground Electric Services 0-600 Volts in Customer-Owned Facilities

Non-Residential Services

Note

1. PG&E will furnish connectors and terminate its service conductors to the line terminals of the current transformer mounting base.

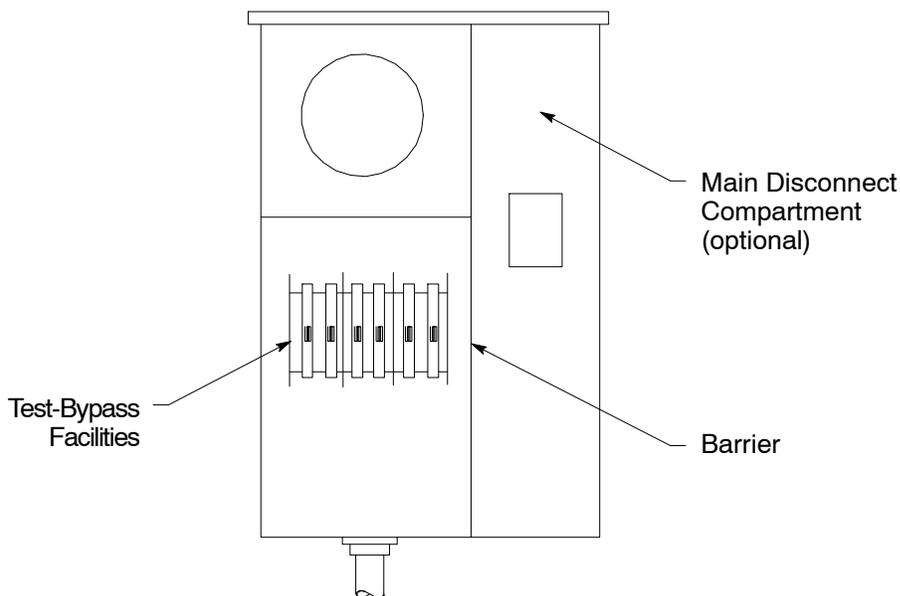


Figure 3
Typical Service Termination Enclosure
Combination Meter Socket Panel
Non-Residential

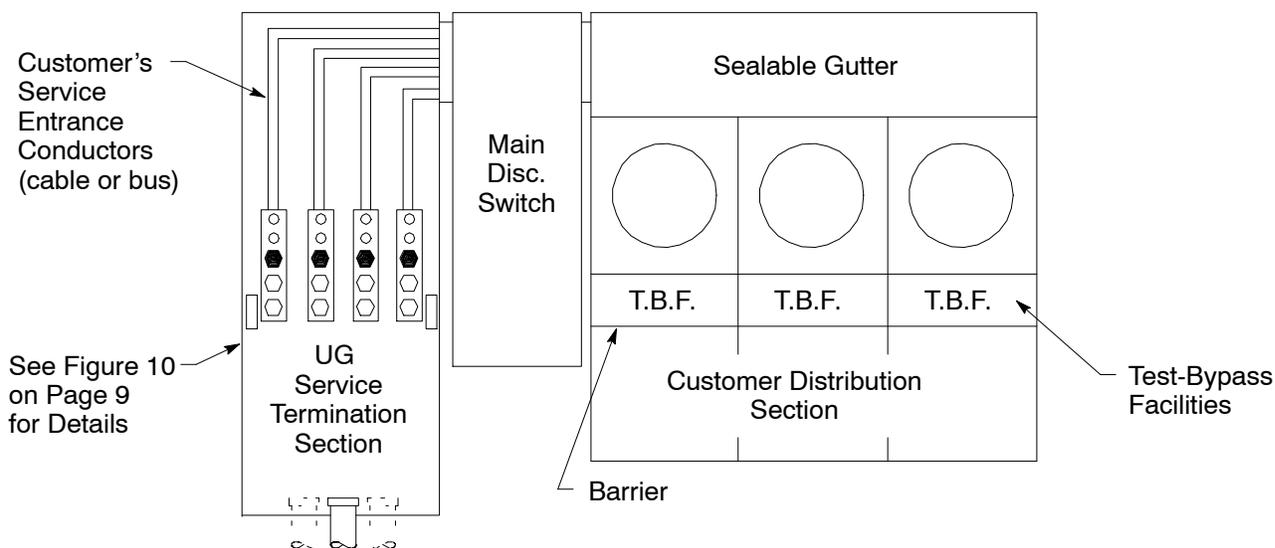


Figure 4
Typical Service Termination Enclosure
Main Disconnect, Meter Socket Assembly
for Multi-Unit Non-Residential Use

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Non-Residential Services (continued)

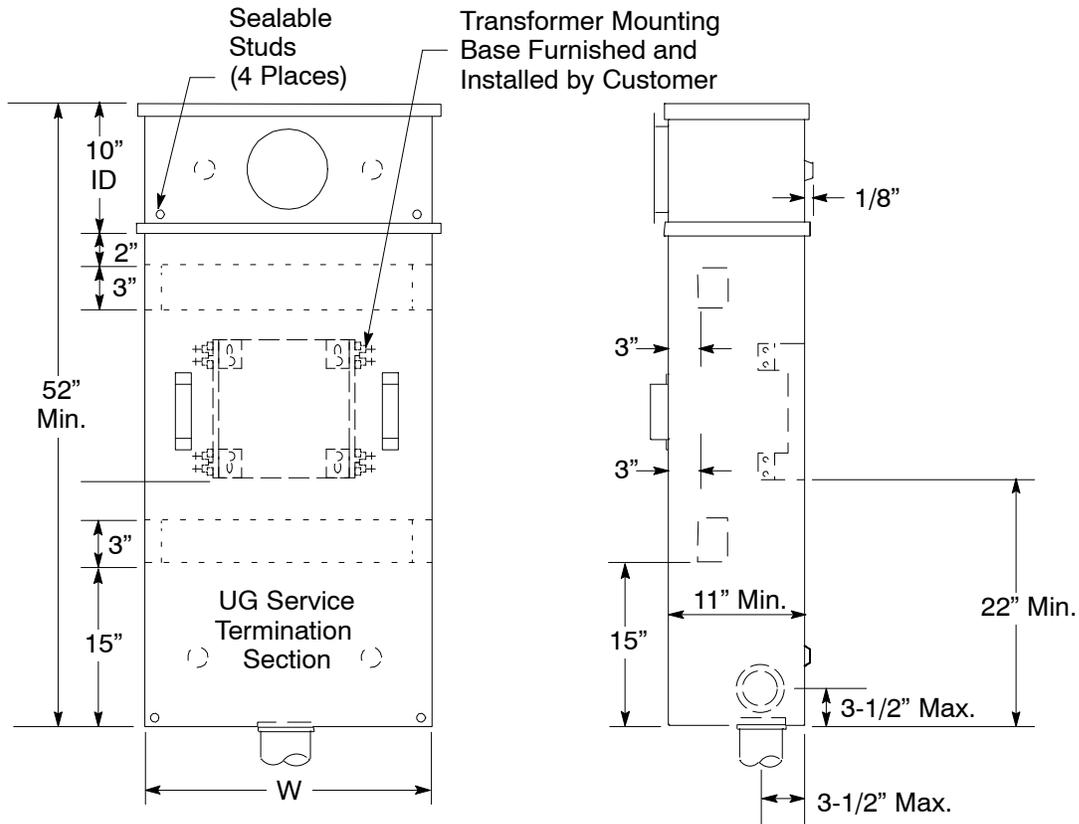


Figure 5
Combination Meter and Current Transformer Cabinet Single-Phase or
Three-Phase Service 201 to 400 Amp
(see Note 1 on Page 5)

Table 2 Minimum Box Dimensions

W Minimum (Inches)	
3Ø 4-Wire Y or Δ	1Ø or 3Ø 3-Wire
36	24

Terminating Underground Electric Services 0-600 Volts in Customer-Owned Facilities

Single-Family Residential Service (201 - 600 amps)

Note

1. Remote metering only, with prior PG&E approval.

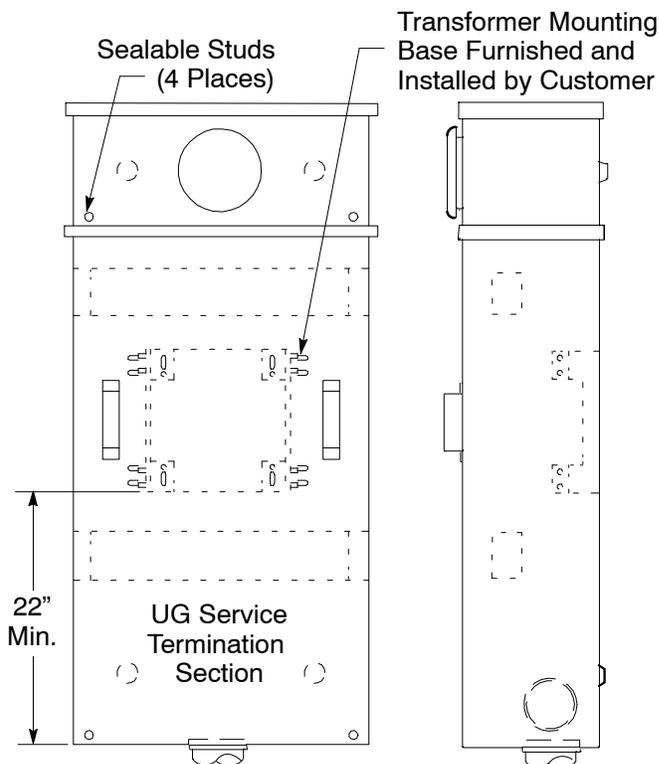


Figure 6
Combination Meter, Current Transformer,
and UG Service Termination Cabinet (single-phase
service 120/240 V, 201 to 400 amp)

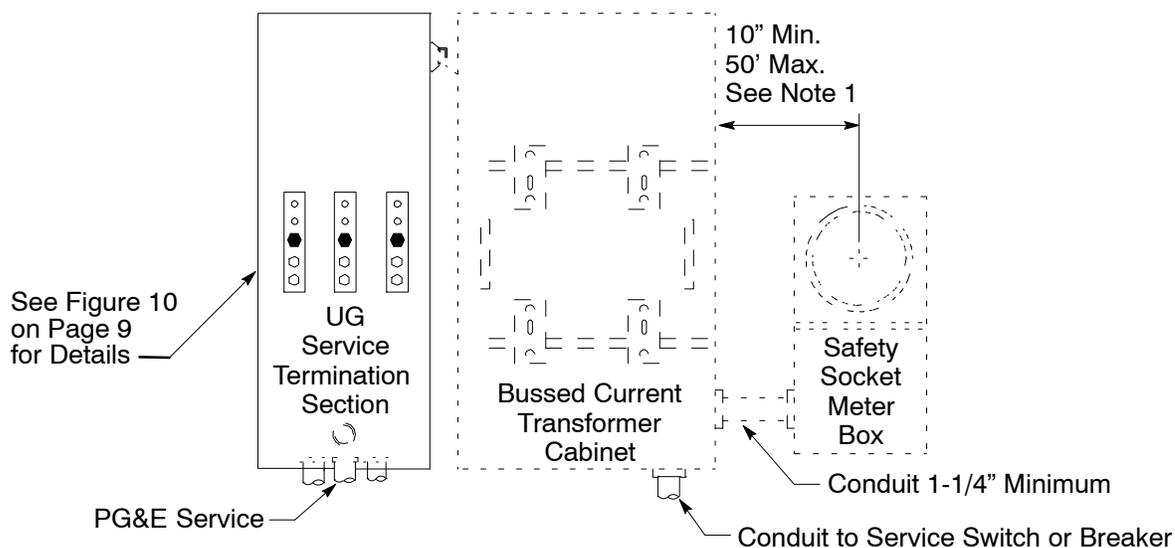


Figure 7
Typical Underground Separate Bussed Current Transformer Cabinet
and Safety Socket Meter Box Assembly, 120/240 V, 401 to 600 Amp Service

Terminating Underground Electric Services 0-600 Volts in Customer-Owned Facilities

Residential Multi-Unit Service

Note

1. When a multi-unit residential meter socket panel will have either a three-phase, or a larger than 200-amp single-phase house (utility) meter, the socket for this meter shall be equipped with test-bypass facilities (see Figure 9).

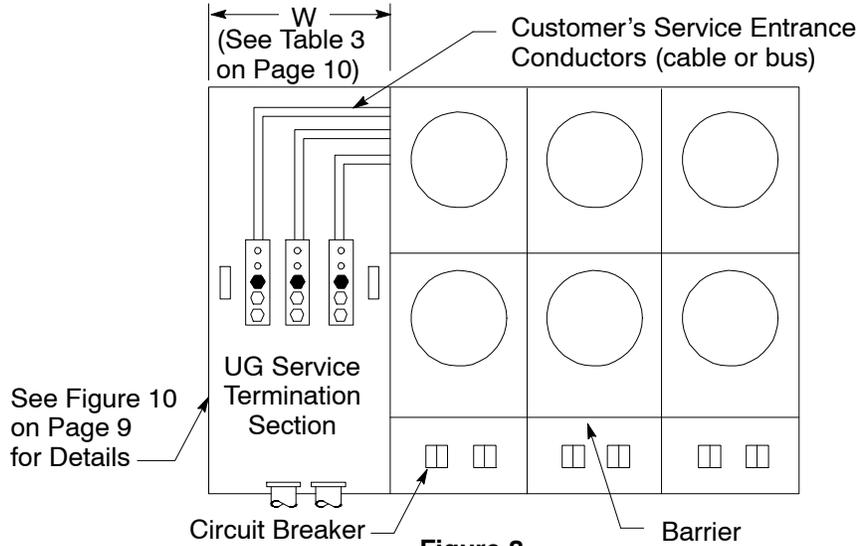


Figure 8
Typical Combination UG Service Termination Enclosure
Meter Socket Panels for Multi-Residential Use (2 to 6 units) 0 - 600 Amp

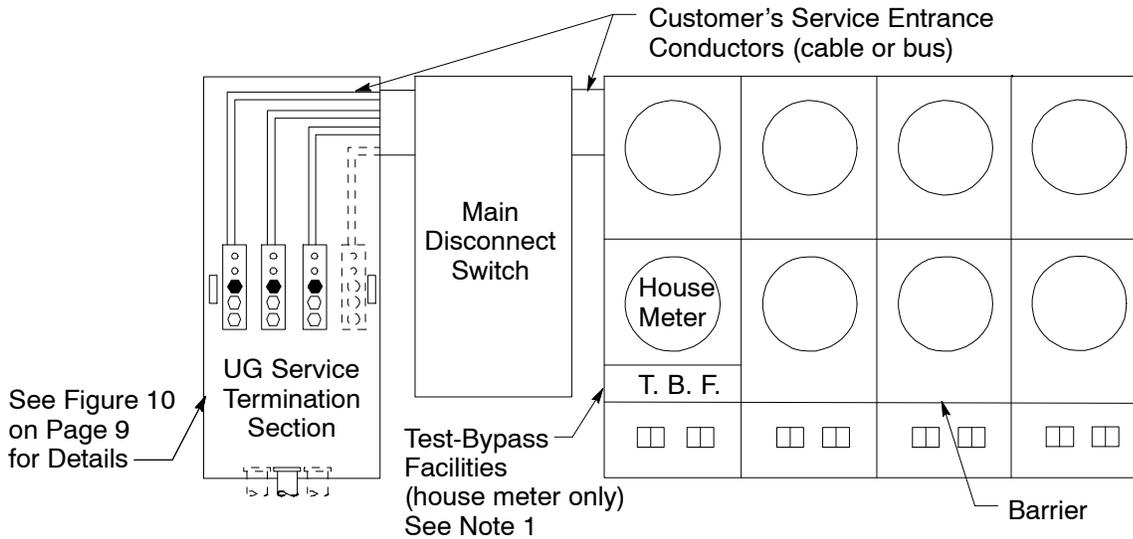


Figure 9
Typical UG Service Termination Enclosure, Main Disconnect, and
Multi-Unit Metering Assembly Residential Use 0 - 1200 Amp

Terminating Underground Electric Services 0-600 Volts in Customer-Owned Facilities

Underground Service Termination Pull Box

Notes

1. Pull box covers shall be removable, sealable, provided with two lifting handles, and limited to a maximum size of 9 square feet. Sealing provisions shall consist of two drilled stud and wingnut assemblies on opposite sides of the panel. All security screws shall be captive.
2. Clear working space shall be maintained. When return flanges are necessary, they shall not intrude into service conductor space designated by shaded area.
3. The 6" minimum height requirement from grade to panel does not apply for floor-standing switchboard.
4. Main service switch rated 2,501 amps and above shall require bus duct configuration.

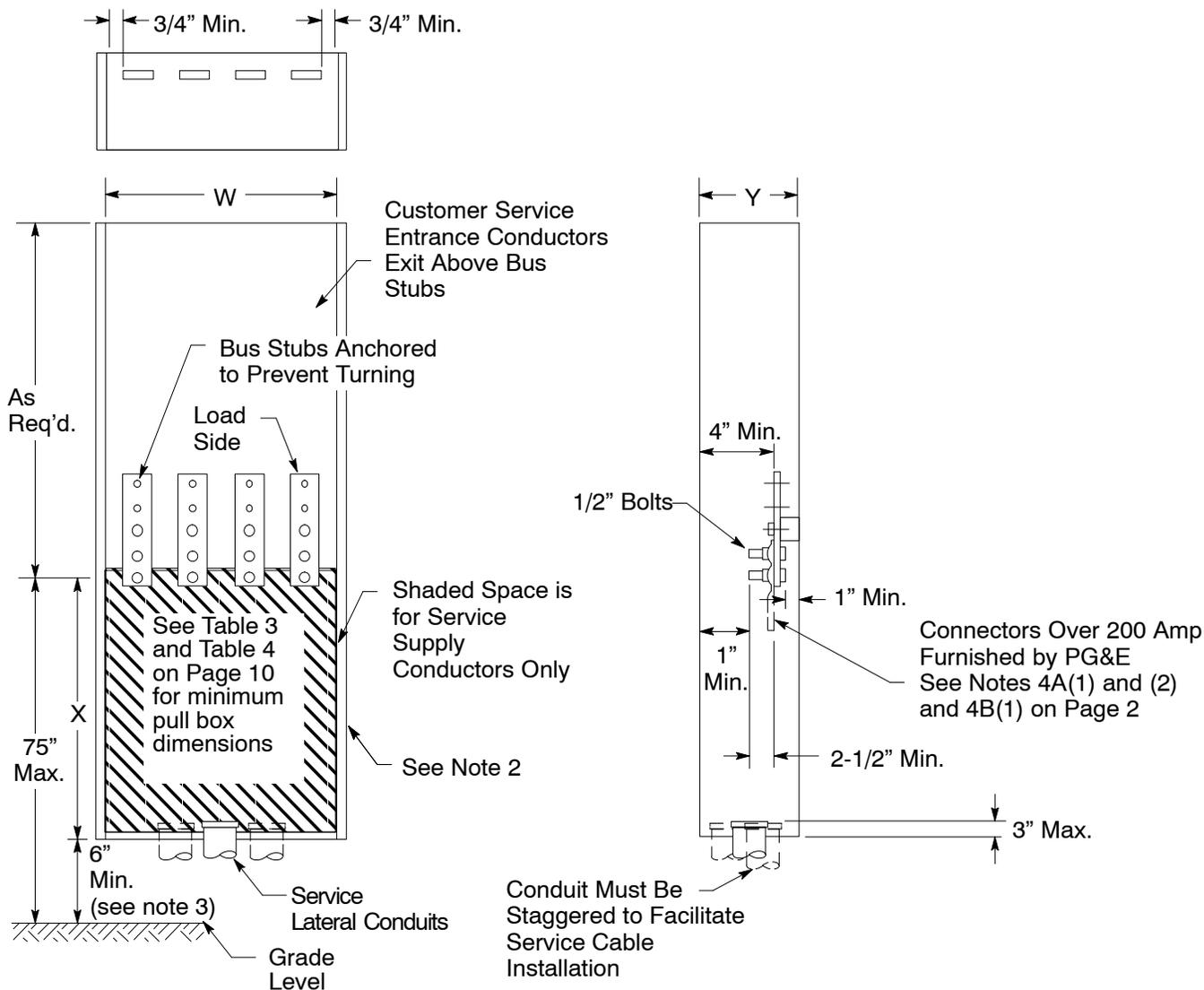


Figure 10
Typical Underground Service Termination Pull Box
(wall-mounted or floor-standing)

**Terminating Underground Electric Services
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Underground Service Termination Pull Box (continued)

Table 3 Minimum, Wall-Mounted, Pull-Box Dimensions: 80% Rated Service, Residential, Single-Phase and 100% Rated Service, Commercial/Industrial, Single-Phase ¹ or Three-Phase ²

Service Rating (Amperes)	Minimum Access Opening "W"		X		Y	
	3-Wire	4-Wire	Bottom Entry	Side/Rear Entry	Bottom Entry	Rear Entry
	All Measurements in Inches					
0–200	10-1/2	14	11	36	6	15
201–400	10-1/2	14	22	42	6	24
401–600 ³	16-1/2	–	26	48	11	24
Over 600	See Table 4 below for Over 600-Ampere, Single-Phase Services Rated at 100%.					

¹ See "Notes" for Table 3 below.

² Maximum of 400 amperes.

³ For single-phase only.

Table 4 Minimum Switchboard (floor-standing) Pull-Section Dimensions: Over 600 Amperes, Single-Phase Service, 100% Rated and Commercial/Industrial, Three-Phase Service

Service Rating (Amperes)	Minimum Access Opening "W"		Termination Height "X"
	3-Wire	4-Wire	
	All Measurements in Inches		
321–400	24	24	42 Min.–72 Max.
401–800	24	24	
801–1,200	24	30	
1,201–2,000	30	35	
2,001–2,500	—	42	60 Min.–72 Max.

Notes in reference to Figure 10 on Page 9, to Table 3 above, and to Table 4 above.

1. If termination bus-landing stubs are installed perpendicular to the back of the board, a wider enclosure dimension will be required to accommodate the installation of PG&E's cables.
2. Maintain a clear working space. When return flanges are necessary, ensure they do not intrude into service-conductor space.
3. Dimension W is the minimum width of the pull section access opening.

Revision Notes

Revision 07 has the following changes:

1. Revised Table 3.

	RESIDENTIAL AND SMALL COMMERCIAL OVERHEAD TO UNDERGROUND ELECTRIC SERVICE CONVERSION		061032
	Asset Type: Electric Metering		Function: Construction
Issued by: Quoc Hoang (QxH1)		Date: 04-15-11	
Rev. #04: This document replaces PG&E Document 061032, Rev. #03. For a description of the changes, see Page 4.			

This document is also included in the following manuals:

- [Electric and Gas Service Requirements \(Greenbook\)](#)
- [Electric Meter Work Practices](#)

Purpose and Scope

This document shows methods acceptable by PG&E, to be used by residential and non-residential (200-amp or less main service switch) customers when converting existing 2-wire or 3-wire overhead services to underground.

General Information

1. A typical overhead service conversion is illustrated in Figure 1 on Page 3. PG&E will install cable in a conduit system provided by the applicant. Various surface mount and semi-flush meter socket installations (illustrated in Figure 2 on Page 3 through Figure 7 on Page 4) are used with services converted to underground. The conversion option selected by the customer shall comply with all local building codes and ordinances. The customer shall furnish, install, own, and maintain termination facilities on or within the building to be served.
2. Local ordinances may include requirements in addition to those shown in this document. Consult local inspection authorities for these requirements. In areas where local ordinances require permits and inspection, these must be obtained before PG&E can establish service. PG&E will install meter(s) after an inspection clearance has been given by the appropriate electrical inspection authority.
3. When a service larger than 200 amps is desired, the customer shall consult with the local PG&E representative.
4. Service Conduit and Termination
 - A. PG&E will install the underground service cable and make the connections at the service termination point in accordance with [PG&E's Electric Rule 16](#). The underground service lateral conductors will be installed, owned, and maintained by PG&E from PG&E's distribution system to the termination facility as indicated in Figure 2 through Figure 7 on Pages 3 through 4.
 - B. The customer shall provide trenching, conduit and backfill on his property in accordance with PG&E specifications and pay any costs required by [PG&E's Electric Rule 16](#).
 - C. Service conductors will be installed in conduit as shown in Figure 1 on Page 3. For conduit size, refer to PG&E [Document 063927](#) for residential service or [Document 063928](#) for commercial service.
 - D. The customer shall contact the local PG&E office to discuss service arrangements and agree upon the "Electric Service Location" before trenching or wiring.
 - E. The customer shall provide and install, in addition to termination facilities, all equipment needed to modify the service entrance when changing from overhead to underground service.
 - F. For conduit type on or within the applicant's building, refer to PG&E [Document 063927](#) or [Document 063928](#). Also consult local code authority.
 - G. Install bend in direction of service trench. To facilitate cable installation, only one 90° bend is permitted in the riser. If a deeper trench is required, a minimum radius bend, per PG&E [Document 063927](#) or [Document 063928](#), shall be installed to the same depth as the trench.

Residential and Small Commercial Overhead to Underground Electric Service Conversion

- H. If the trench is used jointly with other facilities (telephone, cable TV, etc.), increased cable depth may be required. Refer to PG&E's electrical and gas service requirements [Electric and Gas Service Requirements Manual \(Greenbook\)](#) Appendix B, Electric and Gas Service Documents: Joint Trench Configurations and Occupancy Guide.
 - I. Size and type of cable, conduit, and other facilities on the load side of the service termination point are subject to local code requirements.
 - J. To avoid cable insulation damage, the ends of all risers shall be provided with a suitable termination fitting such as bushing, nipple, hub or end bell, etc.
 - K. Pull termination box as specified in Table 1 on below. Item 6 is for service up to 250 kcmil cable. For larger conductor, size box as required. See PG&E [Document 058817](#).
 - L. The point where PG&E's service conductors connect to the customer's conductors, as shown in Figure 2 on Page 3 through Figure 7 on Page 4, is identified as the "PG&E Service Termination Point."
 - M. Item 3 in Figure 4 on Page 4 and Figure 5 on Page 4, may be used only if the service conductor is 1/0 AWG or smaller, and can be pulled from the PG&E end of the service.
 - N. Customer may install short-radius conduit fitting (i.e. service elbows that prevent water from penetrating the fitting at termination to meter panel). Short radius conduit fittings should not contain splices or taps. The cover also must be sealable by PG&E personnel.
5. Grounding: The customer shall be responsible for bonding and grounding all exposed non-current-carrying metal parts. Grounding shall be in accordance with the National Electric Code (NEC) and local ordinances, except that the grounding wire shall be protected against mechanical damage by rigid steel conduit or armored copper ground wire.
6. Metering Requirements: Meter will be furnished and installed by PG&E.

References	Location	Document
Trench and Installation Requirements for URD Cable Terminating Underground Electric Services 0–600 Volt in Customer-Owned Facilities	ELS	040686
Methods and Requirement for Installing Residential Underground Electric Services 0–600 V to Customer-Owned Facilities	UG-1: Services/Greenbook	058817
Methods and Requirements for Installing Commercial Underground Electric Services 0–600 Volts to Customer-Owned Facilities	UG-1: Services/Greenbook	063927
Methods and Requirements for Installing Commercial Underground Electric Services 0–600 Volts to Customer-Owned Facilities	UG-1: Services/Greenbook	063928

Table 1 Description of Items to be Furnished and Installed by Customer

Item	Description
1	Option 1: Meter Adapter, Cooper B-Line Cat. No. MARR20L45GRSD (160A) Use with Customer's Panel Rated at 160A Continuous ^{1, 2} Option 2: Meter Adapter, Ekstrom Industries No. 722B (175A). Specify Left, Right, or Bottom Hub
2	Combination Service Meter and Breaker Panel (rating as required)
3	Pull Termination Box, 8" x 12" x 4", Rain-Tight, Circle A-W (Cooper B-Line) No. R-9007A or Equivalent (see Note 4M on Page 2)
4	Conduit, See Notes 4C and 4G on Page 1
5	Hub to Be Closed and Made Tamper Proof
6	Pull Termination Box, 12" x 26" x 6", Rain-Tight, Circle A-W Catalog Number R-90008, or Equivalent (see Note 4K on Page 2)

¹ Fifth jaw accessory, use Cooper B-Line Cat. No. 50365.

² Reducer hub and gasket accessories for 2" conduit, use Cooper B-Line Cat. No. AW200 and 12750A.

Residential and Small Commercial Overhead to Underground Electric Service Conversion

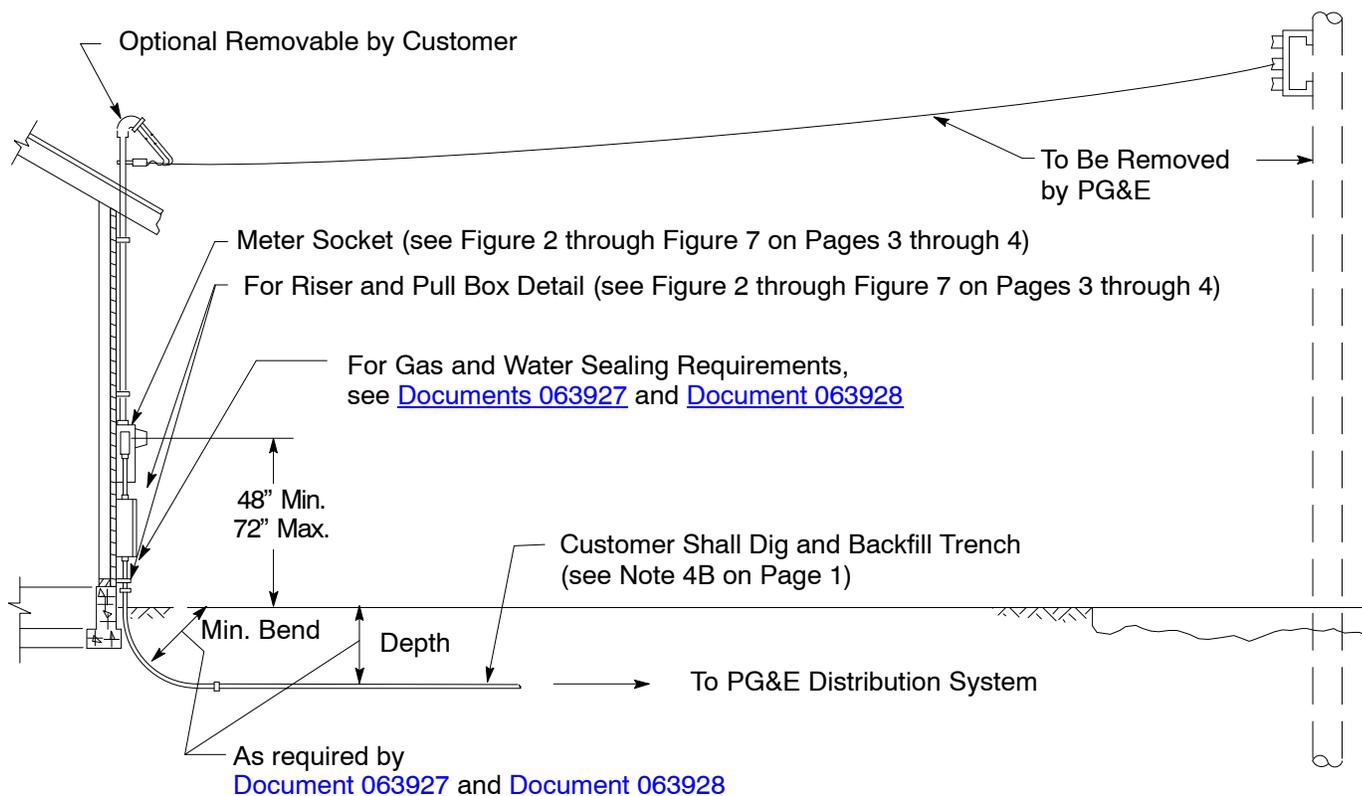


Figure 1
Typical Service Conversion

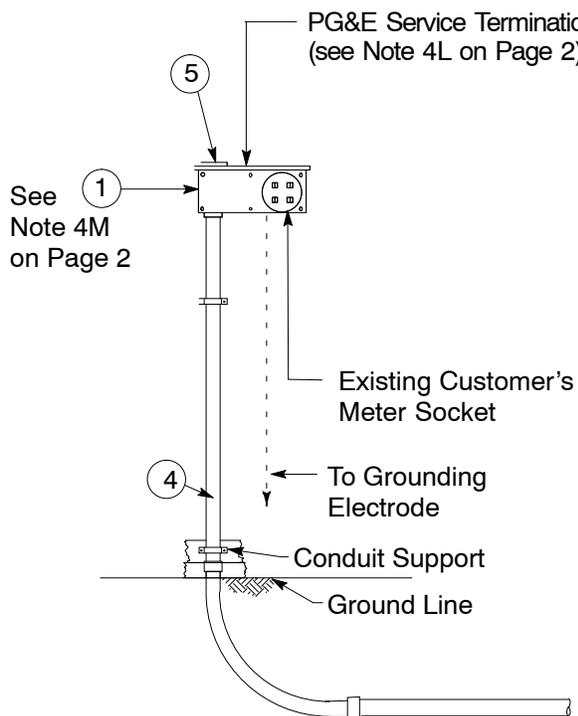


Figure 2
Cooper B-Line Meter Adapter

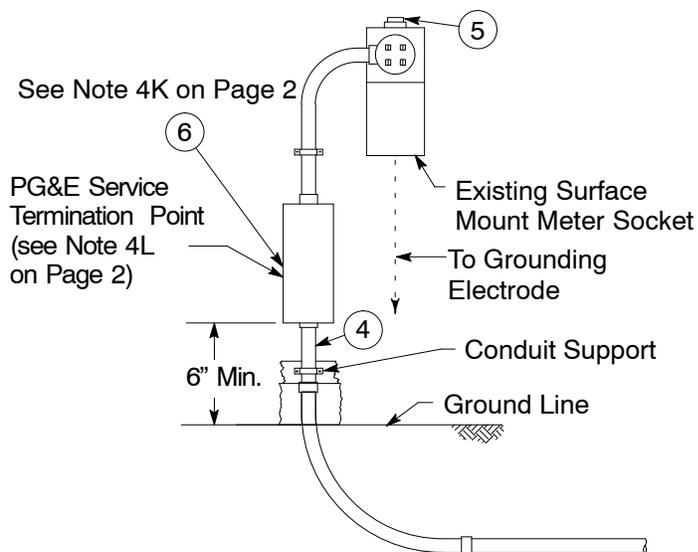


Figure 3
Surface Mount Meter Socket

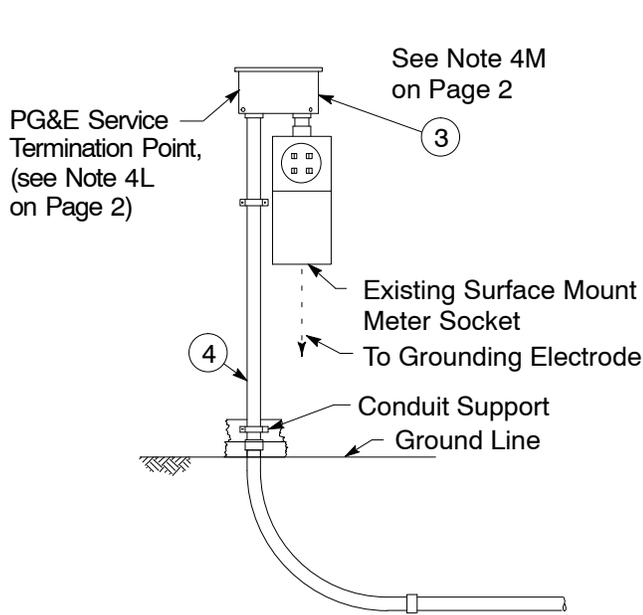


Figure 4
Surface Mount Meter Socket

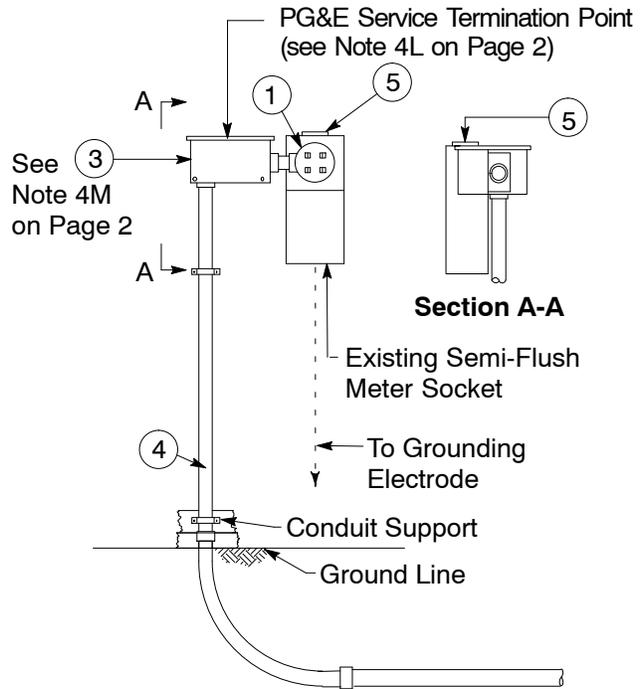


Figure 5
Semi-Flush Meter Socket

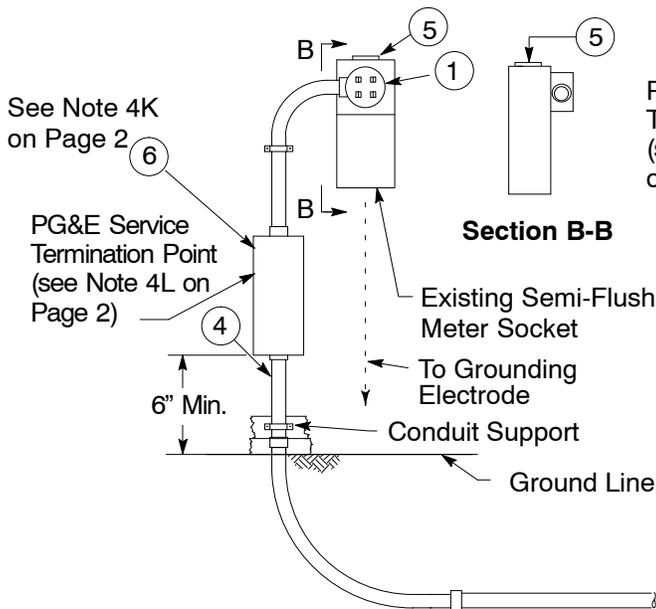


Figure 6
Semi-Flush Meter Socket

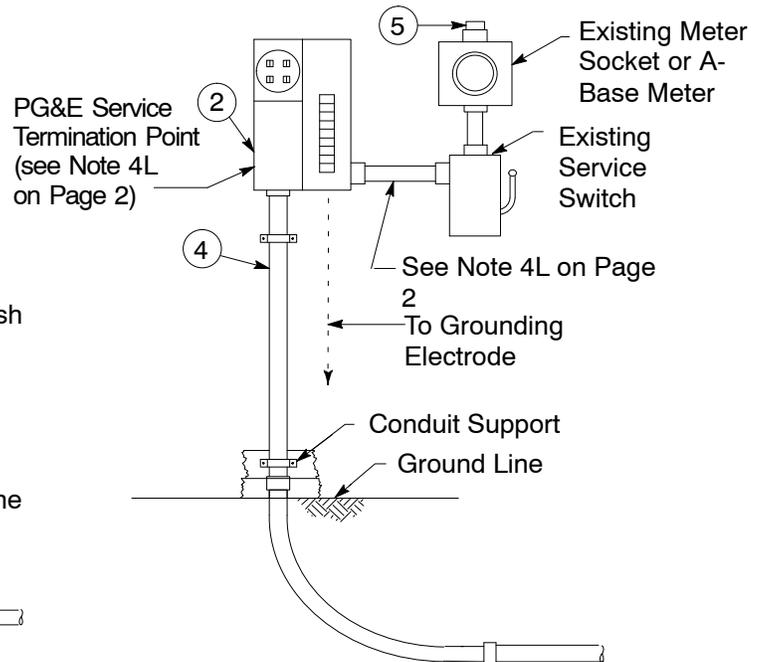


Figure 7
2-Wire or A-Base Meter Connection

Revision Notes

Revision 04 has the following changes:

1. Revised Note 4G on Page 1.
2. Revised Table 1 and Note 4H, and added Note 4N on Page 2.
3. Revised minimum depth and radius bend in Figure 1 on Page 3.
4. Added Figure 2 on Page 3 with new B-Line meter adapter.

	METHODS AND REQUIREMENTS FOR INSTALLING RESIDENTIAL UNDERGROUND ELECTRIC SERVICES 0 – 600 V TO CUSTOMER-OWNED FACILITIES		063927
	Asset Type: Electric Distribution	Function: Estimating, Service, Planning, and Construction	
Issued by: Carlos Araquistain (CJA8) <i>C. Araquistain</i>	Date: 04-15-11		
Rev. #17: This document replaces PG&E Document 063927, Rev. #16. For a description of the changes, see Page 4.			

This document is also included in the following manual:

- [Electric and Gas Service Requirements \(Greenbook\)](#)

Purpose and Scope

This document shows the methods and requirements for installing PG&E-owned, underground service cables in customer-owned, residential, terminating facilities. See [Document 058817](#) for terminating underground services.

General Information

1. Underground electric service laterals will normally be installed in a joint trench with natural gas and communication service facilities.
2. To determine the most satisfactory meter location, PG&E should be contacted for requirements while the building is in the planning stage.
3. When it is necessary to install a service 75 feet or longer, the applicant must contact PG&E before ordering the service riser, conduit, or termination enclosure. If the service riser and/or conduit specified in Table 2 on Page 3 of this document will not accept the cable required to meet flicker and/or voltage drop requirements, a larger conduit must be installed. This could require the installation of a larger termination enclosure.
4. The installation of a splice box may be required whenever cable pulling tensions may be exceeded or a change in cable size or conduit is required. The applicant must contact the local PG&E office to determine the requirements.

Residential Services Information

5. A “residential service” is a service supplying a single- or multi-metered residential building. This document addresses services through 800 amp, single-phase. For multi-metered residential services larger than 800 amps, single-phase, see [Document 063928](#).
6. Residential includes mobile homes installed on California state-approved foundation systems in locations other than mobile home parks.
7. Conduit is required for residential services, including multi-metered residential buildings.
8. The applicant shall provide the trench, conduit, and backfill in accordance with [Electric Rule 16](#) and PG&E requirements. PG&E will furnish and install the service cables and make the connection at the point of service delivery in the applicant’s service termination enclosure.

Qualification of material for use as backfill is the responsibility of the job foreman or, in the case of contract work, the inspector or their designee. A visual inspection of the material is sufficient for evaluation of the material. The source of the backfill, native or import, is immaterial to the suitability of the backfill for use in the trench. In new construction areas, the developer may have a soils report available, which will assist in determining if import backfill is necessary.

9. Conduit type for PG&E service conductors, on or under the applicant’s building, shall be UL PVC Schedule 40 or better. Schedule 40 shall not be used in locations where it would be subject to physical damage. To avoid cable insulation damage, the ends of conduits shall be provided with a suitable fitting, such as a bushing, nipple, hub, cable protector, or end bell.

Note: Conduits shall not pass under or through one building to supply adjacent buildings.

**Methods and Requirements for Installing Residential
Underground Electric Services 0 – 600 V
to Customer-Owned Facilities**

10. Potential water intrusion into service conduits and meter termination facilities.
 - A. Water intrusion into service conduits and meter termination facilities may occur if the source side of the service facilities (e.g., secondary splice box) is at an elevation greater than the meter termination facilities.
 - B. [CPUC General Order 128, Rule 31-6](#) requires “Lateral ducts for services to buildings, through which water may enter buildings, shall be plugged or sealed.”
 - C. When the intrusion of water can reasonably be expected, as identified above, the following actions are required:
 - (1) PG&E is responsible for sealing the conduit at the meter termination facilities as shown in [Document 062288](#). If the meter termination facilities are significantly lower than the source side facilities, then the conduit should be sealed at both ends.
 - (2) The applicant is responsible for providing a means to prevent the accumulation of excess water or water pressure in the service conduit system. This can be accomplished by providing a water diversion device, such as: (1) a box installed at the base of the riser to the meter panel, or (2) a series of fittings in the riser to the meter panel, which channel the water out of, and away from, the service conduit system. The device must be secured and installed in such a manner as to prevent the possibility of physical damage and access to, or extension of, any object or wire into the meter panel.
11. Prior to cable installation, all conduits shall be proven free and clear by means of a mandrel or other methods acceptable to PG&E. A polyester flat pulling tape, white with sequential footage markings every foot, 2,500 minimum tensile strength, and approved by PG&E (Code 560154), shall be installed in all conduits and attached to an end cap (see [Document 063928](#)).

Upgraded Panel

12. For upgraded panels where the new specified size of service conductor will fit in the existing conduit, it is not necessary to upgrade the conduit to the currently specified size for the new panel if both of the following are met:
 - A. The maximum fill ratio is not exceeded.
 - B. The calculated cable pulling tensions along the conduit route is within limits of the new cable.
13. If the new panel is able to accommodate it, the existing service conductor may be reused provided it meets the load, voltage drop, and flicker requirements of the new load. If the service conductor size must be upgraded, the existing conduit must be proofed with a mandrel.

Cover

14. A minimum of 24 inches of cover for secondary (0 - 750 V) electric service, or 36 inches minimum cover for primary (over 750 V) is required. Cover is the distance from the outer surface of an underground facility to the top of the final grade. The actual trench depth will be greater (approximately 30 inches or 42 inches minimum respectively) to accommodate the underground facility, bedding, enclosures, riser sweeps, and joint trench installations with other utilities.

Temporary Service

15. The policy of using permanent service panels to supply temporary power is expanding. Schedule 40 or 80 PVC riser moulding may be damaged by staples and nails, and this has resulted in damage to service cables. Therefore, for those locations where cable will be installed or that will be energized prior to completion of the wall, the conduit shall be Schedule 40, rigid steel conduit, to protect the service cables from damage caused by siding nails, etc.

References

	Location	Document
Terminating Underground Electric Services		
0–600 Volts in Customer-Owned Facilities	UG-1: Services/Greenbook	058817
Underground Conduits	UG-1: Conduits	062288
Methods and Requirements for Installing		
Commercial Underground Electric Services		
0-600 Volts to Customer-Owned Facilities	UG-1: Services/Greenbook	063928
Engineering Material Specification 99, “Underground		
Electric Duct System (installed by applicant)”	TIL	EMS99

**Methods and Requirements for Installing Residential
Underground Electric Services 0 – 600 V
to Customer-Owned Facilities**

Table 1 Service Conduit Types Approved for Underground Application

Type	Specification ¹ (must be marked on conduit)
PVC, DB120	ASTM F512 , Cell Class 12264B
Hot-Dip, Galvanized, Rigid Steel	USAS Spec. C80.1
PVC Schedule 40 or 80	UL 651

¹ The entire "conduit system" shall meet the specifications listed above. The conduit system includes conduits, conduit bends, conduit fittings or couplings and all related components (e.g., end bells and cable protectors) that are needed to install PG&E cables and conductors. For conduit couplings DB 60 is acceptable.

Table 2 Cable and Conduit Requirements for Residential Services ¹

Service Equipment Rating (amps) ²	Conduit Size and Number ³	Minimum Vertical Radius	Minimum Horizontal Radius	Aluminum Cable Required to Serve Maximum Load AWG or kcmil	
				(per phase)	Neutral
0–125	1–2"	24"	36"	1–1/0	1–#2
126–225	1–3"	24"	36"	1–4/0	1–1/0
320 ⁴	1–3"	24"	36"	1–350	1–4/0
400 ⁵	1–3"	24"	36"	1–350	1–4/0
600 ⁵	2–3"	24"	36"	2–350	2–4/0
800 ⁵	2–3"	24"	36"	2–350	2–4/0

¹ The number of conduits and cables required to serve 80% rated, main service panels.

² Service rating shall be the termination section, pullcan, service section, or main service switch continuous current rating, whichever is greater.

³ See Note 3 on Page 1 for size and distance limitations, Note 9 on Page 1 for conduit type allowed on or within buildings, and Table 1 above for conduit type allowed underground.

⁴ Require manual bypass facilities.

⁵ Require transformer rated meter.

Service Installation

Note

- I. A 90° manufactured sweep is required to be installed to meet trench grade. The conduit end must extend at least 12 inches beyond the foundation. Install the sweep in the direction of the service trench. If a deeper trench is required, the sweep must extend to the same depth as the conduit in the trench. A minimum of 24 inches of cover must be maintained.

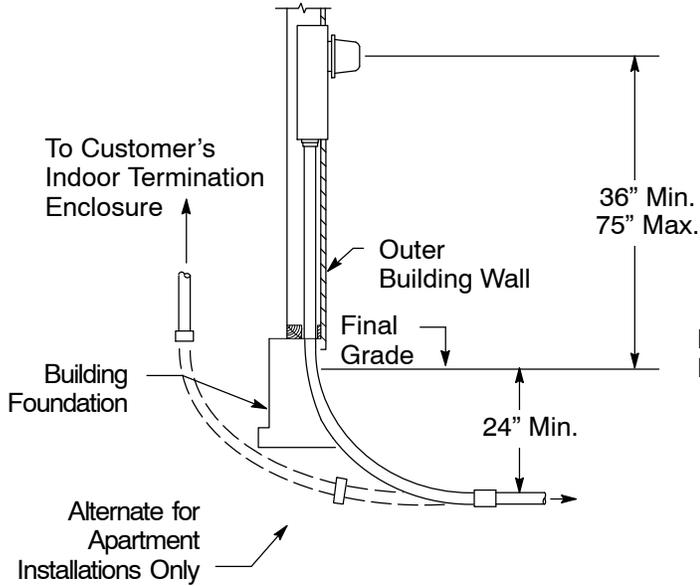


Figure 1
Recessed-Mounted Service Termination Enclosure

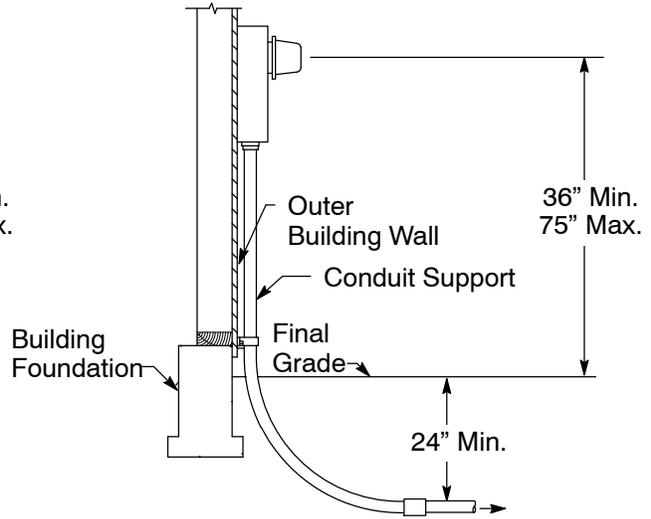


Figure 2
Surface-Mounted Service Termination Enclosure

Revision Notes

Revision 17 has the following changes:

1. Removed Exception at the bottom of Note 9 on Page 1.
2. Added Specific UL Standard for Schedule 40 and 80 in Table 1 on Page 3.
3. Changed minimum cover requirement from 18" to 24" in Figures 1 and 2.