

7 Single Family Service

7.1 General

The location of the service entrance on the Customer's premises is an important consideration. For clearance and location information see [Section 5-1, Meter Socket Clearance Requirements for Single Meter Installations](#):

- Consult PGE to determine the point of attachment for overhead service drops, underground service laterals, and meter locations.
- Locate the service entrance and meter to make them more accessible from PGE distribution lines and convenient for the installation, reading, and maintenance of PGE meters.

The Customer will provide, install, and maintain all service equipment (including service entrance conductors for overhead services, conduit, enclosures, and meter sockets) to include rights-of-way and space for the installation and maintenance of PGE facilities. Some conditions include:

- The Customer must not terminate the principal grounding conductor in PGE's sealed termination compartment.
- Customer wires installed in meter bases must allow clear space for the installation of PGE wires. Panel covers must be secured prior to inspection and energization.
- See [Section 6, Underground Requirements](#) for underground and conduit requirements. For conduit size see [Table 6-1](#).
- The meter socket must not be used as a junction box.

Always use ring-type meter sockets, complete with a PGE approved sealable ring. Ringless style meter sockets are not approved.

7.1.1 Residential Sockets

Single-phase direct-connect residential sockets which have maximum current capacity of 125, 200 or 400 (320 continuous) amperes and are ANSI, UL, EUSERC, and PGE approved may be used. **All single-phase 400 amp (320 amp continuous) sockets shall have an approved manual link bypass.**

Code-calculated loads greater than 320 amperes require current transformer metering. The Customer must contact PGE for information and requirements. (See [Section 10, Commercial, Industrial, & Large Residential Services \(800A or less\)](#).)

Note: For 200 amp services, by-pass meter bases are approved but not required for single-family residential services. A by-pass meter base should be considered if interruption of power during routine meter service would be a problem in the residence.

7.2 Underground Service

For preparation of underground service, the Customer must obtain approval and specifications from PGE covering the proposed installation and the Customer's responsibilities.

The Customer is responsible to recognize potential surface and sub-grade water flows that may allow the entry of water into the Customer's electrical equipment. PGE will coordinate with the Customer to assist in preventing this water entry.

Customers adequately served by existing overhead distribution facilities, but desiring underground service, should contact PGE for details of PGE policy for conversions. Special rules may apply in areas of cities where local ordinances specify underground service.

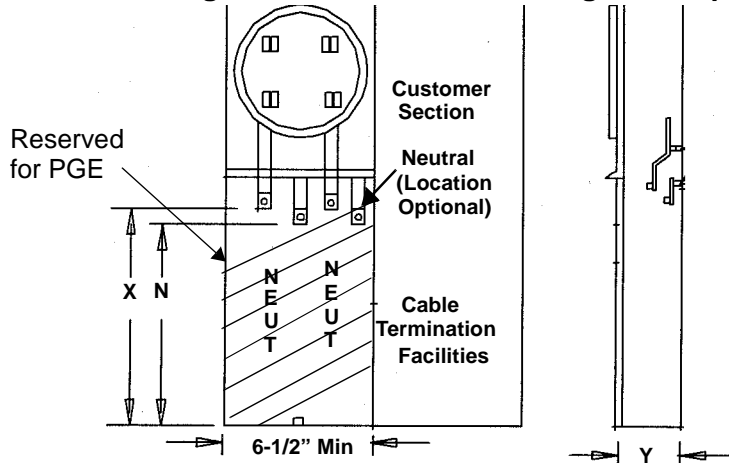
PGE's underground conductors will be installed as specified in sections [Section 6.2, Trenches Provided by the Customer](#), and [Section 6.3, Conduit](#), for underground service to residential occupancies. The Customer must furnish and install PGE-approved conduit. The Customer is responsible for the cost of all trenching, conduits, vaults, excavation, backfill, and site restoration on the premises, or within the confines of the subdivision to be served. This also includes costs for work outside the project to permit connection to PGE facilities.

PGE will install, own, and maintain the underground service lateral from its distribution line to the Customer's point of delivery.

7.2.1 Underground Service Extension

The Customer is responsible for the trench, backfill, compaction, surface restoration and conduit as required for service extensions. [Figure 7-2](#) shows a typical installation of an underground service extension from the transformer to the house. [Figure 7-1](#) shows a typical installation of a meter and associated hardware for surface and flush meter mounting methods. See [Table 6-1](#) for conduit requirements.

Figure 7-1 Residential Underground Approved Meter Sockets

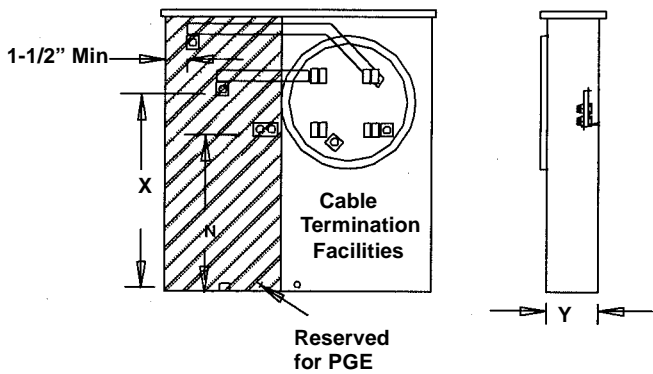


A. 100, 200 amp maximum single phase underground service combination meter socket. (EUSERC 301)

EUSERC Table: Drawing 301

Amps	X	N	Y
125	8"	6"	4"
225	11"	8-1/2"	5"

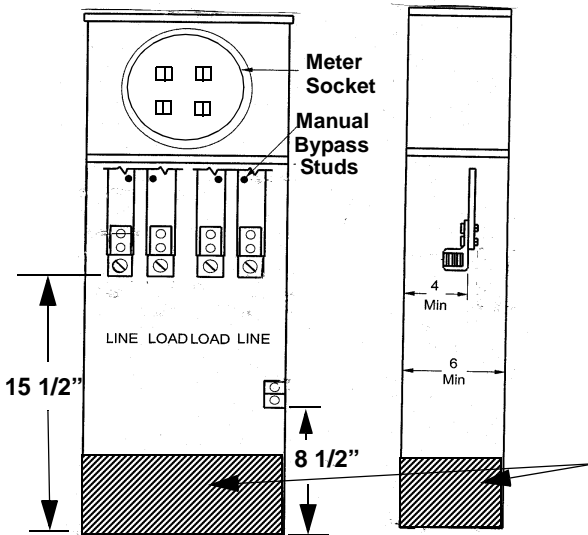
(Minimum Dimensions)



B. 200 amp maximum single phase underground service meter socket (EUSERC 301A)

EUSERC Table: Drawing 301A

Amps	X	N	Y
125	8"	6"	4"
225	11"	8-1/2"	5"



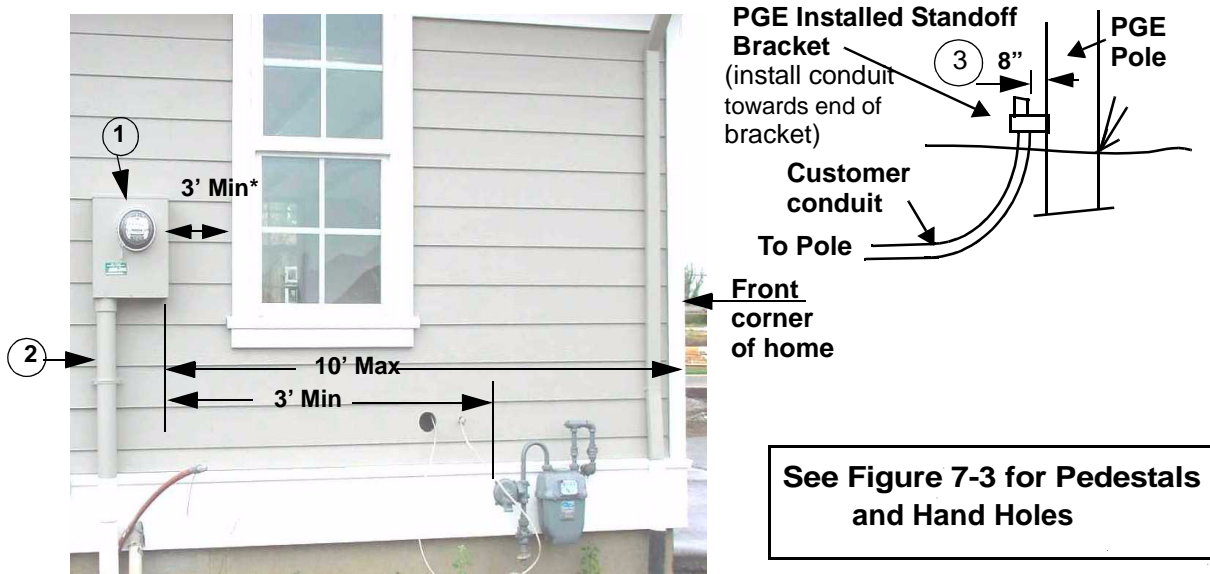
C. 400 amp maximum (320 amp continuous) single phase underground service combination meter socket with link bypass (EUSERC 302B)

Customer wires installed in meter base must allow clear space for PGE to install conductors.

Notes:

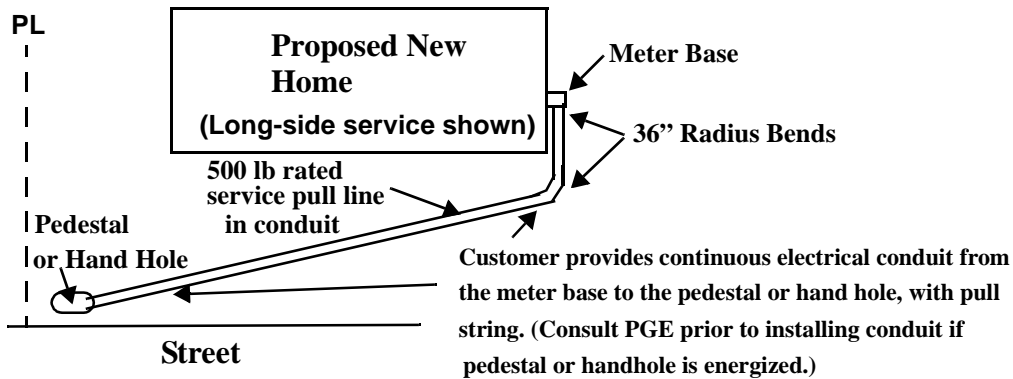
- a. Hubs are not approved for use on the concentric knock-out of underground socket enclosures. Approved bushings, box adapters, or other conductor protection are required for these enclosures.
- b. The service entrance riser must be in line with left side of entrance knock-out. (Figure 7-4)
- c. Customer owned conductors cannot enter or pass through the PGE compartment in the meter base (except 320 amp meter bases).
- d. EUSERC 302 (ringless base) is not approved.

Figure 7-2 Underground Conduit System



See Figure 7-3 for Pedestals and Hand Holes

* 3' Minimum from windows for customer's privacy if window has a view of a living space.

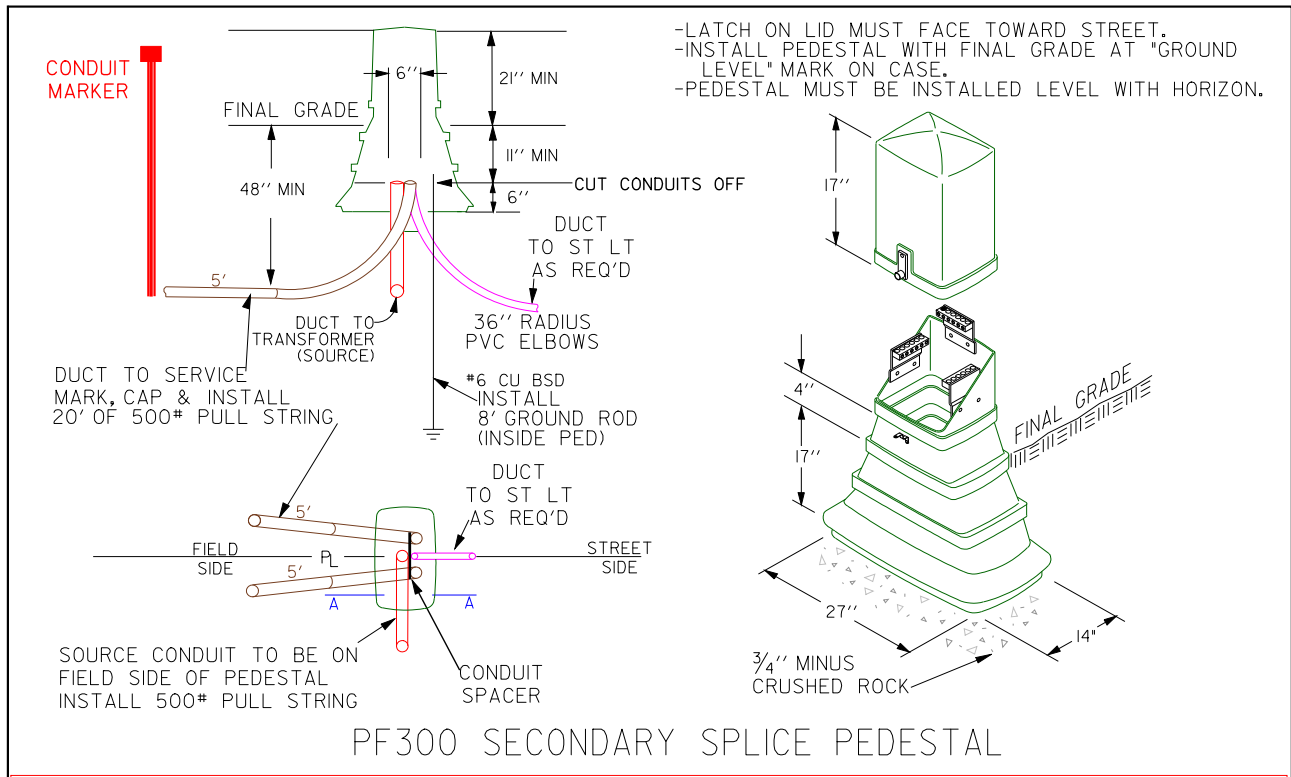


References

1. The Customer will provide and install a PGE-approved meter base. The point of delivery for residential customers must be located on the front of the building or no more than 10 feet back from the front corner. When this condition cannot be met, the Customer must contact PGE to determine the exact location of the meter.
2. For 320 Amp service or less, 3" PVC Sch 40 electrical conduit, with up to 270 degrees of bends, and a maximum 150 feet of conduit can be used. All bends to be 36-inch long sweep radius (factory made only). Field heat bends are not acceptable. See Table 6-1, Underground Requirements, for other underground trench and conduit requirements.
3. When the conduit extends to a PGE pole or hand hole consult PGE for exact conduit location. PGE will install a bracket on the pole or mark the location on the pole for the conduit. There must be a minimum 8 inches between the pole and the back side of the conduit.

Figure 7-3 Pedestals and Handholes

Secondary Pedestal



Handhole (17" x 30" x 18" deep)

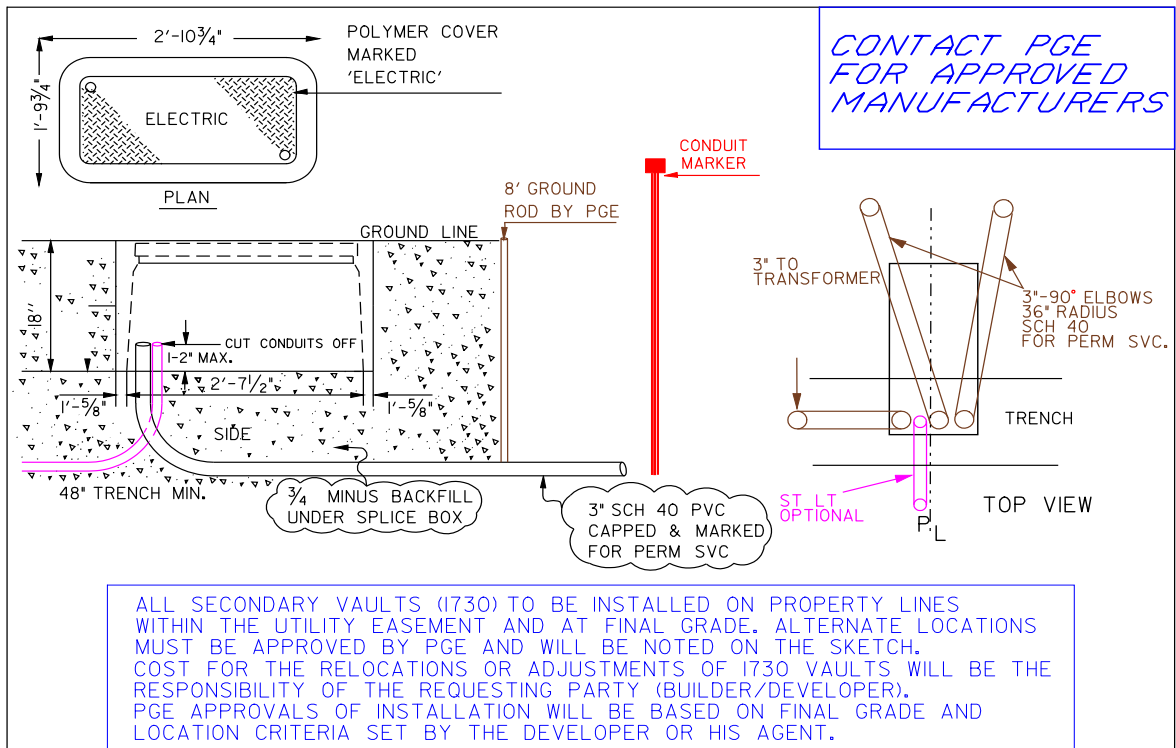
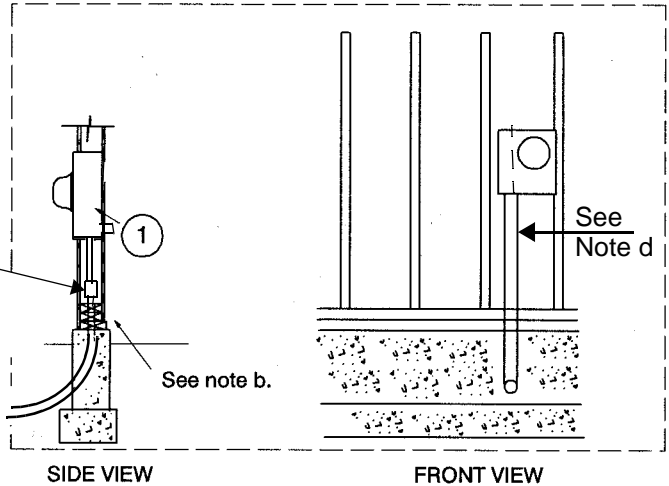
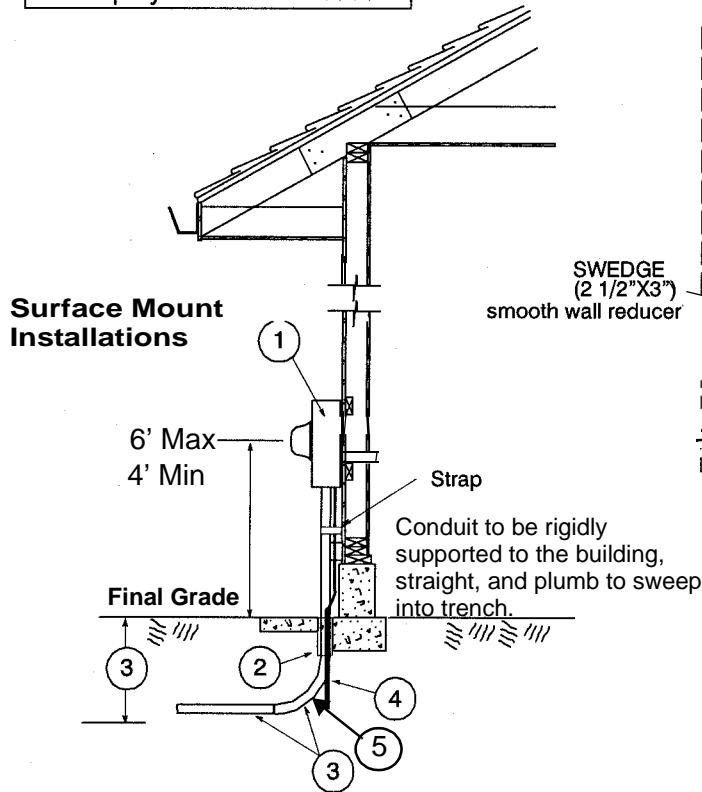


Figure 7-4 Underground Service
(Direct-connect Metering)

Electrical label or permit must be displayed on meter base.

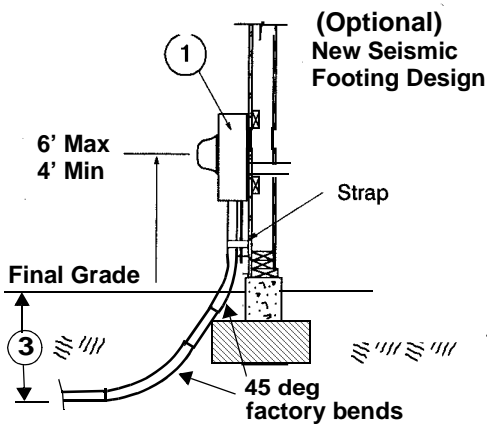


Customer will furnish and install

- Meter Socket enclosure (underground type)
- Conduit (see Section 6.3)
- Utility Easement when required
- Trench excavation and backfill
- Grounding per NEC
- Long radius sweep

Notes:

- a. Display the electrical label or permit on the meter base.
- b. No bends will be allowed in the conduit riser between the meter base and the underground sweep. If local codes do not allow conduit in the foundation and/or footings, a surface mounted meter must be installed.
- c. For brick veneer or concrete block, use 1/4" x 3 1/4" lead sleeve expansion bolt in joint, in place of lag screws on anchor straps.
- d. The service entrance riser must be in line with left side of entrance knock-out.

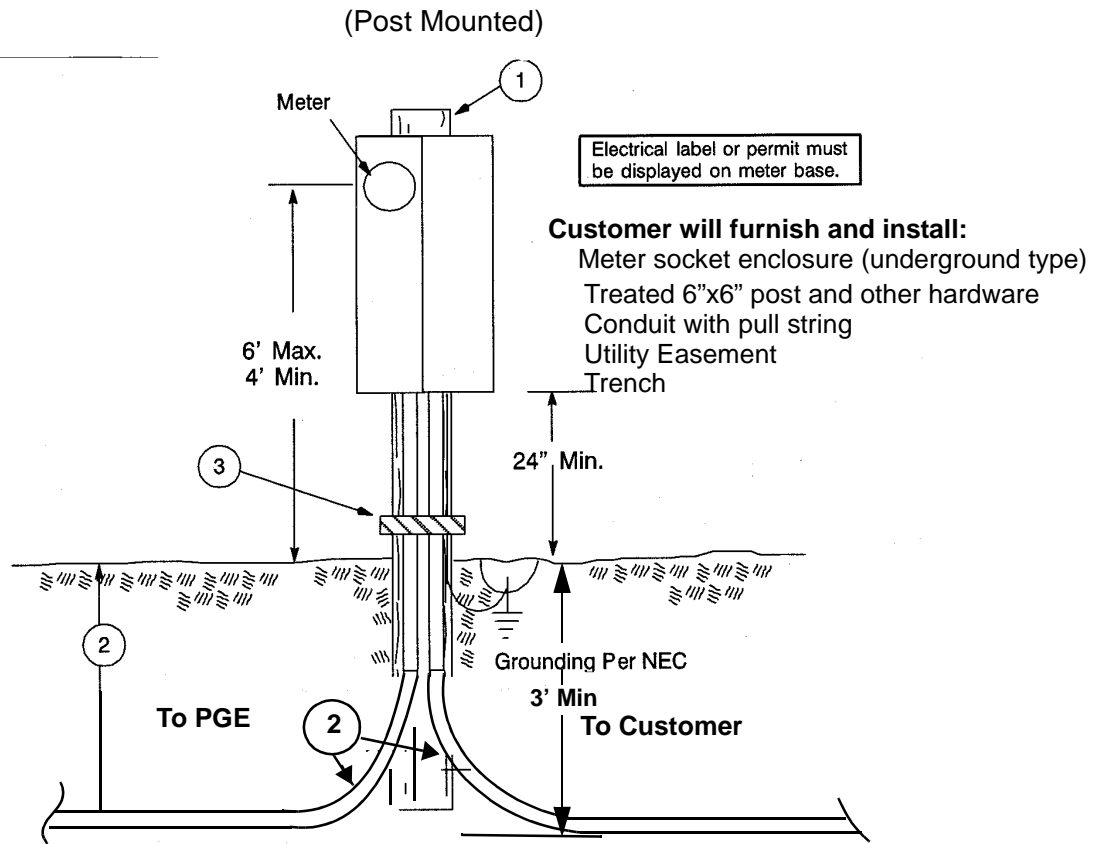


References:

1. Meter base and conduit must be securely attached to the structure. Meter socket and conduit must be plumb when inspected. PGE will determine the exact location of the meter. Refer to Figure 5-1 (Meter Socket Clearance Requirements). 2" x 4" back supports are required.
2. Sleeves around conduit are required when passing through paved area adjacent to building foundations to prevent ground settling from pulling conduit down.
3. See Section 6 for conduit and underground requirements.

4. Ground in accordance with the currently adopted issue of NEC (Article 250 Grounding).
5. Use factory bends with no more than 90° of total bend to obtain a minimum depth of 36" while keeping the conduit flush against the house.

Figure 7-5 Free Standing Residential Meter Pedestal



References:

1. 6 x 6-inch minimum size, pressure-treated wood post owned by Customer. During installation, firmly tamp earth around post and mound to allow for settling.
2. See [Section 6, Underground Requirements](#) for conduit and underground requirements.
3. Block and strap to support conduit.

Note:

- a. PGE will determine the exact location of the meter base.

7.3 Overhead Service

For Customers in an overhead service area, PGE will install an overhead service drop from PGE overhead distribution lines to the service entrance on the Customer's residence, building, or structure. PGE will also install underground service in overhead areas. See [Section 7.2, Underground Service](#) for requirements.

Consult PGE for location of meter socket before rewiring service.

The Customer must provide a single attachment point within two feet of the weatherhead which can be reached with a single span of service drop cable from an adjacent PGE line. For service mounted on a customer-owned pole, locate the weatherhead within two feet of the top of the pole. The point of attachment must be high enough above finished grade and in a proper position to provide minimum clearances as specified in [Table 5-1, \(Minimum Clearances for Service Drops\)](#). It is important to avoid overhang of service drop above adjacent property and provide a service drop route without obstruction by buildings, trees, or other objects. Locate the point of attachment on the building wall facing the nearest PGE line or on a service mast capable of withstanding the tension of the service drop.

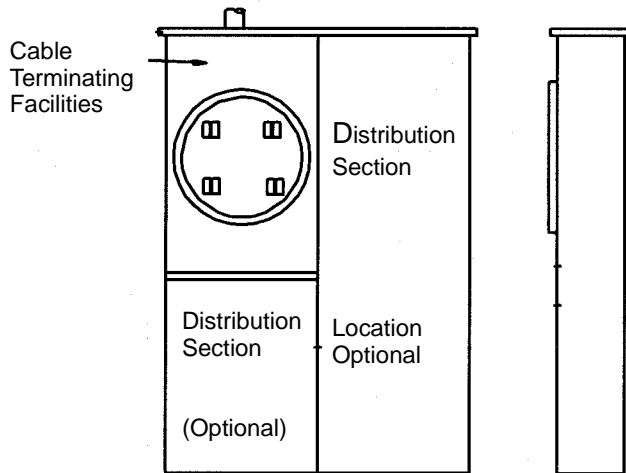
Extend and tie supports for service drops from and into the main structural members of the building. *Extend the service mast through the roof* on a typical single-story building unless adequate clearance exists at the gable end of the building. (Also refer to [Figure 5-3, Residential Clearances for Overhead Service](#))

Use a rigid metal pipe clamp for the point of attachment for a service mast. For attachment to a building, use a 3/8-inch eyebolt connected to a significant structural member (e.g. rafter, roof plate, etc.). For single story buildings, the attachment shall not be below the downhill slope of the roof or the rain gutters. Attachments to "fascia" boards are not permitted.

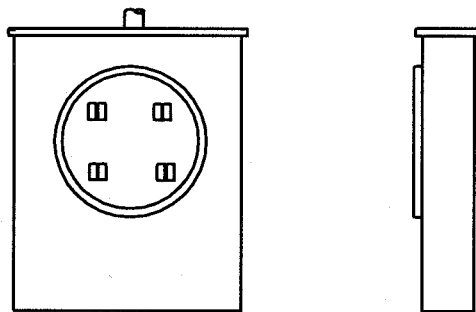
If a Customer encounters problems in meeting these clearances, PGE will provide assistance in determining specific requirements that will comply with codes.

For residential overhead services, the home siding must be installed prior to energizing the service.

Figure 7-6 Residential Overhead Approved Meter Sockets



A. 100, 200, and 400 amp maximum single-phase overhead service meter socket.
 (EUSERC 301 or 301A for 100 & 200 amp and EUSERC 302B for 400 amp [320 amp continuous])



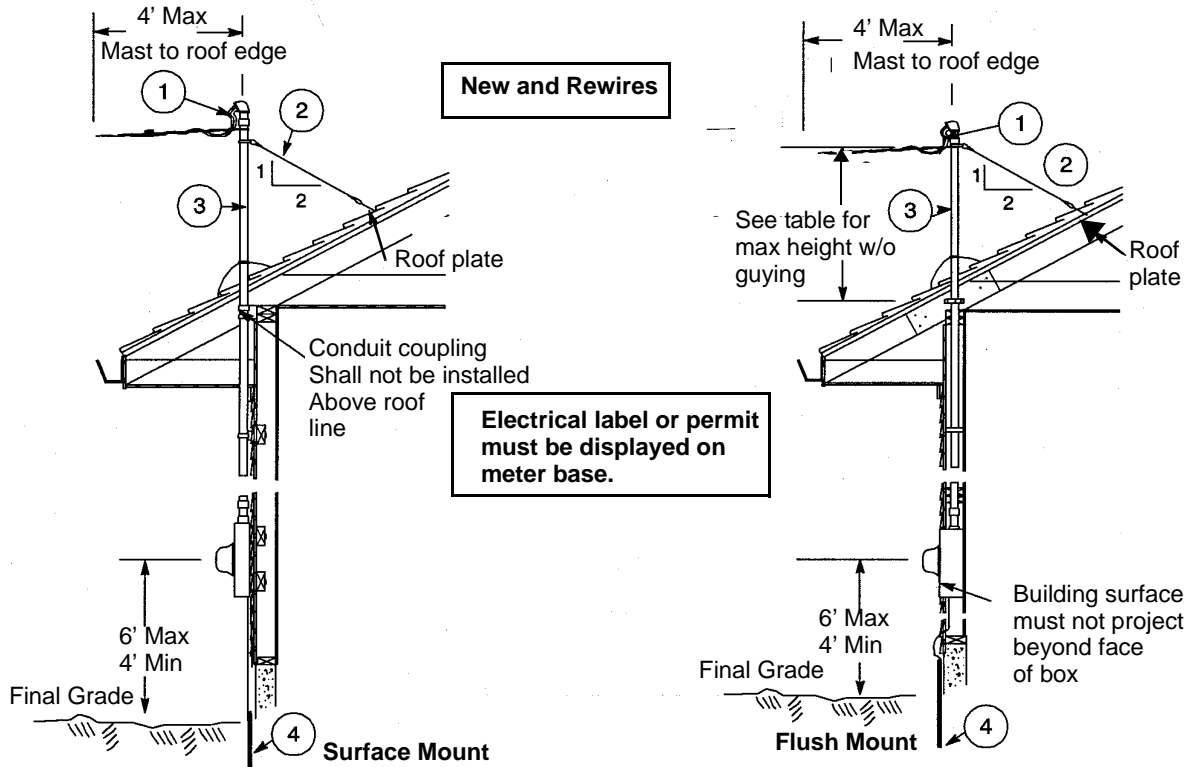
B. 100 and 200 amp maximum single-phase overhead service meter socket only.

Notes:

- a. See [Figure 5-1](#) for additional information.
- b. Ringless style meter sockets are not approved.



**Figure 7-7 Overhead Service
Surface or Flush Mount Metering**



Guying Recommendations by Mast Size

Service Mast Rigid Steel Conduit	Service Size	Utility Service Length	Length of Unsupported Mast
2 inch	200 Amp Service or Less	Less Than 100 ft.	24 inches
2 1/2 inches	201-400 Amp Service	Less than 80 feet	24inches

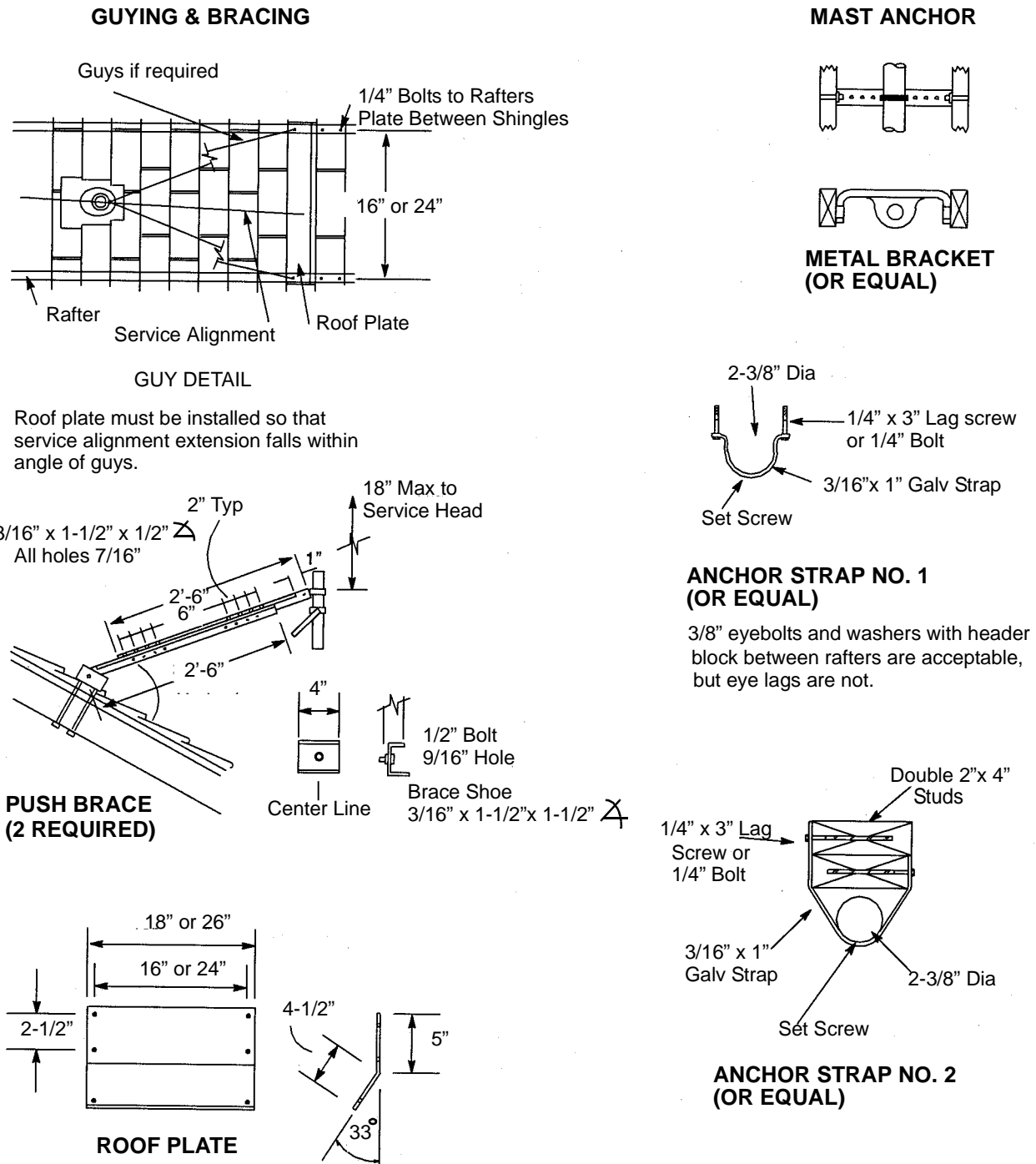
References:

1. Allow 24 inch conductor leads for connection to service drops.
2. Guying shall be 1/8 inch galvanized steel strand or larger.
3. Service entrance mast must be continuous rigid steel conduit, NEC approved, and securely attached. See table above for maximum height without guying.
4. Grounding per NEC (Article 250 Grounding).

Notes:

- a. Mount service mast on side nearest distribution pole. Avoid service wire overhang over roof or provide clearance required over roof. (See [Section 5, Clearances.](#))
- b. For brick veneer or concrete block, use 1/4" x 3 1/4" lead sleeve expansion bolt in joint, in place of lag screws on anchor straps.
- c. See [Figure 7-8](#) for guying and anchoring mast.
- d. PGE will determine the exact location of the meter base for new and rewire installations.

Figure 7-8 Mast Guying and Anchoring



Note:

- a. Service mast must be mounted on side nearest distribution pole. Consult PGE for rear of lot service lines. Refer to [Section 5, Clearances](#) to provide clearance required over roof.
- b. See [Figure 7-7](#) to determine when guying is required.

