8. METERING

8.1 METER LOCATIONS

8.1.1 General Requirements

The Customer shall provide, free of expense to the Company and at a location in accordance with these Electric Service Requirements, equipment suitable for meters and accessories furnished by the Company and installed for billing the various types of electric services offered. All locations shall be clear to allow access to the meter and its accessories for the purpose of reading, testing, and maintenance.

8.1.2 Indoor and Outdoor Locations

In general, new installations of self-contained socket type meters for both single phase and three phase services will be located outdoors. Transformer rated socket type meters also will be located outdoors. Where numerous meters are required at one location or where the Company determines that outdoor metering is impractical or inadvisable for other reasons, the meters will be located indoors.

When replacing or upgrading services, existing indoor meter installations of all self-contained socket type meters should be relocated outdoors.

Outdoor meters will not be installed on building walls close to highways, driveways, alleyways or sidewalks if the locations interfere with pedestrian or vehicular traffic, or subject the meter to the likelihood of physical damage. Meter locations shall not require access over property not owned by the Customer.

8.1.3 Unacceptable Locations

Under no circumstances shall meters be installed in any of the following locations:

Attics	Fire Towers	Manholes
Bathroom	Incinerator Rooms	Shafts
Bedrooms	Kitchens	Silos
Coal bins	Lavatories	Stairways
Crawl spaces	Living Rooms	

8.1.4 Unacceptable Areas

Meters shall not be installed behind, over, under, or adjacent to the following:

Boilers	Hatches	Steam pipes
Doors	Heaters	Stoves
Exposed machinery	Laundry Tubs	Tanks
Fire escapes	Radiators	Tracks for overhead doors
Furnaces	Sinks	Windows

8.1.5 Unacceptable Environments

Meters and service equipment shall not be installed indoors within 2 feet of any gas meter, gas valve, or disconnectable gas fitting. Meters shall not be installed in locations where there is excessive heat, moisture, vibration, fumes, dust, or against downspouts, or in locations subject to flooding.

8.2 METER ROOM

8.2.1 General

Where meter rooms are necessary they shall be of sufficient size to allow ready access to the meter, metering transformers and accessories for the purpose of reading, testing, and maintenance. The required dimensions of such rooms for any particular installation should be secured from the local **PECO Energy Company office in the Region in which the installation is located**. Minimum requirements for an outdoor meter house will be furnished on request. For high voltage services, the space provided for metering purposes in Customer's substation equipment must be acceptable to the Company as provided in Section 7 of these Electric Service Requirements.

8.2.2 Outdoor Meter Houses or Enclosures

Where a meter panel is to be located in an outdoor house or enclosure, the Customer may be required to furnish suitable lighting and thermostatically controlled heaters to maintain a temperature of no less than 40^{o} F at the metering instruments. Sufficient internal working space shall be provided as required by Fig. 8.39. Enclosure requirements depend on expected load and the number of meters involved. Typical outdoor enclosure requirements for metering installation, are shown in Figure 8.40 and 8.41.

8.2.3 Accessibility

All metering installations shall be readily accessible to the Company's employees during business hours.

8.3 SELF-CONTAINED SINGLE PHASE METER INSTALLATIONS

All self contained, meter mounting equipment shall be approved by PECO Energy. Meter sockets are of the ringless style except for manufactured grouped meter installations.

Acceptable socket type meter mounting equipment shall be provided by the Customer for initial single-phase loads up to approximately 320 continuous amperes, or up to 400 amp services as computed by the National Electrical Code.

For single-phase installations exceeding a maximum current of 320 amperes the Customer shall provide a current transformer enclosure.

8.4 CABLE CONNECTIONS TO METERING AND SERVICE EQUIPMENT

Approved types of cable connectors shall be used to connect the service cable to the metering and service equipment. Cable connectors shall be properly installed on the service cable. This means securely fastened to the metering and service equipment in a way that prevents the insertion of foreign conductors into the meter socket. Service cable is acceptable for top entrances in outdoor metering installations if hex nut type weather tight connectors having tapered threads and neoprene or similar bushings with proper size and shape openings are used in weather tight hubs. In all cases of top entrance, the cable and fitting shall create a weather tight seal.

No service equipment is permitted ahead of the metering unless such installation is required by the NEC or other regulating agencies.

8.5 APPROVED TERMINALS FOR METER SOCKETS

Because of the different characteristics of copper and aluminum, terminals and connectors must be approved as suitable for the particular metal being used. Suitably plated terminals of the lay in or saddle type are preferred. The contact areas of aluminum conductors should be cleaned, coated with an acceptable oxide-inhibiting compound, and the terminal scratch brushed with a wire brush before connection is made.

8.5.1 Pressure Pads for Meter Socket Terminals

The setscrew type of terminal will not be approved unless it employs a pressure pad. Cone screws in cylindrical barrel type terminals are acceptable. Unplated copper terminals and connectors will be approved for use only with copper conductors.

8.6 METERING FOR OFF-PEAK SERVICE

A separate meter is required for conductors to off-peak appliances. See Figures 8.35, 8.36 and 8.37.

8.6.1 Off-Peak Circuits

Metered conductors to electric water heaters or off-peak circuits shall not be installed in a raceway with any other conductors. The circuit breaker or fuses shall be independent of the general load circuits and may not be connected under any other rate during the period that service under the interruptible rate is in effect.

Metered conductors to electric water heaters or off-peak appliances shall be a continuous run from the overcurrent device to the unit, receptacle next to the unit, or junction box. The junction box is permitted when the thermal rating of the conductor insulation is less than that required by appliance nameplate. The junction box allows final connection to properly rated conductors that should not be less than 18 inches long.

8.6.2 Off-Peak Service Load Interrupting Devices

The service-interrupting device furnished by the Company is suitable for loads up to 24 kW. For loads greater than 24 kW, a load-interrupting device shall be furnished, maintained, and installed by the Customer. The load-interrupting device shall be located next to the meter, adequate for the load controlled and acceptable to the Company. Outdoor enclosures shall be NEMA Type 3R or equivalent. Enclosures acceptable for indoor use shall be NEMA Type 1 or equivalent.

8.7 METERING REQUIREMENTS FOR MOBILE HOMES

Meter sockets shall not be attached to mobile homes. Meter mounting equipment may consist of either factory constructed pedestal equipment (See Table 8.11) or of individual designed metal supports (See Fig. 8.34). In either case, the following conditions must be met:

- Final installation must be rigid, plumb, and suitably painted or coated to resist rust and corrosion.

- The supporting upright shall be of 3 inch steel pipe or other form of equivalent strength. All structural metal below grade must have a bitumastic coating such as Koppers #50 or equivalent.

- A factory-constructed pedestal must be set a minimum of 24" in the ground and be provided with an approved stabilizing foot as it base. An individually designed metal support must be set a minimum of 36" in the ground and be provided with a stabilizing foot as its base. The foot shall be of 12 gauge-galvanized steel and of at least 50 sq. in. in area.

- Adequate space for the entrance of Company service conductors shall be reserved in the bottom wall of the meter. See Fig. 8.32. This suggests the mounting of service equipment below and rotated 90 degrees with respect to the meter socket and precludes the use of the center knockout in the meter socket for wires to the service equipment.

- Nothing in the above is intended to prohibit the location of the service equipment remote from the meter socket and adjacent to the mobile home structure.

8.8 MULTIPLE METER INSTALLATIONS

On all installations involving more than one meter, each set of service entrance and metering equipment shall be legibly and permanently marked to designate the portion of the building that it supplies. Gang-type meter sockets are unacceptable for buildings not under common ownership. Service connections between individual meter supports in multiple metering installations shall be run in rigid metallic conduit, electrical metallic tubing, or flexible metallic tubing, and shall be properly bonded. Mechanically unprotected service entrance cable shall not be used for connections between meter sockets. Customer shall provide provisions for PECO to lock and fasten any potential tamper points ahead of metering.

8.8.1 More than Six Meters

When more than six meters and associated disconnecting devices are installed at one location, a main sealable fused service switch or circuit breaker, of a type acceptable to the Company, may be provided as required by the National Electrical Code. If installed outdoors, it shall be in a raintight enclosure.

8.8.2 Connections in Meter Mounting Equipment

On all multiple metering installations adequate space shall be provided for the service conductors to each meter position. Where additions are to be made to existing metering installation, the service conductors shall not be tapped in existing meter mounting equipment unless there is adequate space without overcrowding. Not more than one set of load side conductors shall be installed from each meter to supply the Customer's service switches or circuit breakers. In cases where a meter supplies more than one service switch or circuit breaker, a single set of load conductors **(unless connectors supplied by the manufacturer are designed to accommodate more than one conductor)** shall be installed from the meter to a separate trough or splice box from which the conductors to each switch or circuit breaker shall be connected. Two service and load conductors in parallel, which conform to the requirements of the National Electrical code, will be permitted if required for capacity.

8.9 SELF-CONTAINED POLYPHASE METERING INSTALLATIONS

8.9.1 Three Phase

PECO approved socket type meter mounting equipment shall be provided by the Customer for all three phase four wire installations, both wye and delta configurations, and arranged so that the meter is installed on the line side of the service equipment.

8.9.2 Two Phase (Maintenance Only-Not for New Construction)

Meter mounting equipment designed for bottom-connected meters shall be provided for all two-phase metering installations and arranged so that the meter is installed on the line side of the service equipment. A sealable metal meter connection box equipped with terminal blocks of a type acceptable to the Company shall be installed on the line side of the service equipment. The connection box may be an isolated sealable compartment of a combination meter and switch assembly (see Figures 8.09 and 8.10), or it may be a transformer enclosure. Acceptable equipment is listed in Table 8.09 and 8.15. Connection blocks used for the services and metering connections shall be equipped with approved solderless wire connectors. Eight terminals are required for 2 phase installations. The general requirements for terminal blocks are shown in Figure 8.10 and acceptable terminal blocks listed in Table 8.15.

8.10 TRANSFORMER RATED METERING INSTALLATIONS

8.10.1 General
All transformer rated metering installations shall be arranged so that the metering transformers are installed on the source side of the service equipment. Indoor transformer-rated metering installations shall be located immediately adjacent to the point at which the service conductors enter the building. A working clearance of 4 inches shall be provided between the back of the metering transformer enclosure and the building wall, or the enclosure may be mounted on a 1-inch minimum painted lumber backboard.

No service equipment is permitted ahead of the metering unless such installation is required by the NEC or other regulating agencies.

8.10.2 Single Phase Installations
The following installation is acceptable for residential and commercial loads exceeding 320 continuous amperes as computed according to the National Electrical Code.

8.10.2.1 Outdoor Combination Current Transformer and Meter Enclosure
A combination current transformer and meter enclosure, provided and installed by the contractor in an outdoor location, as shown in Figure 8.12. The contractor shall install the two current transformers supplied by the Company.

This type of installation may also be used as an alternate to 320 amp self contained metering.

8.10.3 Polyphase Installations
Depending upon the type of service installation, metering transformers for Polyphase services may be installed in the following:

8.10.3.1 Indoor Metering Transformer Enclosure
See Table 8.09 and Figs. 8.15, 8.16 and 8.18

8.10.3.2 Secondary Compartment of a 3∅ Padmounted Transformer
See Figs. 8.17, 8.19, 8.20, 8.22, and 8.23

8.10.3.3 Outdoor Weathertight Enclosures
See Figure 8.40

8.10.3.4 Requirements When Metering Transformers and Meter Are Separated (all voltages)
Where metering transformers are installed in the secondary compartment of padmounted transformers, switchgear, or other acceptable enclosures remote from the meter location, a rigid metal conduit shall be provided and installed by the contractor between the meter transformer enclosure and the meter location. The conduit and meter-mounting device shall be adequately grounded.

The meter and meter panel(s) will be supplied, installed, and connected by PECO Energy Company. For secondary services, meters and metering transformers should be located in close proximity of each other without physical barriers between them. (i.e. Located either inside together or outside together).

8.10.3.5 Secondary Conduit from Switchgear

The Customer's Contractor shall furnish and install an adequate rigid metal conduit connection for the meter secondary wiring between the metering transformer location and a meter location acceptable to the Company. The termination at the meter end will be an acceptable junction box listed in Table 8.13. (See Figure 8.39) All installations shall be designed so that not more than 4 quarter bends will be necessary in any run of conduit between pull boxes. Pull boxes, junction boxes, or other suitable conduit fittings shall be provided to meet these limitations. All pull boxes shall be clear of any obstructions and be readily accessible to PECO personnel. The Contractor shall provide removable covers with means for sealing by the Company. Minimum sizes of conduit for meter transformer secondary wiring shall be as follows:

Length of Run	Exposed Conduit	Concealed Conduit
Up to 100'	1-1/4"	1-1/2"
100' to 300'	2"	2-1/2"
300' to 600'	2-1/2"	3"

For conduit runs not exceeding nominally 5 ft. totally within equipment, 1 in. conduit is acceptable.

8.10.3.6 Secondary Conductors

In general, it is desirable to design an installation so that the length of run for metering transformer secondary conductors will be as short as practicable, preferably under 30 feet. For secondary runs that do not exceed nominally 100 feet, the Company will furnish and install its standard color-coded wire in the conduit provided by the Contractor. For all secondary runs that exceed nominally 100 feet, the Contractor will install the secondary wire. The Company will furnish wire to suit the requirements of secondary runs between 100 and 600 feet. For secondary runs more than 600 feet, consult PECO Energy.

Customer equipment shall not interfere with or introduce burden in the metering circuit.

8.11 CONDUCTOR ENTRANCES

8.11.1 Current transformer enclosures

Service and load conduits shall be connected through the side, bottom or back of an enclosure, but shall not obstruct any metering equipment.

8.11.2 Combination current transformer and meter enclosures

Service and load conduits may be connected in the top and/or bottom of combination current transformer and meter enclosures. Top entrances of cable outdoors shall always be through an approved weatherproof connector installed in a weathertight hub with additional caulking.

8.11.3 Alternate Location - Metering Transformer

Where the requested location of the metering transformer enclosure is not acceptable to the Company as a suitable meter location, the Contractor shall provide and install an adequate rigid metal conduit between the metering transformer enclosure and the accepted alternate meter location.

8.11.4 Enclosure Size ***

Minimum sizes of current transformer enclosures acceptable for various sizes of service conductors are as follows:

Phases	Wires	Minimum Enclosure Size (W x H x D)	Maximum Number of Cables	Maximum Cable Size (kcmil)
1	3	24" x 18" x 10"	3	350
		32" x 24" x 13"	3	500
2	5	32" x 24" x 10"	5	400
		42" x 32" x 10"	5	750
3	3	32" x 24" x 10"	3	500*
	4Δ	32" x 32" x 10"	3	500
	4Y	32" x 32" x 10"	4	400
		42" x 32" x 10"	4	750
		54" x 42" x 12"	4	750**

*Exclusive of neutral or ground conductor as required by N.E.C.
**For 277/480 volt installations. (See Fig. 8.21)
***Outdoor enclosures require minimum 15" depth

In instances where the NEC and/or amp capacity requires either a larger enclosure, more than the maximum number of cables, or larger than the maximum cable size, the customer shall provide a switchgear enclosure for the metering transformers.

8.12 METERING TRANSFORMERS

The metering transformers will be supplied to the Customer's Contractor by the PECO Energy Company office in the region in which the work is located. The Contractor shall install the transformers and make all primary connections. Manufacturers who mount the transformers in service control equipment may obtain the transformers from PECO Energy Company.

All voltage transformers will be fused for new installations. For 13kV metering, the voltage transformers will be supplied by the Company with fuses already mounted. For 34kV metering, the customer must install fuses directly ahead of the voltage transformers. Contact New Business Customer Engineering for type and size of fuses required.

8.12.1 Delivery

When the metering transformer service equipment and connecting conduits have been installed and are ready for wiring, the Contractor shall obtain the metering transformers from the local PECO Energy Company office. An advance phone call will assure the Contractor that the metering equipment is ready for pickup.

8.12.2 Mounting Metering Transformers in Metering Enclosures

Unistrut rails shall be attached securely to the back of the transformer enclosure with a minimum of two 1/4" x 20 corrosion resistant machine screws or thread cutting machine screws per rail. Sheet metal screws are not acceptable. Metering transformers shall be attached to the Unistrut with springnuts and machine bolts. Mounting of transformers on wood is no longer acceptable for new installations.

8.12.3 Mounting in Padmounted Transformers and Switchgear

Mounting of metering transformers in a single-phase padmounted transformer is prohibited.

When a three-phase padmounted transformer supplies a single customer, the metering transformers **may** be installed in the padmounted transformer (See Figure 8.17, 8.19, 8.20, 8.22). Metering transformers shall not be installed in padmounted transformers that initially supply multiple customers or **may** supply multiple customers in the future. In these cases, the metering transformers shall be installed in a metering transformer or switchgear enclosure. The contractor shall make all metering transformer primary connections. The term "metering transformer" includes current and voltage transformers with voltage transformers required only when the service voltage is 277 volts or greater.

When the Company supplies bus bar type metering current transformers for installation in a padmounted transformer, the metering current transformer primary bars shall always be bolted to the secondary spades of the padmounted transformer. If window type metering current transformers are supplied by the Company, for installation in a padmounted transformer, they shall be mounted directly over the secondary spades of the padmounted transformer.

8.12.4 Metering Transformer Connections

The Contractor shall terminate the service and load conductors with approved solderless connectors and securely bolt these to the terminals of the metering current transformers. Each service conductor shall be of sufficient length to permit it to be connected to a service terminal of any transformer in the enclosure. When window-type current transformers are required for capacity, the conductors must terminate in straight through bolted connectors immediately adjacent to the load side of the current transformer.

Only one bolted connection (may involve the use of multiple bolts) shall be made to each primary terminal of a metering current transformer or secondary spade of a pad-mount transformer. Where parallel conductors are required for capacity, all conductors shall terminate in multi-conductor connectors or on short pieces of suitable copper bus that, in turn, shall be the only bolted connection to the current transformer primary terminal, or secondary spade of a pad-mount transformer. All primary terminals shall be properly insulated without concealing polarity markings or meter potential connection points.

Air is considered an acceptable insulating medium when the distance between energized components or energized components and ground meet applicable codes.

Metering transformer enclosures shall not be used as splicing enclosures to supply multiple disconnecting devices. If the load side conductors extended from the metering transformer enclosure are to supply more than one disconnecting device, a splicing trough or gutter shall be installed between the metering transformer enclosure and the multiple disconnecting devices. Load side conductors extended from a metering transformer enclosure may supply both the heating/air conditioning and general load disconnecting devices.

8.12.5 Meters

The Company will furnish, install, and connect the meter and associated meter secondary wiring prior to the service being energized.

8.13 METER MOUNTING EQUIPMENT

The required types of meter mounting equipment for various classes of new and modernized secondary services and maximum initial loads are as follows:

Maximum Initial Load		Equipment Rating
Total kVA	Amperes per Phase	Amperes and Type
Single Phase		
18	up to 75	100 Amp. socket (Note 2)
19 to 36 (Note 1)	76 to 150	200 Amp Socket
37 to 77	151 to 320	320 Amp Socket (Table 8.16) or 400 amp combination transformer-socket enclosure
over 77	over 320	transformer enclosure (Note 3) (Table 8.09 and 8.10)
Two Phase		
all loads	all currents	transformer enclosure (Note 3) (Table 8.09 and 8.10)
Three Phase		
up to 62 (Δ)	up to 150	200 amp socket (Table 8.07)
over to 62 (Δ)	over 150	transformer enclosure (Note 3) (Table 8.09 and 8.10)
up to 54 (Y)	up to 150	200 amp socket (Table 8.07)
over 54 (Y)	over 150	transformer enclosure (Note 3) Table 8.09)

Note 1: For residential electric heating, may be up to 46 kW as computed according to N.E.C.

Note 2: 200 Amp. UG socket required on single position URD installations. For 6 meters or less, the service equipment shall be installed on the load side of each meter. For more than 6 meters a main control shall be installed on the line side of the meters.

Note 3: Current transformers are sized in relation to the contracted load.

8.14 METERING EQUIPMENT FASTENING REQUIREMENTS

All metering equipment shall be fastened securely, level, and plumb. Metering equipment shall not be fastened to floor joists. Manufactured fastening devices, such as expansion shields, anchors, toggle bolts, or wood screws specifically designed for the application are acceptable when properly applied.

8.15 METERING EQUIPMENT MOUNTING REQUIREMENTS

8.15.1 Outdoor

In general, outdoor metering equipment may be mounted directly upon building walls. All mounting holes provided by the manufacturer shall be utilized, and no additional holes shall be made. All fastenings shall be made only to solid portions of the building material and not to structural joints.

8.15.2 Indoor

Metering equipment shall not be installed directly on indoor walls, which contribute to corrosion of the metal. Offset metal brackets providing a minimum of one-inch air space between the metering equipment and the wall shall be used, or a supporting backboard of wood on battens may be erected. Where wood is used, it shall be of good grade, at least one inch dressed thickness, or 3/4" exterior grade plywood, and shall be of sufficient area to fully support the equipment that is to be mounted on it. All fastenings, whether brackets or backboards are used, shall conform to Company guidelines. Supporting battens shall be used to provide a minimum of one-inch air space, and they shall extend beyond the backboard sufficiently to permit verification of fastenings employed. The backboard may be securely nailed to the battens which shall be minimum 1-1/4"x2". All wood shall be painted with a good grade of paint.

8.16 MOUNTING HEIGHT OF METERS

For the purposes of these Rules, the specified mounting heights for both indoor and outdoor meters shall be the distance between the horizontal center line of the meter and the floor or finished grade level.

8.16.1 Socket and Self-Contained Meters

The preferred mounting height for all socket and self-contained meters, except those supplying temporary services, is 4 feet. Normally allowed variances from this dimension are shown in the references listed below:

Phases	No. of Meter Sockets	Service	Reference
1	Single & Multiple	Overhead	Fig. 8.03
1	Multiple	Underground	Fig. 8.03
1	Single	Underground	Fig. 8.05
3	Single & Multiple	Overhead & Underground	Fig. 8.08

8.16.2 Transformer Rated Meters

Where the size of the transformer enclosure precludes compliance with the minimum elevations required by the National Electrical Code for classified areas, the height shall be the least, which will result in conformance.

8.16.2.1 Installations 600 volts or LESS

The top of indoor current transformer enclosures above which meters are to be mounted shall be approximately 45" above the floor. See Figures 8.15, 8.16, 8.18, and 8.21

8.16.2.2 Installations OVER 600 volts

The top of the junction box above which a meter panel is to be set shall be 40" above the floor or working surface. See Figure 8.39. Where pre-wired meter boards are used (Figures 8.41 and 8.52), the junction box is not used

8.17 PROVISIONS FOR SEALING

All boxes, cabinets, troughs, fittings, and other enclosures containing unmetered service conductors or secondary wiring from Company metering transformers shall be provided with acceptable means for sealing. All unnecessary openings shall be adequately closed to prevent unauthorized access. **All outdoor CT cabinets or enclosures shall be furnished with a hasp or other means which enable locking with a 5/16" padlock**.

8.17.1 Access to Company Equipment

The Company's identified employees shall have access to the premises of the Customer during business hours for the purpose of reading meters, and for installing, testing, inspecting, repairing, removing or changing any or all equipment belonging to the Company. The Customer shall maintain a minimum of 3 feet clear working space in front of each meter. Additional space will be required adjacent to moving machinery.

8.17.2 Metering Protection
The Customer may have to install protective enclosures in areas where the Company's metering equipment is subjected to excessive moisture, dust, metal filings, grindings or similar substances, or to mechanical injury or acts of vandalism.

8.17.3 Ownership and Removal
All equipment supplied by the Company shall remain its exclusive property. PECO Energy Company reserves the right to upgrade the metering to keep pace with new technologies or to meet corporate missions. PECO shall have the right to remove the metering equipment from the premises of the Customer at any time after the termination of service for whatever cause. The Customer shall do all necessary work required because of change of service and meter facilities.

8.17.4 Metering Security
PECO Energy maintains the right to lock and secure, with a PECO Energy lock, customer equipment containing PECO Energy metering equipment.

8.18 ACCEPTED METERING EQUIPMENT

8.18.1 General
In order to meet the minimum specifications of these Electric Service Requirements, certain equipment must have the acceptance of the Company. Manufacturers of metering equipment covered by these regulations may be required to submit samples of such equipment for Company acceptance. The Company will list the manufacturer's catalog number of accepted equipment in the following tables of this section. Each table lists equipment that is accepted only for the class of service and conditions described in the table heading. Accepted equipment is not interchangeable between tables unless listed in each table by manufacturer's catalog number. ALL EQUIPMENT MUST MEET PECO APPROVAL PRIOR TO INSTALLATION. PECO reserves the right to require customers to remove unapproved equipment. PECO shall not be liable for any costs incurred on the customer due to installation and/or removal of unapproved equipment.

Prefix/suffix, number/letter variations to catalog numbers as listed, that identify items such as hub size of hub plate, are acceptable with local regional approval.

The company reserves the right to install security devices on equipment that contains unmetered conductors.

8.18.2 Fifth Socket Jaw

Where a 5th jaw is required in a meter socket, the Contractor should verify that the equipment selected has, or will accept, the 5th jaw in the 9 o'clock position. For connection diagrams of meter sockets, refer to Figures 8.06-B and 8.07.

8.18.3 Interruptible Rate Meter Sockets

Acceptable meter sockets for interruptible rate meter installations are listed in Tables 8.01 and 8.02. Meter socket and breaker combinations listed in Table 8.05 are unacceptable for this installation.

8.19 METERING FOR SERVICES OVER 600 VOLTS

8.19.1 Customer's Responsibility

In addition to the general requirements for metering outlined earlier in this section, the Customer shall furnish and install all acceptable equipment necessary to accommodate the Company's metering devices required for the high voltage service. PECO Energy shall provide the metering voltage and current transformers to be installed by the customer in acceptable enclosures or on adequate outdoor structures. The customer shall install the metering transformers and make all primary connections. VTs shall be connected on the source side of the CTs. CTs shall be mounted with the polarity marks toward the source. Depending upon such factors as service voltage, conductor size, and size of load to be served, metering transformers may be supplied separately or as assemblies (pre-mounted with secondaries wired) on flat type standard frames.

When the Company determines that compensated metering is to be used on high tension services through power transformer banks owned by the Customer, the Customer shall connect the metering transformers on the secondary side of his power transformer banks at a suitable location ahead of any disconnecting devices. The Customer must provide a certified test report and a copy of the nameplate drawing for each transformer that is to have compensated metering. The certified test report shall include the following information: Manufacturer’s Name, Transformer Serial Number, KVA rating, Primary Voltage Rating, Secondary Voltage Rating, % Impedance, % Exciting Current, No Load Core Loss in Watts, and Full Load Winding Loss in Watts.

Only one bolted connection (may involve the use of multiple bolts) shall be made to each primary terminal of a metering transformer or secondary spade of a padmounted transformer. Where parallel conductors are required for capacity, all conductors shall terminate in multi-conductor connectors or on short pieces of suitable copper bus that, in turn, shall be the only bolted connection to the current transformer primary terminal or secondary spade of a padmounted transformer. Secondary terminals of current transformers should be faced to allow dressing of secondary wires with maximum clearance from the high voltage conductors. After primary connections for meter voltage transformers have been made, all primary terminals of the current transformers shall be properly insulated without concealing polarity markings. All conductors connected to metering current transformers or passing through current transformer windows shall have the phases clearly and permanently identified.

8.19.2 33 KV Metering Requirements

8.19.2.1 Availability

PECO Energy's New Business Customer Engineering shall determine the metering voltage for all 33 KV high-voltage services. The preferred method, for up to 4 transformers per service, is to meter on the low voltage side of each transformer and; compensate each meter for the associated transformer loss. Customer owned transformers metered on the low voltage side, with a loss compensated meters, shall be located where the metering secondaries are within a reasonable distance from a common meter instrument location. A decision to meter at the primary voltage, for 33 KV customers, is based on economic impact to PECO's metering installation. Typically, 33 KV primary meter installations are used for services with more than 4 transformers, or where the customer's facility is a campus setting with customer owned 33 KV distribution, having transformers that are remote from one another.

8.19.2.2 33 KV Primary Metering Requirements

The customer shall provide a switchgear compartment or outdoor structure for mounting of the Company's metering voltage transformers, primary fuses, and current transformers. The metering structure or enclosure shall include surge protection and the required live parts to accommodate 3 - GECO EJO-1 38 KV, 2E current limiting fuses, and GECO catalogue #9F60FPK002. Metal clad or metal enclosed metering compartments incorporated into a 33 KV service equipment line-up, equipped with surge arresters in the service cable compartment do not require additional surge protection in the metering compartment. The customer's transformer winding configurations and the expected load shall determine the number and rating of voltage transformers. Grounded-wye primary and secondary power transformer winding configurations are preferred to limit the impacts of ferroresonance. Such installations are metered with 3 element metering. Three (3) VTs rated 20,125-115 Volts and three (3) CTs are specified. Customers with delta connected transformers or services that do not include a PECO Energy system neutral are metered with 2 element meters. Two (2) VTs rated 34,500-115 Volts and two (2) CTs are specified.

8.19.3 Metering Panel Mounting

For meter panel mounting, the Customer's Contractor is required to furnish and install mounting facilities for the meter panel in accordance with Fig. 8.39 & 8.40, 8.41 or 8.52. For metering 3 or more services at any voltage, consult the Company for mounting instructions.

8.19.4 Telephone Connection

Many industrial and commercial meter installations are read remotely through a telephone line. The Company will arrange for the installation of the telephone. However, it is the responsibility of the Customer to be certain that there is a means, through a separate conduit to the meter location, for the telephone line to be installed. The Customer should contact the Telephone Company to determine their requirements for the installation to the meter location.

8.19.5 Company's Responsibility - Meters and Accessories

The Company will furnish, and connect all meter panels and accessory equipment, and will connect the associated meter secondary wiring between the metering transformers and the meter panel **prior to the service being energized.**

Table 8.01

Single Phase Socket Metering Equipment (Ringless)
125/250 Volts, with Horn Bypass

Ampere Capacity	Meter Position	Anchor	Durham (3)	Landis & Gyr	Milbank	Midwest	Siemens	Murray
100	1	URS1004B K3 HO	UBH-RS101B	UAT111-OPZA	U7487-RL-KK-BL	LRLPU412UALK		RJ192PX
200	1 Oh.	URS1804B K3 HO	UBH-RS202B	UAT317-OPZA	U7021-RL-KK-BL	LQRLPU414BALK	WRS192PX	RS192PX
200	1 Ug.	1URS1804B K3	UBH-RS212B	UAS817-PPZA	U1980-0-KK-BL	LQRLPU41412BALK	WRL199P	RL192PX
200	1 Ug.	Side Wire	UBH-RS223A		LTU276BALK			
100	2 Hor.	2URS1004L B K3 C350 HO	UBH-2R1121B	UBHM-2R1121B	U8032-XL-KK-BL		WRN291AR	RN291PR
100	3 Hor.	3URS1004L B K3 C350 HO	UBH-3R1121B	UA331-OPZA	U8033-XL-KK-BL		WRN391AR	RN391PR
100	4 Hor.	4URS100RL B K3 C350 HO	UBH-4R1121B	UA431-OPZA	U8034-XL-KK-BL		WRN491AR	RN491PR
100	5 Hor.	5URS1004L B K3 C350 HO	UBH-5R1121B	UA5719-KPZA	U8035-XL-KK-BL			
100	6 Hor.	6URS1004L B K3 C350 HO	UBH-6R1131B	UA6719-KPZA	U8036-XL-KK-BL			
200	2 Hor.	2URS1804 B K3 C600 HLO	UBH-2R2332T	UA2717-YPZA	U1252-X-KK-BL-K3			RM291PR
200	3 Hor.	3URS1804 B K3 C600 HLO	UBH-3R2332T	UA3717-YPZA	U1253-X-KK-BL-K3			RM391PR
200	4 Hor.	4URS1804 B K3 C600 HLO	UBH-4R2352T	UA4717-YPZA	U1254-X-KK-BL-K3(1)			RM491PR
200	5 Hor.	5URS1804 B K3 C600 HLO	UBH-5R2392TT	UA5719-YPZA	U1255-X-KK-BL-K3(1)			
200	6 Hor.	6URS1804 B K3 C600 HLO	UBH-6R2392TT	UA6719-YPZA	U1256-X-KK-BL-K3(2)			

Note: Ringless meter socket covers have a 7/16" knockout provision for a barrel lock.
(1) OH Service requires #K3923 extension kit (2) OH Service requires #K3955 extension kit
(3) Durham manufactures boards under Square D (SQD), Cutler Hammer (CH) and Midwest (MEP) brand labels.

Table 8.02

Single Phase Metering Equipment
100/250 Volts (Ringed & Ringless)

Ampere Capacity	Meter Positions	Anchor	L&G	Milbank	Murray	Siemens
100	2 Vertical	2USV1004-HOSR2 (1)		U2692-XL-KK-BL		
100	3 Vertical	3SV1004-HOSR2 (1)		U2693-XL-KK-BL		
125	2 Vertical		UA2B11-OPD		RV291AX	SUA2B11-OPD

(1) Product is obsolete but still acceptable

Table 8.03
Single Phase Socket Metering Equipment - Transformer Rated
250 Volt, Ringless - Indoor or Outdoor - 6 Jaws

Anchor	URS1006B-HO	w/Horn Bypass
Milbank	CE-136	w/Test Switches

Table 8.04

Combination Single Phase Meter Socket and Service Equipment
100 Amperes, 125/250 Volts

Meter Positions	Anchor	Cutler Hammer	Midwest	Murray	Siemens
1	US7511 FP 100 HO	MBP200BTSD (5)	MO36G(1)(3) M100C(3) M101C(3) M281C1(2)(3) R256EV-1`	JC002CZ JC0406L1200RH(2)(6)	MM0406ML1200F/S/H (2)

(1) For temporary and construction applications
(2) 200 Amp
(3) Substitute an 'R' for 'M' to indicate ringless
(4) Replaces RS250C & MS250C which are still acceptable
(5) Replaces CGBT2125S & CGBT2200S which are still acceptable
(6) Replaces JC904CZ which is still acceptable

Table 8.05

Single Phase Multiple Meter Breaker Equipment
100 and 200 Amperes, 125/250 Volts and 120/208 Volts
STEEL Trough - Indoor and Outdoor

Eaton/ Cutler Hammer	General Electric	Murray	Siemens ITE	Square D
1MM **Series (5)(9)** 3 through 6 positions **1MP** **Series (5)(9)** 2 through 6 positions	**Mini Mod III** **TMM Series (4)(5)(6)** 2 through 6 positions	**UM** **Series (5)(6)** 2 through 6 positions **AM** **Series (4)(5)** 2 through 6 positions **DG** **Series (4)(5)** 3 through 6 positions **AC** **Series** 2 through 6 positions **MP (PAK)** **Series (4)** 2 through 6 positions	**WMM** **Series (4)(9)** 2 through 5 positions **SP (PAK)** **Series (4)** 2 through 6 positions	**EZM** **Series** 3 through 10 positions **MP** **Series (3)** 2 through 6 positions

(1) (2) These notes have been deleted
(3) Add a suffix of "R" for ringless
(4) 200 ampere per position available
(5) Acceptable for outdoor installations
(6) Use adapter HDRXA and Hub RX200 for underground entrance
(7) This note has been deleted
(8) 200 Amp per position
(9) Totalizer/General

Table 8.06
Single Phase Combination Transformer Socket
Metering Equipment, 125/250 Volts

Trans-Rated Unit

Anchor	S002091	Obsolete unit, but still acceptable
Milbank	U2228	

Table 8.07

Three Phase Socket Metering Equipment
100 & 200 Amperes, 4 Wire, Wye or Delta, 250-Volt Max.

Manufacturer	Catalogue No.	Manufacturer	Catalogue No.
Anchor	TB2072-HO/HLO U22572-HO	General Electric	TMP Series (1)(2)
Eaton/ Cutler Hammer	SCMM(2) 37MM120(2) 37MM220(2) 37MM320(2) 37MM420(2)	Landis & Gyr	40407-025 40407-9 40007-01
Siemens-ITE	WRH173GR W3MM1200UR W3MM4200UR W3MM2(1)(2) W3MM2200UR(2) W3MM3200UR	(3) (3) (3) Square D Milbank Murray	UB-C7213B UB-H7213-(1) EZM743200R EZM742200R U7423-RXL RH173GR

(1) With clamping jaw (2) Totalizer - General Available
(3) Square D (SQD), Cutler Hammer (CH), Midwest (MEP)

Table 8.08
Primary Metering Transformer Enclosures

Type	**Penn Panel**
Indoor	ISTC
Outdoor	OSTC

Where means for primary disconnections are required within these enclosures use cutouts with solid links rated 200 Amperes, 5.5kV, 10,000 Amp. momentary.

Table 8.09

Secondary Metering Transformer Enclosures
Indoor Only

Enclosure Size* W x H x D	Austin	Penn Panel	Unity	East Coast
24" x 18" x 10"		241810	PEC241810DDCT	PE-182410
32" x 24" x 10"	AB243210CTD-PECO	322410	PEC322410DDCT	PE243210
32" x 32" x 10"	AB323210CTD-PECO	323210	PEC323210DDCT	PE323210
42" x 32" x 10"	AB324210CTD-PECO	423210	PEC423210DDCT	PE324210
54" x 42" x 12"	AB425412CTD-PECO	544212	PEC544212DDCT	PE425412

***Refer to Paragraph 8.11.4 for application**

Table 8.10
Secondary Metering Outdoor Transformer Enclosures

Enclosure Size H x W x D	Austin	Penn Panel	Unity
28" x 18" x 15"		OWM-281815	PEC182815SDCT3
35" x 30" x 15"	AB353015WLD-PECO	OWM-353015	PEC303515DDCT3
35" x 40" x 15"	AB354015WLD-PECO	OWM-354015	PEC403515DDCT3
42" x 32" x 15	AB423215WLD-PECO	OWM-423215	PEC324215DDCT3
42" x 54" x 15"	AB425415WLD-PECO	OWM-425415	PEC544215DDCT3

Table 8.11
Single Phase Meter Pedestals
100 and 200 Amperes, 125/250 Volts
With Service Equipment (1)

Ampere Capacity	Positions	Anchor	Midwest
100	1	PB1-B200-PE	M100CP6
100	2	PB2-B200-PE	M100CB6
200	1	2PB2-B200-PE	M101CB6
200	2		M200CP6(2) M200CB6(2)

(1) Use with post and stabilizing foot
(2) Available w/150 amp main breaker

Table 8.12
Totally Recessed
Meter Mounting Enclosures

Enclosure Size W x H x D	**Penn Panel**
17" x 19" x 15"	RWM-191715

Table 8.13
Junction Boxes for Transformer Type Meter Panels

Size of Box H x W x D	H & R Ind.	MECO	Penn Panel	Standard Elec. Supply
12” x 12” x 4”*	12124-PE *includes channels	4-12	12124	12124

Table 8.14
End Boxes for Underground Secondary Services

Size of Box H x W x D	H & R	MECO	Penn Panel	Queen Products	Standard Elec. Supply
12” x 12” x 5”	UGB-12125	5-12	12125	USB 12125 PE	125
16” x 16” x 6”	UGB-16166	6-16	16166	USB 16166 PE	166
20” x 20” x 8”	UGB-20208	8-20	20208	USB 20208 PE	228
24” x 24” x 10”	UGB-242410	10-24	242410	USB 242410 PE	248
36” x 36” x 18”	UGB-363618	36-18	-----	-----	-----
42” x 42” x 24”	UGB-424224	42-24	-----	-----	-----

Table 8.15
Meter Connection Blocks
For Use in Secondary Metering Transformer Enclosures

Capacity	Anchor	Standard Elec. Supply	Superior
100-2 Pole	PE9102	C-14	2043-C
200-2 Pole	PE 9402	C-155	2094-G
200-4 Pole	PE9404	-----	-----
200-8 Pole	-----	-----	-----

NOTE: MAINTENANCE ONLY- NOT FOR NEW CONSTRUCTION

Table 8.16
Single Phase Metering Equipment – Self Contained
240 Volt Ringless – 320 Amp Continuous

Manufacturer	**Catalog Number** ----
Landis & Gyr	44704-8265 (1)
Milbank	U3000-0-2/K3L-BL
Cutler Hammer	1008435-CH (2)
Midwest	1008435-MEP (2)
Square D	1008435-SQD (2)

(1) Murray & Siemens offer identical unit with "S" prefix
(2) Cutler Hammer, Midwest, and Square D boards manufactured by Durham.

AS SOON AS THE METERING TRANSFORMERS ARE INSTALLED, CALL METER SERVICES 5 DAYS PRIOR TO SERVICE DATE AT 1-610-648-7869

METER SERVICES TO WIRE C.T.'S & P.T.'S BEFORE WORK IS ENERGIZED

NOTE:

WHITE DOT IS LINE SIDE OF C.T. (H1)
DO NOT REMOVE THE SHUNTS FROM THE C.T.'S

IF CT'S ARE INSTALLED IN A CT CABINET
MOUNT THEM WITH UNISTRUT AND SPRING NUTS

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Figure 8.00

EXPLANATION OF TERMS USED IN TYPICAL
SERVICES TO SINGLE RESIDENTIAL PROPERTIES

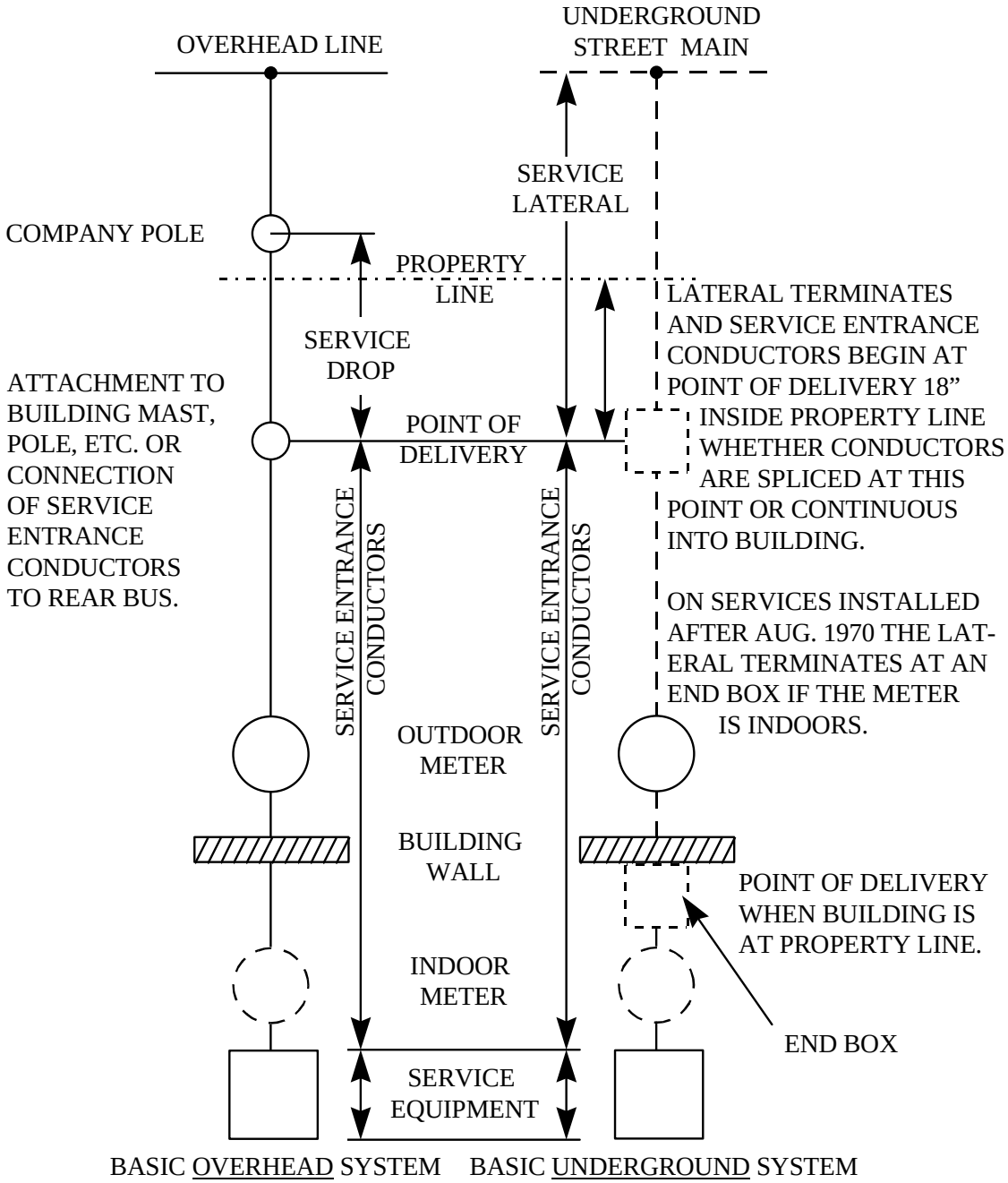
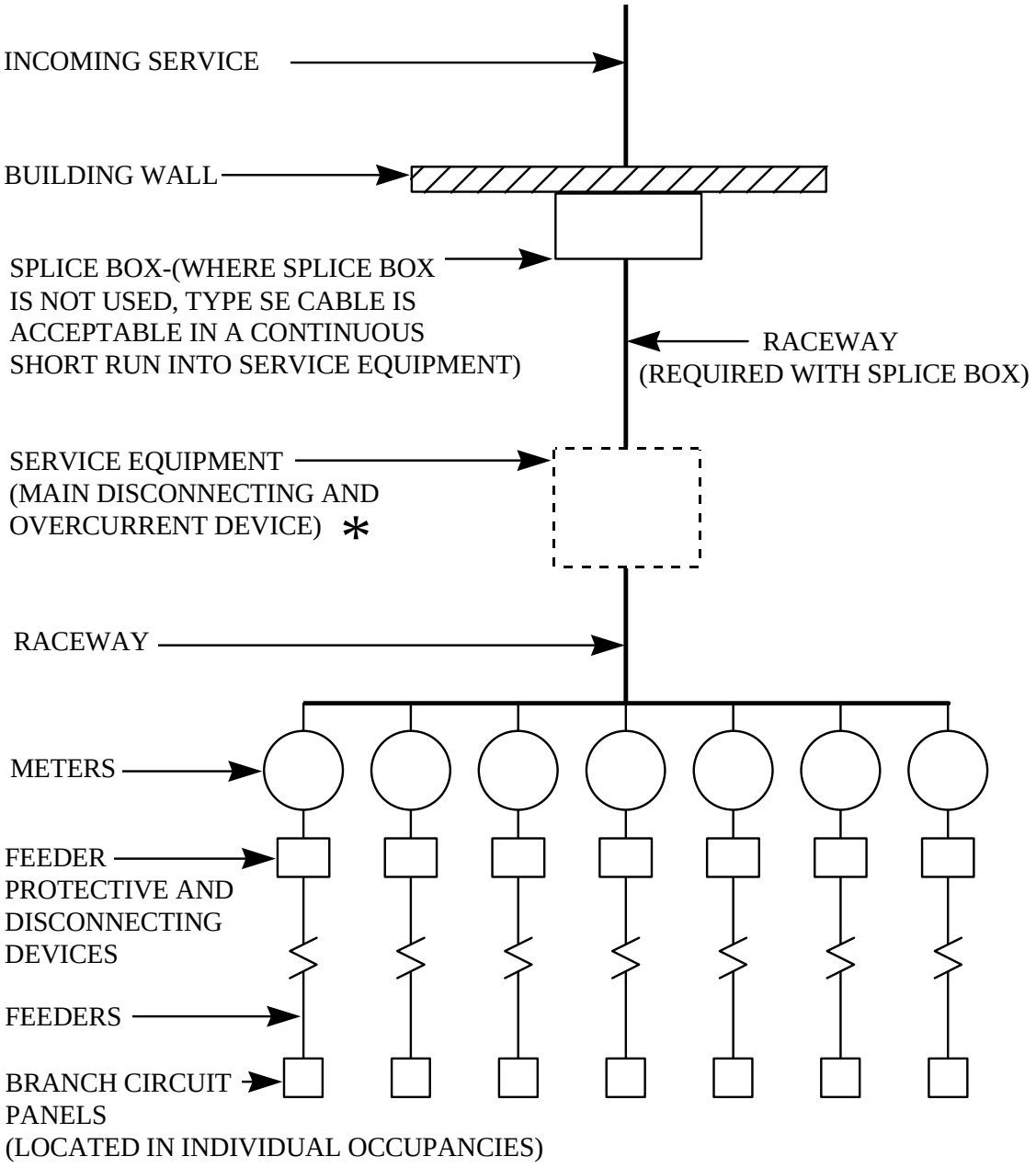


Figure 8.01

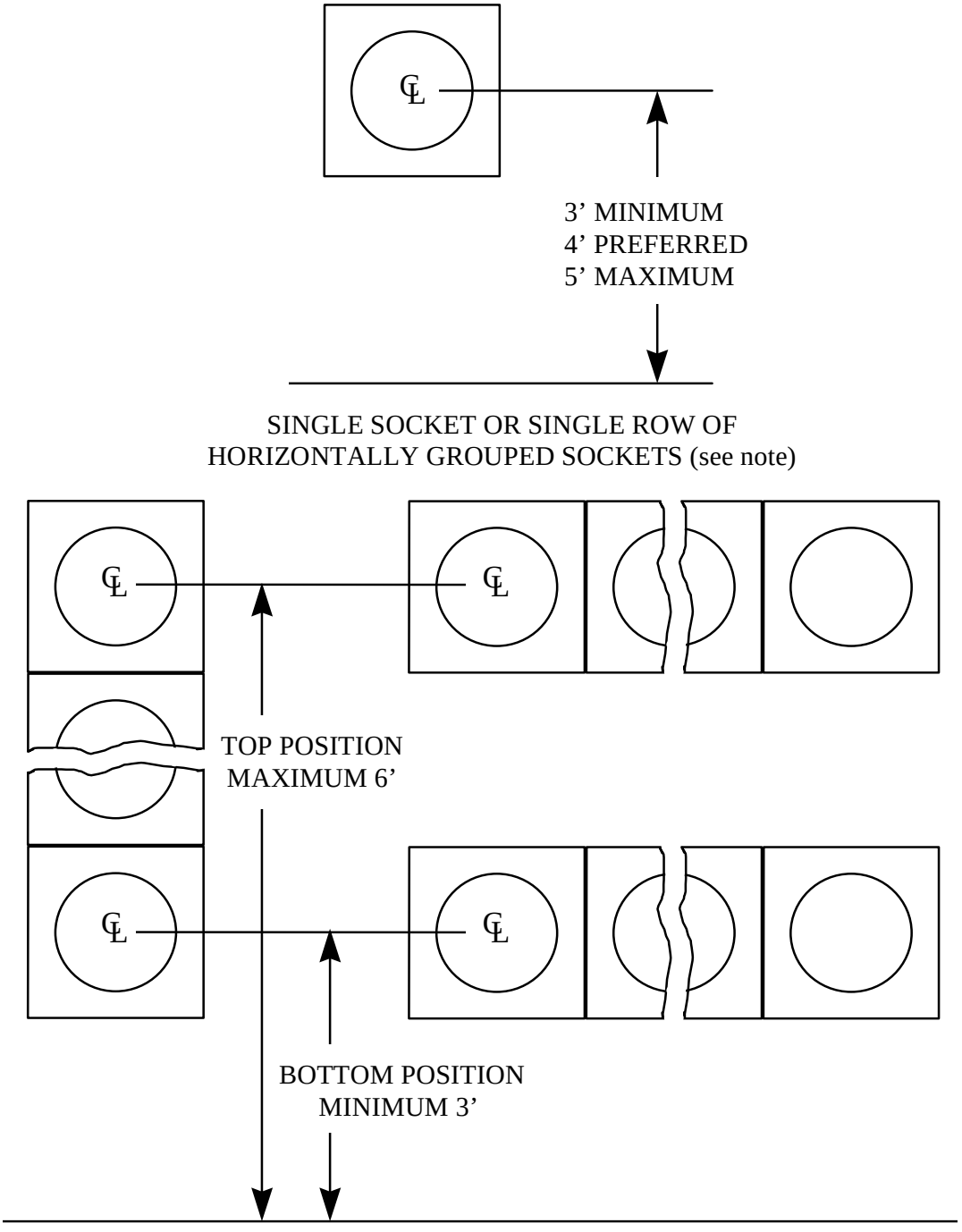
SEQUENCE OF METERING AND SERVICE EQUIPMENT
GROUPED FOR MULTIPLE OCCUPANCIES



* FOR MORE THAN 6 METERS, A MAIN DISCONNECTING AND OVERCURRENT DEVICE MAY BE USED TO COMPLY WITH THE N.E.C.

Figure 8.02

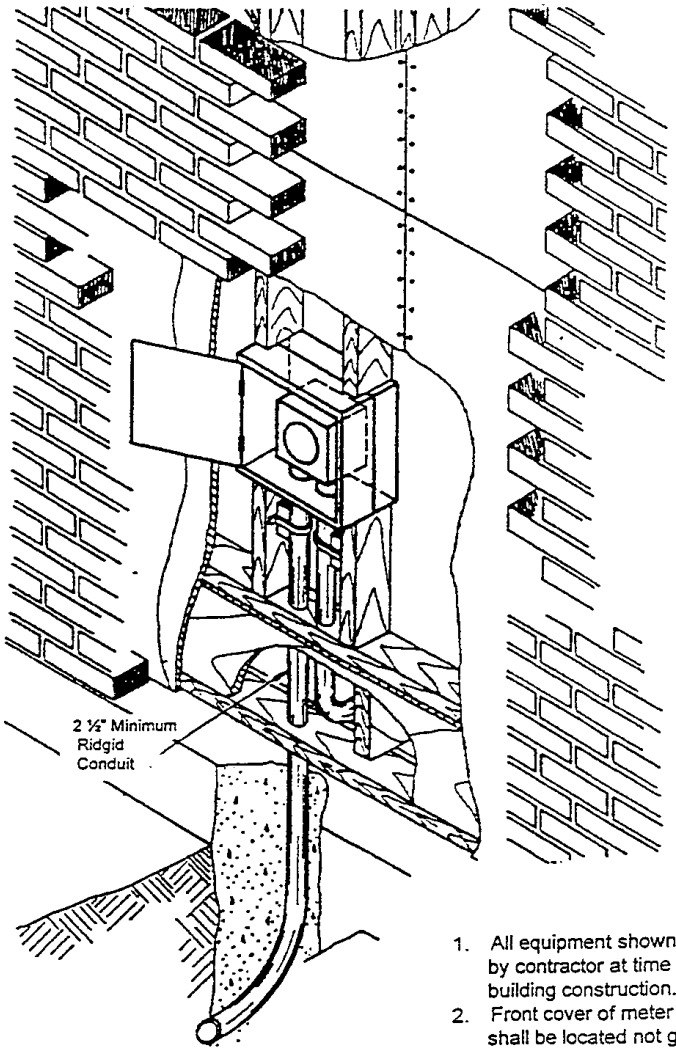
MOUNTING HEIGHT OF METER SOCKETS
INDOOR AND OUTDOOR



Note: Three feet of clear working space must be maintained in front of each meter.

Figure 8.03

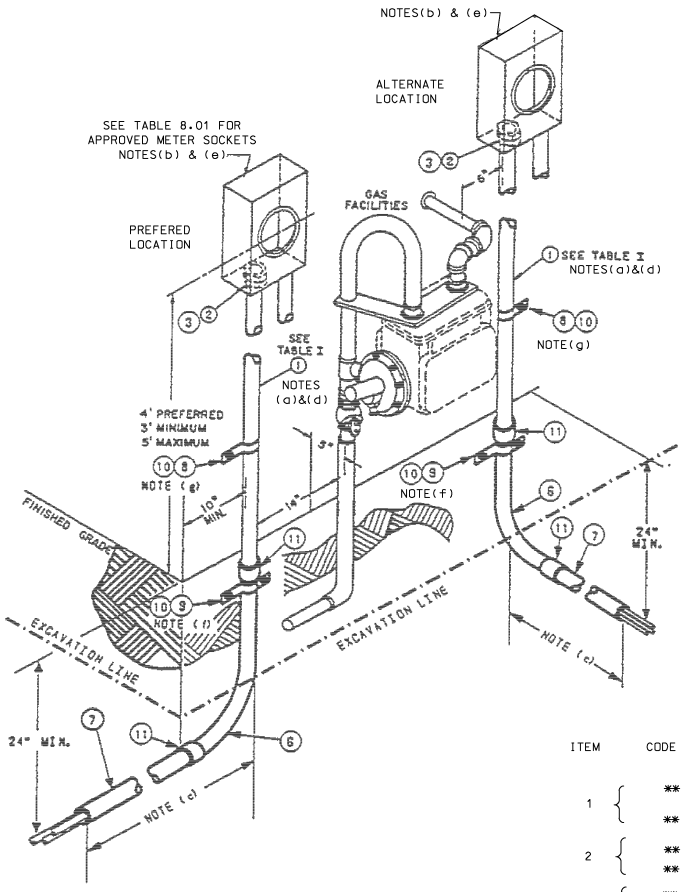
RECESSED INSTALLATION
SINGLE-PHASE RESIDENTAL
UNDERGROUND SERVICE



1. All equipment shown installed by contractor at time of building construction.
2. Front cover of meter socket shall be located not greater than 14" nor less than 10" from the door of the enclosure.

Figure 8.04

<u>NOTE</u>: MAINTENANCE ONLY- NOT FOR NEW CONSTRUCTION



NOTES

(a) CONDUIT AND STRAPS TO BE PROVIDED BY DEVELOPER.

(b) APPROVED PECO METER SOCKET TO BE PROVIDED BY DEVELOPER.

(c) EXTEND CONDUIT (ITEM 7) TO UNDISTRUBED EARTH 2'-0" BEYOND EXCAVATION LINE.

(d) USE CEMENT (ITEM 4) ON ALL CONDUIT JOINTS.

(e) CLEAN ALL CONDUCTORS, COAT WITH COMPOUND (ITEM 5). THEN TIGHTEN METER CONNECTION FIRMLY.

(f) INSTALL STRAP (ITEM 9) JUST BELOW BEND COUPLING. ANCHOR SECURELY INTO MASONRY USING ITEM 10.

(g) INSTALL N.E.C. CONDUIT STRAP (ITEM 8) APPROX. HALF WAY UP EXPOSED CONDUIT. ANCHOR SECURELY INTO WALL USING ITEM 10.

100A	2 1/2"	3-#2AL.
200A	2 1/2"	3-#2/0AL.
300A	2 1/2"	2-#4/0AL.&1-2/0AL.
400A	3"	2-350kcmil AL.&1-4/0AL
400A	3"	2-500kcmil AL.& 1-4/0AL

INSTALLED BILL OF MATERIAL

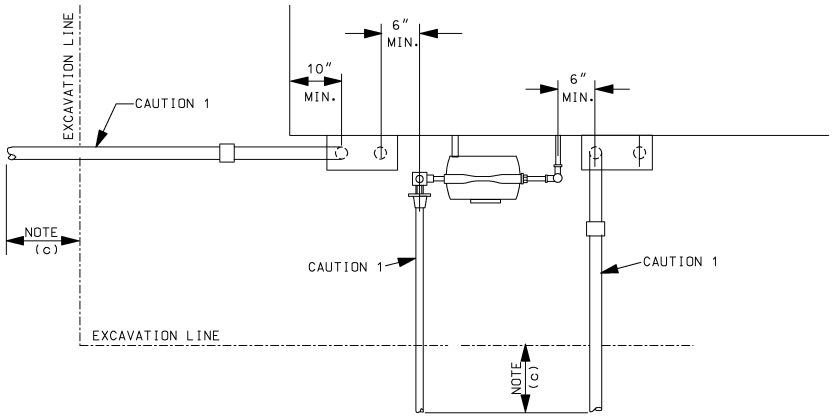
ITEM	CODE NO.	DESCRIPTION	QUANITY
1	**	RISER, $2^1/_2$" X 10' PVC W/TERM ADAPTER	1
	**	RISER, 3" X 10' PVC W/TERM ADAPTER	
2	**	LOCKNUT $2^1/_2$"	1
	**	LOCKNUT 3"	
3	**	$2^1/_2$" PVC TERMINAL ADAPTER	*
	**	3" PVC TERMINAL ADAPTER	
4	**	PVC CEMENT, PINT	*
5		COMPOUND, ELECTRICAL CONNECTION	*
6	**	$2^1/_2$" 90 BEND 18" MIN. R	1
	**	3" 90 BEND 18" MIN. R.	
7	**	$2^1/_2$" S40 CONDUIT	1
	**	3" S40 CONDUIT	
8	**	N.E.C. CONDUIT STRAP	1
9	**	GALV. HEAVY GAUGE 2 HOLE STRAP	1
10	**	$^3/_8$" GALV. FASTNER	*
11	**	$2^1/_2$" S40 CONDUIT COUPLINGS	*
		3" S40 CONDUIT COUPLINGS	

*AS REQUIRED
**SUPPLIED BY DEVELOPER

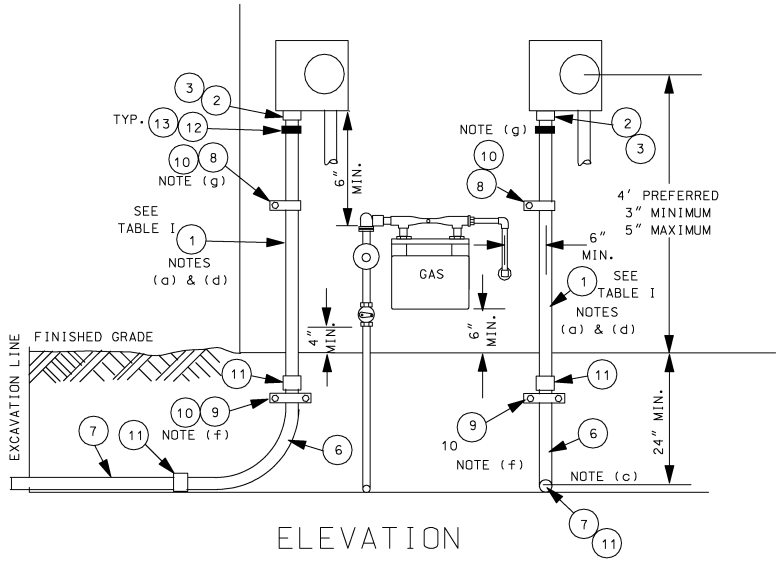
UNDERGROUND RESIDENTIAL DIST. SECONDARY SERVICE INSTALLATION

Figure 8.05

Ref. Constr. Std.S-5537/G-2600



PLAN VIEW



ELEVATION

TABLE 1

100A 2 1/2"	3-#2AL.
200A 2 1/2"	3-#2/0AL.
300A 2 1/2"	2-#4/0AL.&1-2/0AL.
400A 3"	2-350kcmil AL.&1-4/0AL
400A 3"	2-500kcmil AL.& 1-4/0AL

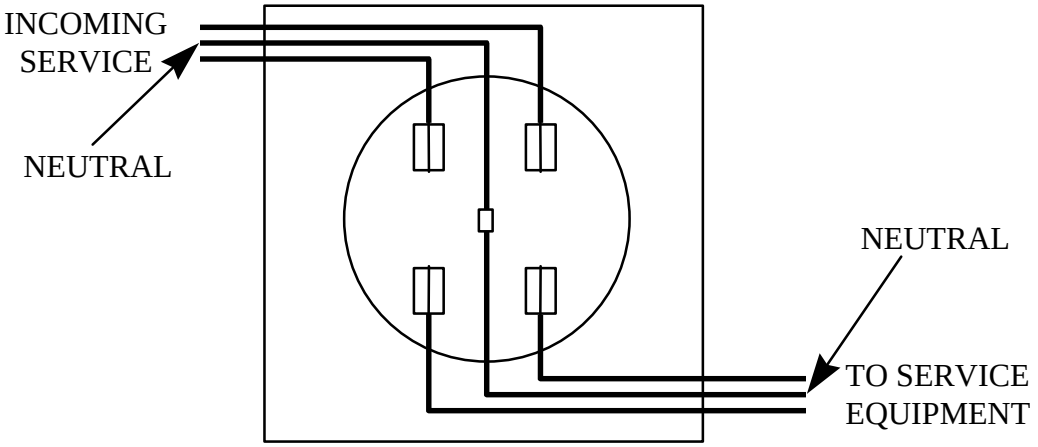
UNDERGROUND RESIDENTIAL DIST. SECONDARY SERVICE INSTALLATION

Figure 8.05-A

Ref. Constr. Std.S-5537/G-2600

SINGLE PHASE METER SOCKET CONNECTIONS

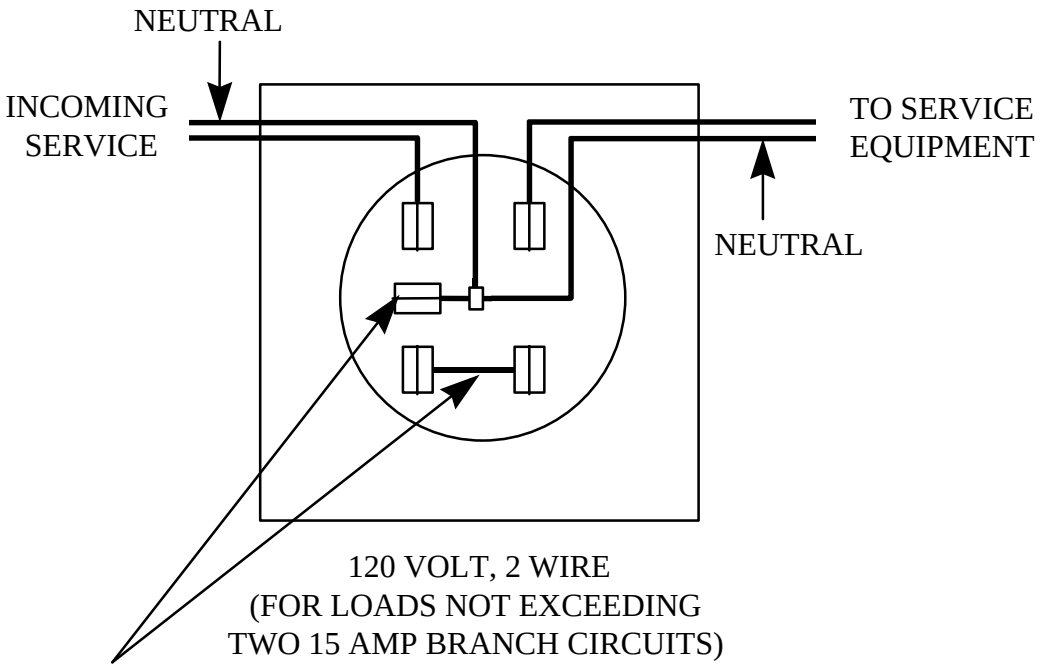
APPLY TAPE TO BARE NEUTRAL INSIDE METER SOCKETS



120/240 VOLT, 3 WIRE

Figure 8.06-A

NOTE: MAINTENANCE ONLY – NOT FOR NEW CONSTRUCTION



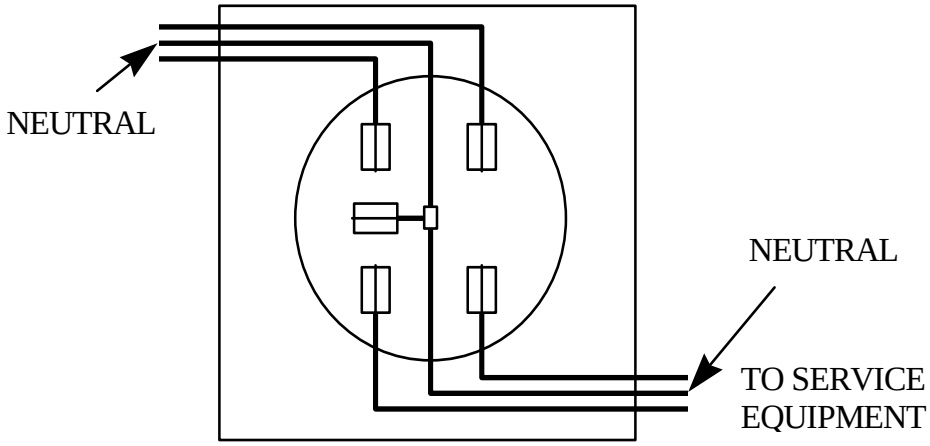
120 VOLT, 2 WIRE
(FOR LOADS NOT EXCEEDING
TWO 15 AMP BRANCH CIRCUITS)

NOTE:
CONTRACTOR TO SUPPLY AND INSTALL 5TH JAW,
14 AWG CONNECTION TO NEUTRAL TERMINAL, AND
10 AWG MINIMUM JUMPER ACROSS LOWER JAWS AS SHOWN.

Figure 8.06-B

SINGLE PHASE 120/208 VOLT METER SOCKET CONNECTIONS FOR RESIDENTIAL APPLICATIONS

INCOMING SERVICE
120/208 VOLT, 3 WIRE
SERVICE FROM 3 PHASE
4 WIRE WYE SYSTEM.



APPLY TAPE TO BARE NEUTRAL INSIDE METER

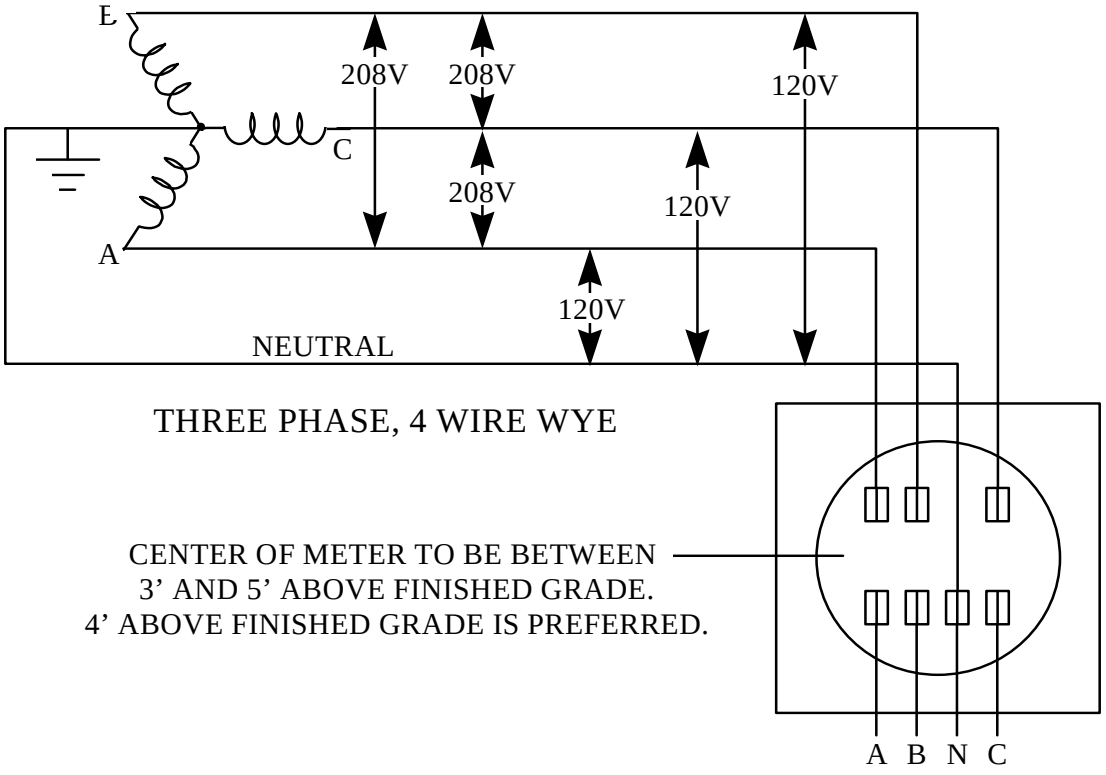
FOR METERING NETWORK 120/208 VOLT SERVICE WHEN DERIVED
2 PHASES OF A 3 PHASE, 4 WIRE WYE SYSTEM.

CONTRACTOR TO SUPPLY AND INSTALL 5TH JAW AND CONNECTION TO NEUTRAL TERMINAL WITH #14 AWG WIRE.

NOTE:
PRIOR TO PURCHASING EQUIPMENT OR INSTALLING THESE METER CHECK WITH COMPANY TO DETERMINE AVAILABILITY OF THIS VOLTAGE.

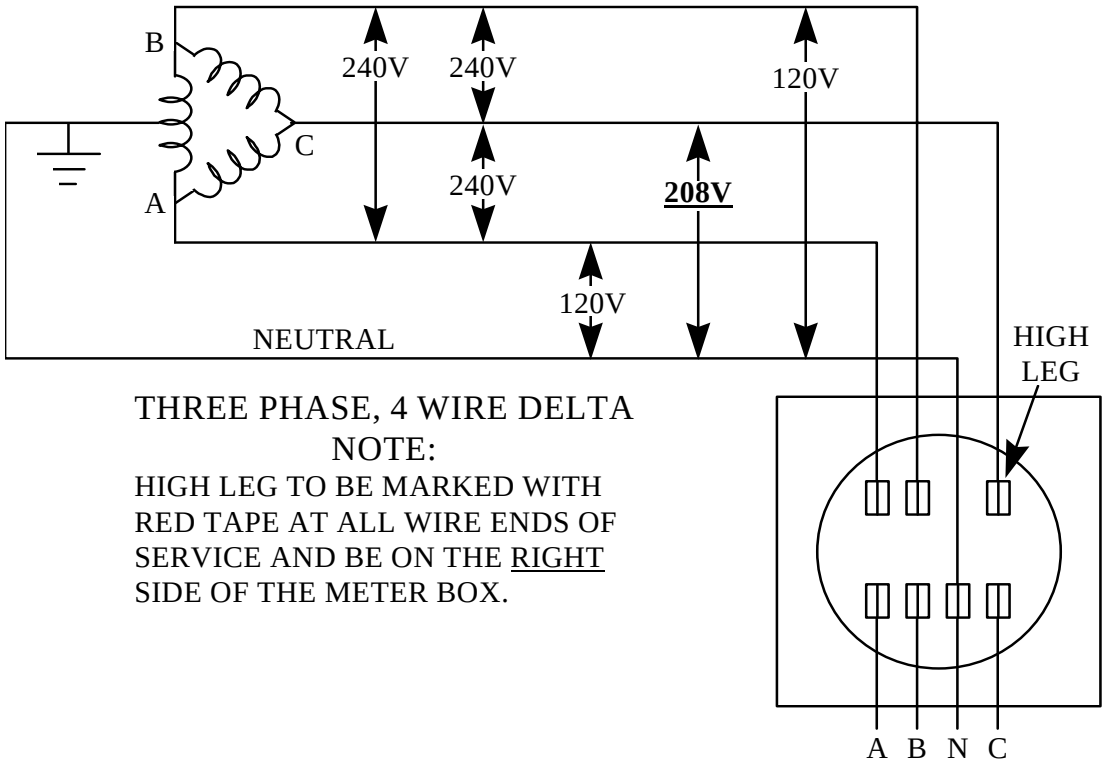
Figure 8.07

THREE PHASE METER SOCKET CONNECTIONS



THREE PHASE, 4 WIRE WYE

CENTER OF METER TO BE BETWEEN
3' AND 5' ABOVE FINISHED GRADE.
4' ABOVE FINISHED GRADE IS PREFERRED.



THREE PHASE, 4 WIRE DELTA

NOTE:
HIGH LEG TO BE MARKED WITH RED TAPE AT ALL WIRE ENDS OF SERVICE AND BE ON THE RIGHT SIDE OF THE METER BOX.

Figure 8.08

TWO PHASE, FIVE WIRE, SELF-CONTAINED METERING INSTALLATION

MAINTENANCE ONLY
NOT FOR NEW CONSTRUCTION

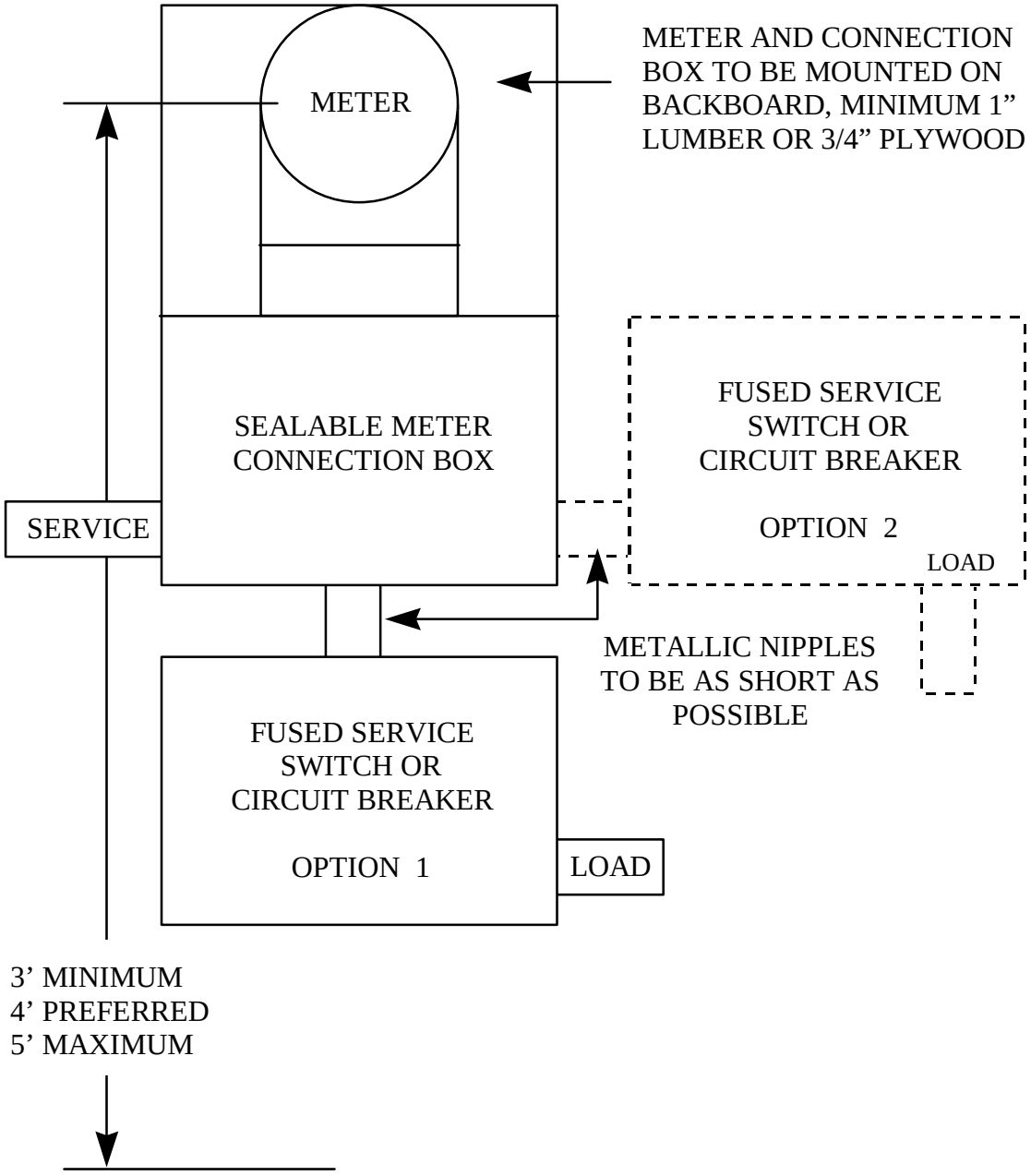
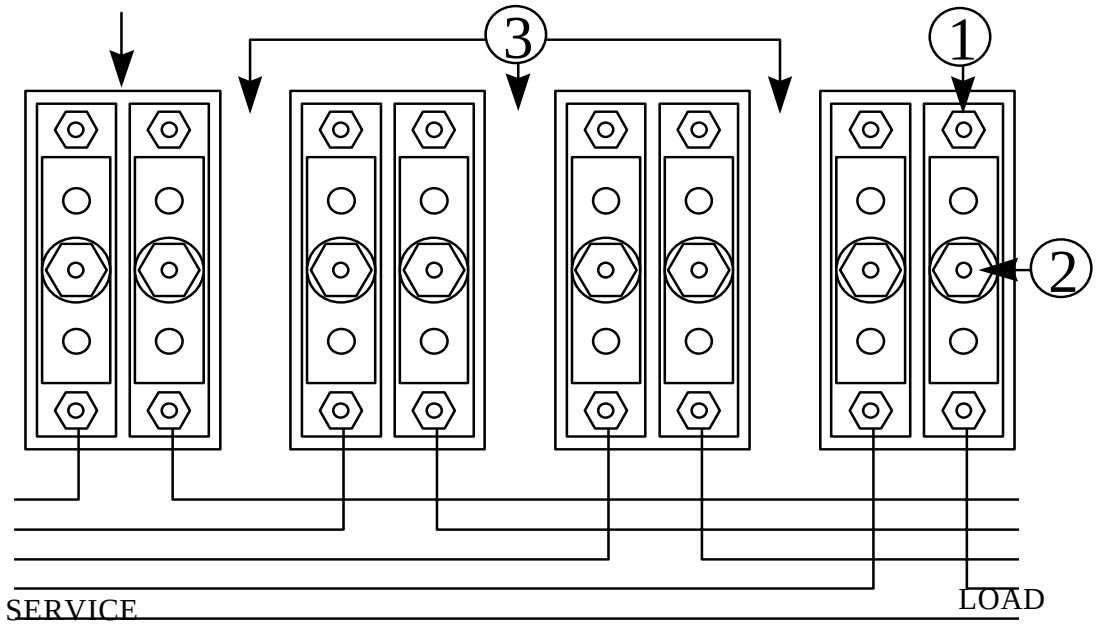


Figure 8.09

SERVICE AND METER CONNECTION BLOCK
TWO PHASE, FIVE WIRE, SELF-CONTAINED
METERING INSTALLATIONS
MAINTENANCE ONLY - NOT FOR NEW CONSTRUCTION

CERAMIC MATERIAL OR EQUIVALENT REQUIRED FOR BLOCK BASE



100 AMPHERE TERMINAL BLOCKS

NOTES:

1. 1/2” HEXAGON NUTS AND AT LEAST 3/8” OF EXCESS STUD TO PROVIDED ON EACH WIRE TERMINAL, UNLESS SPARE FOR BRIDGING PURPOSES ARE PROVIDED. THESE STUDS MAY EITHER 12-24 OR 1/4”-20 THREAD.

2. 1/2” HEXAGON DISCONNECT NUTS OR REMOVABLE LINKS MAY BE USED.

3. 3/4” MINIMUM CLEARANCE BETWEEN BLOCKS EQUIPPED DISCONNECT STUDS AND NUTS, OR A MINIMUM CLEARANCE BETWEEN BLOCKS EQUIPPED WITH REMOVABLE LINKS EXCEEDS THE LENGTH OF THE REMOVABLE LINKS, IS UNLESS AN ADEQUATE INSULATING BARRIER EXTENDING TO TOP TERMINALS IS PROVIDED AT EACH OF THESE

4. ALL STUDS AND NUTS TO BE MADE OF CORROSION RESISTANT MATERIAL OR ADEQUATELY

5. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CONDUCTORS.

Figure 8.10

CURRENT TRANSFORMER METERING INSTALLATION
SINGLE PHASE SERVICE
120/240 VOLT 3 WIRE SERVICES IN EXCESS OF 400 AMPS*
(*Can be used for 400 Amp Service upon Company Approval)

UNDERGROUND OR AERIAL INSTALLATION

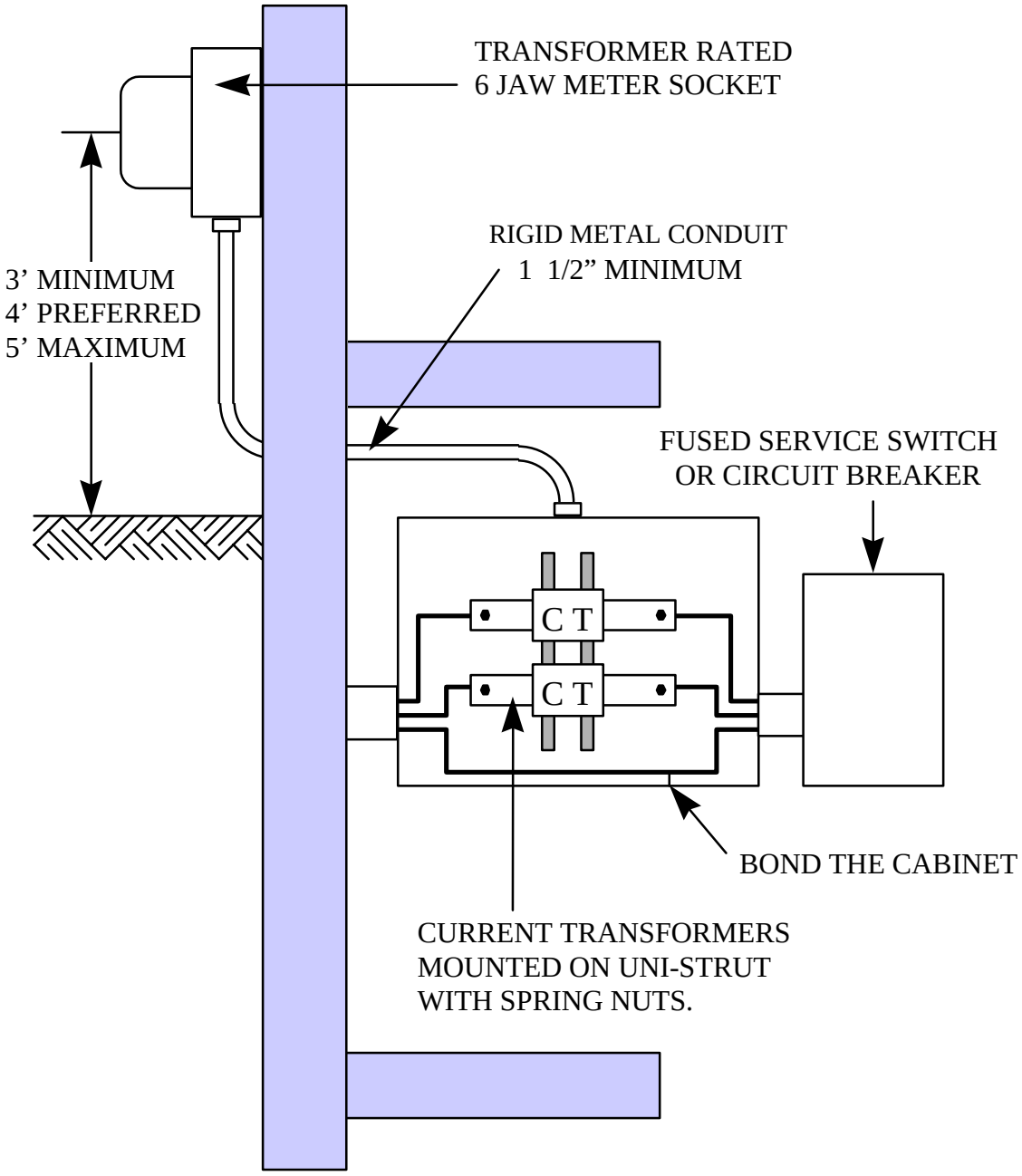


Figure 8.11

CURRENT TRANSFORMER METERING INSTALLATION
SINGLE PHASE 120/240 VOLT 3 WIRE.

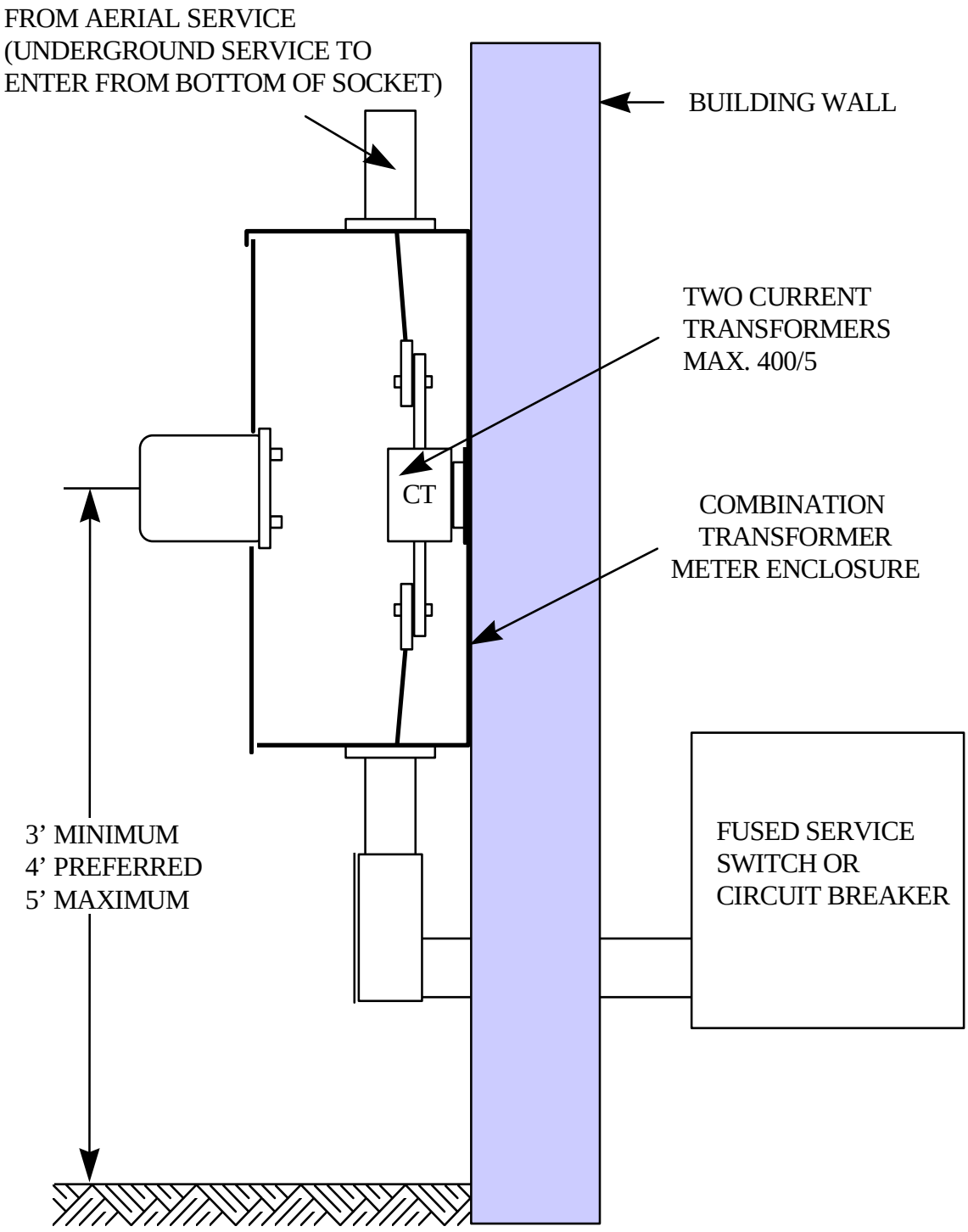


Figure 8.12

THIS FIGURE HAS BEEN DELETED

Figure 8.13

THIS FIGURE HAS BEEN DELETED

Figure 8.14

CURRENT TRANSFORMER METERING INSTALLATION
2 PHASE 120/240 VOLT 5 WIRE

ELECTRICIAN TO INSTALL EVERYTHING SHOWN.

PECO WILL SUPPLY METER, BOARD, & C.T.'S

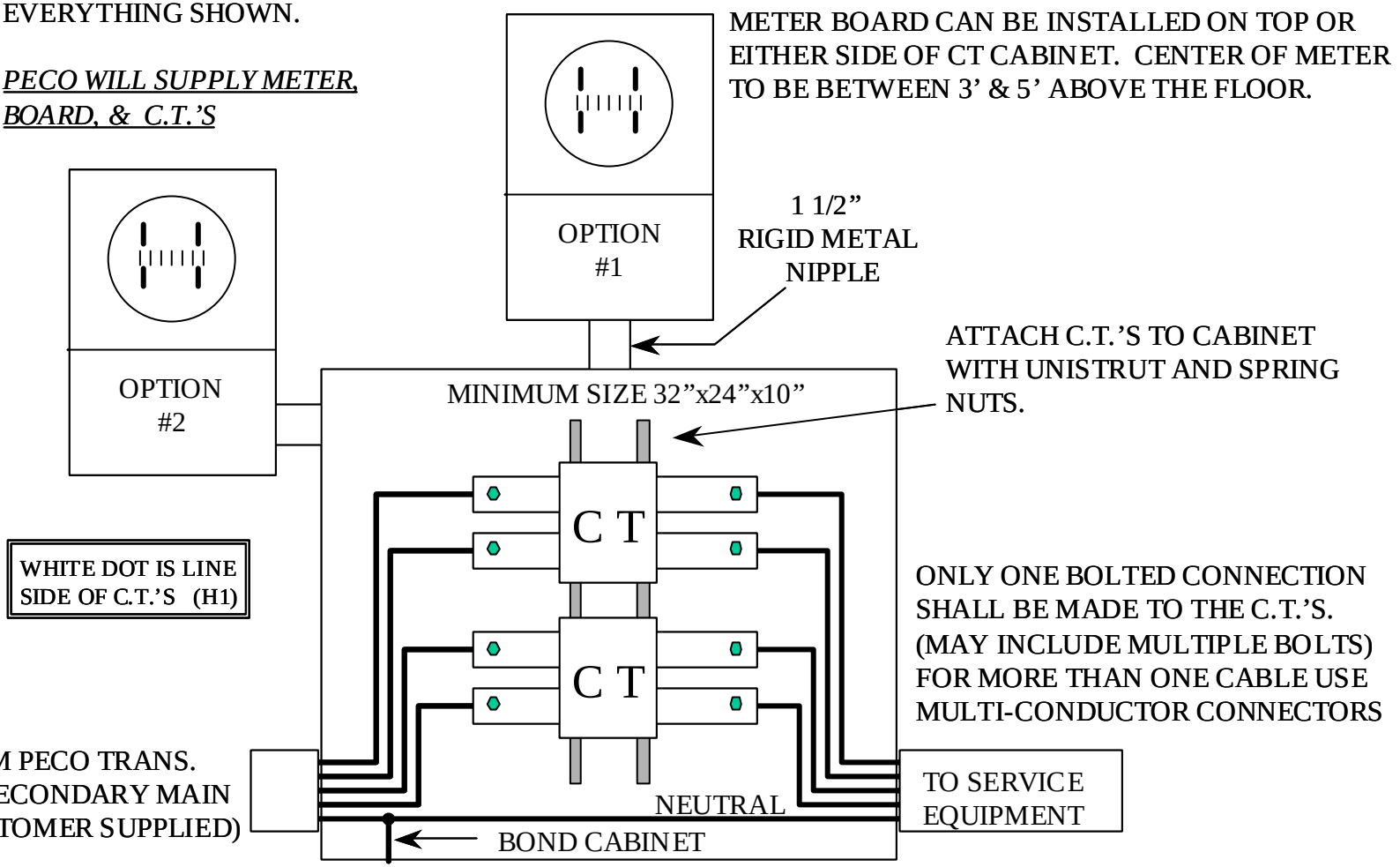
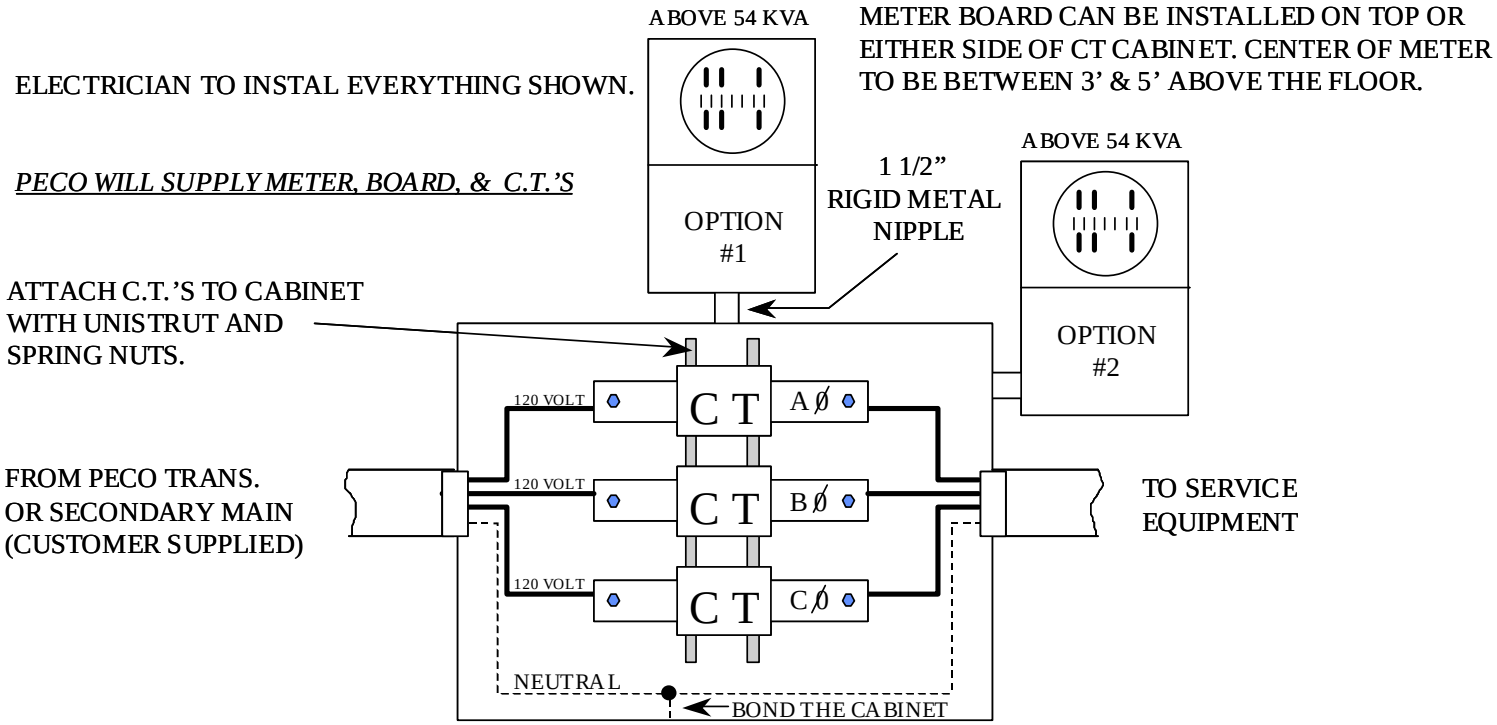


Figure 8.15

COMMERCIAL CUSTOMER, 3 PHASE 120/208 VOLT
RATE CM (INDOOR METER)



(DRAWING FOR REFERENCE ONLY) NOT DRAWN TO SCALE
CONDUIT MAY ENTER CABINET FROM SIDES, BACK, OR BOTTOM

Figure 8.16

SINGLE COMMERCIAL CUSTOMER, 3 PHASE 120/208 VOLT
RATE CM (OUTDOOR METERING)

PECO WILL INSTALL TRANSFORMER ON PAD, CONTRACTOR TO SUPPLY PRIMARY AND SECONDARY CABLES AND MAKE ALL CONNECTIONS. *PECO WILL SUPPLY METER BOARD AND C.T.'S* (CONTRACTOR TO INSTALL EVERY THING SHOWN)

METER BOARD TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TW0 3" PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. CENTER OF METER TO BE BETWEEN 3' AND 5' ABOVE GROUND.

ONLY ONE BOLTED CONNECTION SHALL BE MADE TO THE C.T.'S. (MAY INCLUDE MULTIPLE BOLTS) FOR MORE THAN ONE CABLE USE MULTI-CONDUCTOR CONNECTORS.

WHITE DOT IS LINE SIDE OF C.T.'S (H1)

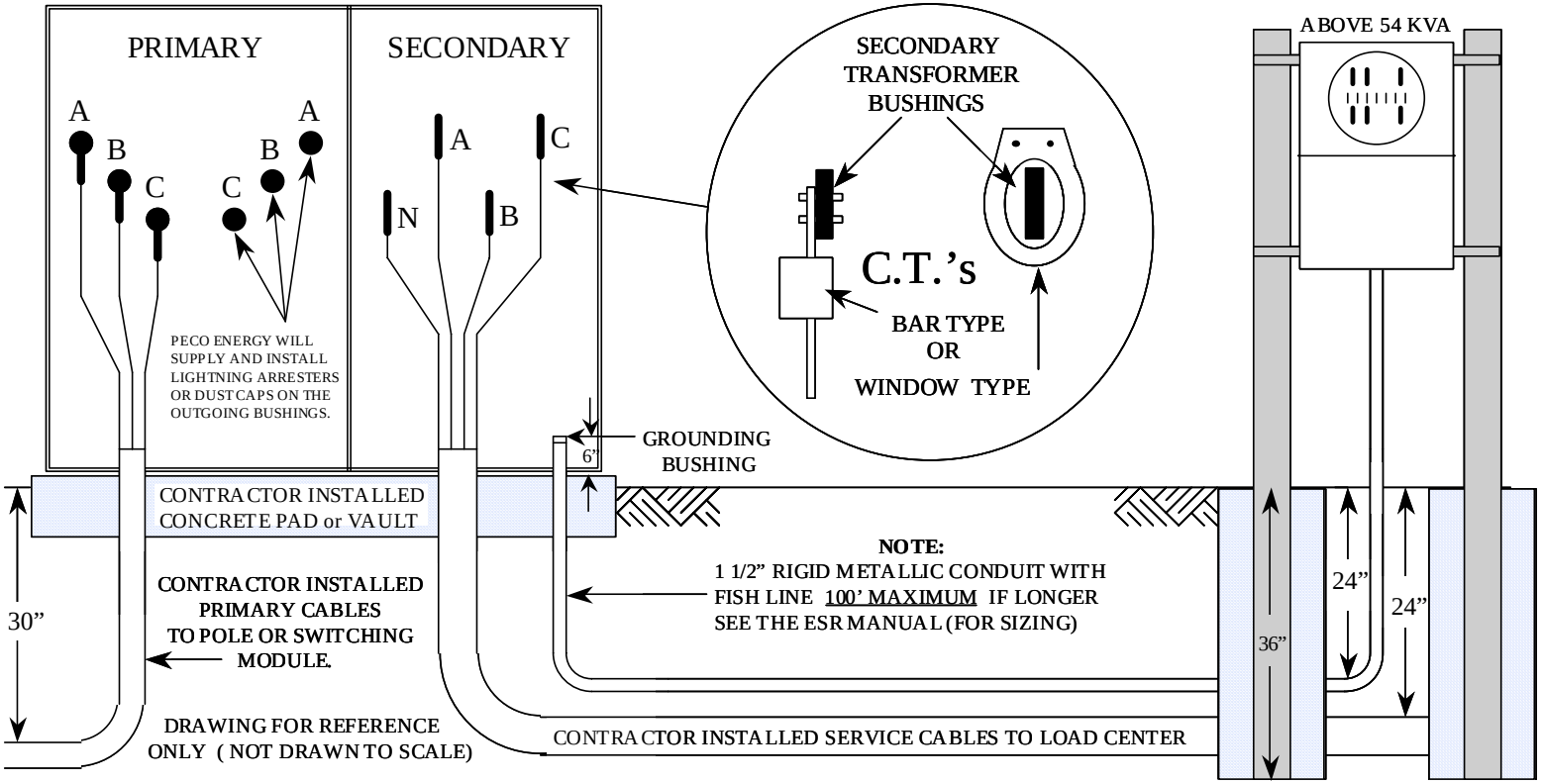
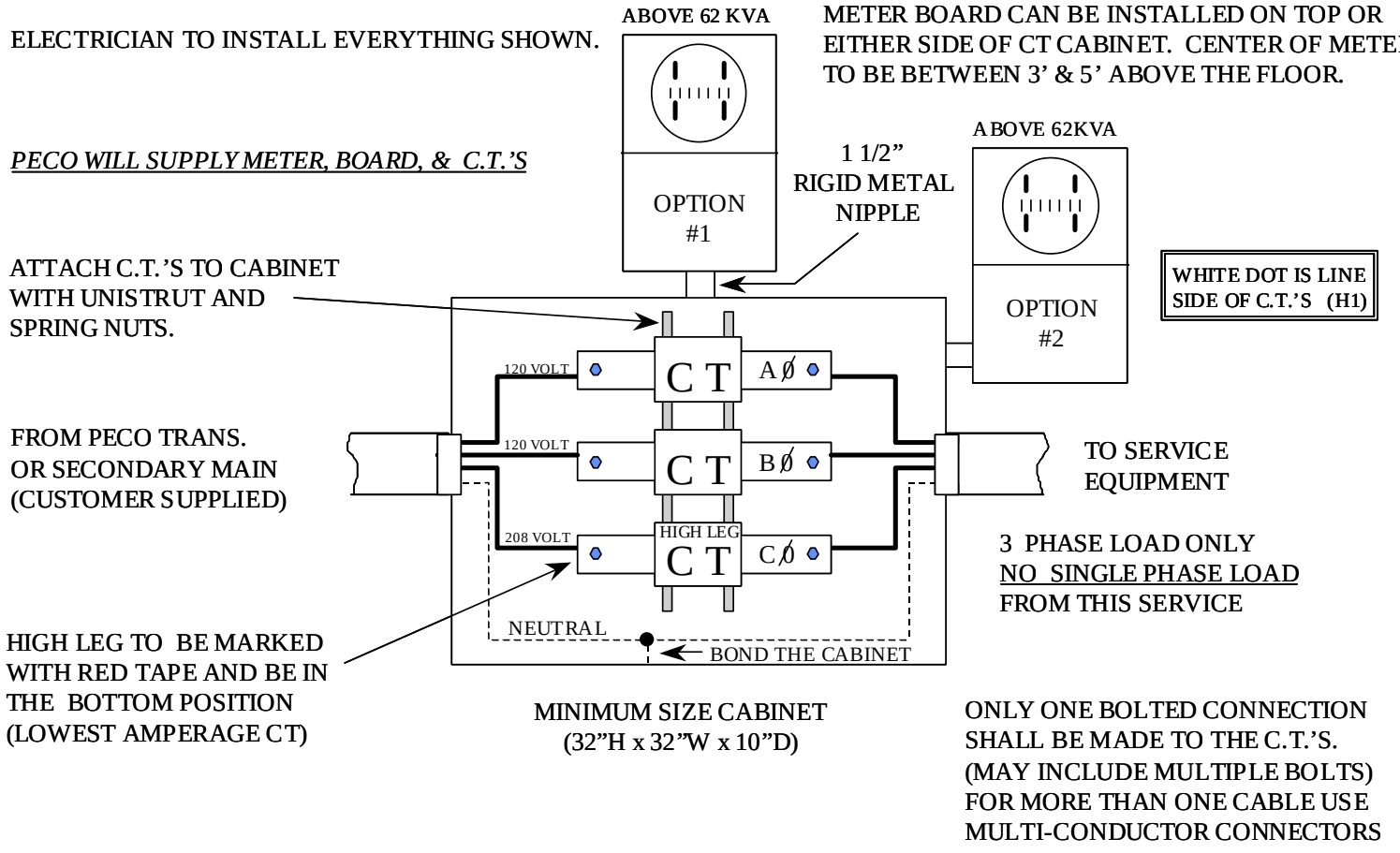


Figure 8.17

COMMERCIAL CUSTOMER, 3 PHASE 240 VOLT 4 WIRE DELTA RATE CM (INDOOR METER)



(DRAWING FOR REFERENCE ONLY) NOT DRAWN TO SCALE
CONDUIT MAY ENTER CABINET FROM SIDES, BACK, OR BOTTOM

Figure 8.18

SINGLE COMMERCIAL CUSTOMER, **3 PHASE 240 VOLT DELTA**
RATE CM (OUTDOOR METERING) 13KV DISTRIBUTION AREA ONLY

PECO WILL INSTALL TRANSFORMER ON PAD, CONTRACTOR TO SUPPLY PRIMARY AND SECONDARY CABLES AND MAKE ALL CONNECTIONS. *PECO WILL SUPPLY METER BOARD AND C.T.'S* (CONTRACTOR TO INSTALL EVERY THING SHOWN)

METER BOARD TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TW0 3" PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. CENTER OF METER TO BE BETWEEN 3' AND 5' ABOVE GROUND.

ONLY ONE BOLTED CONNECTION SHALL BE MADE TO THE C.T.'S. (MAY INCLUDE MULTIPLE BOLTS) FOR MORE THAN ONE CABLE USE MULTI-CONDUCTOR CONNECTORS.

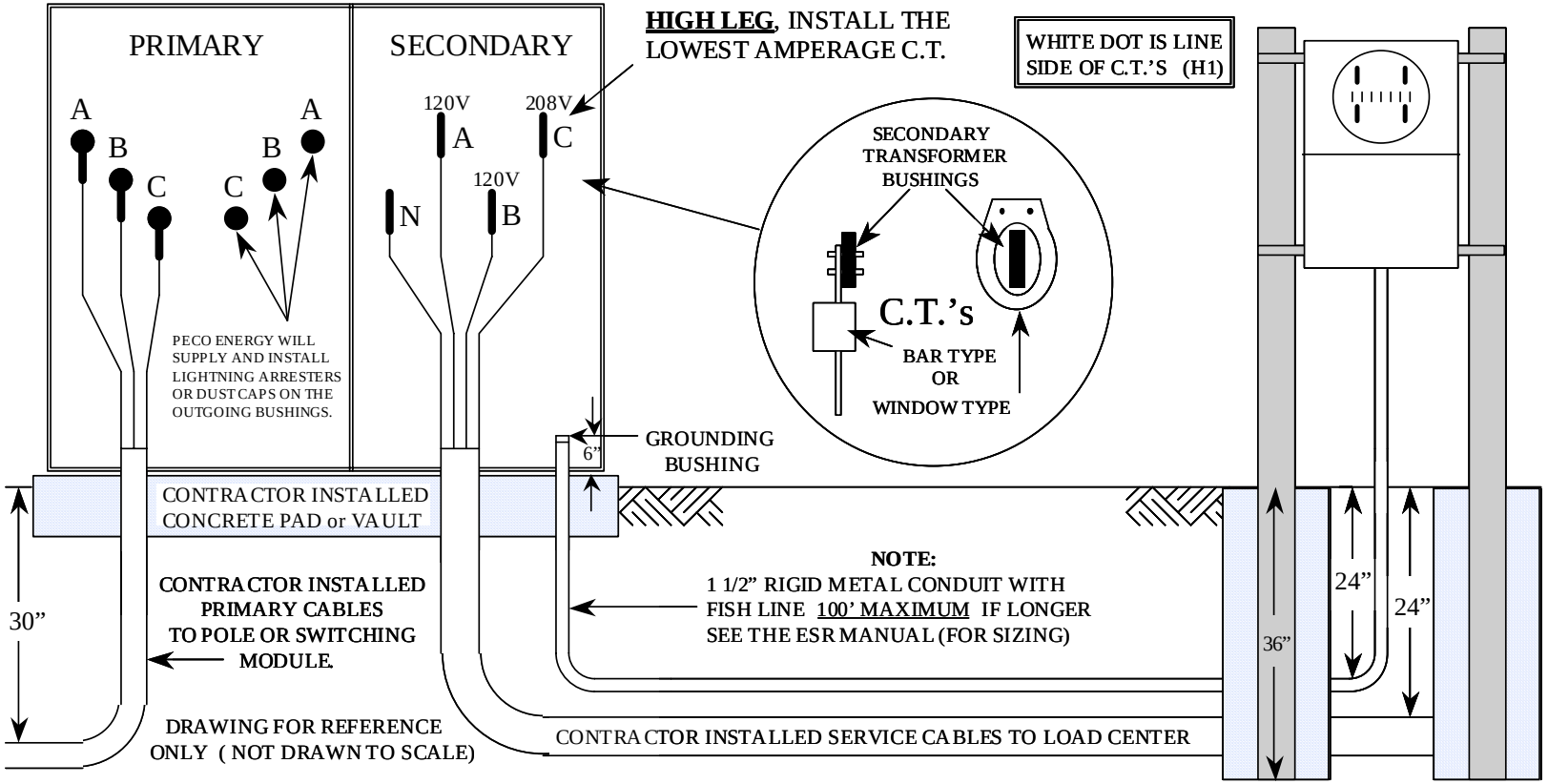


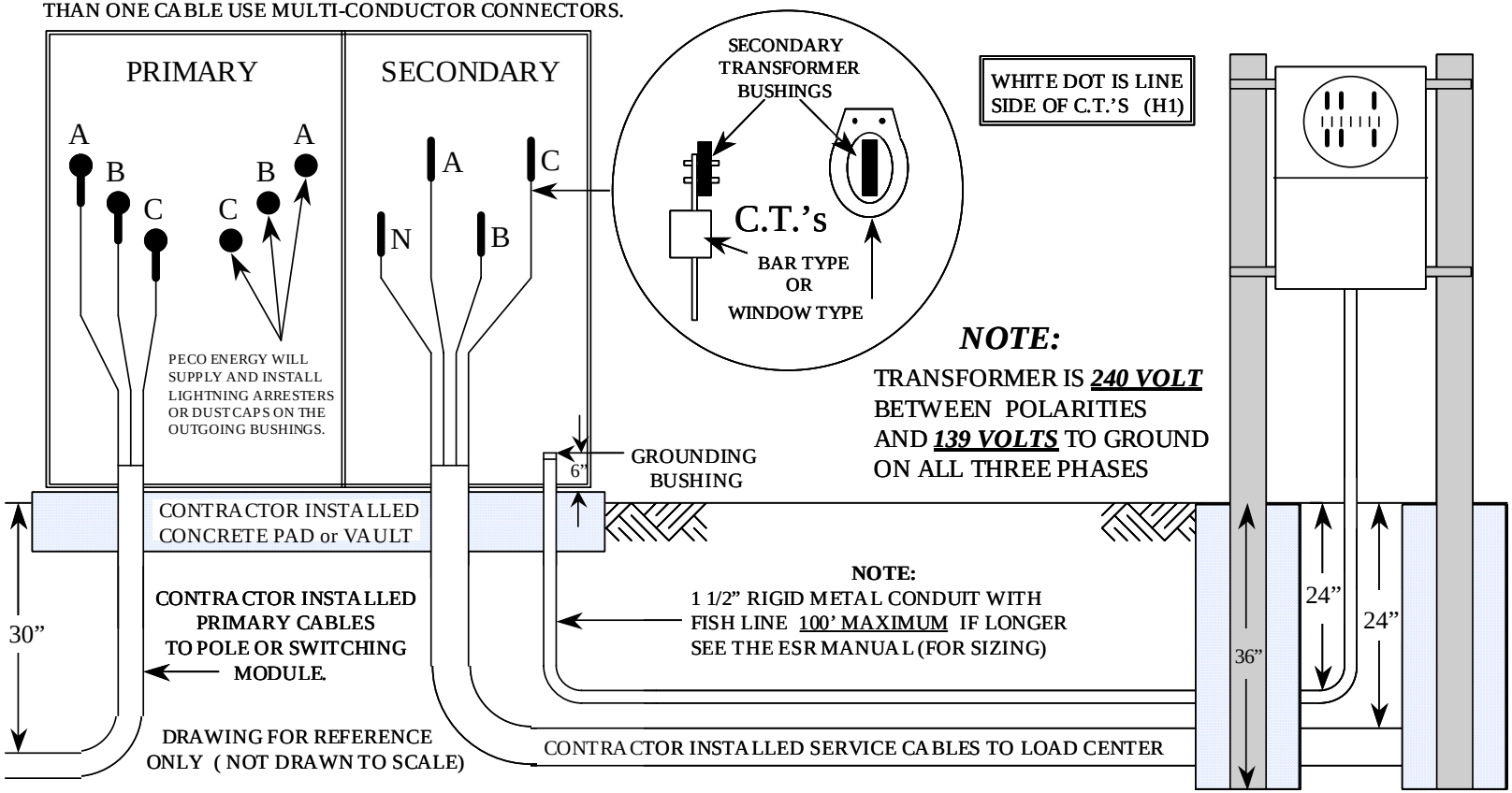
Figure 8.19

SINGLE COMMERCIAL CUSTOMER, **3 PHASE 240 VOLT <u>GROUNDED WYE</u>**
<u>RATE CM</u> (OUTDOOR METERING) 34KV DISTRIBUTION AREA ONLY

<u>PECO WILL INSTALL TRANSFORMER ON PAD</u>, CONTRACTOR TO SUPPLY PRIMARY AND SECONDARY CABLES AND MAKE ALL CONNECTIONS. *<u>PECO WILL SUPPLY METER BOARD AND C.T,'S</u>* (CONTRACTOR TO INSTALL EVERY THING SHOWN)

METER BOARD TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TW0 3" PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. CENTER OF METER TO BE BETWEEN 3' AND 5' ABOVE GROUND.

ONLY ONE BOLTED CONNECTION SHALL BE MADE TO THE C.T.'S. (MAY INCLUDE MULTIPLE BOLTS) FOR MORE THAN ONE CABLE USE MULTI-CONDUCTOR CONNECTORS.



NOTE:

TRANSFORMER IS ***<u>240 VOLT</u>*** BETWEEN POLARITIES AND ***<u>139 VOLTS</u>*** TO GROUND ON ALL THREE PHASES

Figure 8.20

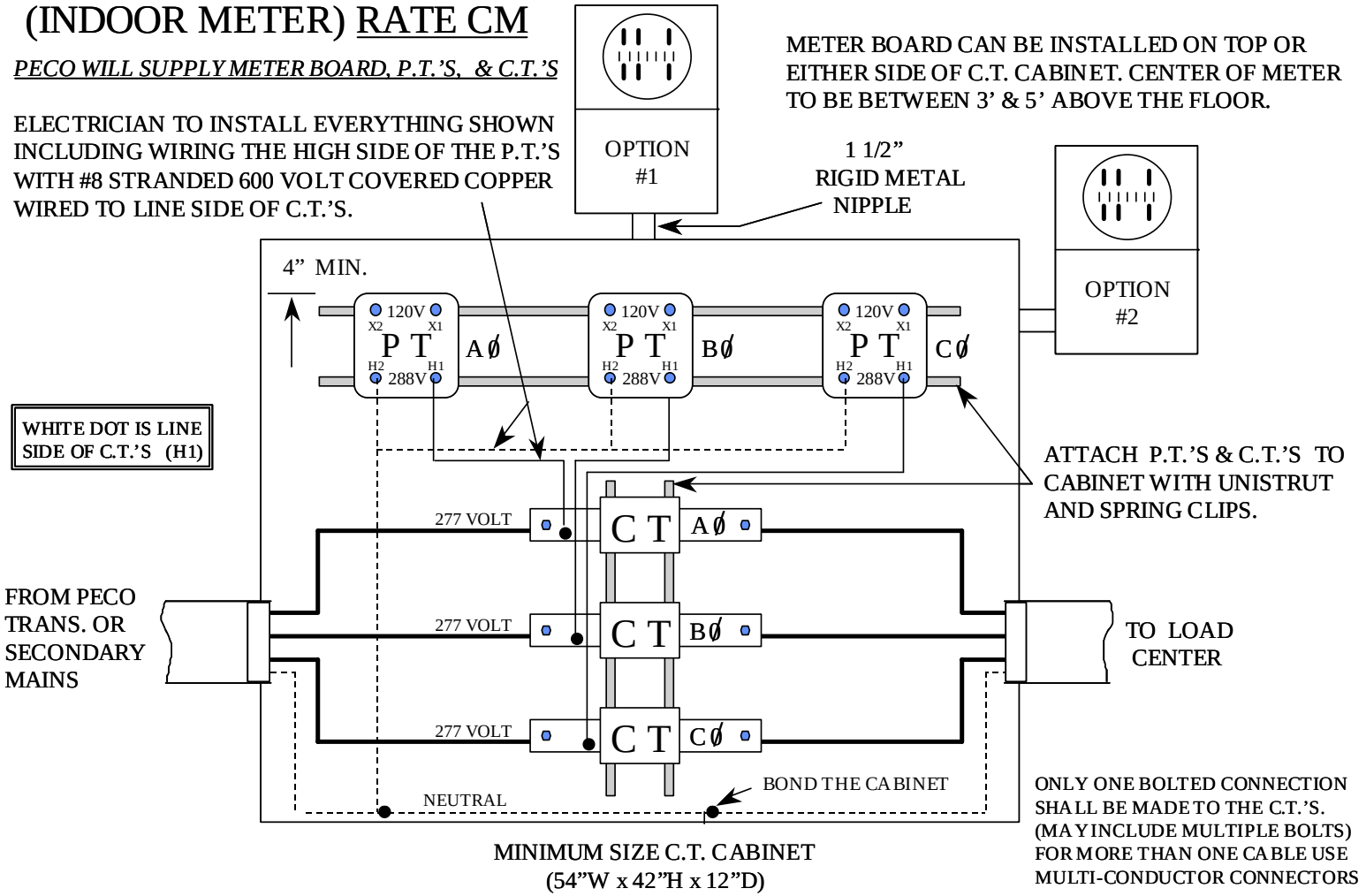
COMMERCIAL CUSTOMER, 3 PHASE 277/480 VOLT

(INDOOR METER) RATE CM

PECO WILL SUPPLY METER BOARD, P.T.'S, & C.T.'S

ELECTRICIAN TO INSTALL EVERYTHING SHOWN INCLUDING WIRING THE HIGH SIDE OF THE P.T.'S WITH #8 STRANDED 600 VOLT COVERED COPPER WIRED TO LINE SIDE OF C.T.'S.

METER BOARD CAN BE INSTALLED ON TOP OR EITHER SIDE OF C.T. CABINET. CENTER OF METER TO BE BETWEEN 3' & 5' ABOVE THE FLOOR.



MINIMUM SIZE C.T. CABINET
(54"W x 42"H x 12"D)

(DRAWING FOR REFERENCE ONLY) NOT DRAWN TO SCALE
CONDUIT MAY ENTER CABINET FROM SIDES, BACK, OR BOTTOM

Figure 8.21

SINGLE COMMERCIAL CUSTOMER, 3 PHASE 277/480 VOLT
RATE CM OUTDOOR METERING

PECO WILL INSTALL TRANSFORMER ON PAD, CONTRACTOR TO SUPPLY PRIMARY AND SECONDARY CABLE AND MAKE ALL CONNECTIONS. *PECO WILL SUPPLY METER BOARD, P.T.'S AND C.T.'S* CONTRACTOR TO INSTALL EVERYTHING SHOWN INCLUDING WIRING THE HIGH SIDE OF THE P.T.'S WITH #8 STRANDED 600 VOLT COVERED COPPER. WIRED TO LINE SIDE OF C.T.'S,

METER BOARD TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TW0 3" PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. CENTER OF METER TO BE BETWEEN 3' AND 5' ABOVE GROUND.

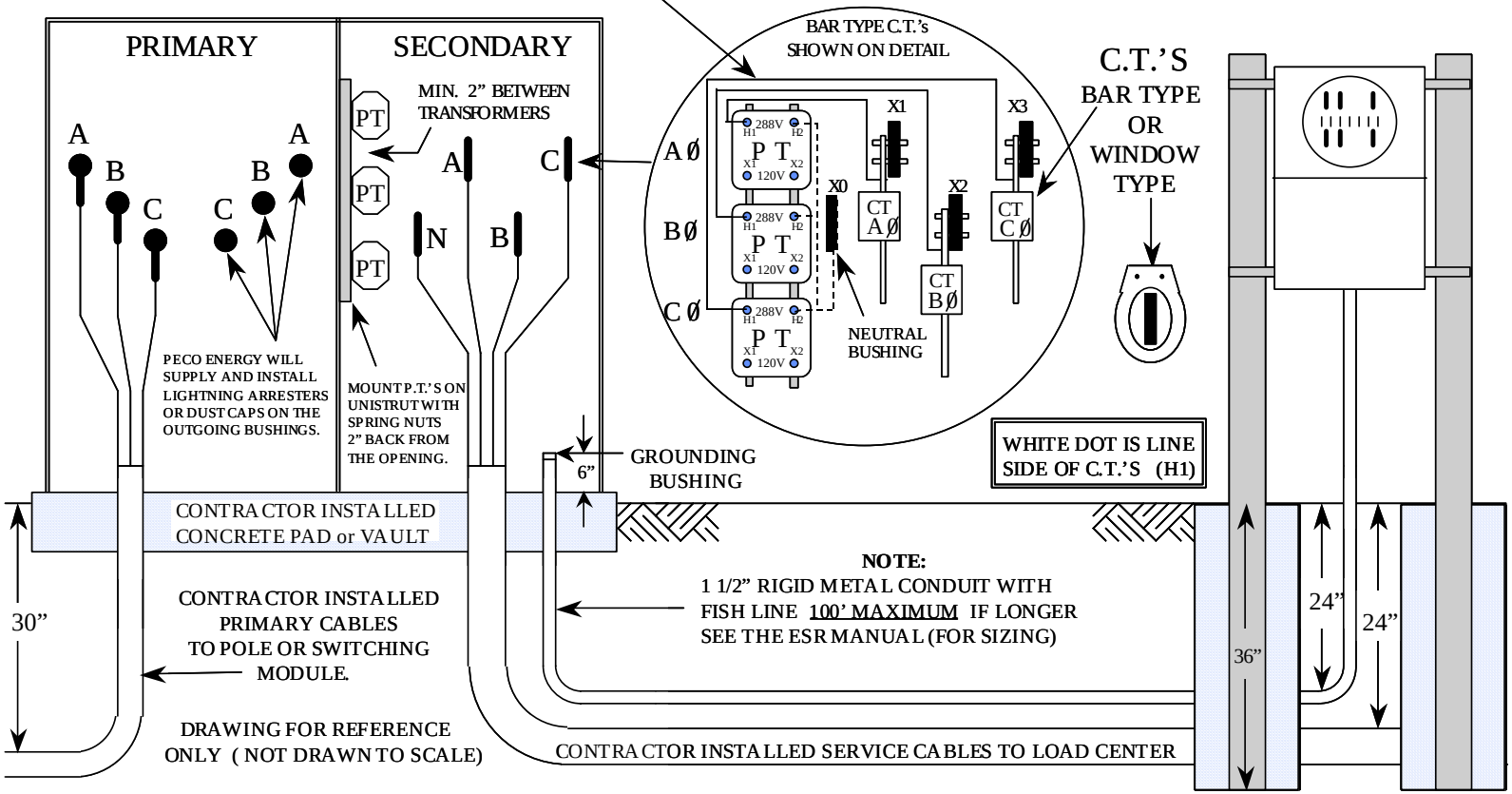
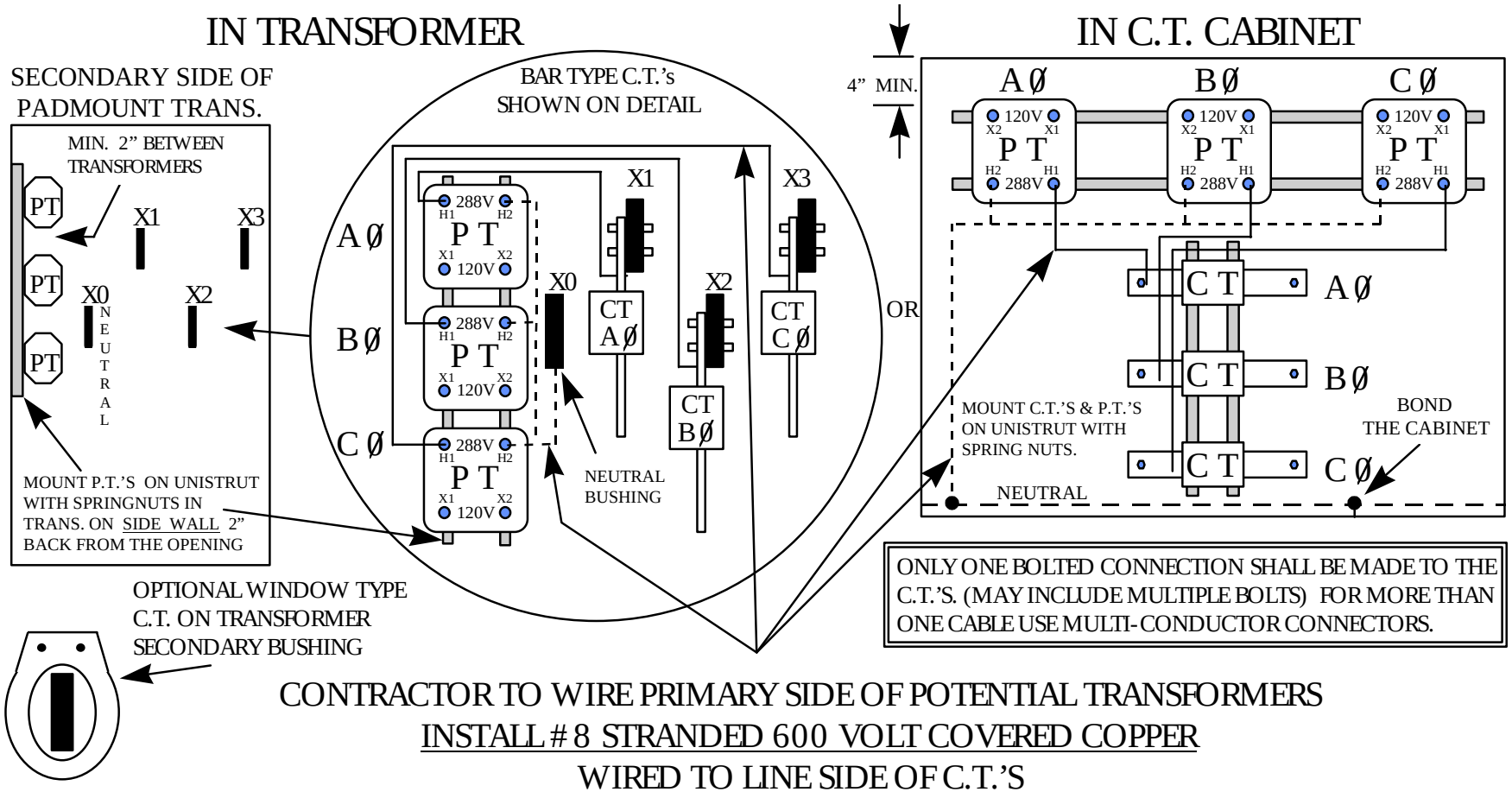


Figure 8.22

277 / 480 VOLT SERVICE



CONTRACTOR TO WIRE PRIMARY SIDE OF POTENTIAL TRANSFORMERS

INSTALL # 8 STRANDED 600 VOLT COVERED COPPER

WIRED TO LINE SIDE OF C.T.'S

METER SHOP TO COMPLETE THEIR WIRING BEFORE WORK WILL BE ENERGIZED

WHITE DOT IS LINE SIDE OF C.T. (H1) DO NOT REMOVE THE SHUNTS FROM THE C.T.'S

Figure 8.23

ELECTRIC SPACE HEATING SERVICE METERING FOR GS HEATING MODIFICATION

APPLIES WHERE AREA IS HEATED SOLELY BY CONNECTED ELECTRICAL SPACE HEATING EQUIPMENT.

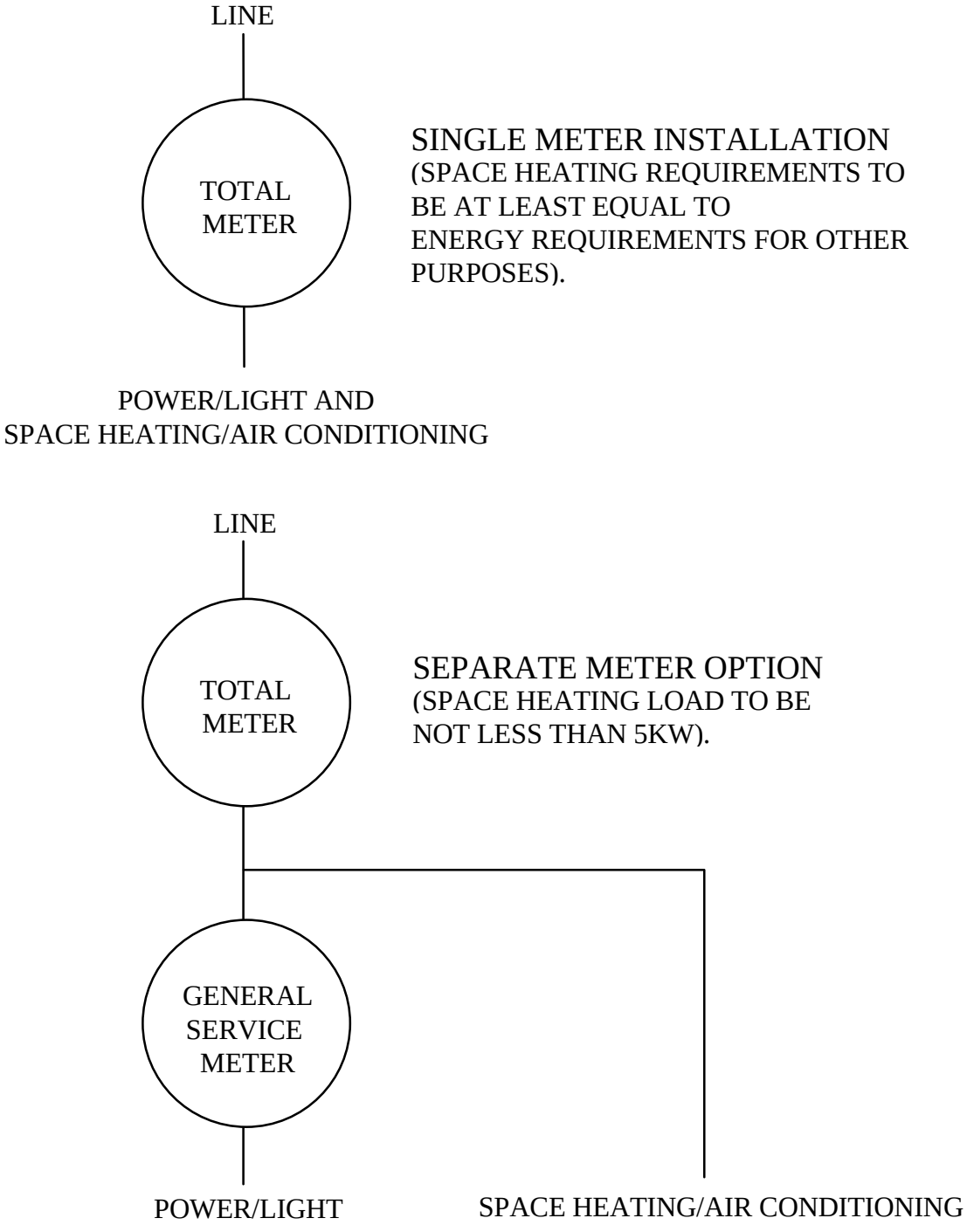


Figure 8.24

TOTALIZER GENERAL METER INSTALLATION
FOR SELF-CONTAINED METERS

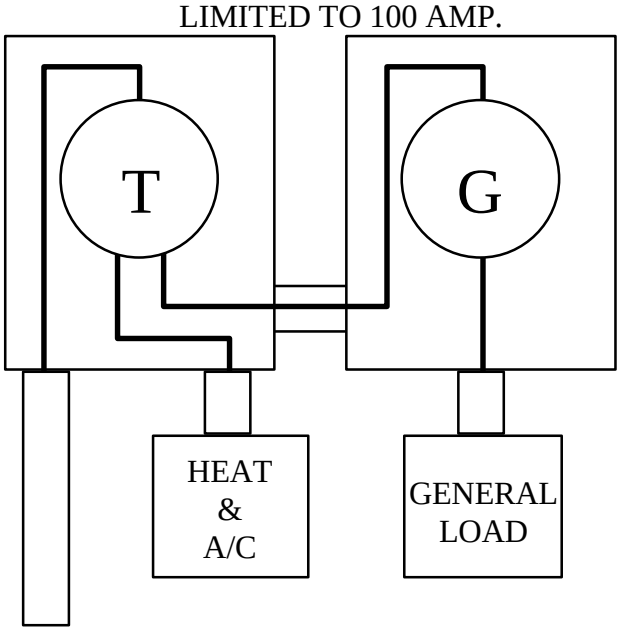


Figure 8.25-A

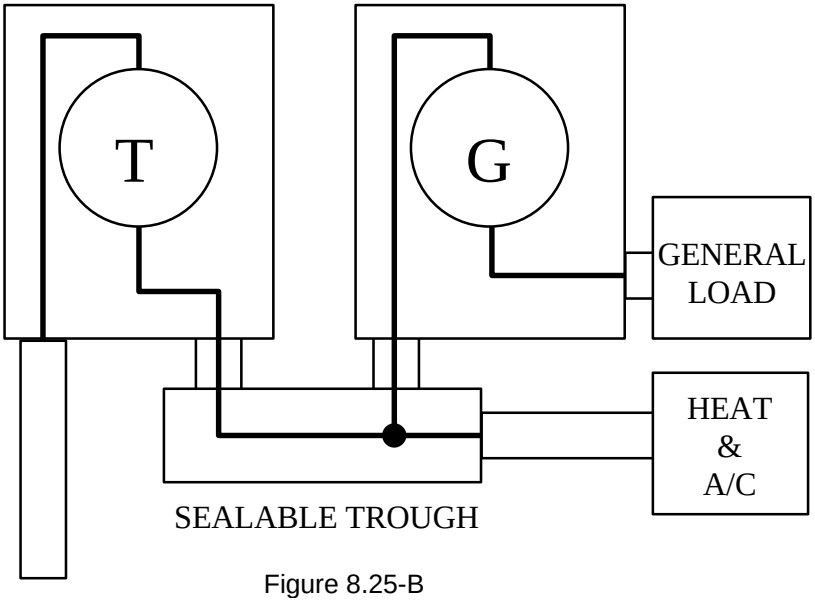


Figure 8.25-B

OVERHEAD SERVICE MAY ENTER
METER SOCKET FROM TOP OR SIDE.

3 PHASE 120/208 VOLT, TOTALIZER(CH9) AND GENERAL(CH8) C.T.'S FOR TOTALIZER ONLY (INDOOR METER)

METER BOARDS CAN BE INSTALLED ON TOP OR EITHER SIDE OF C.T. CABINET. CENTER OF METERS TO BE BETWEEN 3' & 5' ABOVE THE FLOOR.

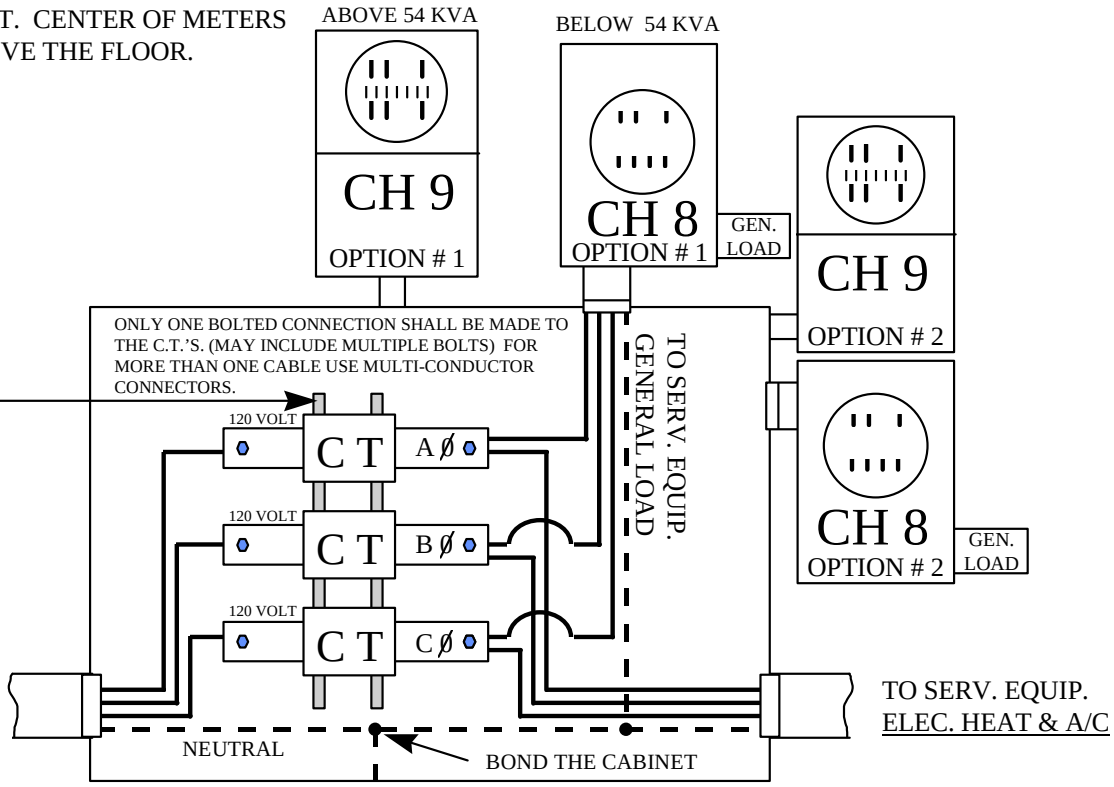
ELECTRICIAN TO INSTALL EVERYTHING SHOWN.

PECO WILL SUPPLY CH9 METER BOARD, & C.T.'S

ATTACH C.T.'S TO CABINET WITH UNISTRUT AND SPRING NUTS.

WHITE DOT IS LINE SIDE OF C.T.'S (H1)

FROM PECO TRANS. OR SECONDARY MAIN (CUSTOMER SUPPLIED)



(DRAWING FOR REFERENCE ONLY) NOT DRAWN TO SCALE
CONDUIT MAY ENTER CABINET FROM SIDES, BACK, OR BOTTOM

Figure 8.26

3 PHASE 240 VOLT, TOTALIZER(CH9) AND GENERAL(CH8) C.T.'S FOR TOTALIZER ONLY (INDOOR METER)

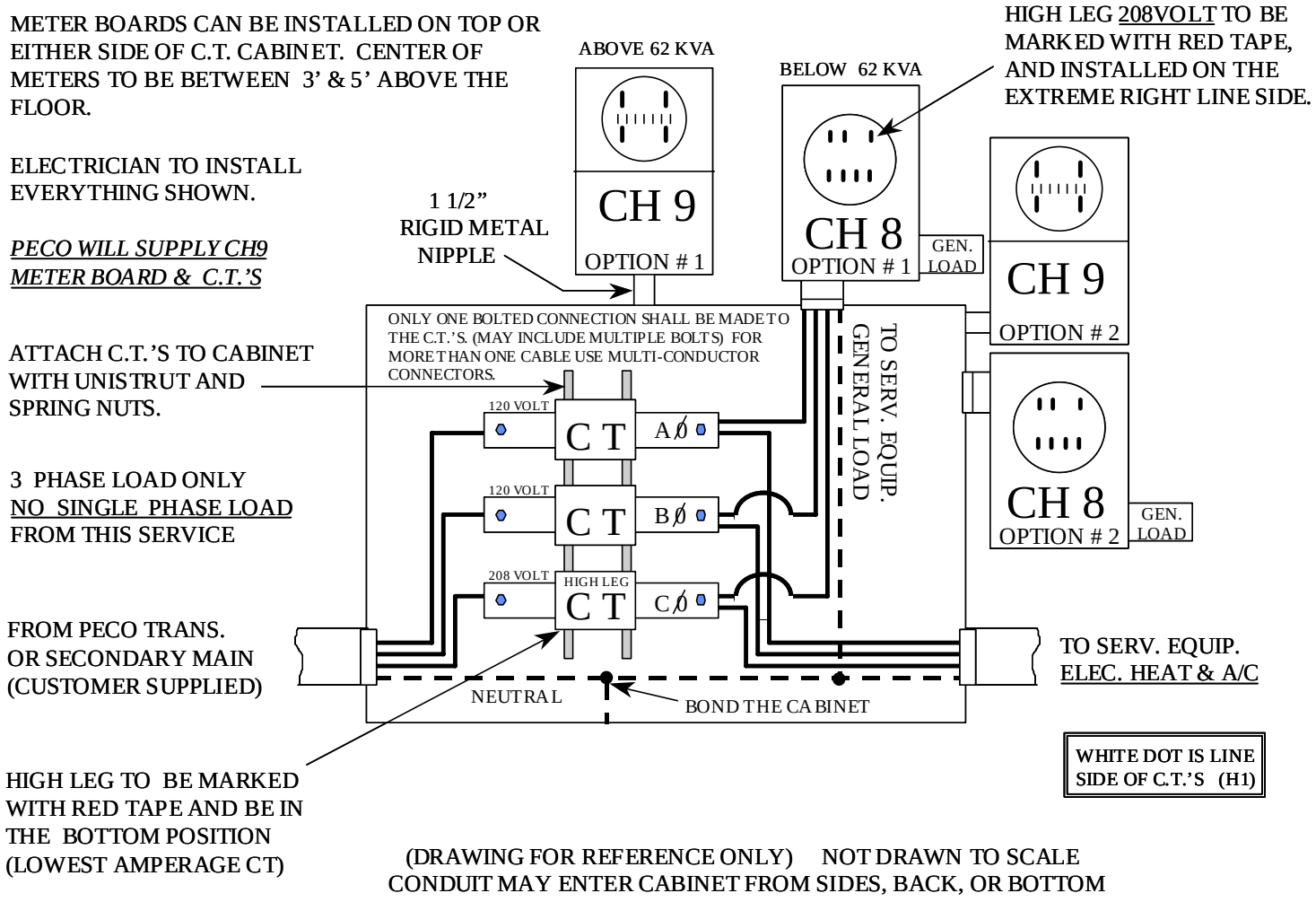


Figure 8.27

3 PHASE 120/208 VOLT, TOTALIZER(CH9) AND GENERAL(CH8) C.T.'S FOR TOTALIZER ONLY (OUTDOOR METERING)

PECO WILL INSTALL TRANSFORMER ON PAD, CONTRACTOR TO SUPPLY PRIMARY AND SECONDARY CABLES AND MAKE ALL CONNECTIONS. *PECO WILL SUPPLY TOTALIZER METER BOARD AND C.T.'S* (CONTRACTOR TO INSTALL EVERYTHING SHOWN)

METER BOARDS TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TWO 3" STEEL PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. CENTER OF METERS TO BE BETWEEN 3' AND 5' ABOVE GROUND.

ONLY ONE BOLTED CONNECTION SHALL BE MADE TO THE C.T.'S. (MAY INCLUDE MULTIBLE BOLTS) FOR MORE THAN ONE CABLE USE MULTI-CONDUCTOR CONNECTORS.

WHITE DOT IS LINE SIDE OF C.T.'S (H1)

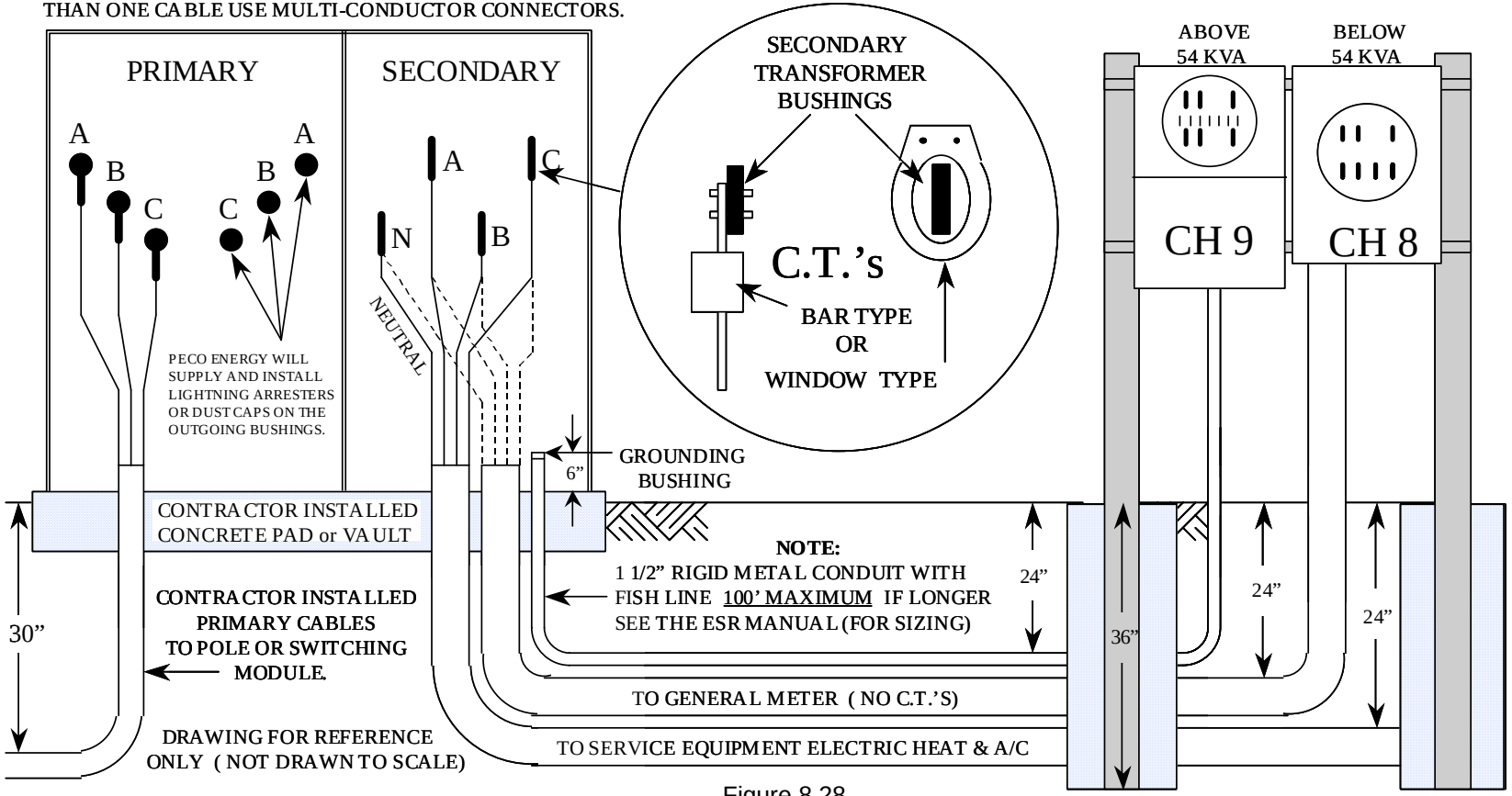


Figure 8.28

3 PHASE 120/208 VOLT, TOTALIZER(CH9) AND GENERAL(CH8) (INDOOR METERS)

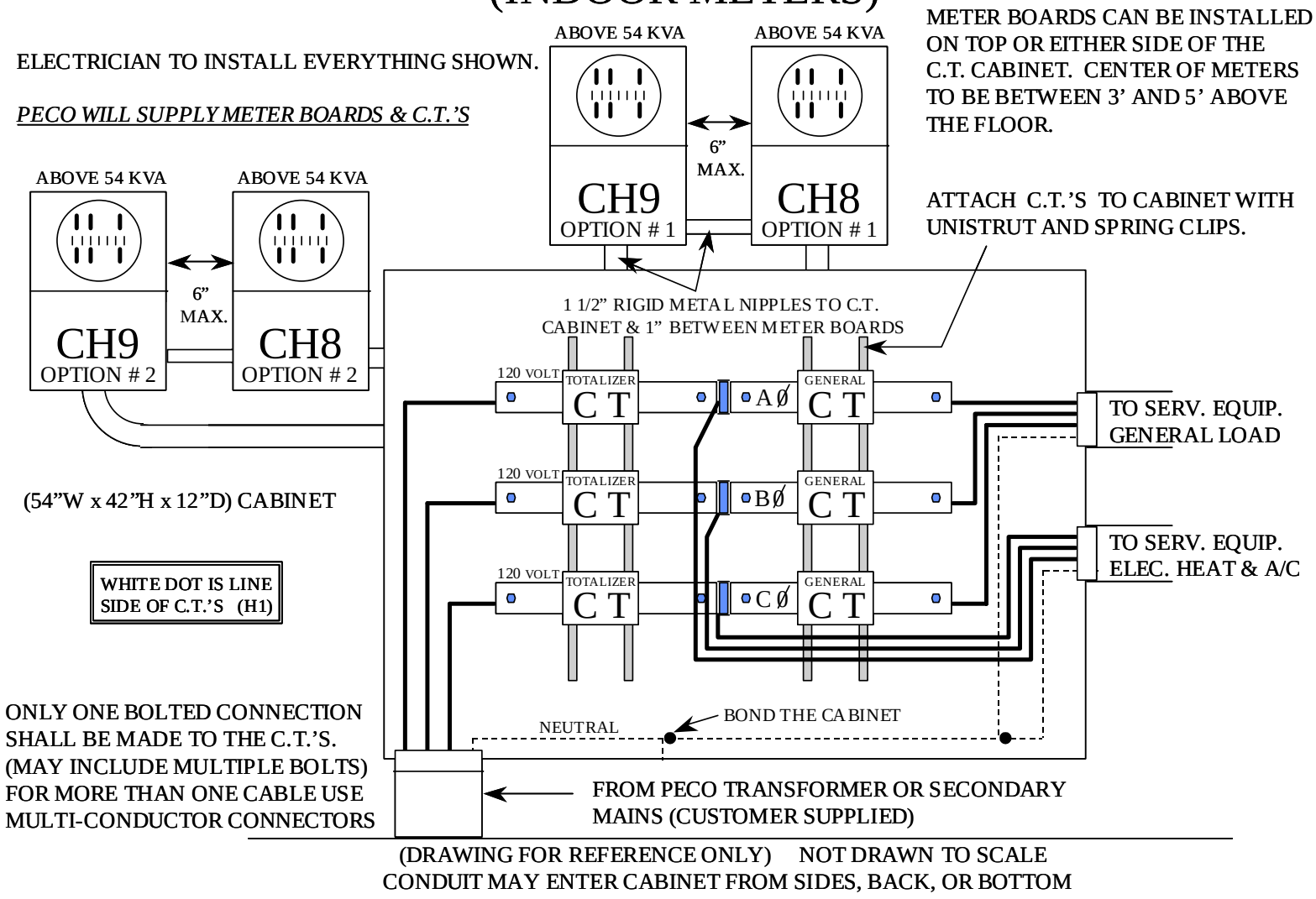


Figure 8.29

3 PHASE 120/208 VOLT, TOTALIZER(CH9) AND GENERAL(CH8)

(INDOOR METERING) TOTALIZER C.T.'S IN TRANSFORMER AND GENERAL C.T'S. IN CABINET

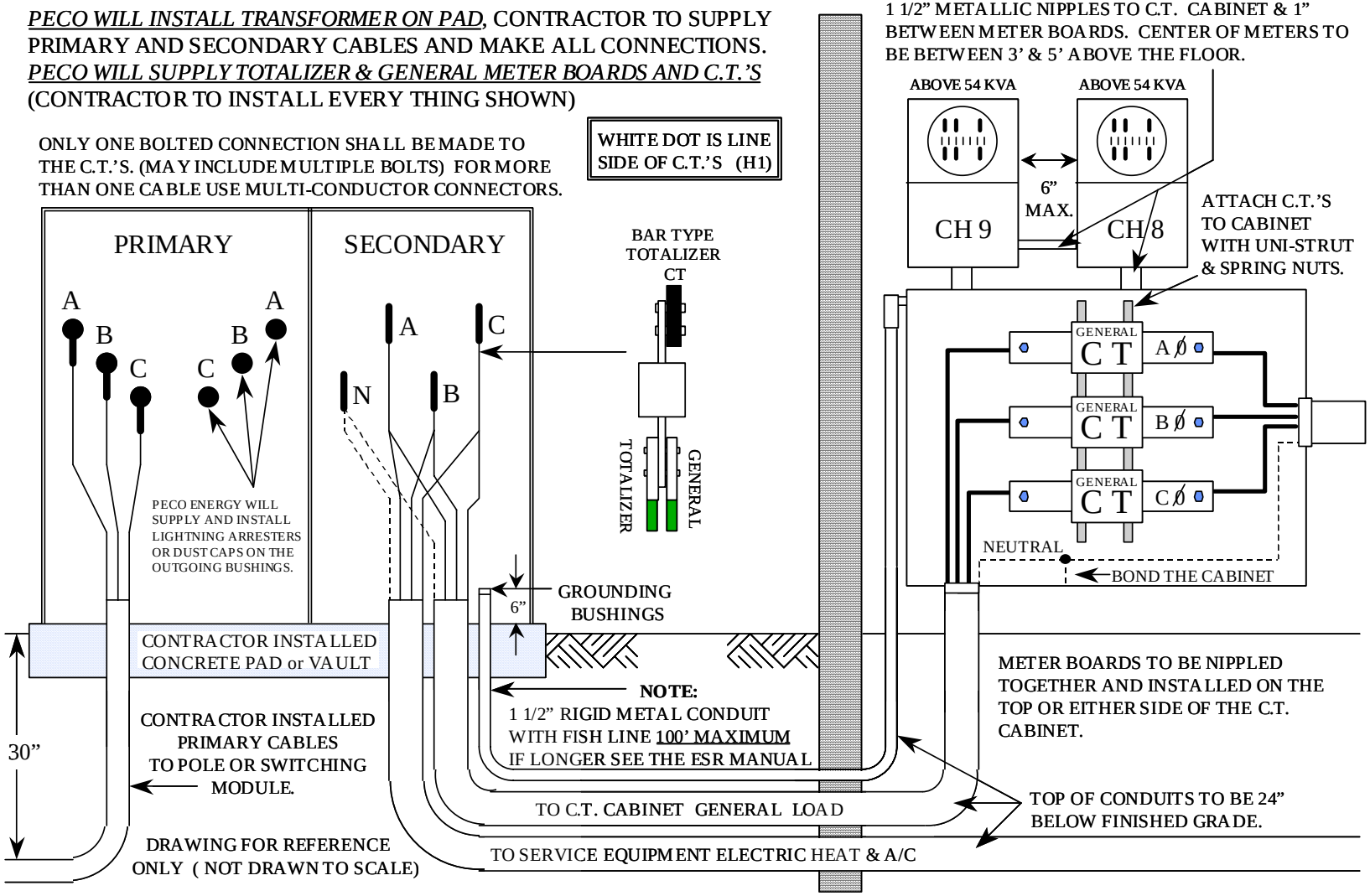


Figure 8.30

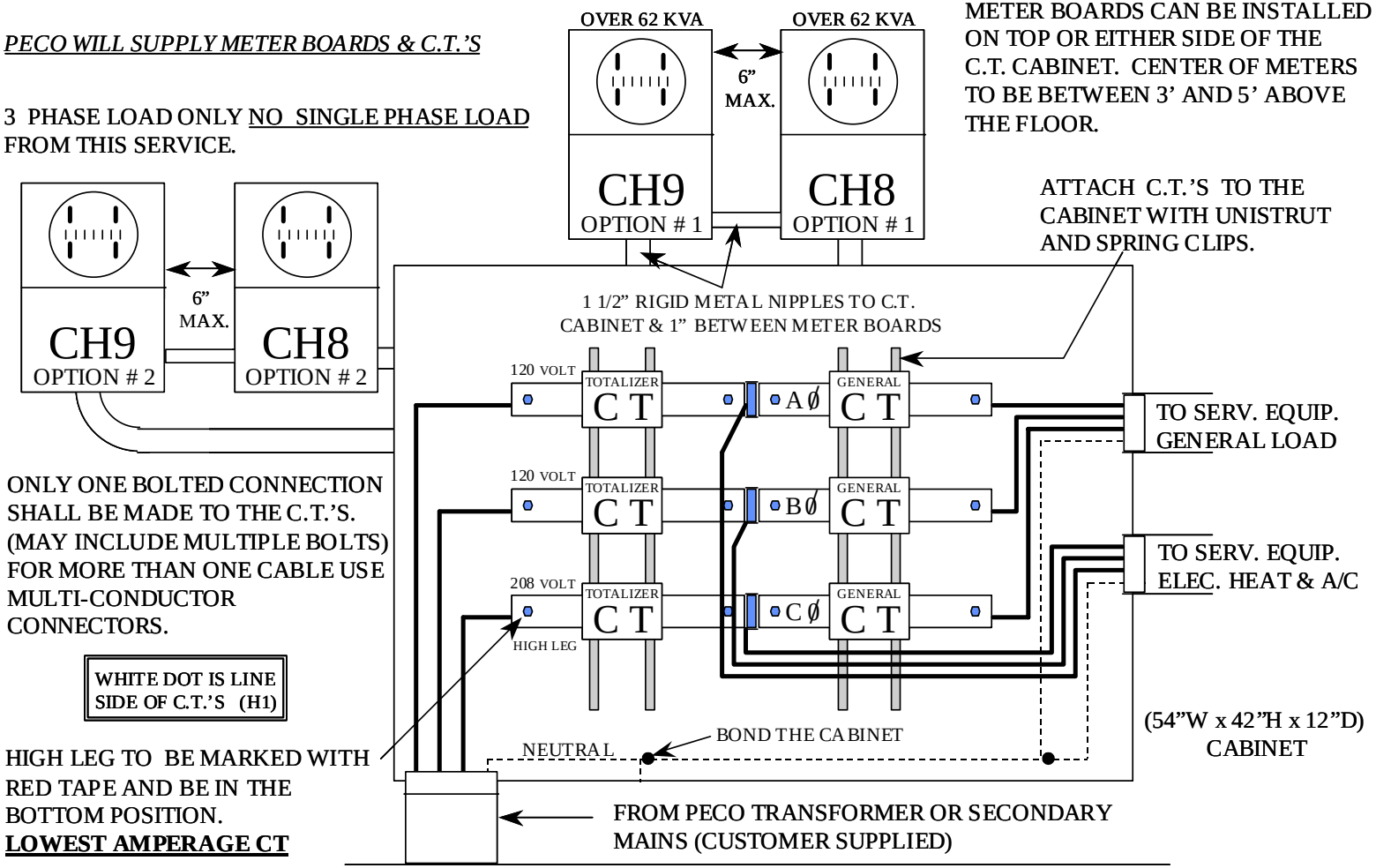
3 PHASE 240 VOLT, TOTALIZER(CH9) AND GENERAL(CH8) (INDOOR METERS)

ELECTRICIAN TO INSTALLEVERYTHING SHOWN.

PECO WILL SUPPLY METER BOARDS & C.T.'S

3 PHASE LOAD ONLY NO SINGLE PHASE LOAD FROM THIS SERVICE.

METER BOARDS CAN BE INSTALLED ON TOP OR EITHER SIDE OF THE C.T. CABINET. CENTER OF METERS TO BE BETWEEN 3' AND 5' ABOVE THE FLOOR.



ONLY ONE BOLTED CONNECTION SHALL BE MADE TO THE C.T.'S. (MAY INCLUDE MULTIPLE BOLTS) FOR MORE THAN ONE CABLE USE MULTI-CONDUCTOR CONNECTORS.

WHITE DOT IS LINE SIDE OF C.T.'S (H1)

HIGH LEG TO BE MARKED WITH RED TAPE AND BE IN THE BOTTOM POSITION.
LOWEST AMPERAGE CT

(DRAWING FOR REFERENCE ONLY) NOT DRAWN TO SCALE
CONDUIT MAY ENTER CABINET FROM SIDES, BACK, OR BOTTOM.

Figure 8.31

3 PHASE 277/480 VOLT, TOTALIZER(CH9) AND GENERAL(CH8)

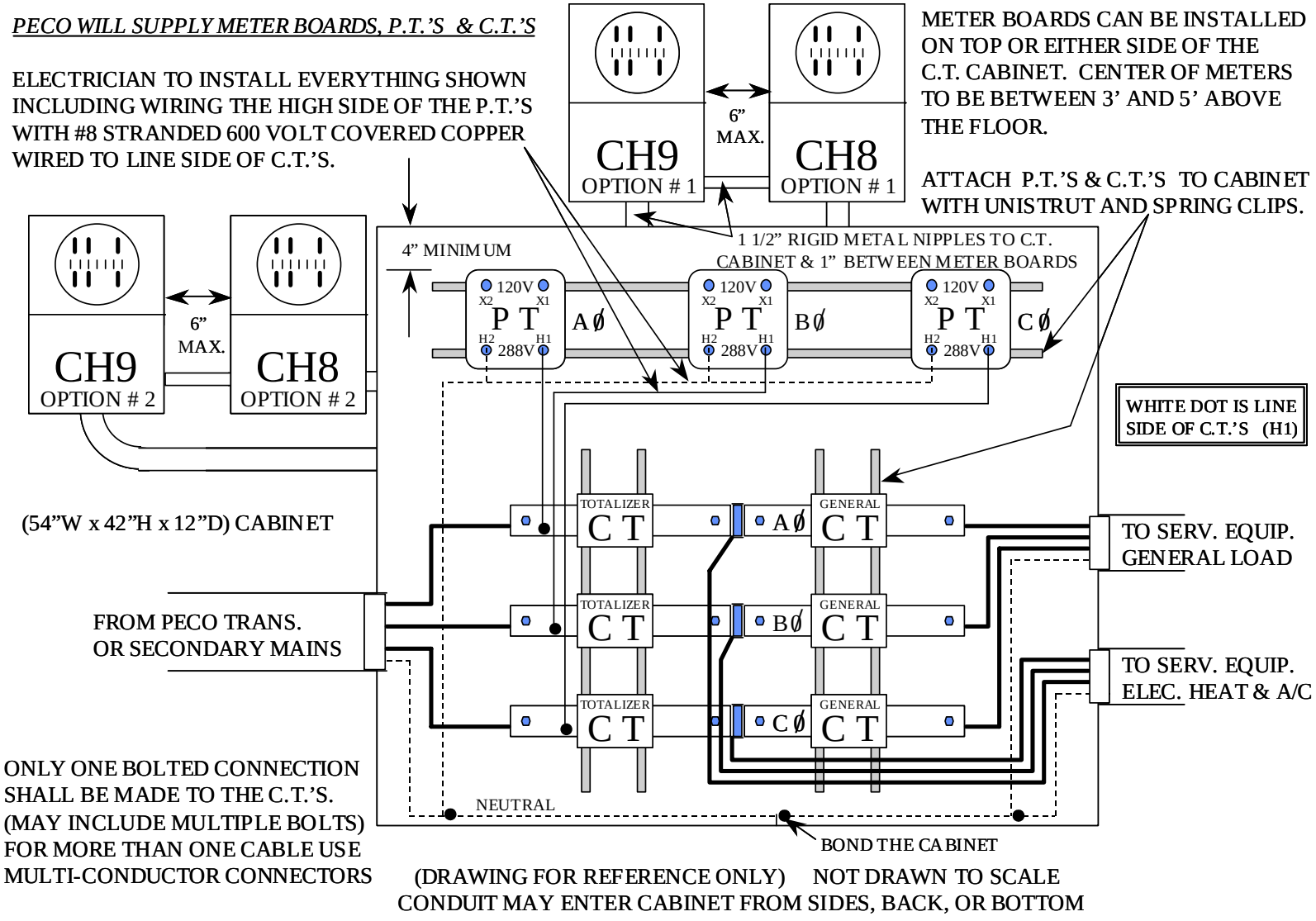


Figure 8.32

3 PHASE 277/480 VOLT, TOTALIZER(CH9) AND GENERAL(CH8)

(INDOOR METERING) TOTALIZER C.T.'S IN TRANSFORMER AND GENERAL C.T'S. IN CABINET

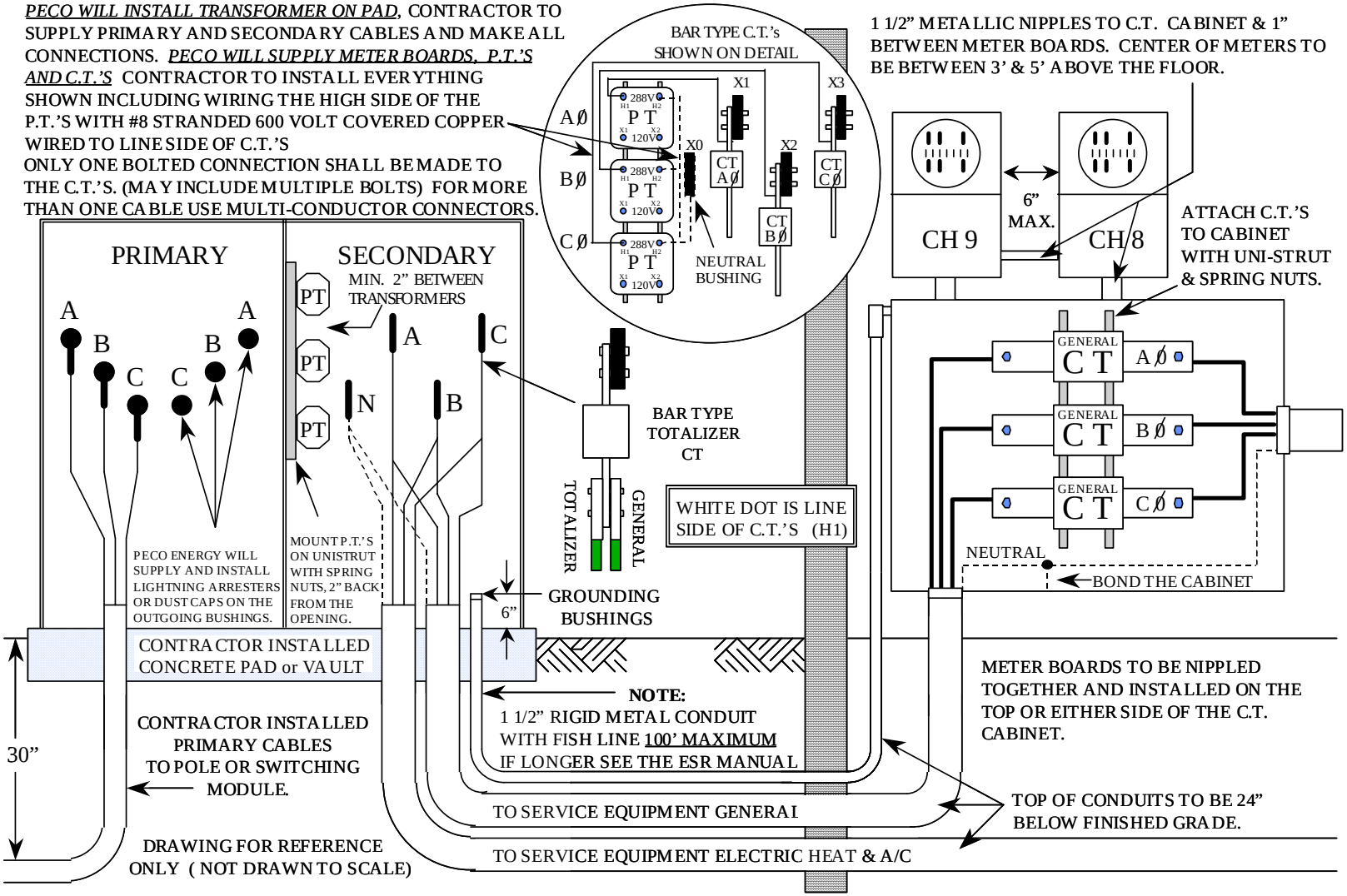


Figure 8.33

MINUMUM REQUIRMENTS FOR INDIVIDUALLY DESIGNED OUTDOOR METER SUPPORT

METER BOARD TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TWO 3" STEEL PIPES ENCASED IN CONCRETE AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. THERE MUST BE 3' OF CLEAR WORKING SPACE IN FRONT OF THE METER.

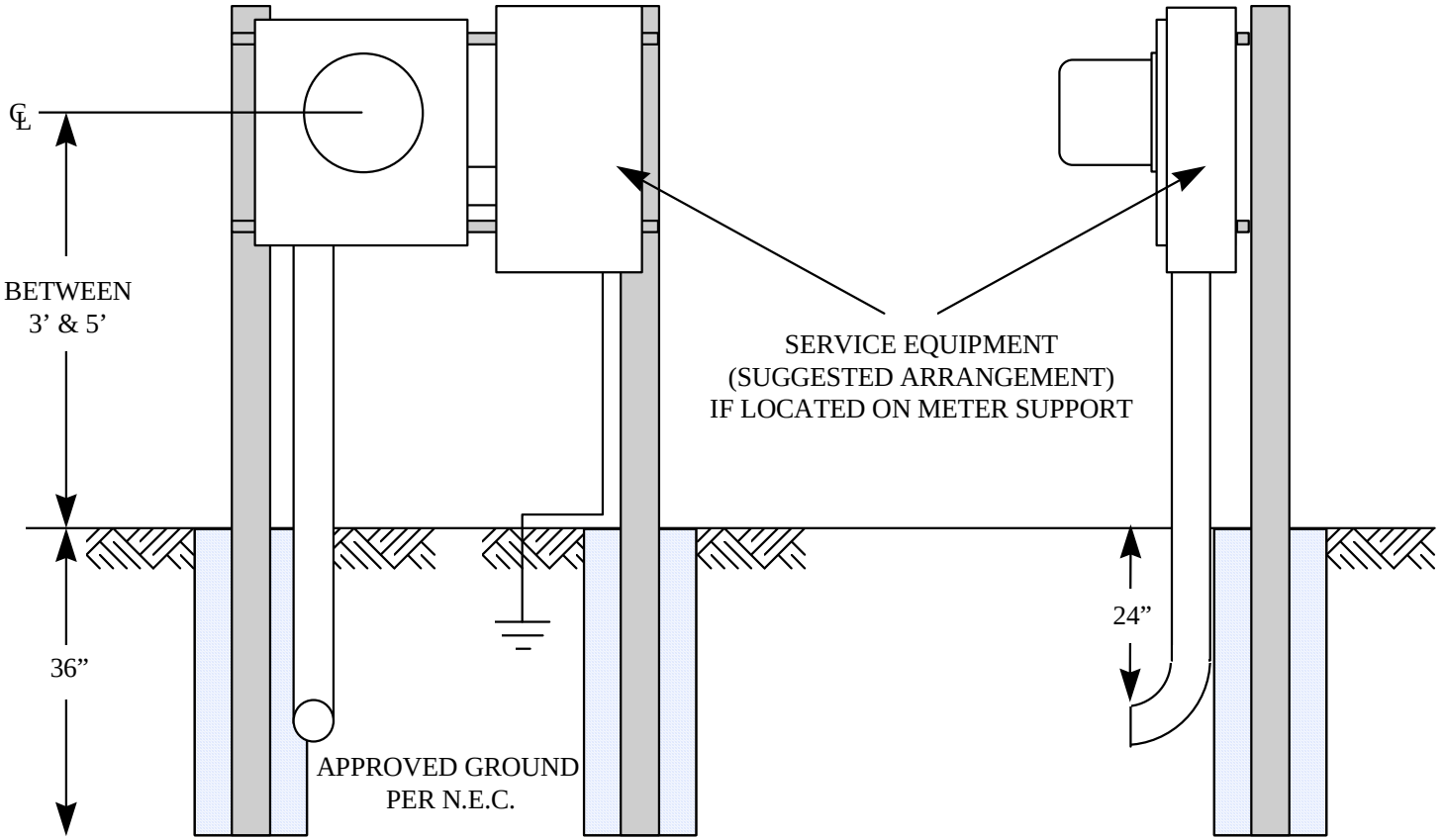
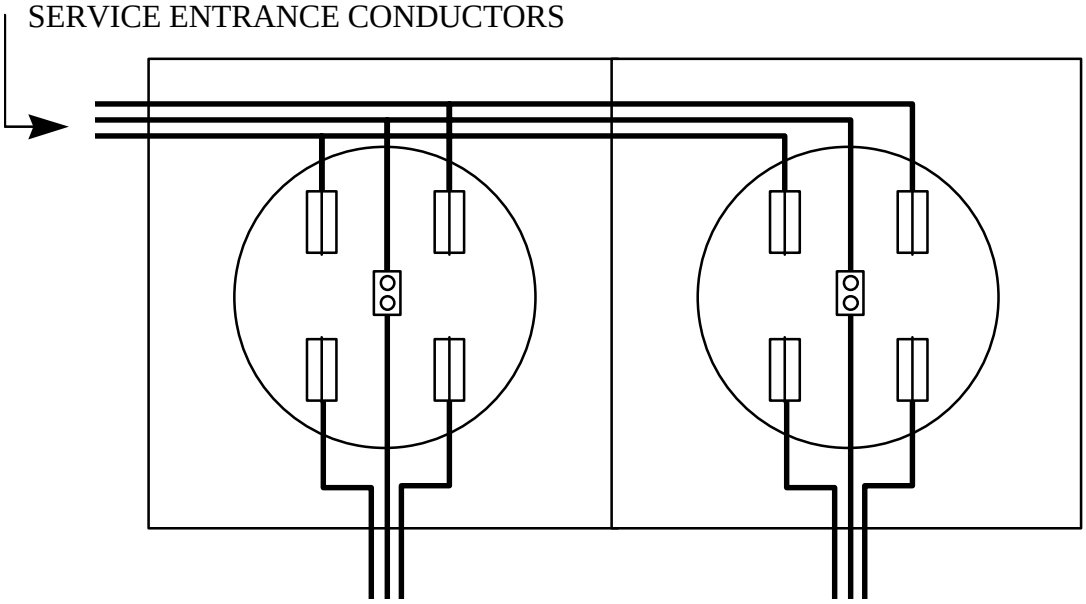


Figure 8.34

CONNECTIONS FOR RESIDENTIAL AND INTERRUPTIBLE RATE SERVICE METERS

IF SEPARATE SOCKETS ARE USED,
CONNECT BY METALLIC NIPPLE OR EMT.
(UNPROTECTED SE CABLE IS NOT ACCEPTABLE).



CUSTOMER INSTALLED CONDUCTORS AND ASSOCIATED EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF LOAD AS SPECIFIED BY THE N.E.C.

APPLY TAPE TO BARE NEUTRAL INSIDE METER

Figure 8.35

Interruption Rate Service Indoor Meter Installation

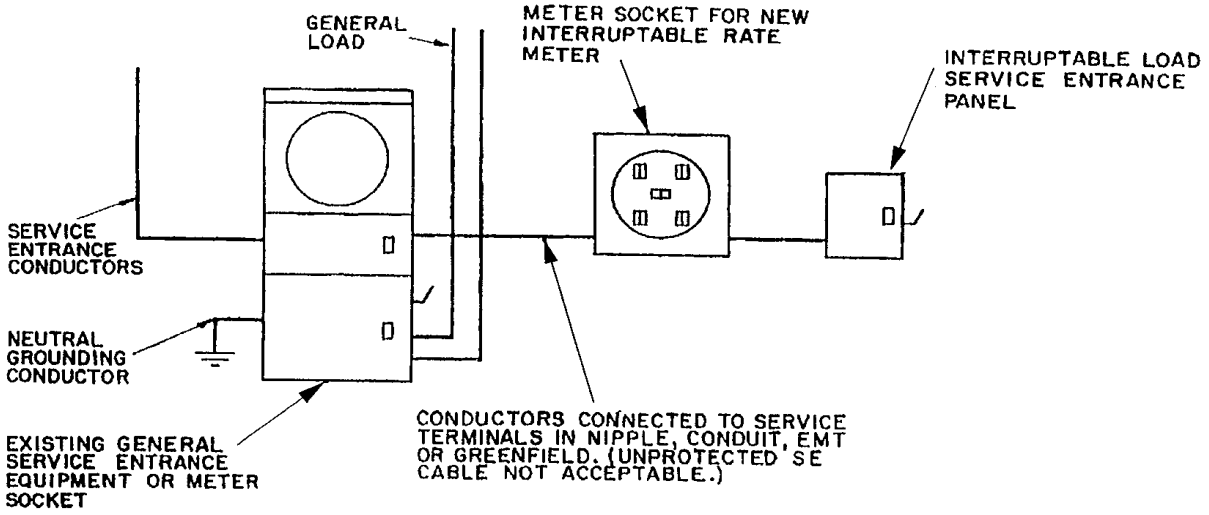


Figure 8.36

NOTES:
1 CUSTOMER INSTALLED CONDUCTORS AND ASSOCIATED EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOAD AS SPECIFIED BY THE N E C.
2 SEE PAR 8.6.2 FOR LOADS GREATER THAN 24 KW
3 APPLY TAPE TO BARE NEUTRAL INSIDE METER SOCKET.

Figure 8.36

Interruptable Rate Service Outdoor Meter Installation

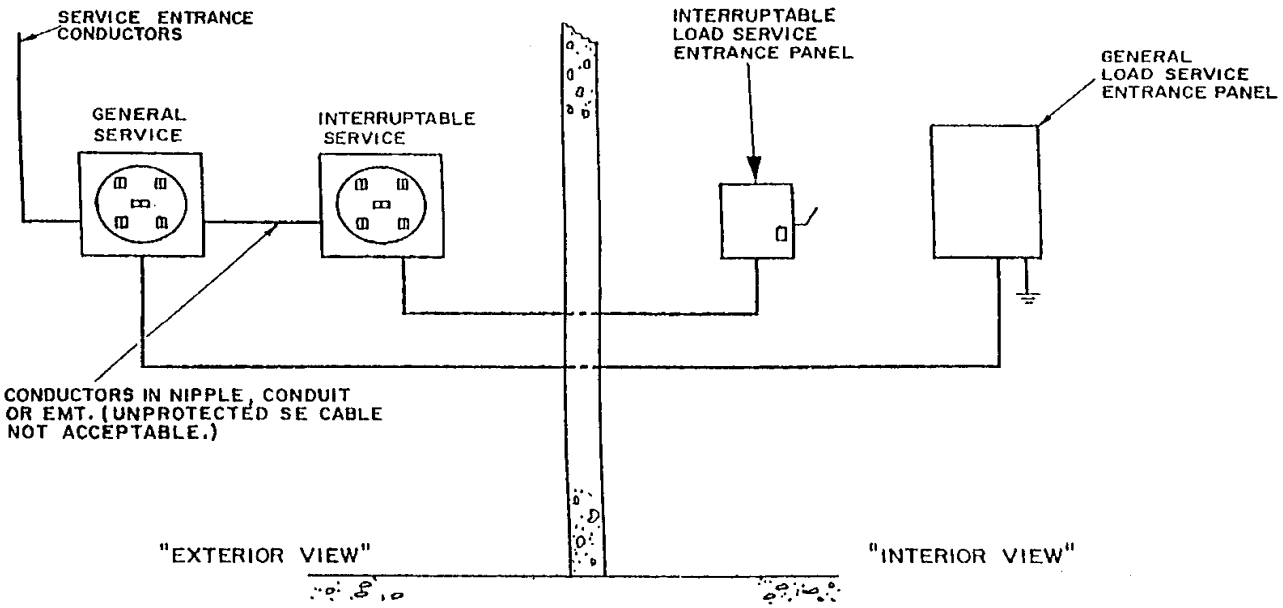
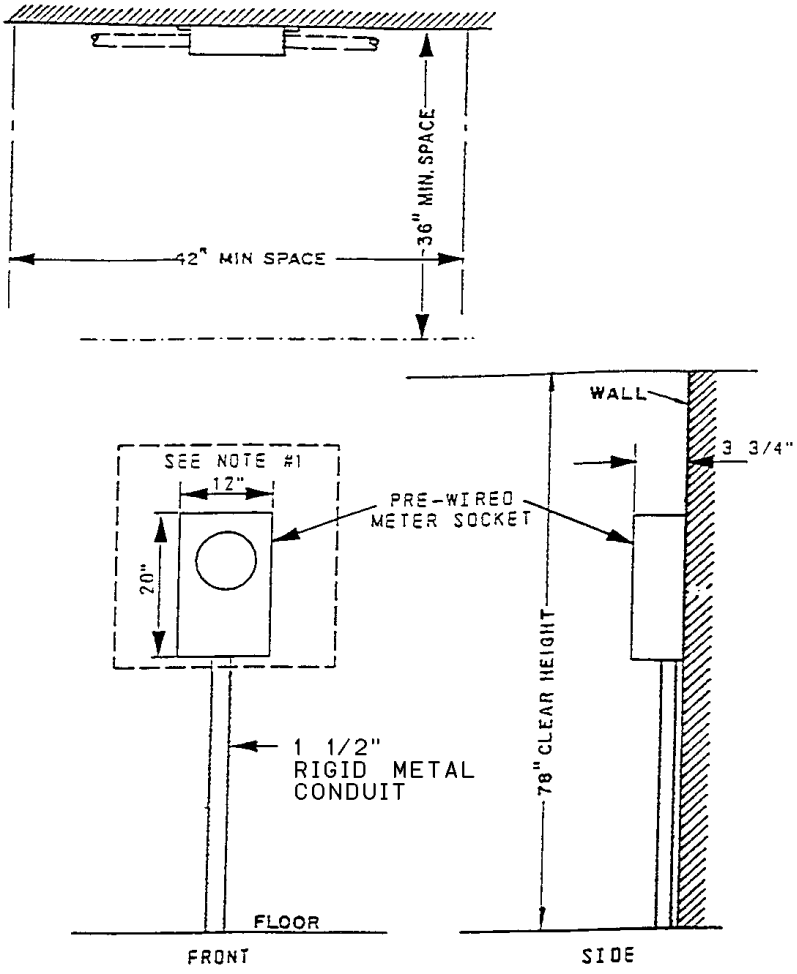


Figure 8.37

Figure 8.37

INDOOR TRANSFORMER RATED METER SOCKET
SINGLE METERING POINT
(METER SOCKET SUPPLIED BY PECO)

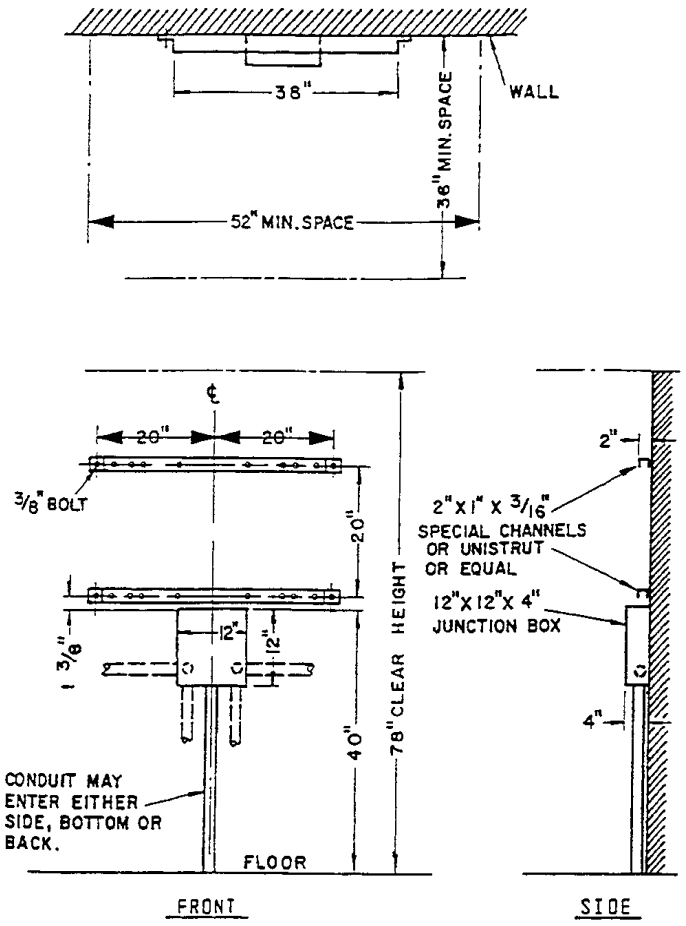


NOTE:

1. 20" X 30" X 3/4" PLYWOOD BACKBOARD REQUIRED ON POOR WALL SURFACE.

Figure 8.38

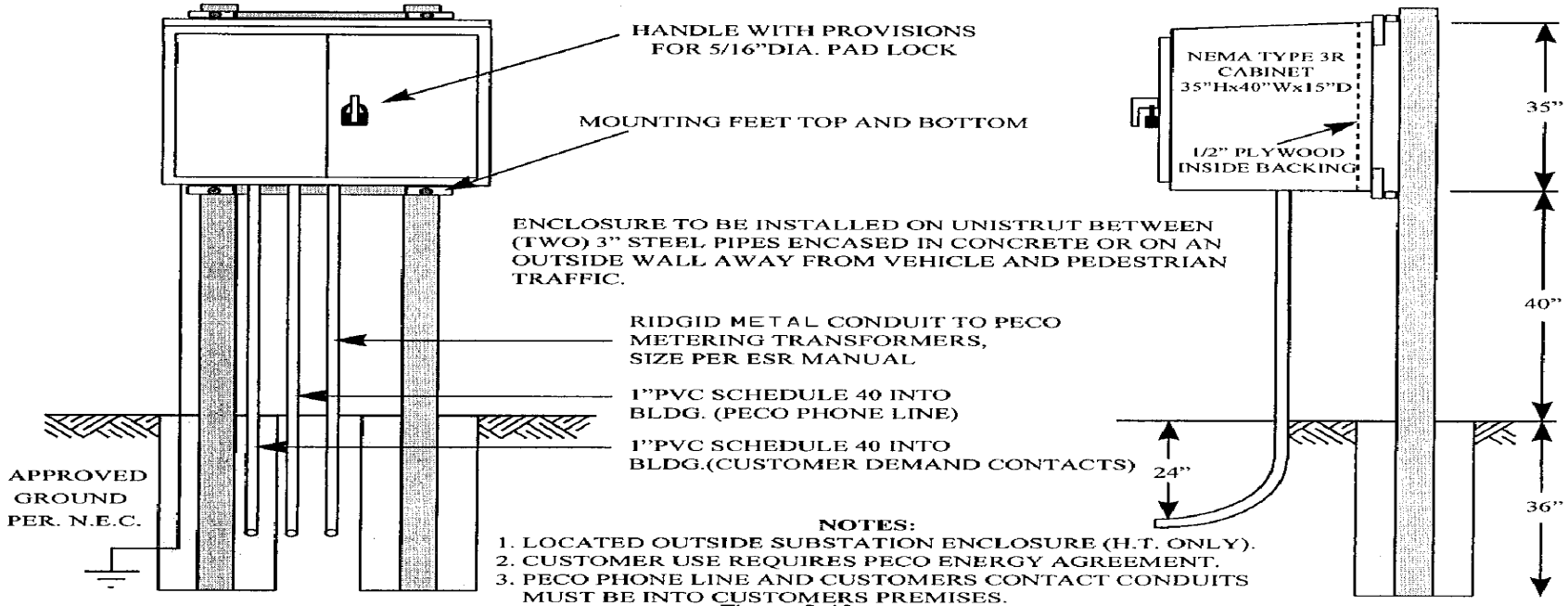
INDOOR METER PANEL WALL MOUNTING



1. SEE TABLE 8.13 FOR ACCEPTABLE JUNCTION BOX WITH CHANNELS. CHANNELS AND TOP OF JUNCTION BOX SHALL BE LEVEL.

Figure 8.39

OUTDOOR METER PANEL INSTALLATION
(OUTDOOR METER PEDESTAL ENCLOSURE)



NOTES:

1. LOCATED OUTSIDE SUBSTATION ENCLOSURE (H.T. ONLY).
2. CUSTOMER USE REQUIRES PECO ENERGY AGREEMENT.
3. PECO PHONE LINE AND CUSTOMERS CONTACT CONDUITS MUST BE INTO CUSTOMERS PREMISES.

Figure 8.40

MODEM UNDER GLASS METER PANEL INSTALLATIONS FOR SINGLE SERVICE

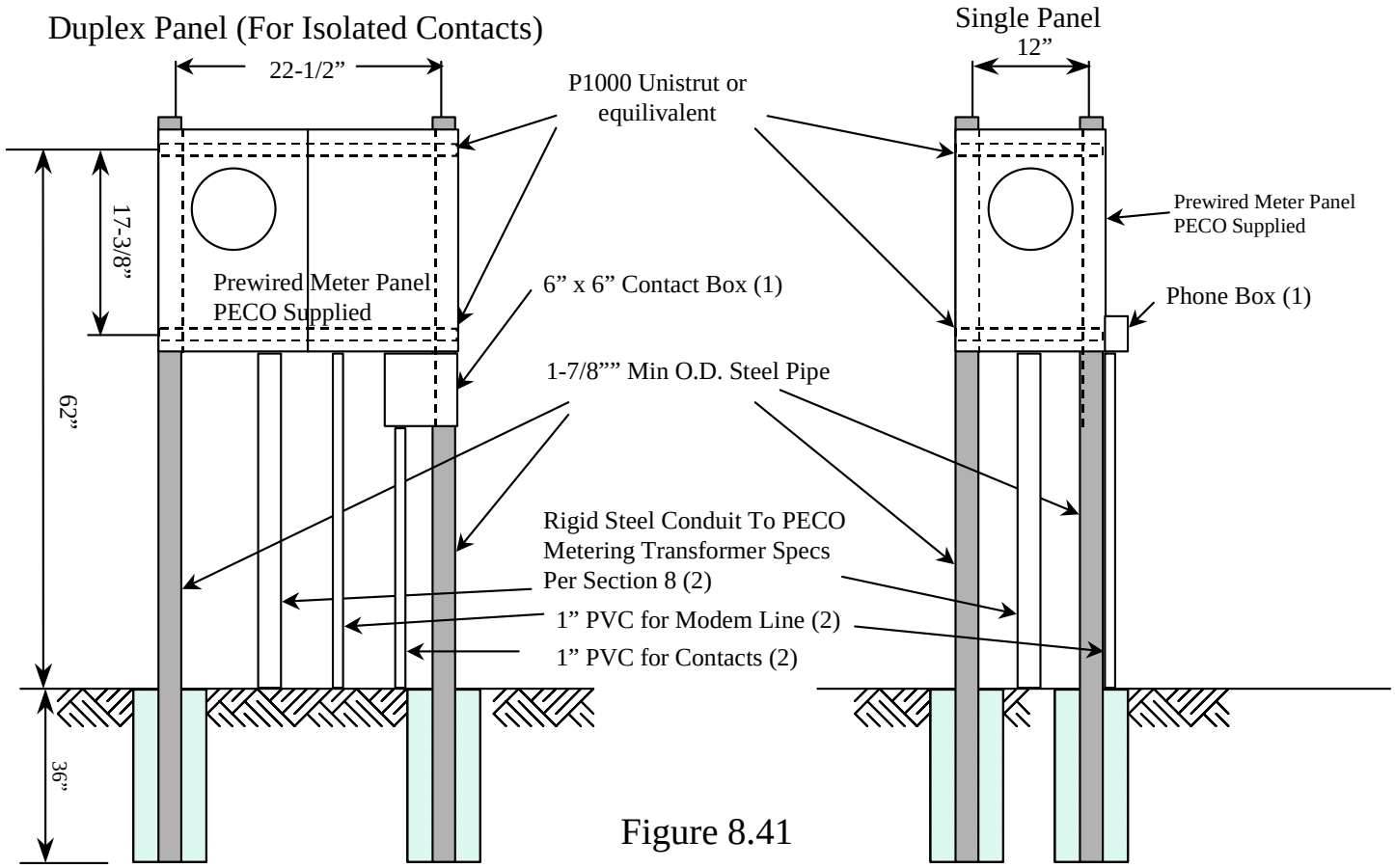


Figure 8.41

Notes: (1) Contact Box and Phone Box to be fitted to suit in field.
(2) Conduit to be aligned with panel knockouts.
(3) For indoor installations, eliminate ballards. Mount Unistrut on wall.

OUTDOOR C.T. CABINET

TOTALIZER C.T.'S IN TRANSFORMER, GENERAL C.T.'S IN CABINET

C.T. CABINET TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TWO 3" STEEL PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. METER BOARDS CAN BE INSTALLED ON EITHER SIDE OF THE CABINET. THERE MUST BE 3' OF CLEAR WORKING SPACE IN FRONT OF THE METERS.

PECO WILL SUPPLY METER BOARD'S & C.T.'S ELECTRICIAN TO INSTALL EVERYTHING SHOWN.
SEE THE APPROPRIATE INDOOR C.T. CABINET FOR THE PROPER WIRING DIAGRAM.

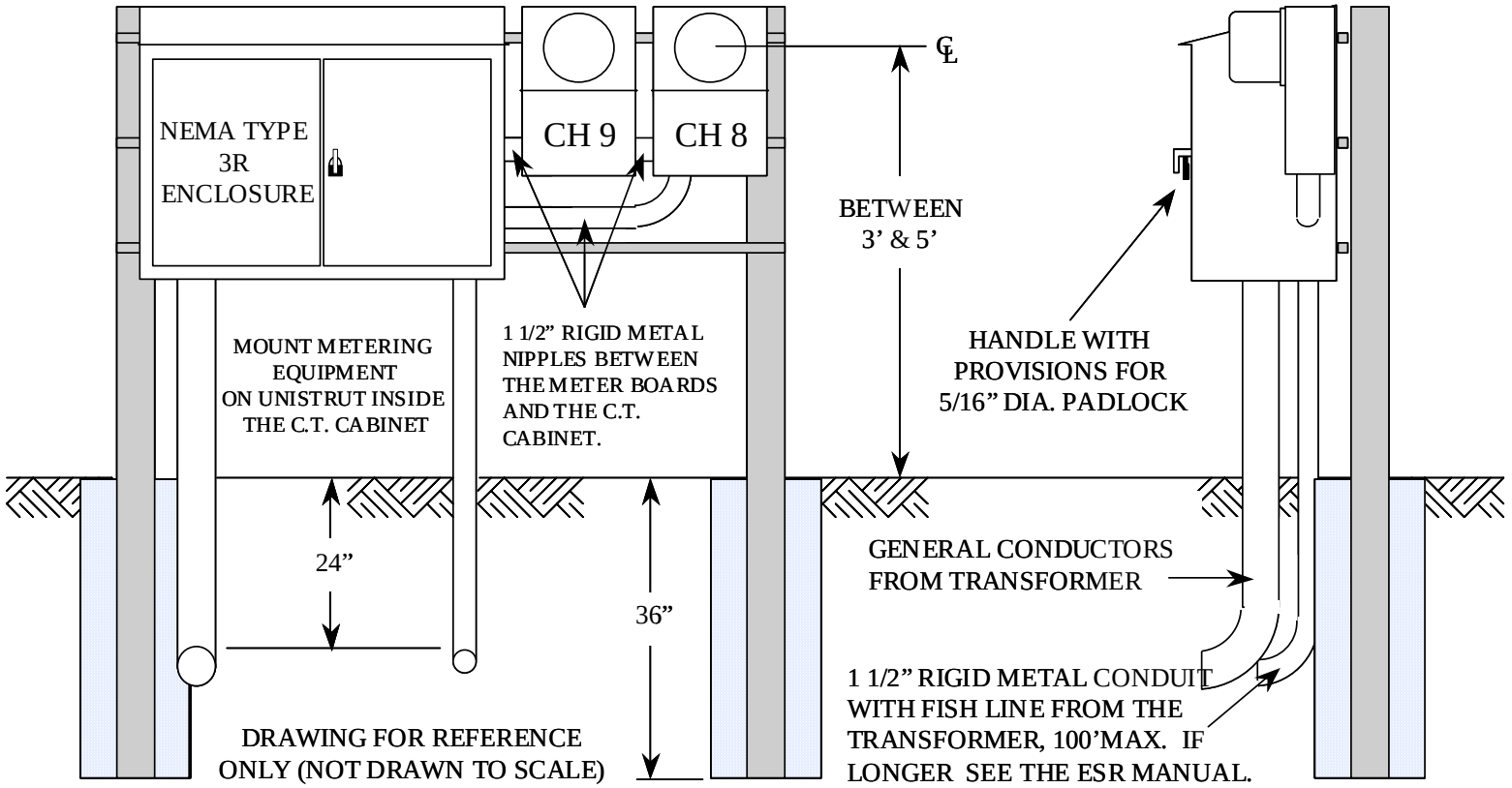


Figure 8.42

OUTDOOR C.T. CABINET

C.T. CABINET TO BE INSTALLED ON UNISTRUT MOUNTED BETWEEN TWO 3" STEEL PIPES ENCASED IN CONCRETE OR ON AN OUTSIDE WALL AWAY FROM VEHICLE AND PEDESTRIAN TRAFFIC. METER CAN BE INSTALLED ON EITHER SIDE OF THE CABINET. THERE MUST BE 3' OF CLEAR WORKING SPACE IN FRONT OF THE METER.

PECO WILL SUPPLY METER BOARD & C.T.'S ELECTRICIAN TO INSTALL EVERYTHING SHOWN.
SEE THE APPROPRIATE INDOOR C.T. CABINET FOR THE PROPER WIRING DIAGRAM.

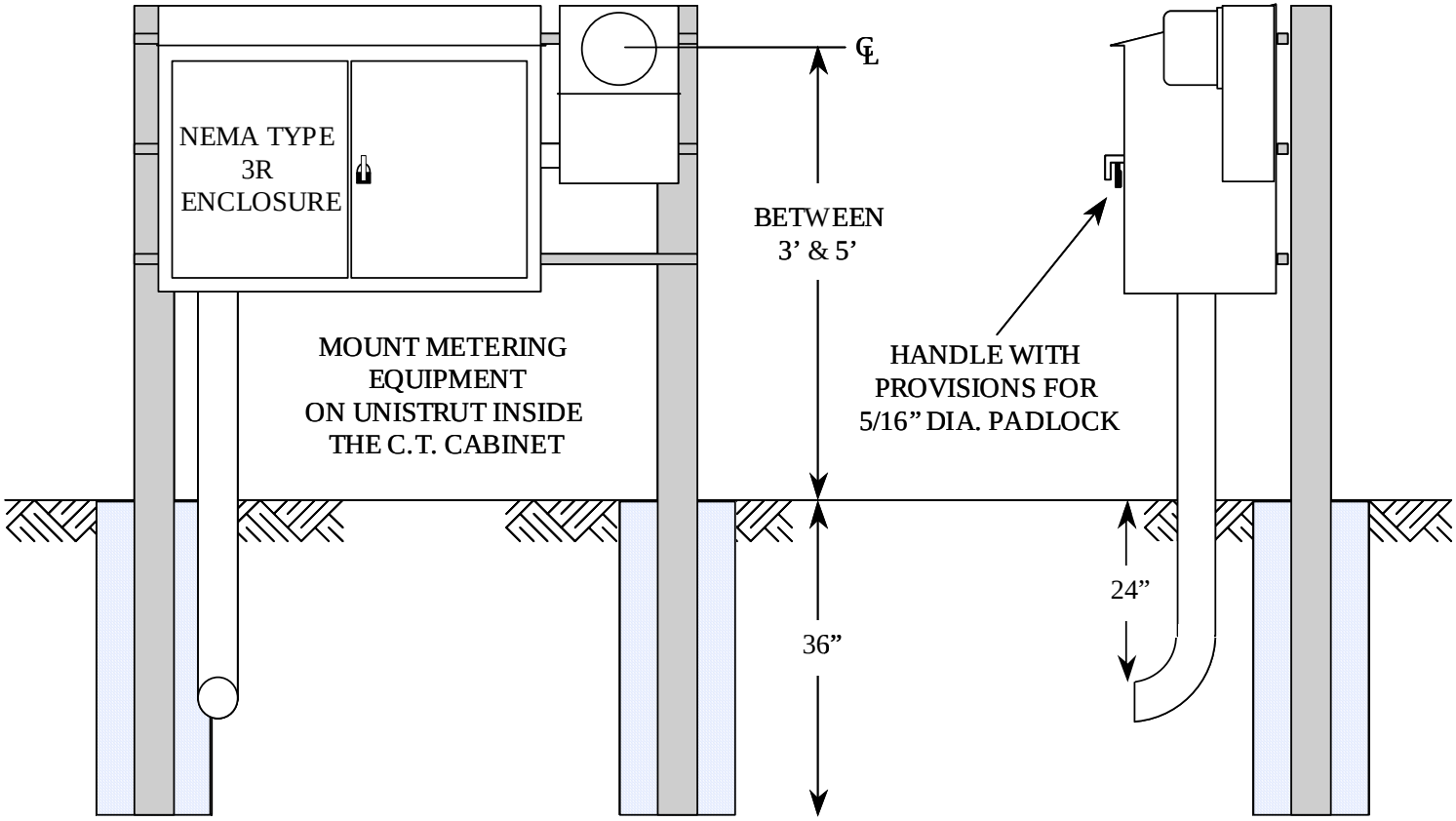
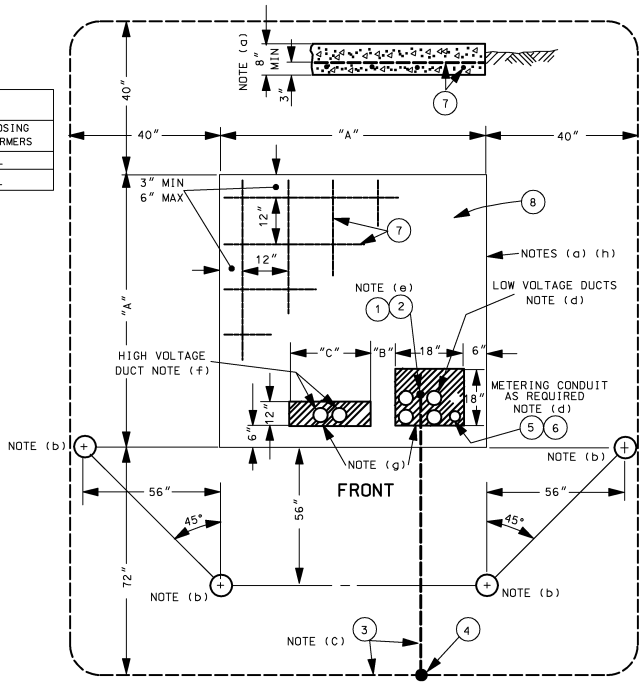


Figure 8.43

MAXIMUM TRANSFORMER SIZES ALLOWABLE ON POURED PAD FOUNDATIONS			
PRIMARY VOLTAGE	SECONDARY VOLTAGE		INTERPOSING TRANSFORMERS
	120/208 OR 240	277/480	
13KV	UP TO 300 KVA	UP TO 500 KVA	ALL
34KV	UP TO 300 KVA	UP TO 500 KVA	ALL

POURED PAD DIMENSIONS			
PRIMARY VOLTAGE	A	B	C
13 KV	84"	6"	24"
34 KV	98"	12"	30"



NOTES

a) MINIMUM PAD DEPTH *" CONCRETE. TAMP DIRT BEFORE POURING CONCRETE. ALLOW CONCRETE TO EXTEND 2" ABOVE FINAL GRADE

b) INSTALL GUARD POSTS WHEN TRANSFORMER IS SUBJECT TO DAMAGE BY VEHICLES. USE 4" GALV. STEEL PIPE FILLED WITH CONCRETE, SET IN 15" DIAMETER, 3'-0" DEEP CONCRETE BASE. PIPE MUST EXTEND 4'-0" ABOVE FINAL GRADE.

c) INSTALL 34 BARE CU. WIRE FOR GROUNDING. PROVIDE 12" MINIMUM TO 18" MAXIMUM COVER. EXTEND TO GRUND ROD.

d) CLUSTER LOW VOLTAGE DUCTS, GROUND ROD & METERING CONDUIT TOWARD FRONT OF PAD. WITH METERING CONDUIT IN RIGHT FRONT CORNER OF CONDUIT WINDOW. EXTEND METER CONDUIT 6" ABOVE PAD.

e) A GROUND ROD IS REQUIRED.

f) TWO HIGH VOLTAGE DUCTS ARE REQUIRED. USE 90° BEND FOR CABLE ENRRANCE.

g) DO NOT POUR CONCRETE IN CABLE ACCESS AREAS.

h) ALL THREE TRANSFORMERS MAY BE SET ON PRECAST TRANSFORMER FOUNDATIONS (S-2231 & S-2232). BUT ALL THREE PHASE TRANSFORMERS LARGER THAN THOSE LISTED IN THE TABLE MUST BE INSTALLED ON A PRECAST TRANSFORMER FOUNDATION.

REFERENCES

CONCERETE- GENERAL	S-2070
SIX INCH SLUMP CONCRETE (2500 PSI)	S-2071
PRECAST TRANSFORMER FOUNDATION - 7' X 7' TOP	S-2231
PRECAST TRANSFORMER FOUNDATION - 8' X 8' TOP	S-2232
THREE PHASE PAD MOUNTED TRANSFORMER, 13KV DISTR.	S-5165 - A, B, C
UG AL. CABLE SIZING FOR TRANSFORMER SECONDARIES	S-5505
THREE PHASE PAD MOUNTED TRANSFORMER, 34KV DISTR.	S-5571 - A, B, C

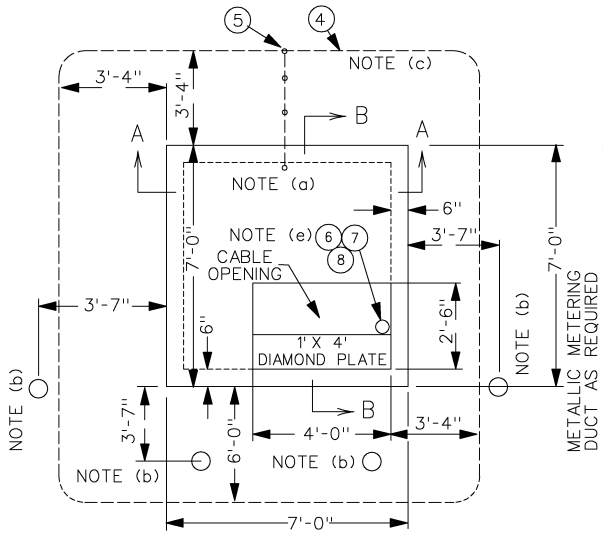
BILL OF MATERIAL

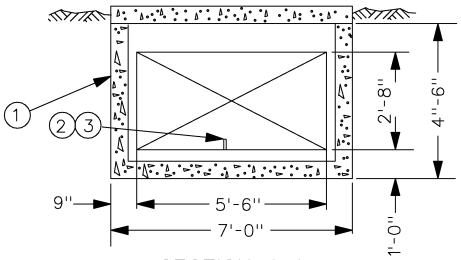
ITEM	CODE NO.	DESCRIPTION	QUANTITY
1	138-52501	ROD, GROUNDING, 5/8" X 10', POINTED	1
2	138-12500	CLAMP, 5/8", GROUND ROD	1
3	135-76855	WIRE, #4 SOL., CU., BARE, SD TIE	75'
4	132-14609	CONN., TAP, VISE TYPE, #4 SOL CU.	1
5	*	CONDUIT, METERING, RIGID METAL, 1 1/2" MIN I.D.	*
6	*	BUSHING, INSULATED, GROUNDING	*
7	199-66419	ROD, CONCRETE REINFORCING, 1/2" X 20'	*
8		CONCRETE, 2500 PSI MIN.	*

CONCRETE PAD & GROUNDING FOR 3 PHASE PADMOUNT DISTRIBUTION TRANSF. 13 & 34KV

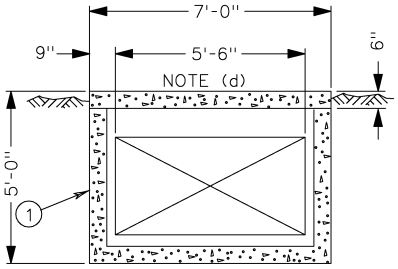
Figure 8.44

Ref. Constr. Std.S-1006





SECTION A-A



SECTION B-B

TRANSFORMER FOUNDATION REQUIREMENTS			
PRECAST TRANSFORMER FOUNDATION LID	PRIMARY VOLTAGE	SECONDARY VOLTAGE	TRANSFORMER SIZE (KVA)
7' X 7' X 6"	13KV	ALL	ALL

NOTE: IN 4 KV AREAS WHICH ARE DESIGNATED TO BE CONVERTED TO 34 KV, THE 7' X 7' X6' FOUNDATION LID MAY BE USED FOR THE FUTURE INSTALLATION OF 34 KV PADMOUNT TRANSFORMERS WHICH ARE 150 KVA OR LESS IN SIZE.

BILL OF MATERIAL

ITEM	CODE NO.	DESCRIPTION	QUANTITY
1	139-84511	PRECAST TRANSFORMER FNDN. W/7' X 7' TOP	1
2	138-55527	ROD, GROUND , 1/2" X 8'	1
3	138-12511	CLAMP, GROUND ROD	1
4	135-76855	WIRE, #4 SOLID COPPER, BARE	65
5	132-14606	CONNECTOR, TAP, VISE TYPE, #4 SOLID COPPER	1
6	*	METERING DUCT, METALLIC, 1 1/2 " MIN. I.D.	*
7	*	BUSHING INSULATED * AS REQUIRED FOR 480Y/277V LOW VOLTAGE RATINGS ONLY SUPPLIED BY CUSTOMER	*
8	*	GROUNDING BUSHING FOR METERING CONDUIT	*

* AS REQUIRED

NOTES

(a) SET PRECAST TRANSFORMERS FOUNDATION ON CRUSHED STONE. MINIMUM EXCAVATION IS 8' x 8' x 5' DEEP.

(b) INSTALL GUARD POSTS WHEN TRANSFORMER IS SUBJECT TO DAMAGE BY VEHICLES. USE 4" GALVANIZED STEEL PIPE FILLED WITH CONCRETE, SET IN 15" DIAMETER CONCRETE 3' DEEP. GUARD POST PIPE TO EXTEND 4' ABOVE FINAL GRADE.

(c) INSTALL #4 BARE COPPER FOR GROUNDING, PROVIDE 12" TO 18" COVER. EXTEND TO GROUND (ITEM 2) AND 2/0 COPPER WIRE EXTENDING THOUGH WALL OF PRECAST TRANSFORMER FOUNDATION.

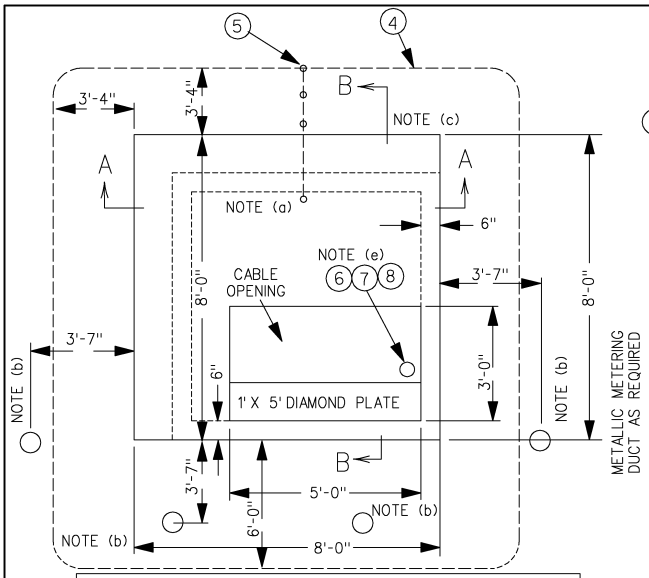
(d) INSTALL WITH TOP APPROXIMATELY 3" ABOVE GRADE.

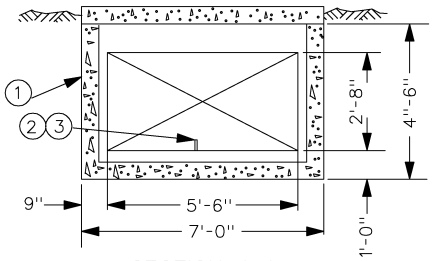
e) EXTEND METERING CONDUIT 6" ABOVE VAULT LID IN FRONT RIGHT CORNER OF CABLE OPENING.

PRECAST 3 PHASE TRANSFORMER FOUNDATION 7' X 7' TOP

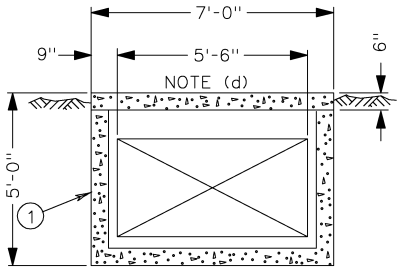
Figure 8.45

Ref. Constr. Std.S-2231





SECTION A-A



SECTION B-B

TRANSFORMER FOUNDATION REQUIREMENTS			
PRECAST TRANSFORMER FOUNDATION LID	PRIMARY VOLTAGE	SECONDARY VOLTAGE	TRANSFORMER SIZE (KVA)
8' X 8' X 6"	34KV	ALL	ALL

NOTE: IN 4 KV AREAS WHICH ARE DESIGNATED TO BE CONVERTED TO 34 KV, THE 7' X 7' X6' FOUNDATION LID MAY BE USED FOR THE FUTURE INSTALLATION OF 34 KV PADMOUNT TRANSFORMERS WHICH ARE 150 KVA OR LESS IN SIZE.

BILL OF MATERIAL

ITEM	CODE NO.	DESCRIPTION	QUANTITY
1	139-84511	PRECAST TRANSFORMER FNDN. W/8' X 8' TOP	1
2	138-55527	ROD, GROUND , 1/2" X 8'	1
3	132-14608	CLAMP, GROUND ROD	1
4	135-76855	WIRE, #4 SOLID COPPER, BARE	65
5	132-14606	CONNECTOR, TAP, VISE TYPE, #4 SOLID COPPER	1
6	*	METERING DUCT, METALLIC, 1 1/2 " MIN. I.D.	*
7	*	BUSHING INSULATED * AS REQUIRED FOR 480Y/277V LOW VOLTAGE RATINGS ONLY SUPPLIED BY CUSTOMER	*
8	*	GRIUNDING BUSHING FOR METERING CONDUIT	*

* AS REQUIRED

NOTES

(a) SET PRECAST TRANSFORMERS FOUNDATION ON CRUSHED STONE. MINIMUM EXCAVATION IS 8' x 8' x 5' DEEP.

(b) INSTALL GUARD POSTS WHEN TRANSFORMER IS SUBJECT TO DAMAGE BY VEHICLES. USE 4" GALVANIZED STEEL PIPE FILLED WITH CONCRETE, SET IN 15" DIAMETER CONCRETE 3' DEEP. PIPE TO EXTEND 4' ABOVE FINAL GRADE.

(c) INSTALL #4 BARE COPPER FOR GROUNDING, PROVIDE 12" TO 18" COVER. EXTEND TO GROUND (ITEM 2) AND 2/0 COPPER WIRE EXTENDING THOUGHWALL OF PRECAST TRANSFORMER FOUNDATION.

(d) INSTALL WITH TOP APPROXIMATELY 3" ABOVE GRADE.

(e) ENTERING METERING CONDUIT 6" ABOVE VAULT LID IN FRONT RIGHT CORNER OF CABLE OPENING.

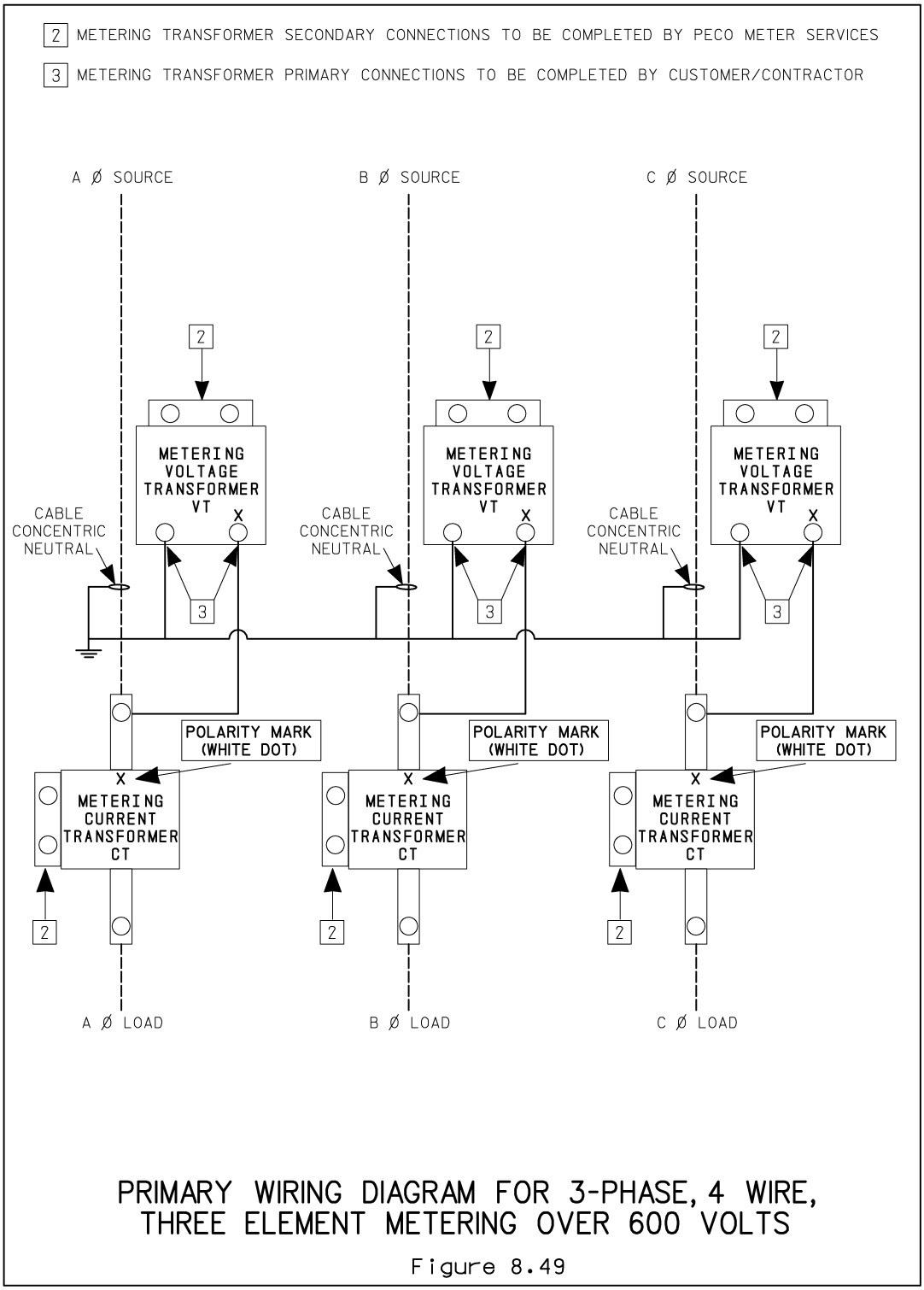
PRECAST 3 PHASE TRANSFORMER FOUNDATION 8' X 8' TOP

Figure 8.46

Ref. Constr. Std.S-2232

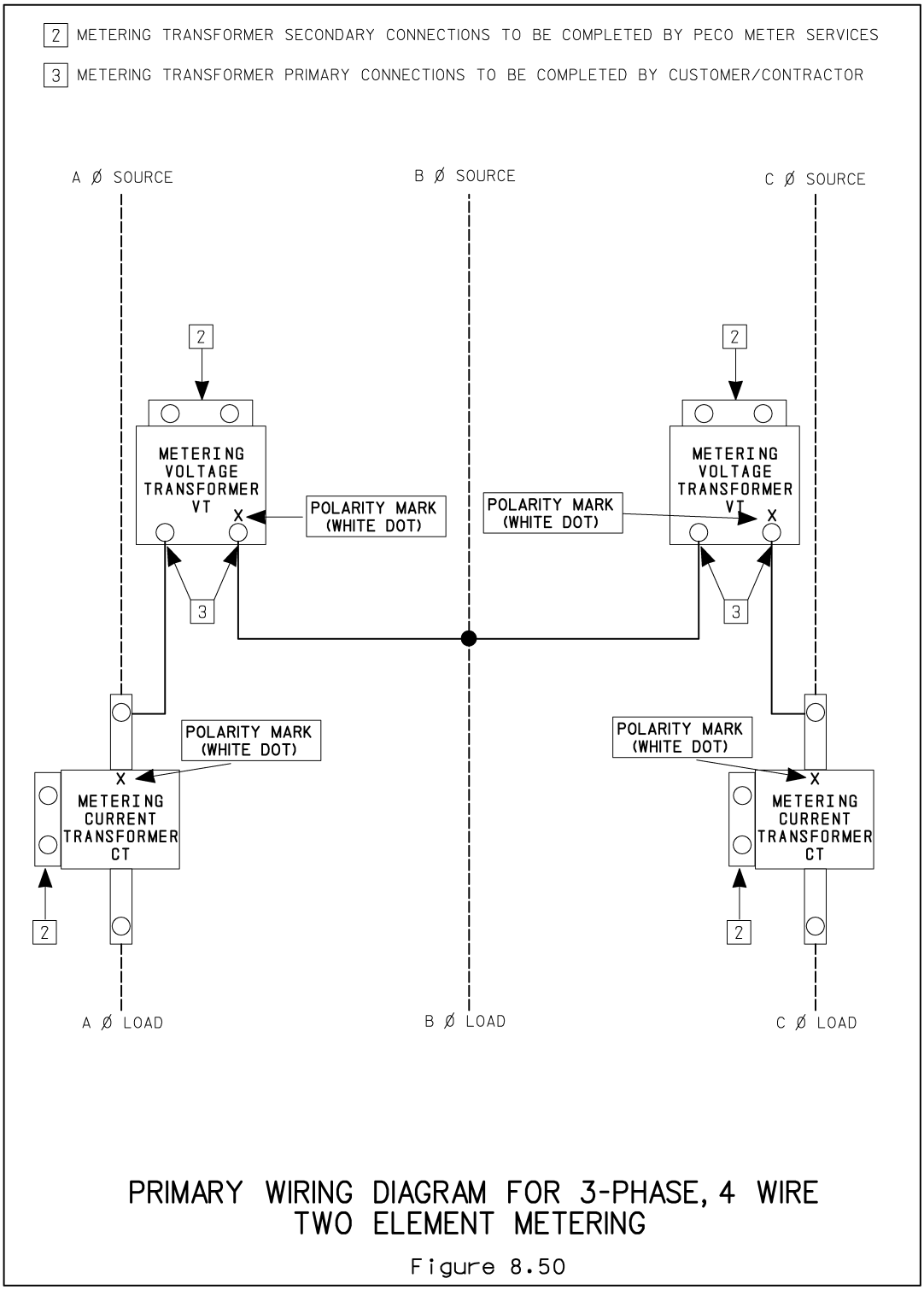
Figure 8.47 has been removed. Refer to Figure 12.13

Figure 8.48 has been removed. Refer to Figure 12.14



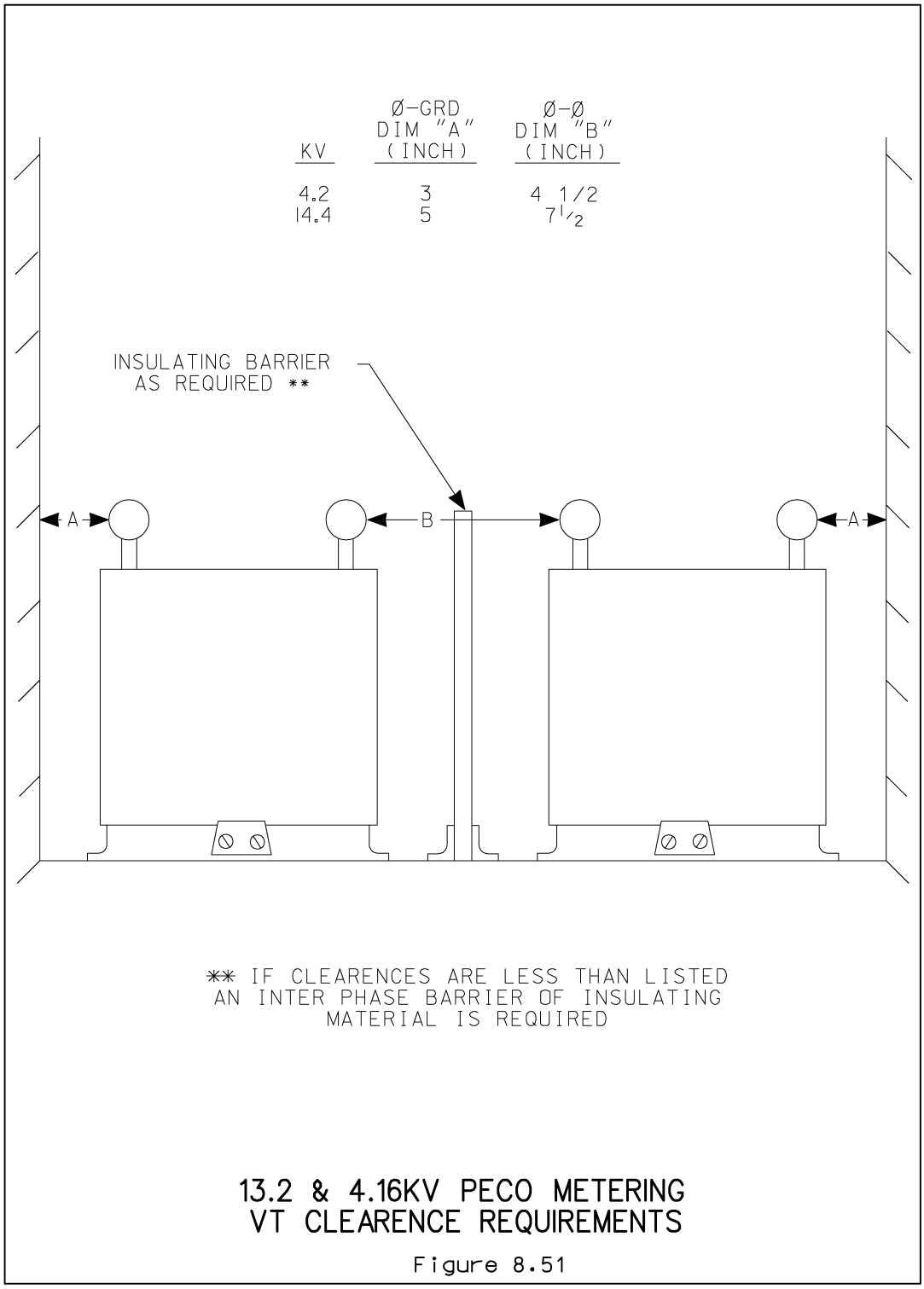
PRIMARY WIRING DIAGRAM FOR 3-PHASE, 4 WIRE, THREE ELEMENT METERING OVER 600 VOLTS

Figure 8.49



PRIMARY WIRING DIAGRAM FOR 3-PHASE, 4 WIRE
TWO ELEMENT METERING

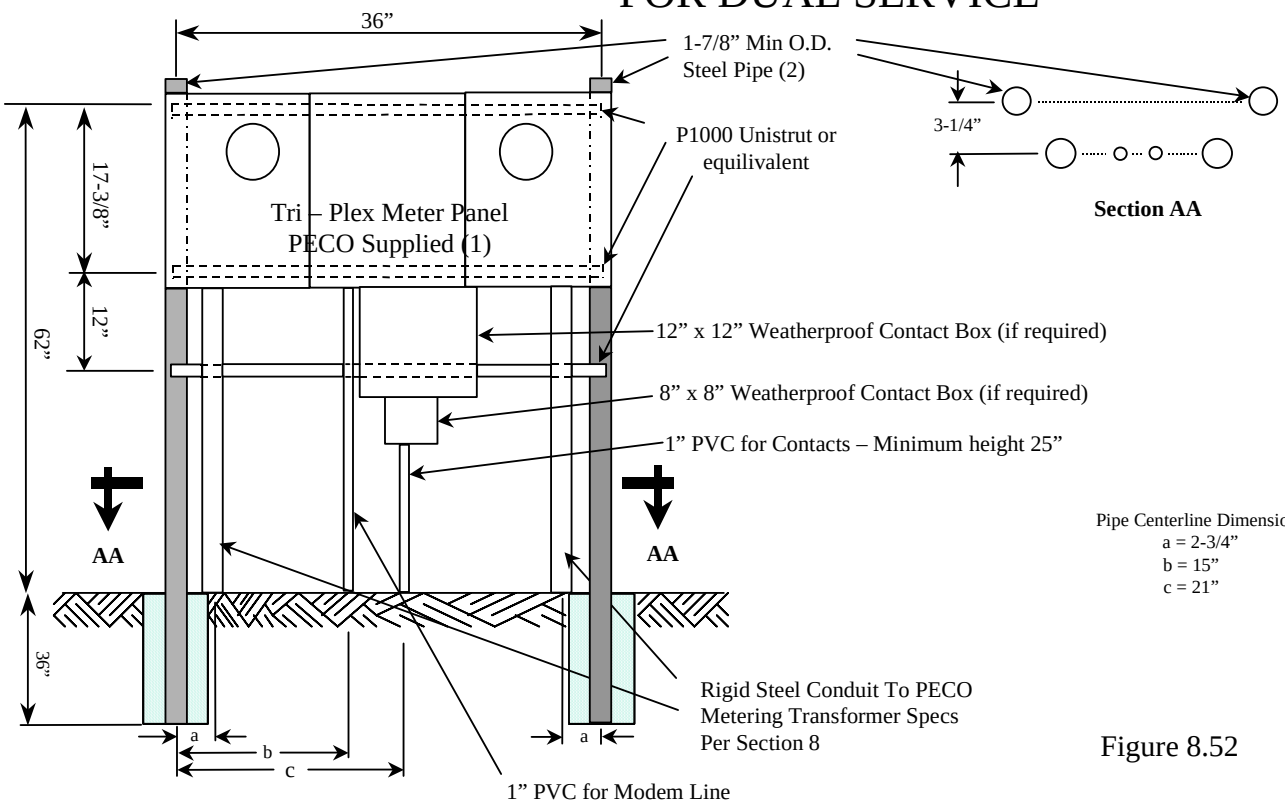
Figure 8.50



13.2 & 4.16KV PECO METERING VT CLEARENCE REQUIREMENTS

Figure 8.51

MODEM UNDER GLASS METER PANEL INSTALLATIONS FOR DUAL SERVICE



Pipe Centerline Dimensions
a = 2-3/4”
b = 15”
c = 21”

Figure 8.52

Notes:

(1) PECO catalog # 12981 for 13 jaw board (wye service) and 12982 for 11 jaw board (delta service).

pjv 9-25-03

(2) For indoor installations, eliminate ballards. Mount Unistrut on wall.