

## **FOREWORD**

This booklet is issued by the Electric Department of the City of Garland, herein after referred to Garland Power & Light or GP & L, to acquaint electric customers of Garland Power & Light, or customer's representatives, with the general character of electric service supplied by Garland Power & Light and to serve as a guide to architects, builders, electrical contractors, and engineers in the planning of electrical installations.

Specifications contained in this booklet supplement the applicable Ordinances of the City of Garland and shall be subordinate to these Ordinances and the National Electrical Safety Code.

These specifications supersede all Specifications for Electric Service previously issued by Garland Power & Light. Revisions to these specifications shall be made at the discretion of the Managing Director of the Electric Department of the City of Garland, and shall not require approval of the City Council.

As it is impossible to anticipate and to cover in a booklet of this nature all of the possible conditions and problems that may be encountered in obtaining or rendering electric service, Garland Power & Light will welcome an opportunity to give individual consideration to any such special conditions or problems.

Garland Power & Light sincerely desires to render prompt and satisfactory electric service, and it is to this end, that this booklet has been prepared.

# **SPECIFICATIONS FOR ELECTRIC SERVICE GARLAND POWER & LIGHT**

## **1.0 DEFINITION OF TERMS**

**1.1 CITY IS USED TO DESIGNATE THE CITY OF GARLAND, TEXAS.**

**1.2 AGREEMENT FOR ELECTRIC SERVICE:**

The agreement or contract between Garland Power & Light and Customer in accordance with which electric service is supplied and taken.

**1.3 GARLAND POWER AND LIGHT:**

Is used to designate the Electric Department of the City of Garland, Texas.

**1.4 CUSTOMER:**

Any individual, partnership, association, firm, public or private corporation, or governmental agency being served or using electricity at any specified location. For purposes of this booklet, the term "Customer" is broadened to include a present Customer, a prospective Customer, or an applicant for Garland Power & Light's electric service.

**1.5 CUSTOMER'S INSTALLATION:**

All wires, fuses, switches, appliances, and apparatus of every kind and nature used in connection with or forming a part of any installation for utilizing electricity for any purpose except Garland Power & Light's meter or metering equipment ordinarily located on the Customer's side of point of delivery, whether such installation is owned outright by the Customer or used by the Customer under lease or otherwise.

**1.6 CONNECTED LOAD:**

The combined nominal rated capacity of all motors or other electricity-consuming devices installed on the Customer's premises which, at the will of the Customer, may be operated with electricity supplied by Garland Power & Light.

**1.7 DISTRIBUTION MAINS:**

Garland Power & Light's distribution lines located along streets, alleys, highways, or on private property when used or intended for use for common distribution to Customers.

**1.8 ELECTRIC SERVICE:**

The supplying of electric power and energy or its availability, irrespective of whether any electrical power and energy is actually used. Service by Garland Power & Light consists of supplying approximately the agreed voltage and frequency at the point of delivery.

**1.9 POINT OF DELIVERY:**

The point of junction between Garland Power & Light's service wires and the Customer's service entrance conductors, unless otherwise provided in the Agreement for Electric Service.

**1.10 METER:**

A device, together with auxiliary equipment, for measuring the electric power and /or energy supplied to a Customer. An outdoor meter is defined as a meter and meter socket that is weatherproof and may be installed without a protective housing on the outside of a building.

**1.11 METER ENCLOSURE:**

A cabinet of metal construction, fourteen gauge steel or equivalent, and of specified dimensions used to enclose Garland Power & Light's meter and metering equipment.

**1.12 METER SOCKET:**

An approved metal receptacle of round, square, or rectangular design and of weatherproof construction used for mounting socket-type meters.

**1.13 OVERHEAD DISTRIBUTION:**

Where all facilities utilized by Garland Power & Light in the rendering of electric service are located above grade level, such as on utility poles.

**1.14 UNDERGROUND DISTRIBUTION:**

Where all or part of the facilities utilized by Garland Power & Light in the rendering of electric service are located at or below grade level, such as padmounted or sub-surface equipment supplied by underground lines.

**1.15 RATE CLASSIFICATION:**

The classification into which the Customer's load falls for rate purposes as determined by its characteristics, size and usage.

**1.16 SERVICE AVAILABLE:**

A written statement or drawing from Garland Power & Light designating the acceptable location of the Customer's service outlet; the proper location of meters and metering equipment; the type of service which Garland Power & Light has available or proposes to make available at the specific location under consideration; and the estimated connected load to be serviced.

**1.17 SERVICE DROP:**

Garland Power & Light's wires extending from Garland Power & Light poles to the Customer's premises and connecting Garland Power & Light distribution mains to Customer's service entrance conductors. (See Figure 130)

**1.18 SERVICE ENTRANCE CONDUCTORS:**

The wires provided by the Customer extending from his main line switch, or center at which circuits originate, to the terminals of Garland Power & Light's service wires.

**1.19 SERVICE OUTLET:**

The outside terminal portion of the Customer's wiring installation to which Garland Power & Light service wires are connected.

**1.20 SERVICE WIRES:**

That portion of Garland Power & Light's wires or conductors which extends from Garland Power & Light's distribution mains and to which the Customer's service entrance conductors are connected.

**1.21 STANDARD TYPE METER:**

A commercially available meter which can measure one of the standard types of service listed in Section 3.3 of these Specifications.

**1.22 TYPE OF SERVICE:**

The characteristics of electric service described in terms of voltage, phase, number of wires, and frequency.

**2.00 GENERAL INFORMATION**

**2.1 APPLICATION FOR SERVICE:**

All inquiries or application relating to the use of electric service should be made to Garland Power & Light. To facilitate the prompt rendering of electric service to new Customers or additional electric service to existing Customers, the following information should be supplied to Garland Power & Light:

*Exact location of the premises to be served;*

*Size of the proposed load;*

*General characteristics of the proposed load, such as lighting, motors, heating, etc.*

*Number and size of motors to be served;*

*Any special requirements of the load.*

**2.2 SERVICE AVAILABLE:**

Before work is started on any installation, the Customer or his representative should secure from Garland Power & Light a written "Service Available," statement which designates the type of service that is available or that Garland

Power & Light proposes to make available at the premises to be served, the acceptable location of the Customer's service outlet, the proper location of Garland Power & Light's meter and metering equipment, and the estimated amount of load to be served.

**2.3 AGREEMENT FOR ELECTRIC SERVICE:**

Electric service supplied to a Customer under each rate classification or through separate meters under the same rate classification will be covered by a separate Agreement for Electric Service. Garland Power & Light normally will supply to a Customer, under one Agreement for Electric Service, only one of the standard types of service listed in Section 3 of these Specifications.

The Customer's wiring and service equipment shall be so arranged that service under each Agreement for Electric Service can be delivered at one point and measured by one standard type meter.

Where a Customer requires more than one standard type of service or where the Customer's wiring is so arranged that Garland Power & Light cannot measure the electric service with one standard type meter, the electric service measured with each meter will be covered by a separate Agreement for Electric Service and will be billed separately. When requested by the Customer, primary metering will be provided at the Customer's expense.

**2.4 PERMIT, INSPECTION, AND APPROVAL OF CUSTOMER'S WIRING:**

The Customer's wiring installation must conform to the requirements of the Electrical Code of the City of Garland. Garland Power & Light is prohibited by City Ordinances from connecting its service wires to the Customer's service entrance conductors until Customer's wiring has been approved and a certificate of inspection and acceptance or permit has been issued by the Building Inspection Department of the City of Garland. This requirement shall not be applicable to the reconnection of a service which has been temporarily disconnected because of non-payment of bill or because of the necessity of temporary disconnection for the performance of maintenance work by Garland Power & Light. Garland Power & Light reserves the right to decline to serve any new installation or to discontinue service to any existing installation that is unsafe or does not comply with these Specifications.

**2.5 ENERGIZING OF CUSTOMER'S SERVICE:**

Only authorized employees of Garland Power & Light are permitted to make the connection between Garland Power & Light's service wires and the Customer's service entrance conductors.

**2.6 RESPONSIBILITY FOR ELECTRICAL INSTALLATION:**

Garland Power & Light does no wiring on the Customer's premises other than the installation of service wires and meters. The Customer shall be responsible for injury to persons or damage to property occasioned by or in any way resulting from electric service or the use thereof on the Customer's side of the point of delivery.

## **2.7 CONTINUITY AND QUALITY OF ELECTRIC SERVICE:**

Garland Power & Light uses reasonable diligence to provide continuous electric service, but it does not guarantee against irregularities or interruptions, it being understood that occasional irregularities and interruptions are inevitable. Customer is responsible for installing and maintaining protective devices as recommended or required by the then current edition of the National Electrical Code and other such devices as are necessary to protect Garland Power & Light's equipment or process during irregular or interrupted service including, but not limited to voltage and wave form irregularities, or the failure of part or all of the electrical service.

Garland Power & Light may, without notice and without liability to Customer, interrupt electric service to Customer when, in Garland Power & Light's sole judgment, such interruption:

- A) *Will prevent or alleviate an emergency threatening to disrupt the operation of Garland Power & Light's system, or*
- B) *Will lessen or remove possible danger to life or property, or*
- C) *Will aid in the restoration of electric service, or*
- D) *Is required to make necessary repairs to, tests of, or changes in Garland Power & Light's facilities, or*
- E) *When such interruption is authorized elsewhere in these specifications for Electric Service.*

Should the Customer have special needs, which renders it especially important that they receive advance notice of any intentional interruption of service, the Customer shall give written notice to Garland Power & Light of such need specifically identifying therein such need and requesting that Garland Power & Light provide advance notice where practical of any intentional interruption. Said notice and request from the Customer shall in no way relieve the Customer of any Customer's obligations pursuant to the specification for Electric Service nor shall said request and notice impose any additional duty or liability upon Garland Power & Light.

## **2.8 LIABILITY AND RESPONSIBILITY FOR DAMAGE, INJURY AND DISCLAIMER OF WARRANTIES:**

Garland Power & Light is responsible for the design, installation, operation, and maintenance of electric facilities up to and including the point of delivery except as provided elsewhere in this specification for Electric Service. Customer is responsible for the design, installation, operation, and maintenance of electric

facilities beyond the point of delivery except as provided elsewhere in this specification for Electric Service.

It is particularly understood that the Customer assures full responsibility for electric energy furnished to Customer at and past the point of delivery and will indemnify Garland Power & Light against and hold Garland Power & Light harmless from all claims for damages including, but not limited to, injuries to any persons, including death resulting there from, and damages to property occurring upon the premises of Garland Power & Light arising from electric power and energy delivered by Garland Power & Light whether or not caused by the negligence of Garland Power & Light except when the negligence of GP&L the Company or its agent or agents was the sole proximate cause of such injuries, death of persons or damages to property.

Without limiting the foregoing, Garland Power & Light is not and shall not be liable to Customer for damages occasioned by:

- A) *Irregularities or interruptions (of any duration), or failure to commence electric service, caused in whole or in part by:*
  - 1) *Governmental or municipal action or authority, litigation, public enemies, strikes, acts of GOD (including weather and its resulting consequences).*
  - 2) *An order from a Court of Judge granted in any bona fide adverse legal proceeding or action or any commission or tribunal having jurisdiction on the premises,*
  - 3) *Situations or conditions described in the second paragraph of Section 2.7 (A) – (C),*
  - 4) *The absence, inadequacy of failure of protective devices which are the responsibility of the Customer,*
  - 5) *Inadequacy or failure of generation or transmission facilities, or*
  - 6) *Any other act or thing reasonably beyond the control of Garland Power & Light or as may be authorized elsewhere in this specification for Electric Service; or*
- B) *Any interruption of service not occasioned by situations or conditions described in (A) above that has not existed continuously for beyond a reasonable period of time after notice to Garland Power & Light, which reasonable period shall under no circumstances be less than twenty-four (24) hours or any interruption of service of greater than an reasonable duration if Garland Power & Light has used reasonable diligence in attempts to restore electric service after Garland Power & Light is notified of such interruption.*

Garland Power & Light may perform voluntary or emergency acts to electric facilities which are the responsibility of the Customer but shall not be liable for damages or injuries resulting from said acts except to the extent that said damages or injuries are proximately caused by acts or omissions of Garland Power & Light which are found to be wanton or willful with the intent to cause injury.

In any claim or cause of action relating to the provision of electric service asserted by Customer or any other person against Garland Power & Light, Garland Power & Light shall not be liable for any consequential, special, or non-direct damages, including but not limited to loss of use of equipment, extra expense due to the use of temporary or replacement equipment, loss of electronic data or program, loss of business revenue, costs of capital or any cost not part of necessary repair to or reasonable replacement of electric equipment whether the claim or cause of action is based upon contract, tort, negligence, products liability, or any other theory of recovery.

**GARLAND POWER AND LIGHT MAKES NO WARRANTIES WHATSOEVER WITH REGARD TO THE PROVISION OF ELECTRIC SERVICE AND DISCLAIMS ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

### **3.00 TYPES OF SERVICE**

#### **3.1 GENERAL CHARACTERISTICS OF SERVICE:**

Electric service supplied by Garland Power & Light is alternating current having a nominal frequency of 60 cycles per second. This nominal frequency is maintained within commercial limits of accuracy and is suitable for general time service.

The standard nominal voltage for all lighting service supplied by Garland Power & Light is 120 volts.

The standard nominal voltage for power service supplied at the point of delivery by Garland Power & Light is 208 volts, 240 volts, or 480 volts, depending on facilities for rendering service at the specific location.

Heating, electronic, magnetically operated control and other power equipment generally give successful performance only when operated at or near rated voltages of the equipment. The Customer is advised, therefore, to consult with Garland Power & Light to determine the nominal power voltage to be supplied at the premises to be served before purchasing utilization equipment or proceeding with the wiring installation.

#### **3.2 AVAILABILITY OF SERVICE:**

Service of the type requested by a Customer may not be available at the location where such service is desired and, in certain cases, may be made available only



through special negotiation and at the expense of the Customer. The Customer or his representative is urged, therefore, to consult with Garland Power & Light and obtain a written "Service Available" statement before starting work on any electrical installation.

### **3.3 STANDARD TYPES OF SERVICE:**

The following standard types of service are available to Customers.

#### **3.31 SINGLE-PHASE SERVICE:**

Availability to Customers for lighting, appliances, motor, and other loads and generally recommended by Garland Power & Light where the total demand of the Customer is 50 KW or less and where the rating of individual motors is 7.5 HP or less. The various types of single-phase service available to Customers are:

##### **3.311 SINGLE-PHASE, 120 VOLT, 2-WIRE SERVICE:**

Generally available to Customers having installations with one or two branch line circuits where any motors to be served are rated at  $\frac{3}{4}$  HP or less.

##### **3.312 SINGLE-PHASE, 120/240 VOLT, 3-WIRE SERVICE**

Generally available to customers where the total demand of the Customer is 50 KW or less and where the size of the individual motors is 7.5 HP or less. May be made available for larger loads in special cases.

#### **3.32 THREE-PHASE SERVICE:**

Generally available to Customers for lighting, appliances, motors, or other loads where the total demand of the Customer exceeds 50 KW or where the size of individual motors is larger than 7.5 HP. The various types of three-phase service available to Customers are:

##### **3.321 THREE-PHASE, 120/208 VOLT, 4-WIRE SERVICE:**

Generally available to customers for large loads having demands in excess of 150 KW.

##### **3.322 THREE-PHASE, 120/240 VOLT, 4-WIRE SERVICE:**

Available to Customers where the demand of the Customer exceeds 50 KW or where the size of individual motors is larger than 7.5 HP (5 HP in special applications). All single-phase, 24 Volt equipment should be connected to energized lighting conductors unless otherwise agreed to by Garland Power & Light. Where the single-phase demand exceeds 150 KW, Garland Power & Light should be consulted for other recommended types of service.

##### **3.323 THREE-PHASE, 277/480 VOLT, 4-WIRE SERVICE:**

Available to Customers where the demand of the Customer exceeds 150 KW.

##### **3.324 THREE-PHASE, 480 VOLT, 3-WIRE SERVICE:**

No self-contained metering.

**3.4 SPECIAL TYPES OF SERVICE:**

It is recognized that the standard types of service listed in these Specifications may not conform to the service requirements of some Customers. In such case, other types of service may be made available through negotiations between the Customer and Garland Power & Light.

**4.00 SERVICE INSTALLATION**

**4.1 SERVICE WIRES AND CABLES:**

Garland Power & Light normally will supply only one standard type of service to a premise or building and will specify the type of "Service Available" and the exact point of delivery after consulting with the Customers.

**4.2 SERVICE DROP:**

Garland Power & Light normally will install a service drop from Garland Power & Light's distribution mains to the Customer's service outlet. The maximum length of the service drop which Garland Power & Light may install is determined by the amount and type of load to be served. Allowable voltage drop and mechanical factors, determined by the size and number of wires in the service drop, impose practicable limits on its length.

For residential or small commercial Customers where the main line switch capacity does not exceed 200 amperes, the maximum length of the service drop is limited to 125 feet. When this distance exceeds 125 feet, the City may require an intermediate service pole on the Customer's premises. For other Customers the maximum length of the service drop is usually limited to substantially less than 125 feet. A Service drop serving one building will not be attached to another building which may be located between Garland Power & Light's distribution mains and the point of delivery.

**4.3 CLEARANCES FOR SERVICE DROP:**

Garland Power & Light's service drop must be installed as to provide the following minimum clearances above ground.

- Over railroads .....27 feet**
- Over State highways .....22 feet**
- Over streets, alleys, parking lots, service areas, or driveways open to the public.....18 feet**
- Over private (residential) driveways.....12 feet**

Service drop conductors shall not be installed above a swimming pool or surrounding area extending 10 feet horizontally from the pool edge or diving structure, observation stands, towers, or platforms. A service drop installed over a building must have a clearance of not less than 8 feet from highest point of roofs over which it passes.

#### **4.4 ANCHORAGE FOR SERVICE DROP:**

For attachment of Garland Power & Light's service drop to plastered walls, hollow tile, metal lath, cement blocks, brick or stone veneer, or any other type of construction not permitting proper anchorage of the service drop by means of screw hook insulators, eyebolts will be furnished by the Customer. In all cases where the capacity of the Customer's main line switch or the combined capacity of the Customer's multiple main line switches exceeds 200 amperes, an eyebolt will be installed if possible. The eyebolt must be installed not more than 12 inches above, below, or on either side of the Customer's service outlet. (See Figure 135B). For very large installations more than one eyebolt may be required. Where eyebolts cannot be installed or where the building height will not permit the required clearances for Garland Power & Light's service drop, the Customer shall install a service support as specified by Garland Power & Light. Customer's service outlet is to be located on the service support as specified by Garland Power & Light. Customer's service outlet is to be located on the service support within 12 inches of the eyebolt supporting Garland Power & Light's service drop. (See Figure 135). For reliability and better appearance, service masts only are recommended for service supports on residential and small commercial buildings. (See Figure 125).

#### **4.5 SERVICE OUTLET:**

The Customer's service outlet shall be located on the outside of the building as specified in the "Service Available" statement, and shall be installed by the customer. The service outlet shall, if practicable, be on a wall that is parallel to Garland Power & Light's distribution mains to which the service wires connect and shall be located so as to provide a clear passage for the service drop from Garland Power & Light's pole to the Customer's service outlet.

If the Customer's service outlet cannot be located on a wall parallel to Garland Power & Light's mains, a suitable support shall be provided so that the outlet can be served properly from the Garland Power & Light's supply line without violating code clearance and with minimum interference with use of adjacent property.

The Customer's service outlet shall be installed so that all exposed wires are between 9 feet and 25 feet above the ground. The service outlet shall be so located that neither Garland Power & Light's conductors nor those of the Customer shall be nearer than two feet to any telephone or signal wires, and the conductors must have a clearance of not less than 36 inches from windows, doors, porches, or fire escapes from which they may be accessible.

**Grouping:** Where there is more than one service outlet, the outlets shall be grouped as closely as practicable unless otherwise specified by Garland Power & Light. Where there are five or more service outlets for the same building, a distribution box may be installed. This box will be furnished and installed by the Customer. (See Figure 210).

***Service Entrance Conductors:*** Service entrance conductors may be installed in rigid metal conduit, metal raceway, or electrical metallic tubing. Where metallic raceway with removable covers are used, provisions for sealing these covers must be provided. Service entrance conductors shall be provided with an approved weatherproof entrance fitting where they extend from the Customer's building.

To permit connection to Garland Power & Light's service drop, the Customer's service entrance conductors must extend from the service outlet a minimum of 2 feet. The neutral conductor either shall be bare or shall have a white or gray insulation or other means of positive identification. (See Figure 175 & 180). In no case may service entrance conductors be installed in the conduit compartment, or raceway with other wiring of the Customer.

**4.6 CUSTOMER'S UNDERGROUND SERVICE:**

Where Customer's underground service is to be placed on Garland Power & Light's poles, Garland Power & Light must be contacted so that the pole may be marked for location and height of risers.

**4.7 TRANSFORMER INSTALLATIONS ON CUSTOMER'S PREMISES:**

Where large loads of considerable distances are encountered, it is sometimes necessary to install distribution transformers on Customer's premises. In such cases the customer shall provide, at no expense to Garland Power & Light, suitable space and location for Garland Power & Light's equipment.

The requirements of such installations vary widely, and it is necessary in each such case for the Customer and Garland Power & Light to confer so that satisfactory arrangements can be made.

**4.8 TEMPORARY INSTALLATIONS:**

Where service is required for construction or other temporary purposes, the Customer will provide suitable anchorage for Garland Power & Light's service drop and suitable location for installation of Garland Power & Light's meter.

The Customer's installation in such cases shall provide a clearance of conductors above ground in conformance with City Electric Code, but in no case will the conductors be less than nine feet above ground. A minimum switch capacity of 60 amperes is required.

**4.9 METER POLE INSTALLATIONS:**

In cases where the Customer's building will not provide suitable anchorage for Garland Power & Light's service drop or in those cases where the Customer does not have a building on the premises, the Customer may be required to provide and maintain, at his expense, a meter pole or support on which the Customer's service equipment and Garland Power & Light's metering equipment will be installed.

#### **4.10 METERS AND METERING EQUIPMENT:**

Garland Power & Light will normally supply and install on the Customer's premises one standard type meter under one agreement for electric service. All meters are furnished and installed by Garland Power & Light. Meter sockets, meter enclosures and other meter equipment are normally furnished by Garland Power & Light. Customer installs and maintains these facilities including replacement due to overload or damage. It is necessary for Customers, particularly those installing separate lighting and power, to give special consideration to the arrangement of their wiring installation so that all of their electric power and energy can be measured with one standard type meter.

Garland Power & Light will be glad to confer with the Customer and to supply all necessary information concerning type, dimensions, and connections of metering equipment to be used.

#### **4.11 METER SEALS:**

It is the practice of Garland Power & Light to seal or lock its meters. No one except Garland Power & Light Agents shall remove a meter seal or lock.

#### **4.12 METER INSTALLATIONS: GENERAL:**

Meter sockets shall be used on all services, which do not require current transformers regardless of where the meter is installed. The standard sequence of connections for meter installation is: **LINE – METER – SWITCH – FUSE – LOAD**

Meters shall be installed on a vertical wall or other support where the view from the ground is unobstructed. Meters shall not be installed over porches, awnings, doors, windows, air conditioning equipment or other obstructions. The portion of the service entrance conduit ahead of meters must be on the outside of the building. However, where service entrance conduit is used for a service support, it may run through an overhanging eave.

Where two or more Customers occupy the same building, the meters shall be plainly and permanently identified by the Customer to designate the particular apartment or portion of the building served. All meter sockets will be furnished by Garland Power & Light and installed by the Customer at his expense. Garland Power & Light will furnish meter sockets, and current transformer cabinets as they are needed and can be obtained from The City Warehouse located at 1720 East Commerce. When such equipment is supplied, The City Warehouse must be given the address at which it is to be installed. All CT cabinets are to be installed on outside of building.

#### **4.121 RESIDENTIAL: 400 AMPERES OR LESS:**

This service classification includes single family residence, duplexes, and apartment houses where service to each occupant is metered separately. Meters for such residential Customers shall be installed outdoors so that the top of the meter shall be between four and six feet above the ground. Single phase, heavy-

duty (400 amperes) sockets serving more than one occupant and all polyphase sockets shall be installed so that the top of the meter shall be between four and six feet above the ground.

Not more than one polyphase or heavy-duty single-phase socket may be served from one service outlet. When load conduit is installed in the back or side of a meter socket, it must enter below the meter terminal block.

**4.122 COMMERCIAL AND INDUSTRIAL: 400 AMPERES OR LESS:**

This service classification includes apartment houses where more than four apartments are metered on one meter and other commercial and individual customers. Sockets serving these Customers must be mounted so that the top of the meter shall be between four and six feet above the ground. Not more than one socket may be served from one service outlet. When load circuit is installed in the back or side of a meter socket, it must enter below the meter terminal block. A four-inch clearance is required on each side of the meter socket.

**4.123 CURRENT TRANSFORMERS (CT'S):**

When the capacity of the Customer's main line switch is larger than 400 amperes, current transformers are required. Current transformers will be provided by Garland Power & Light and installed by the Customer on the "LINE" side of the Customer's main line switch.

**4.124 CURRENT TRANSFORMER CABINETS:**

When current transformers are required, Garland Power & Light shall furnish and the Customer shall install a suitable cabinet in which the Customer will mount current transformers. The Customer shall provide and install a ¾ inch plywood backing to the cabinet in which to mount the current transformer on. The cabinets will be installed outdoors, with the top of the cabinet not higher than seven feet above the floor.

A minimum working space and passage of three feet shall be provided in front of all current transformer cabinets. *Service entrance conductors shall be continuous through the cabinet except the neutral which may be spliced at the point of bonding to the current transformer cabinet.* To facilitate connections, conduits shall enter and leave the cabinet as shown in Drawings 155, 155A, 160, and 165. Current transformer cabinets will be furnished in accordance with the following table:

**TABLE 1 – CURRENT TRANSFORMER CABINETS**

| <b>PHASE</b> | <b>LINE SWITCH CAPACITY</b> | <b>CABINET SIZE</b> |
|--------------|-----------------------------|---------------------|
| 1            | From 300 to 600 Amperes     | 24" X 30" X 10"     |
| 1            | From 700 to 1,600 Amperes   | 32" X 36" X 13"     |
| 3            | From 300 to 600 Amperes     | 32" X 36" X 13"     |
| 3            | From 700 to 1,600 Amperes   | 36" X 46" X 13"     |

**4.125 OUTDOOR CABINETS:**

Outdoor current transformer cabinets are furnished by Garland Power & Light and installed by the Customer.

**4.126 METER ENCLOSURE:**

Where current transformers are required, a meter cabinet will be furnished by Garland Power & Light for installation by the Customer. Specifications for the meter cabinet may be obtained from Garland Power & Light.

**4.127 METER BASE WIRING – OVERHEAD:**

Customer will be responsible for making up line and load side connections of meter base. Garland Power & Light will make up connections at weatherhead.

**4.128 METER BASE WIRING – UNDERGROUND:**

Customer will be responsible for making up load side connections of meter base. Garland Power & Light will make up line side connections of meter base.

**4.129 RELOCATION OF METER:**

Garland Power & Light may, at its option and its expense, relocate any meter. In case of a relocation made necessary due to inaccessibility, hazardous location, or dangerous conditions for which Customer is responsible or in order to prevent a recurrence of unauthorized use of electricity or tampering with Company equipment, Customer may be required to pay the cost to relocate the metering equipment to a location agreeable to the company.

Under no circumstances are any meter installations to be moved or relocated except as authorized by Garland Power & light.

**5.00 CUSTOMER’S WIRING AND UTILIZATION EQUIPMENT**

**5.1 CUSTOMER’S WIRING INSTALLATION:**

In view of the rapid development of new electrical equipment and the increased use of electric service in the home, store, and factory, it is suggested that spare capacity for future use be provided whenever new wiring installations are made.

**5.11 SERVICE ENTRANCE CONDUCTORS:**

In establishing the number and size of service entrance conductors, consideration should be given to the probable ultimate load that will be connected as well as the load at the time the wiring installation is made. Allowance should be made for future additions of lighting, appliances or motor equipment, and adequate service facilities installed so that expensive modifications at a later time may be avoided.

**5.12 GROUNDING:**

To assure maximum safety to users of electric service, it is necessary that the Customer provide an adequate and permanent ground connection to the neutral terminal in the main line switch box, in accordance with The City Electrical Code. Customer’s equipment ground shall not originate in the meter socket.

The grounded neutral conductor of all services, if insulated, shall have distinguishing (white or gray) insulation, continuous from the service outlet through the meter socket for all service entrance conductors of #4 AWG or smaller.

For larger conductors, the grounded conductors shall be positively identified, preferably by use of colored tape on the conductor. (See Figure 175 & 180).

**5.13 CHANGE IN CUSTOMER'S WIRING INSTALLATION:**

Before significant additions or alterations are made to the Customer's electrical installations, Garland Power & Light should be notified. Where building alterations are made to the Customer's electrical installations, Garland Power & Light should be notified. Where building alterations or rewiring make necessary any changes in Garland Power & Light's facilities, the new wiring must be completed and approved by the Electrical Inspector before Garland Power & Light will connect to the new wiring.

Contractors must maintain metered service during the period of rewiring when continuity of service is required. Closed meter loops will not be permitted, and the unauthorized removal of metering equipment will make the contractor liable for the value of the equipment. Only authorized employees of Garland Power & Light are permitted to make the connection between Garland Power & Light's service wires and the Customer's service entrance conductors.

**5.14 RELOCATION OF SERVICE FACILITIES:**

Request for changes in the point of delivery of service wires should be directed to Garland Power & Light.

**5.2 CUSTOMER'S UTILIZATION EQUIPMENT:**

Customer's utilization equipment consists of all electrical equipment requiring electrical service for its operation.

Where the service voltage is 120/208 volts and motors are rated  $\frac{3}{4}$  HP or less, Customers should purchase 120 volt air conditioners and other motor driven devices.

Where the service voltage is 208 volts and motors are rated in excess of  $\frac{3}{4}$  HP, 208 volt motors should be used. Electric ranges which are served at 208 volts should have 208 volt elements for satisfactory operation. It is to the Customer's interest that all such equipment be of appropriate design and adequate for the use to which it is put. Garland Power & Light is ready at any time to work with and to advise the Customer concerning the application of all types of electrical equipment.



### **5.21 MOTOR PROTECTION DEVICES:**

All motors should be equipped with effective thermal overload devices for protection of the motors and associated wiring. Automatically operated small motors, such as those used on: refrigerators, oil burners, air conditioners, etc. should be equipped with individual time-delay thermal overload protection.

On central air-conditioning systems, heat pumps, and other motor driven devices whose rating is 7.5 HP or less, use of single-phase motors are generally recommended since three-phase motors without complete thermal-overload protection may be damaged by single-phase operation following a partial interruption of service. Although every effort is made by Garland Power & Light to render continuous service, Garland Power & Light cannot guarantee that complete or partial interruptions of service will not occur. Three-phase motors may be damaged by single-phase operation unless they are protected by thermal-overload devices whose thermal characteristics conform to the requirements of the particular motor which they are designed to protect. Motors that cannot be subjected to full voltage at starting should be protected with a low voltage release; i.e. a protective device to disconnect the motor automatically from the line and return the starting device to the "off" position upon failure of the supply voltage. Where a low voltage release is applied, it is recommended that the device be of the adjustable time-delay type so as to prevent unnecessary disconnection of the motor on momentary loss of voltage.

Three-phase motors for application where reversal of rotation may cause damage to equipment or constitute a hazard of personnel should be protected by reverse-phase relays and automatic circuit breakers to protect the installation in case of phase reversal.

### **5.22 MOTOR STARTING CURRENTS:**

Most motors require a starting current substantially in excess of their normal running current, with the result that an abnormal drop in the supply voltage may occur in those cases where starting currents are excessive. It is essential, therefore, that Customer's motors have good starting characteristics if abnormal drops in voltage are to be avoided and the effect of such voltage drops on lighting installations minimized.

Garland Power & Light reserves the right to accept motors for connection to its lines only after a test has been made to determine that the starting current is not excessive or after acceptable control equipment has been installed by the Customer.

Customers contemplating the installation of large motors should consult with Garland Power & Light to determine the allowable motor starting currents at the specific location where service is desired before placing orders for motor and motor control equipment.

**5.23 FLORESCENT LIGHTING INSTALLATION:**

All new florescent lighting installations should have a corrected power factor of not less than 90%.

**5.24 WELDERS, FURNACES, AND X-RAYS:**

Electric welders, furnaces, and similar equipment have inherent operating characteristics, which usually cause serious fluctuations in the service voltage. The fluctuations affect not only service to the Customer using such equipment, but also the service of other customers.

In addition, such devices may require changes in Garland Power & Light's installation if satisfactory service is to be provided. It is necessary, therefore, for the Customer to consult with Garland Power & Light before purchasing equipment of this type. In some cases, it may be found that the proposed load cannot be served at the specific location without adversely affecting the quality of service supplied to others unless suitable equipment is provided. Garland Power & Light, therefore, may be compelled to decline service to the proposed load unless the Customer agrees to provide, at his expense, suitable equipment.

The operation of x-ray machines is adversely affected by very minor variations in voltage, and for satisfactory operation such machines may require a separate service entrance.

The service entrance conduit for separate 240 volt, two-wire welder or x-ray services shall contain a ground wire (#8 AWG minimum) from the service outlet to the meter socket.

**5.25 RANGES, OVENS, AND OTHER HEATING DEVICES:**

Where large heating devices are operated from three-wire or four-wire services, the elements should be connected so that the load will be evenly balanced. Where such equipment has automatic control that may cause frequent connection and disconnection of the load, the Customer should consult with Garland Power & Light concerning the allowable variation in load in any one step.

For satisfactory performance, heating devices must be operated at or near the voltages for which they were designed. The Customer, therefore, should consult with Garland Power & Light and determine the exact type of service to be supplied before placing orders for heating equipment.

**5.26 RADIO AND TELEVISION ANTENNAE:**

Antennae for radio and television sets shall not be erected over Garland Power & Light's poles, or other equipment, or near enough to Garland Power & Light's lines to fall into them in case of wind storms. To do so may lead to serious accidents to persons and damage to property and may also prevent satisfactory radio and television reception. For best reception, radio antennae should be located as far as practical from Garland Power & Light's lines.

**5.27 ATTACHMENTS TO GARLAND POWER & LIGHT'S:**

No attachments may be made to Garland Power & Light's poles without specific authorization from Garland Power & Light.

**5.28 CABLE TERMINATION:**

Where Customer owned cable terminates into Garland Power & Light owned equipment, the Customer will supply the terminator. The terminator shall be compression type with standard hole spacing, either two or four hole, depending on application. The hole sizes will be 9/16 inch to accommodate ½ inch bolts. Garland Power & Light will install the customer-supplied terminators in transformers. The Customer will install the terminators in the connection cubicles.

**6.00 TEMPORARY ELECTRIC SERVICE:**

**6.1 TEMPORARY SERVICE:**

Garland Power & Light may furnish temporary electric service when and where the system has sufficient capacity in lines, transformers, and generating equipment available for such service. Temporary service is defined as short-term or recurring seasonal service supplied through utility and/or customer facilities that are wholly or substantially temporary.

**6.2 CHARGES:**

For temporary service, the Customer shall pay Garland Power & Light in advance the estimated cost of all materials, equipment, supplies, cartage, and labor for installing and removing the necessary facilities required to furnish service and the Established Account Connection Fee. Monthly charge for energy will be in accordance with the applicable residential or General Service Rate. In lieu of monthly billing, Garland Power & Light may, at its option, elect to render a single bill for all energy consumed during the period a temporary service is connected. Rates charged for labor, cartage, equipment, and materials may be established annually by The City Council.

**6.3 EXTENSION LINES:**

It shall be unlawful for any person to use an extension line from any temporary service facility when such extension line extends across any street, alley, or other public right-of-way. It shall be unlawful for any extension line from a temporary service, building or structure, subject to the provisions of the Garland Electrical Code.

**6.4 CONNECTION AND DISCONNECTION:**

It shall be unlawful for any person other than authorized employees of Garland Power & Light to connect temporary service facilities to Garland Power & Light's electric utility lines or to disconnect such facilities from Garland Power & Light's electric utility lines.

## **7.00 UNDERGROUND SERVICE:**

### **7.1 UNDERGROUND SERVICE:**

Underground service will be provided to Customers who meet Garland Power & Light's requirements as set out herein. Garland Power & Light reserves the right to decline to provide underground service in areas where Garland Power & Light's existing facilities are not suitable for supplying underground service. Conditions of underground electric service are as follows:

- A) *Location and routing of Garland Power & Light's distribution system is determined by Garland Power & Light.*
- B) *Prior to beginning of construction Customer provides at no cost, easements for Garland Power & Light's underground conductors, transformers and other associated electrical equipment.*
- C) *Prior to beginning of construction Customer provides at no cost, underground conduits or raceways at all locations which Garland Power & Light determines will be inaccessible in the future because of street or alley paving, parking paving, retaining walls, landscaping or other reasons.*
- D) *Prior to beginning of construction Customer completes rough site grading, establishes final grade along the route of the electric distribution facilities, identifies all property and easement corners and clears the area of all obstructions which would interfere with Garland Power & Light's construction. No change can be made in the grade along the conductor route or within easements without Garland Power & Light's consent. Any raising or lowering of Garland Power & Light's distribution facilities required because of a change in grade will be at the expense of the customer.*

### **7.02 UNDERGROUND SERVICE LATERAL:**

#### **A) Residential Customer**

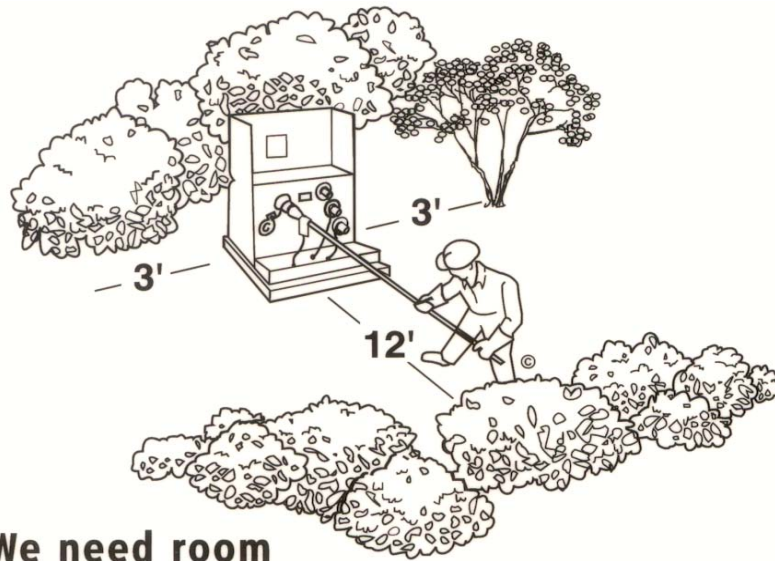
Garland Power & Light will furnish, install and maintain the service lateral connecting Garland Power & Light's distribution system to Customer's electrical installation. Where a Customer installs obstructions (walks, driveways, retaining walls, paved parking, etc.) in the path of Garland Power & Light's service lateral, Garland Power & Light will require the Customer to install raceway for Garland Power & Light's service lateral, if not pre-existing. Meters on residential structures must be located as indicated elsewhere in this specification.

#### **B) Non-Residential Customer**

Customer furnishes, installs and maintains the service lateral from the Customer's electrical installation to the point of delivery, which is located at Garland Power & Light's pole, transformer or connection enclosure.

### 7.03 TRANSFORMER AND EQUIPMENT:

Garland Power & Light provides, installs and maintains transformer and associated equipment. Customer provides, without cost to Garland Power & Light, space on Customer's premises suitable to Garland Power & Light for the installation of transformer and other equipment required to provide electric service to the Customer. Customer provides adequate and accessible space to allow transformer and equipment maintenance and replacement.



**We need room to work safely on this device. Please keep shrubs and structures 12 feet away from front side and 3 feet from other sides.**

**Obstructions will cause delays when restoring electric service.  
For planting instructions call  
GARLAND POWER & LIGHT at 205-3000**

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- 125** Typical Service Mast Installation
- 130** Typical Service Drop Clearance Requirements
- 135** Typical Service Drop Clearance Requirements
- 135A** Typical Service Drop Clearance Requirements Tables for Construction
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- 185** Typical Underground Residential Service Installation from Street
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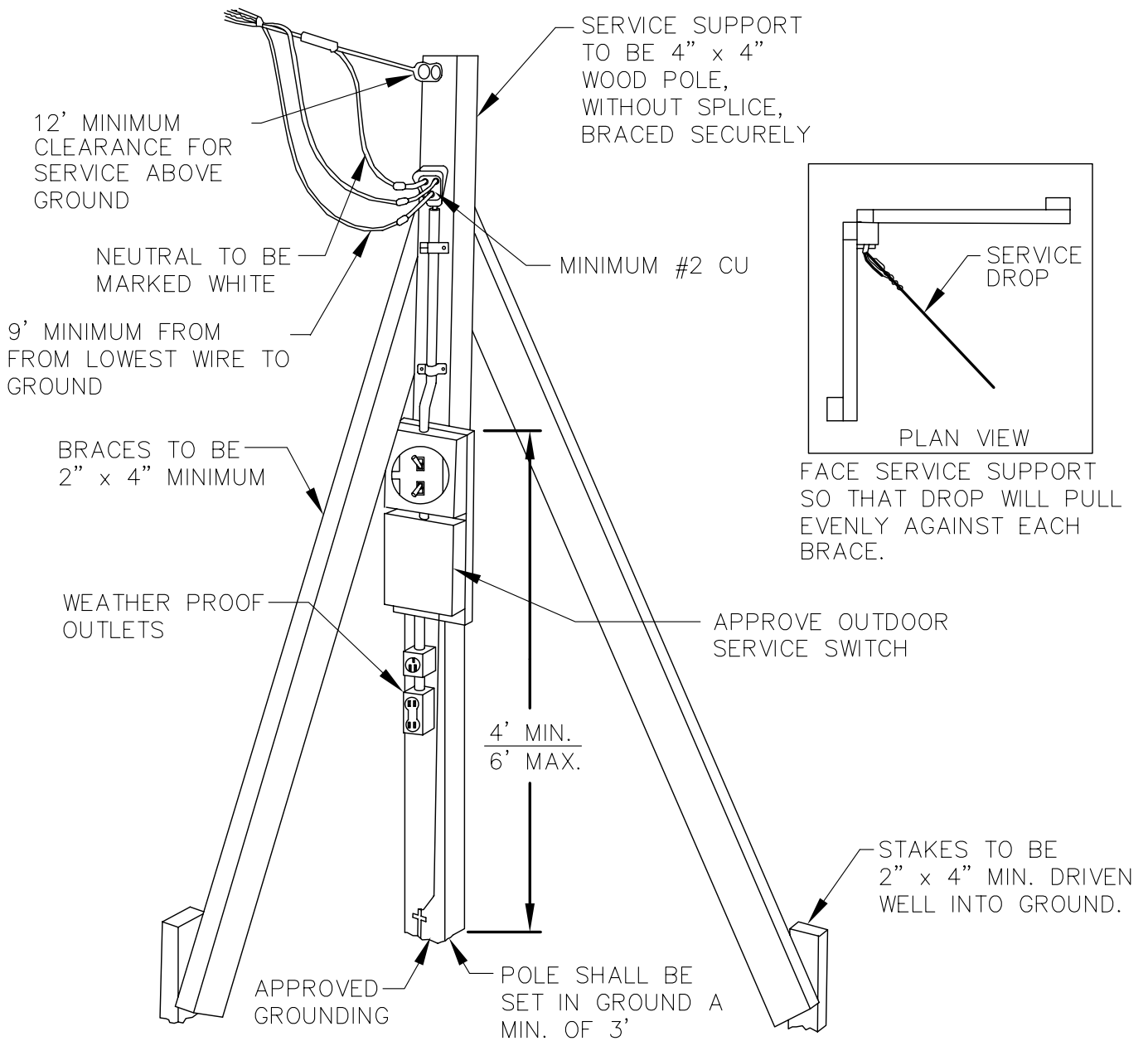
## **SECTION II**

### **VARIOUS METERING ARRANGEMENT TO SHOW WHAT EQUIPMENT IS FURNISHED BY GARLAND POWER & LIGHT**

- 205** Typical Overhead Service with Current Transformers
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- 300** Subdivision Conduit Crossings, Street and Alley Crossings
- 305** Installation Detail for Single Phase Pad Mount Transformer (Commercial)
- 310** 6'- 6" x 8' Detail for Concrete Transformer Pad when Customers Secondary does not Exceed 16 Conductors
- 310A** 6'- 6" x 8' Rebar Detail for Concrete Transformer Pad when Customers Secondary does not Exceed 16 Conductors
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- 320A** 8' x 26' Rebar Detail for Concrete Transformer Pad when Customers Load Exceeds 2000 KVA
- 325** Location of Pad-Mount Transformer



NOTES:

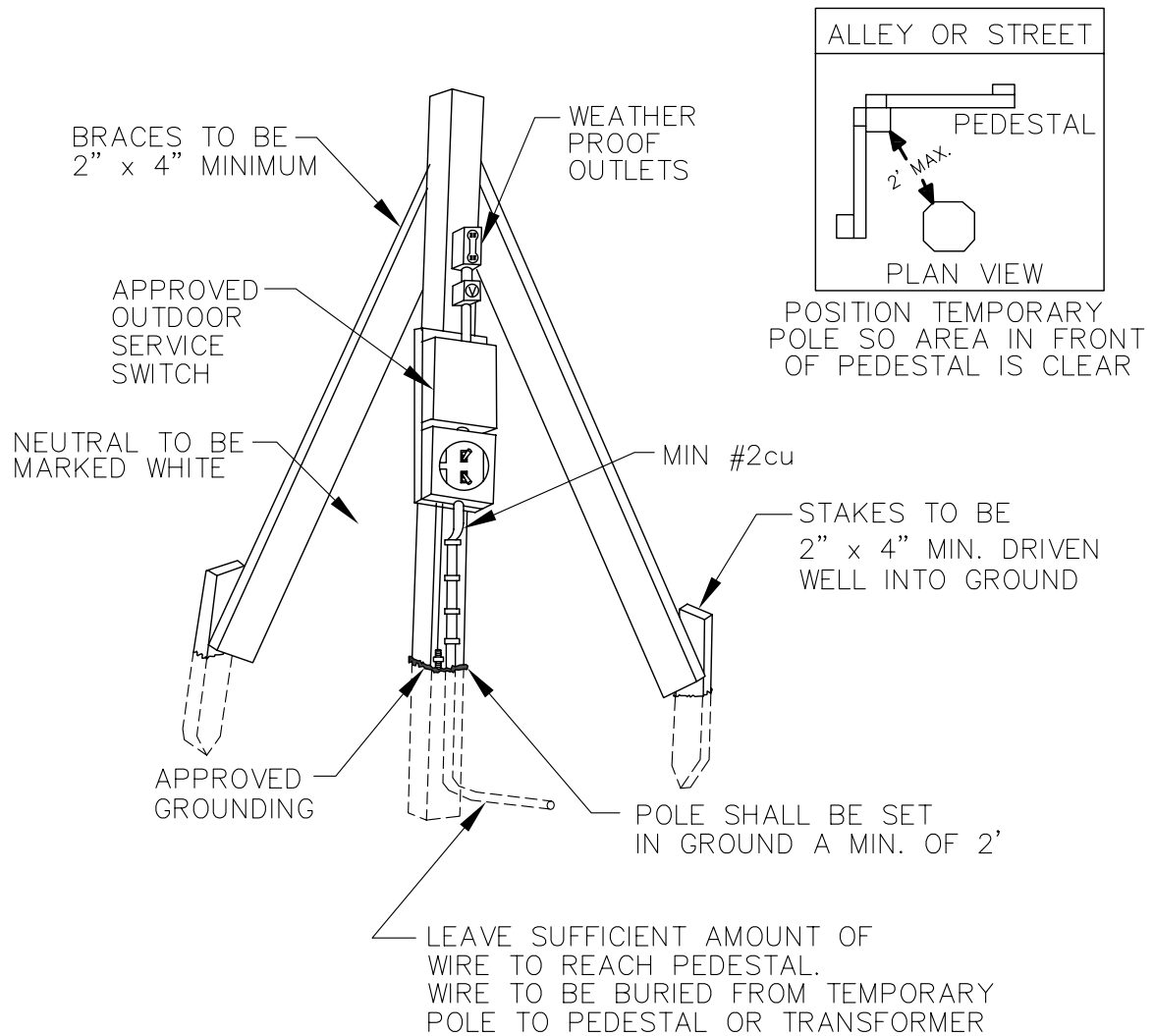
1. CUSTOMER SHALL NOT ALLOW POLE OR BRACES TO BE MOVED OR TAMPERED WITH SO LONG AS GARLAND POWER & LIGHT SERVICE DROP WIRES ARE ATTACHED.
2. LOCATION OF POLE ON PREMISES TO BE DIRECTED BY GARLAND POWER & LIGHT.

ADDRESS MUST BE ON POLE

TYPICAL TEMPORARY OVERHEAD SERVICE POLE INSTALLATION

DRAWING NUMBER 100





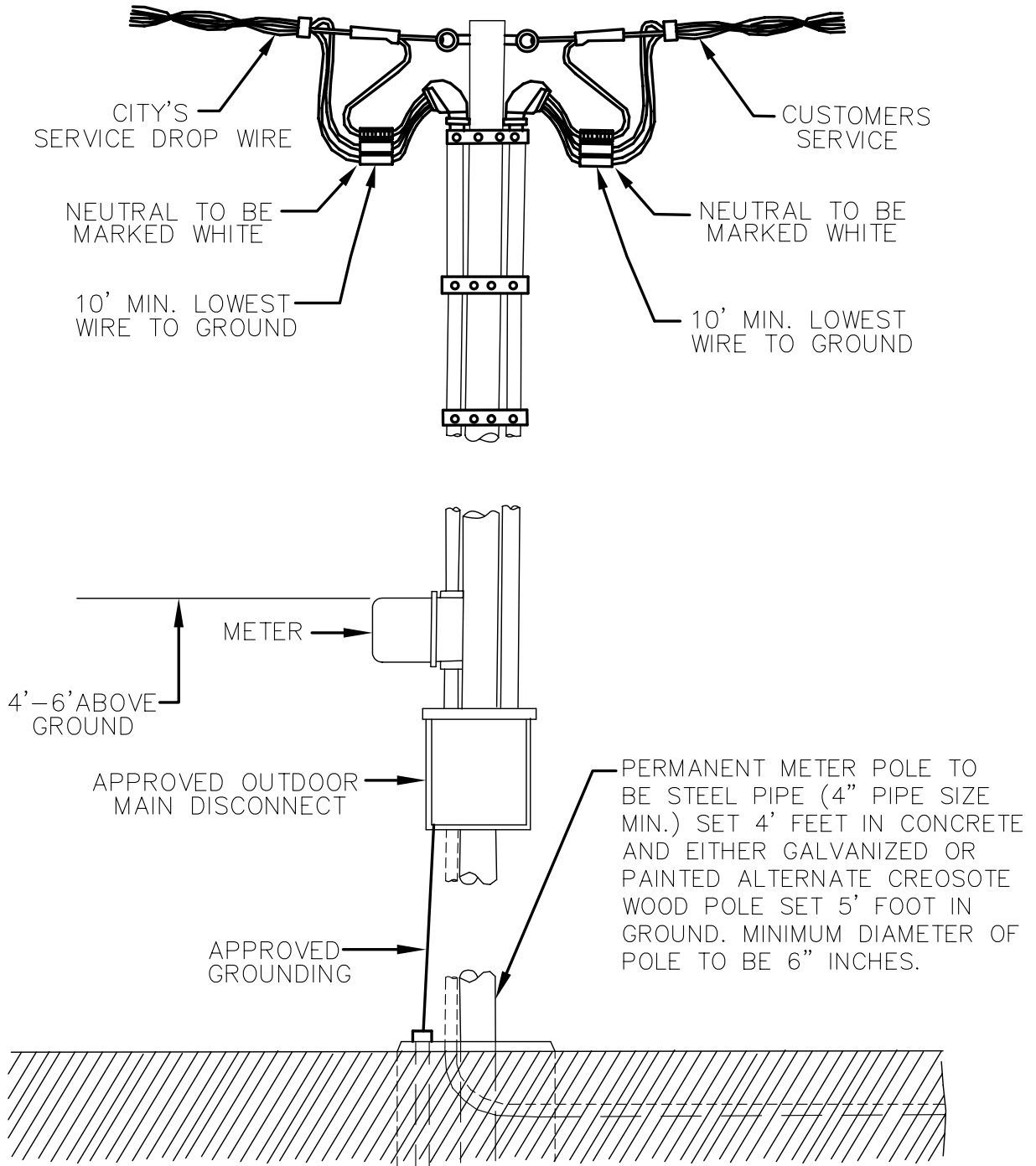
NOTES:

1. CUSTOMER SHALL NOT ALLOW POLE OR BRACES TO BE MOVED OR TAMPERED WITH SO LONG AS CITY'S SERVICE WIRES ARE ATTACHED.
2. LOCATION OF POLE ON PREMISES TO BE DIRECTED BY GARLAND POWER & LIGHT.

ADDRESS MUST BE ON POLE

TYPICAL TEMPORARY SERVICE POLE  
INSTALLATION FOR UNDERGROUND SERVICE

DRAWING NUMBER 102

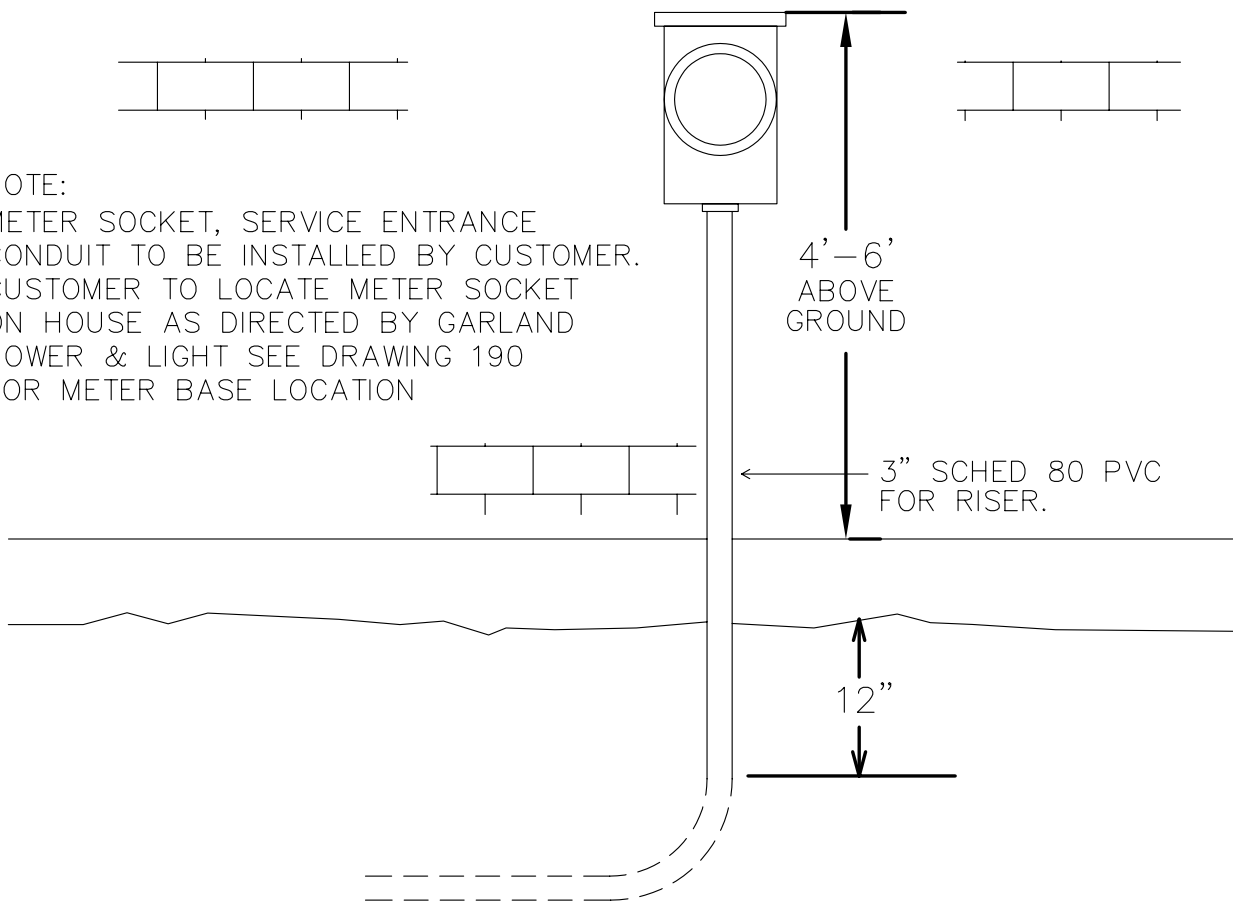


ADDRESS MUST BE ON POLE

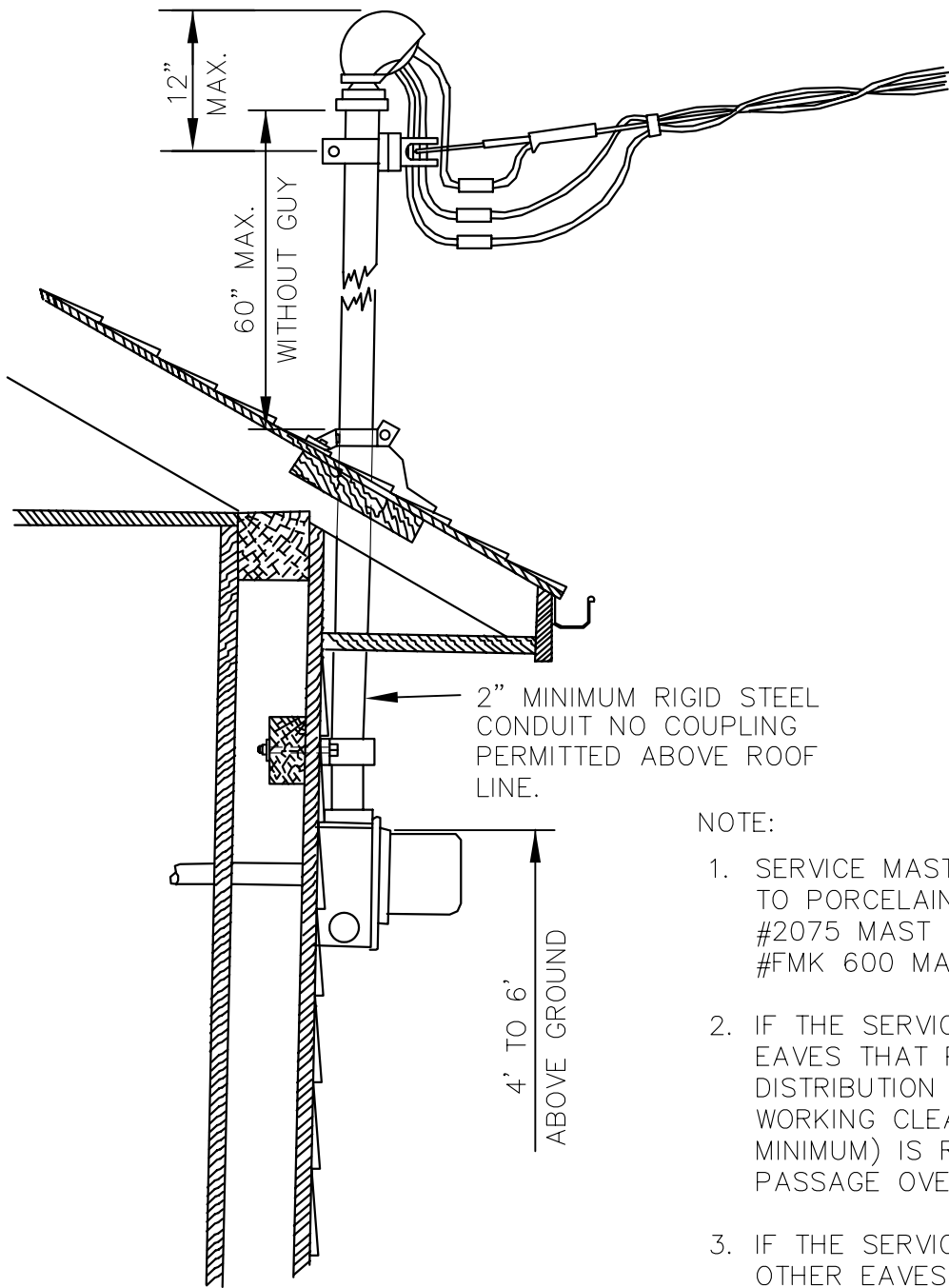
## TYPICAL PERMANENT METER POLE INSTALLATION

DRAWING NUMBER 110

NOTE:  
METER SOCKET, SERVICE ENTRANCE  
CONDUIT TO BE INSTALLED BY CUSTOMER.  
CUSTOMER TO LOCATE METER SOCKET  
ON HOUSE AS DIRECTED BY GARLAND  
POWER & LIGHT SEE DRAWING 190  
FOR METER BASE LOCATION



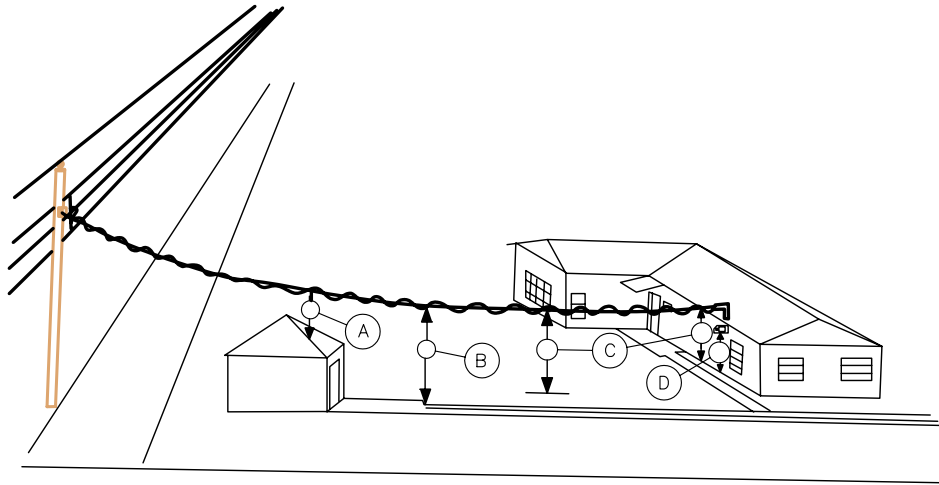
TYPICAL ARRANGEMENT FOR LESS  
LESS THAN 400 AMPS UNDERGROUND  
METER SOCKET INSTALLATION



NOTE:

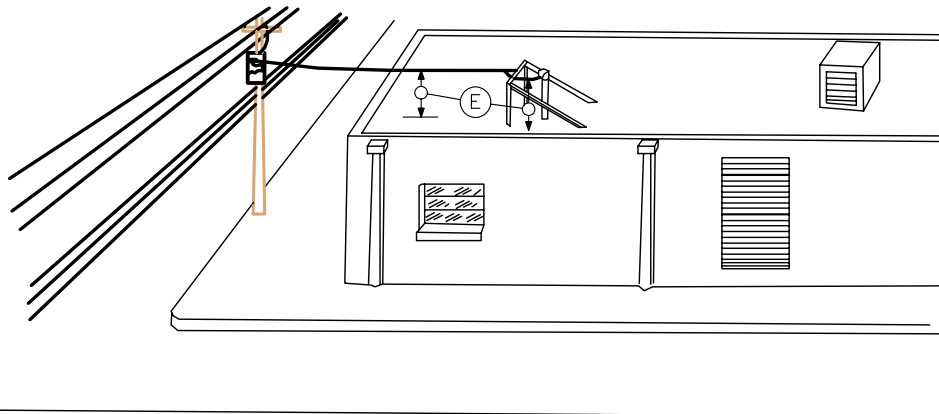
1. SERVICE MAST TO BE COMPARABLE TO PORCELAIN PRODUCTS, INC. #2075 MAST KIT; OR CROUSE-HINDS #FMK 600 MAST KIT.
2. IF THE SERVICE MAST PIERCES THE EAVES THAT PARALLELS THE CITY'S DISTRIBUTION LINE, THEN ONLY WORKING CLEARANCE (12 INCHES MINIMUM) IS REQUIRED FOR SERVICE PASSAGE OVER ROOF.
3. IF THE SERVICE MAST PIERCES ANY OTHER EAVES, THEN THE SERVICE MAST MUST BE A SUFFICIENT HEIGHT TO PROVIDE MINIMUM NATIONAL ELECTRIC CODE CLEARANCE FOR THE SERVICE PASSAGE OVER THE ROOF.

TYPICAL SERVICE MAST INSTALLATION



TYPICAL CLEARANCE AND MOUNTING HEIGHTS FOR RESIDENTIAL SERVICE DROP, SERVICE OUTLET AND METER BASE

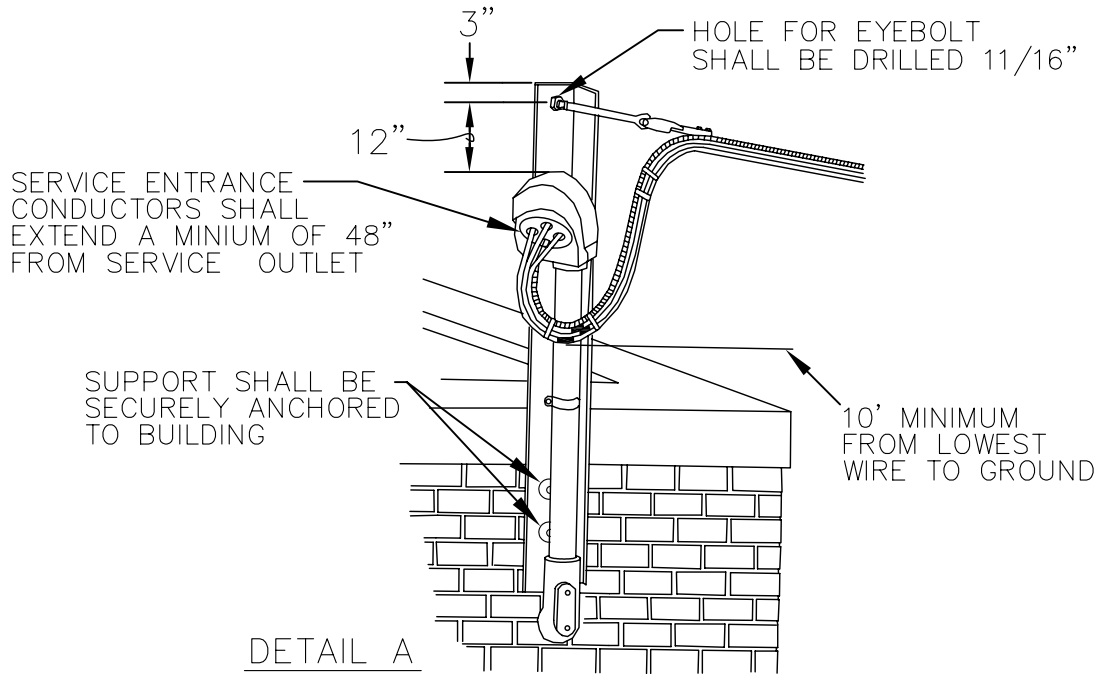
- A. 8 FEET MINIMUM OVER ROOF WHICH CANNOT READILY BE WALKED UPON.
- B. 12 FEET MINIMUM OVER PRIVATE RESIDENTIAL DRIVEWAY.
- C. 10 FEET MINIMUM SERVICE DROP, SERVICE DROP ATTACHMENT, AND DRIP LOOP HEIGHT ABOVE GROUND.
- D. 4 FEET MINIMUM, 6 FEET MAXIMUM TO TOP OF METER BASE.



- E. A SERVICE DROP INSTALLED OVER A BUILDING MUST HAVE A MINIMUM CLEARANCE OF 8 FEET ABOVE THE NEAREST POINT OF THE BUILDING OVER WHICH IT PASSES.

TYPICAL SERVICE DROP CLEARANCE REQUIREMENTS

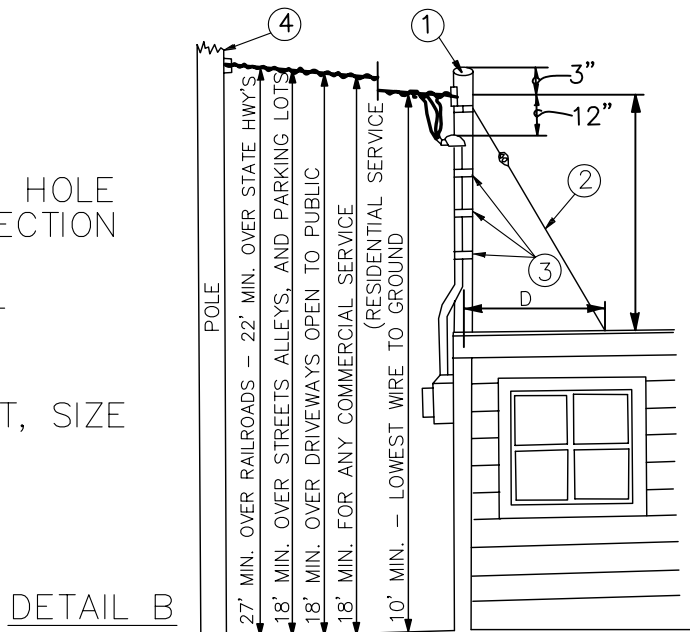
DRAWING NUMBER 130



THESE DRAWINGS SHOW SELECTION & INSTALLATION OF A SUPPORT FOR SERVICE ATTACHMENT TO CUSTOMER'S BUILDING WHICH IS TOO LOW TO PROVIDE ADEQUATE CLEARANCE ABOVE GROUND IF THE SERVICE WIRES WERE ATTACHED DIRECTLY TO BUILDING.

DETAIL NOTES:

1. SERVICE SUPPORT (WITH 11/16" HOLE SPACED AS SHOWN BEFORE ERECTION IF IRON)
2. GUY WHEN REQUIRED. SEE \* OF TABLE III
3. PIPE STRAPS SPACED 2" APART, SIZE AS REQUIRED.
4. SUPPLY POLE



## TYPICAL SERVICE DROP CLEARANCE REQUIREMENTS

| Table II – PIPE SERVICE SUPPORT REQUIRED |   |        |        |
|--|---|--------|--------|
| Service Main Line Switch                 | Standard Steel Pipe Size in Inches<br>(See also Table IV for Equivalents) |        |        |
| Amps                                     | L=5'  | L=10'  | L=15'  |
| 200                                      | 2   | 2-1/2* | 3*     |
| 300                                      | 2-1/2   | 3*     | 3-1/2* |
| 400                                      | 3-1/2   | 4*     | 4*     |

\*These Supports Must Be Properly Guyed With A Guy Anchored At A Point In Line With Service Wires & At A Distance "D" Equal To Or Greater Than "L". Use 1/4" Guy Strand Minimum.

This Table May Also Be Used To Size Equivalent Rigid Conduit Service Masts.

DETAIL C

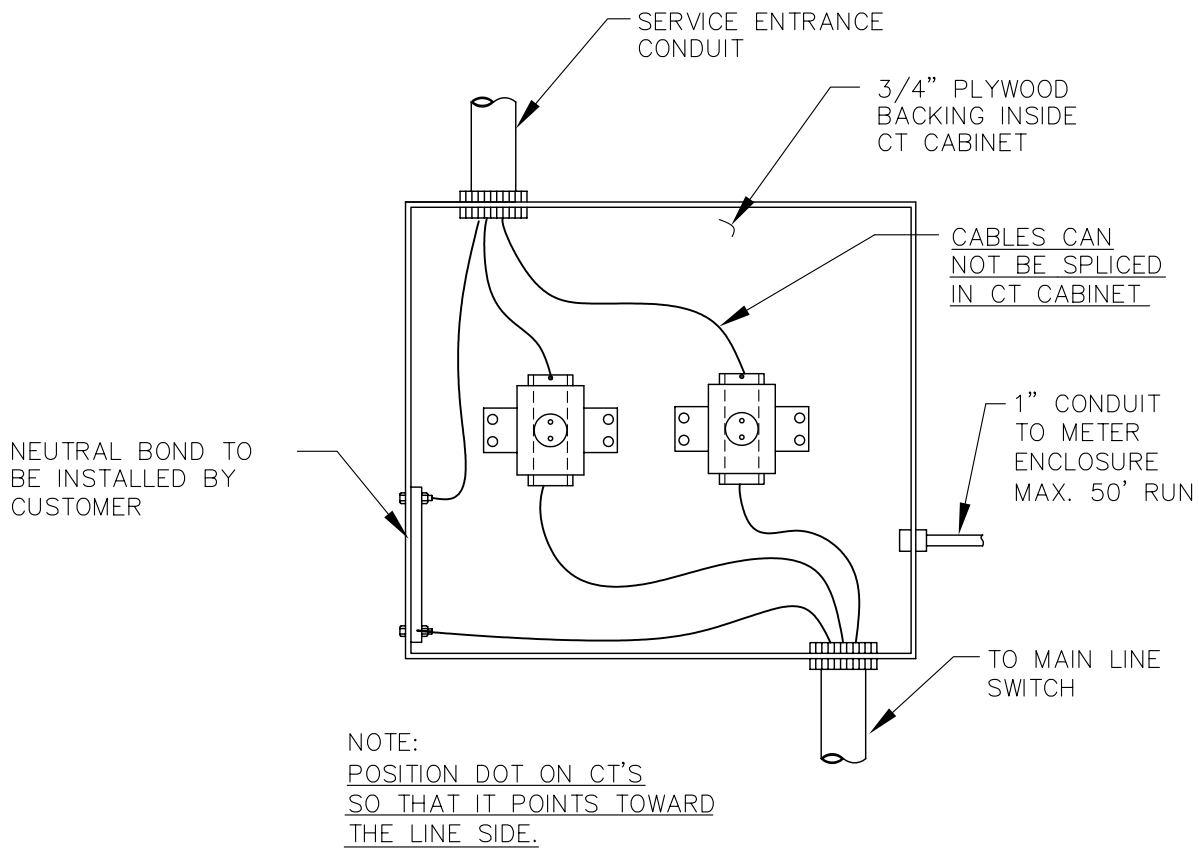
| Table III – SUPPORTS THAT MAY BE USED INSTEAD OF STEEL PIPE |  |                   |                        |   |                            |
|---|--|-------------------|------------------------|---|----------------------------|
| Standard Steel Pipe Size (Inches)                           | Equivalent Supports – Minimum Dimensions   |                   |                        |   |                            |
|   | Timber Yellow Pine S4S Nominal Dim. Inches | Angle Iron Inches | I – Beam Size & Weight | Wood Pole 15" Top Circum. Circum. At Point Or Support-In. | Channel Iron Size & Weight |
| 2   | 4 x 4                                      | 3 x 3 x 1/4       | 3" – 5.7#              | 15  | 5" – 9#                    |
| 2-1/2   | 4 x 6                                      | 3 x 3 x 1/2       | 4" – 7.7#              | 15  | 6" – 13#                   |
| 3   | 4 x 6                                      | 4 x 4 x 1/2       | 5" – 10#               | 17.6  | 7" – 17.25#                |
| 3-1/2   | 6 x 6                                      | 5 x 5 x 3/8       | 6" – 12.5#             | 19.6  | 7" – 19.75#                |
| 4   | 6 x 8                                      | 5 x 5 x 1/2       | 8" – 18.4#             | 21.6  | 12" – 35#                  |

‡ The Greatest Dimension Must Be In Line With Service Wires.  
Steel Members must be galvanized or kept well painted.  
Timber must be surfaced on all sides & kept well painted.  
Poles must be treated with creosote all after which they may be painted with aluminum paint.

DETAIL D

TYPICAL SERVICE DROP CLEARANCE  
REQUIREMENTS TABLES FOR CONSTRUCTION

DRAWING NUMBER 135A



CURRENT TRANSFORMERS, CABINET, AND METER ENCLOSURE TO BE FURNISHED BY GP&L AND INSTALLED BY CUSTOMER.

ONE 1 INCH CONDUIT FROM CURRENT TRANSFORMER CABINET TO METER ENCLOSURE TO BE FURNISHED AND INSTALLED BY CUSTOMER.

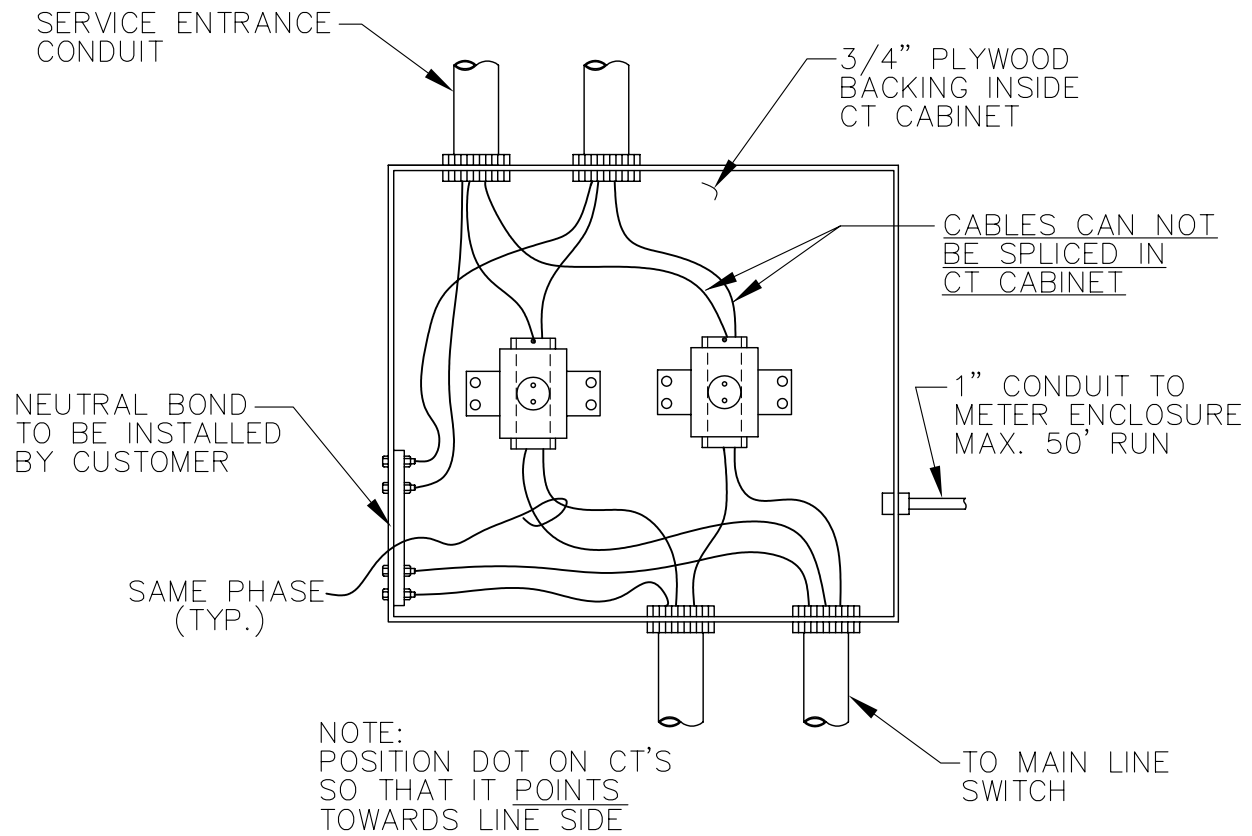
ALL CONDUCTORS WILL BE CONTINUOUS THROUGH THE CABINET EXCEPT THE NEUTRAL WHICH MAY BE BONDED IN CT CABINET.

CT CABINET WILL BE MOUNTED WITH TOP NOT HIGHER THAN 7 FEET ABOVE FLOOR AND MINIMUM OF 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

## TYPICAL ARRANGEMENT FOR A SINGLE PHASE CURRENT TRANSFORMER INSTALLATION WITH (1) CONDUCTOR PER PHASE

DRAWING NUMBER 155





CURRENT TRANSFORMERS, CABINET AND METER ENCLOSURE TO BE FURNISHED BY GARLAND POWER & LIGHT AND INSTALLED BY CUSTOMER.

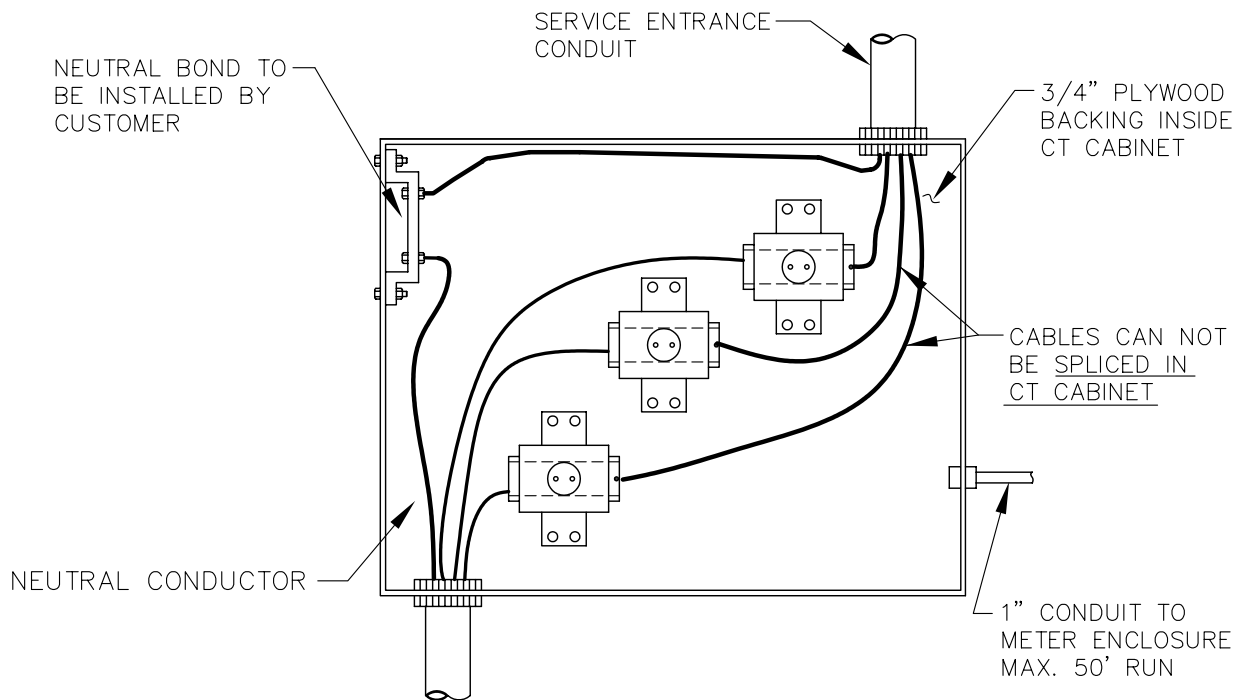
ONE 1 INCH CONDUIT FROM CURRENT TRANSFORMER CABINET TO METER ENCLOSURE TO BE FURNISHED AND INSTALLED BY CUSTOMER.

ALL CONDUCTORS WILL BE CONTINUOUS THROUGH THE CABINET EXCEPT THE NEUTRAL WHICH MAY BE BONDED IN CT TOP.

CT ENCLOSURE WILL BE MOUNTED WITH NOT HIGHER THAN 7 FEET ABOVE FLOOR AND MINIMUM OF 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

TYPICAL ARRANGEMENT FOR A SINGLE PHASE  
CURRENT TRANSFORMER INSTALLATION  
WITH MORE THAN (1) CONDUCTOR PER PHASE

DRAWING NUMBER 155A



NOTE:  
 POSITION DOT ON CT'S SO THAT IT POINTS TOWARDS LINE SIDE.

CURRENT TRANSFORMERS, CABINET AND METER ENCLOSURE TO BE FURNISHED BY GARLAND POWER & LIGHT AND INSTALLED BY CUSTOMER.

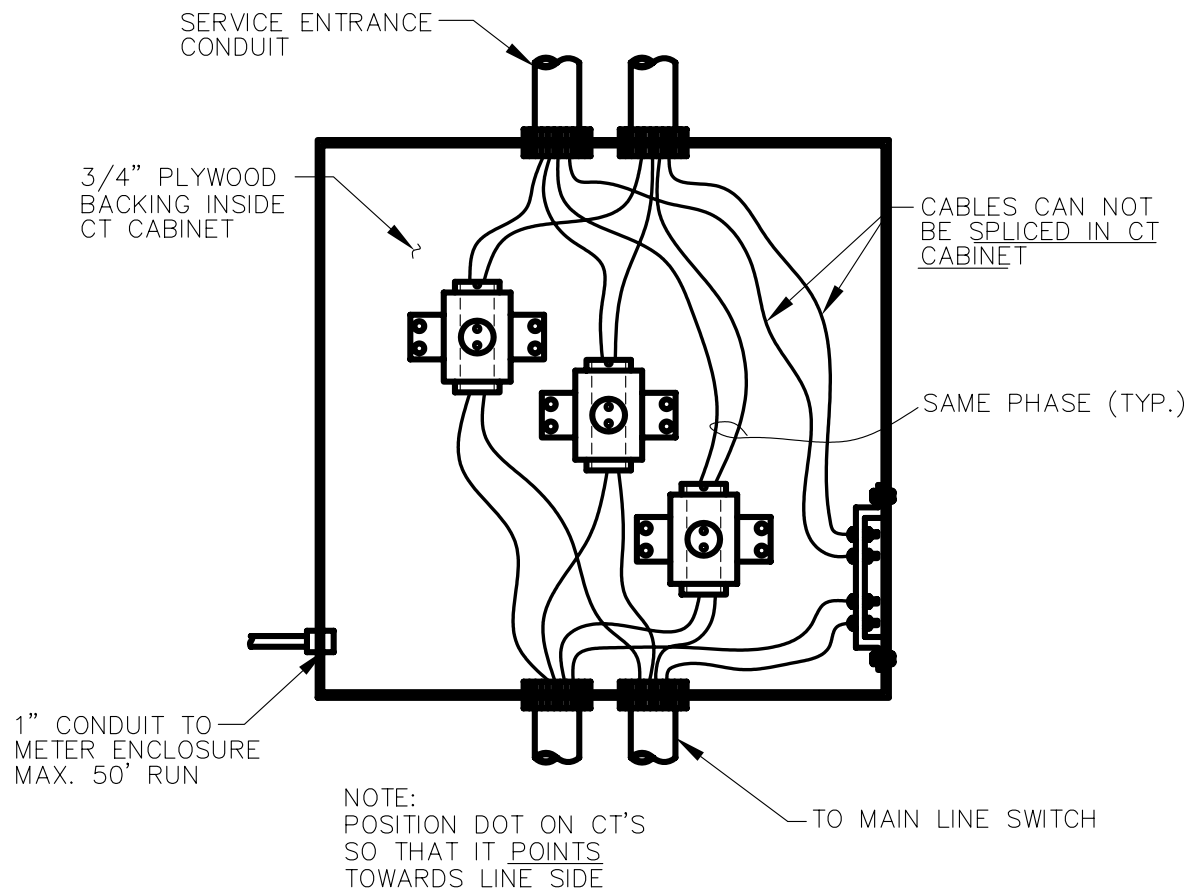
ONE 1 INCH CONDUIT FROM CURRENT TRANSFORMER CABINET TO METER ENCLOSURE TO BE FURNISHED AND INSTALLED BY CUSTOMER.

ALL CONDUCTORS WILL BE CONTINUOUS THROUGH THE CABINET EXCEPT THE NEUTRAL WHICH MAY BE BONDED IN CT CABINET.

CT CABINET WILL BE MOUNTED WITH TOP NOT HIGHER THAN 7 FEET ABOVE FLOOR AND A MINIMUM OF 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

## TYPICAL ARRANGEMENT FOR A THREE PHASE CURRENT TRANSFORMER INSTALLATION WITH ONE (1) CONDUCTOR PER PHASE

DRAWING NUMBER 160



CURRENT TRANSFORMERS, CABINET AND METER ENCLOSURE TO BE FURNISHED BY GARLAND POWER & LIGHT AND INSTALLED BY CUSTOMER.

ONE 1" CONDUIT FROM CURRENT TRANSFORMER CABINET TO METER ENCLOSURE TO BE FURNISHED AND INSTALLED BY CUSTOMER.

WHEN THE NEUTRAL CONDUCTOR IS SPLICED IN THE CURRENT TRANSFORMER CABINET, THE CUSTOMER SHALL MAKE THESE CONNECTIONS IN A MANNER SIMILAR TO THAT SHOWN.

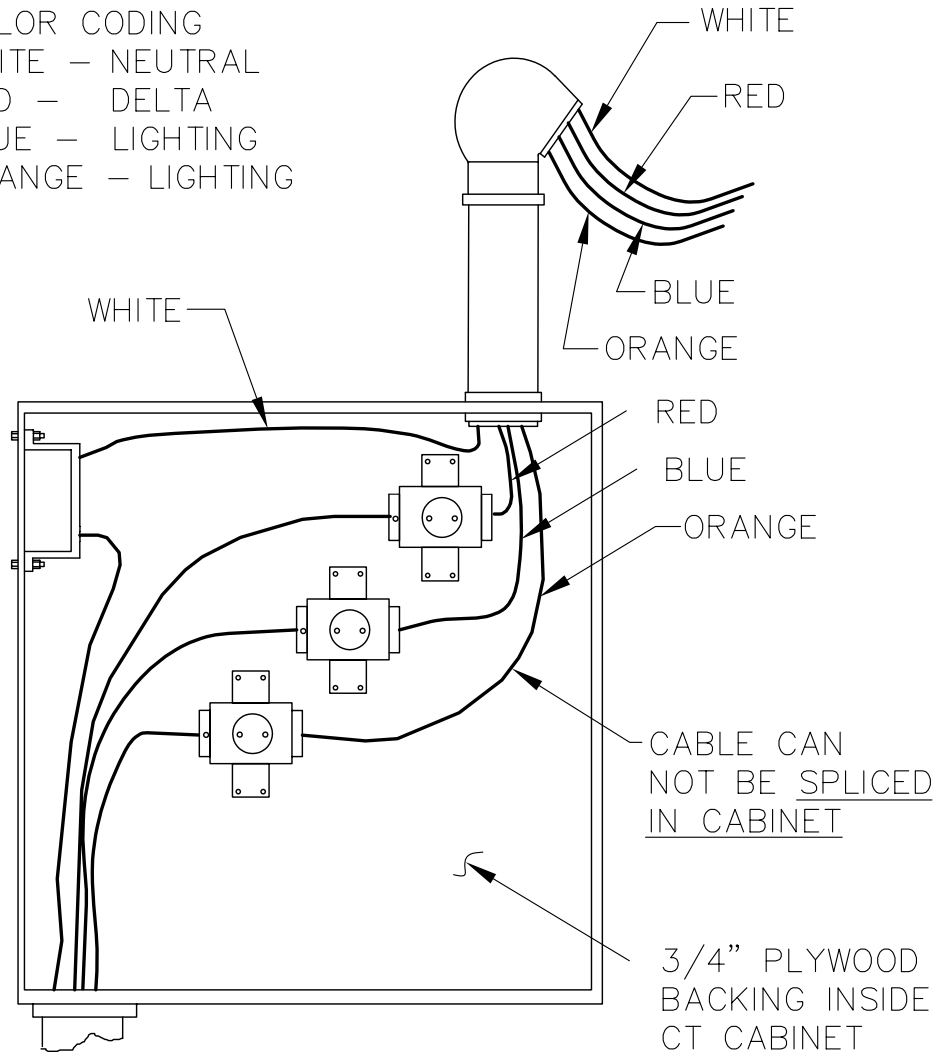
CT CABINET WILL BE MOUNTED WITH TOP NOT HIGHER THAN 7 FEET ABOVE FLOOR FLOOR AND A MINIMUM OF 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

WHERE THE COMBINED MAIN LINE SWITCH CAPACITY EXCEEDS 1,600 AMPERES, SPECIFICATIONS FOR THE CURRENT TRANSFORMER CABINET SHOULD BE OBTAINED FROM GARLAND POWER & LIGHT.

## TYPICAL ARRANGEMENT FOR A THREE PHASE CURRENT TRANSFORMER INSTALLATION WITH MORE THAN ONE (1) CONDUCTOR PER PHASE

DRAWING NUMBER 165

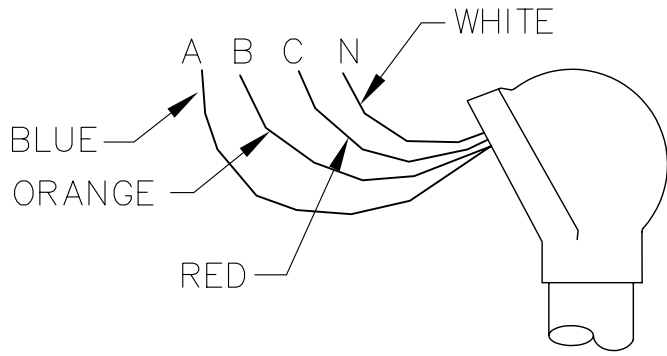
COLOR CODING  
WHITE - NEUTRAL  
RED - DELTA  
BLUE - LIGHTING  
ORANGE - LIGHTING



MARK WIRE AT WEATHER HEAD AND INSIDE CT CABINET

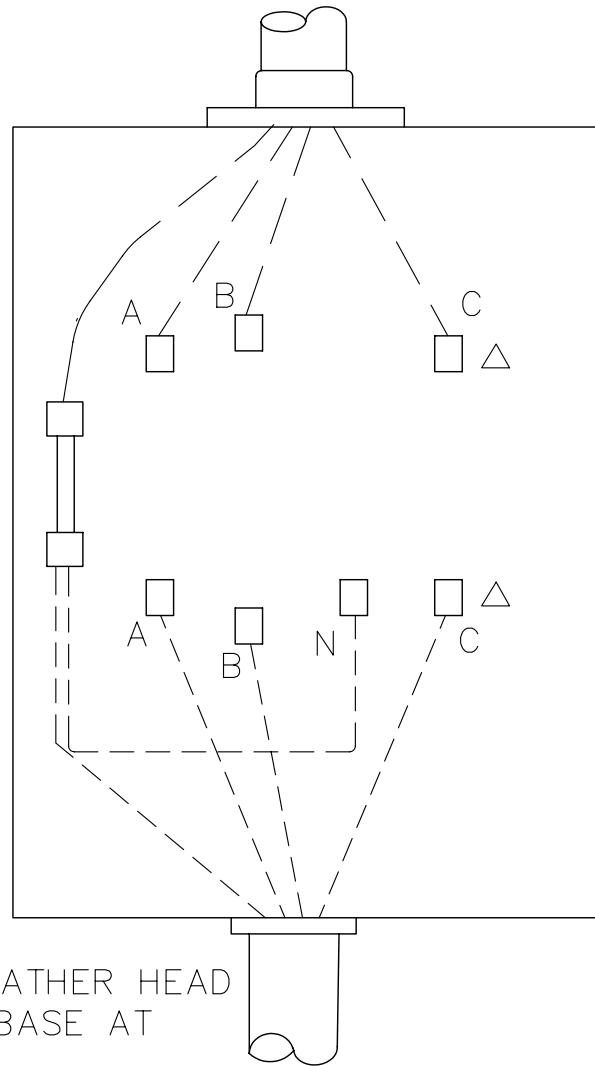
STANDARD MARKING OF SERVICE ENTRANCE  
CABLE FOR 3 PHASE, 4 WIRE 120/240 VOLT  
SERVICE OVER 200 AMPS

DRAWING NUMBER 175



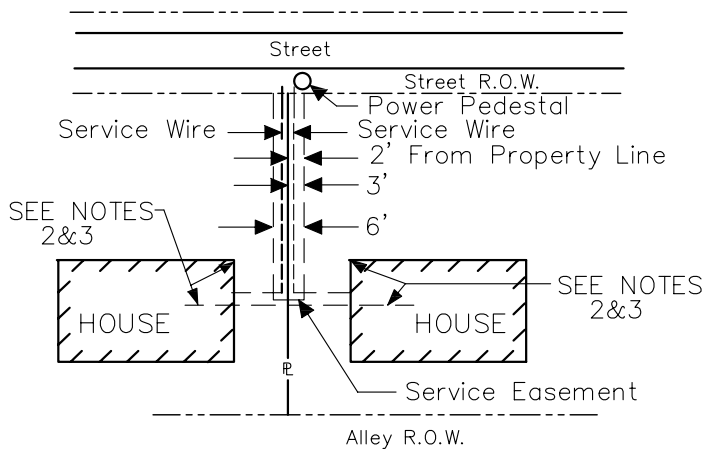
COLOR CODING

- WHITE — NEUTRAL (N)
- RED — DELTA (C)
- BLUE — LIGHTING (A)
- ORANGE — LIGHTING (B)

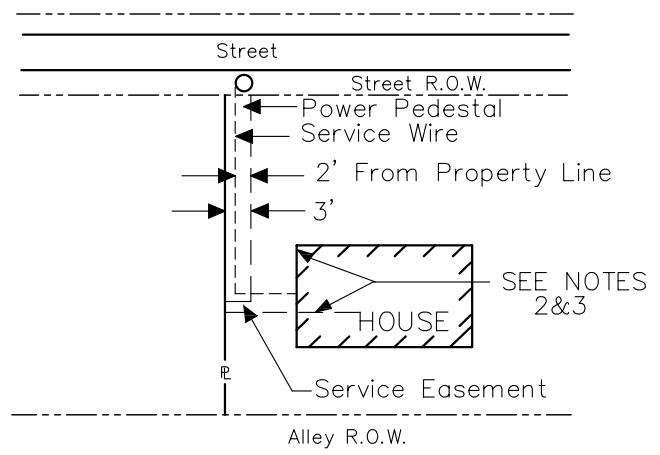


MARK CABLE AT WEATHER HEAD  
AND INSIDE METER BASE AT  
LINE & LOAD LUGS

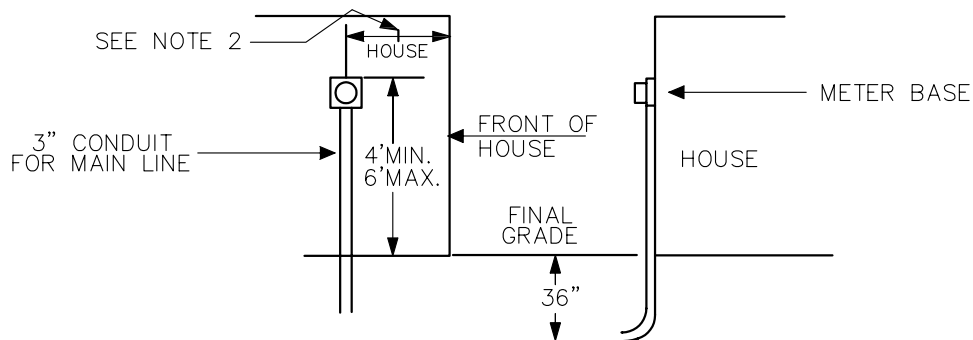
STANDARD MARKING OF SERVICE ENTRANCE  
CABLE FOR THREE PHASE, FOUR (4) WIRE 120/240 VOLT  
SERVICE 200 AMPS OR LESS



TYPICAL DOUBLE SERVICE



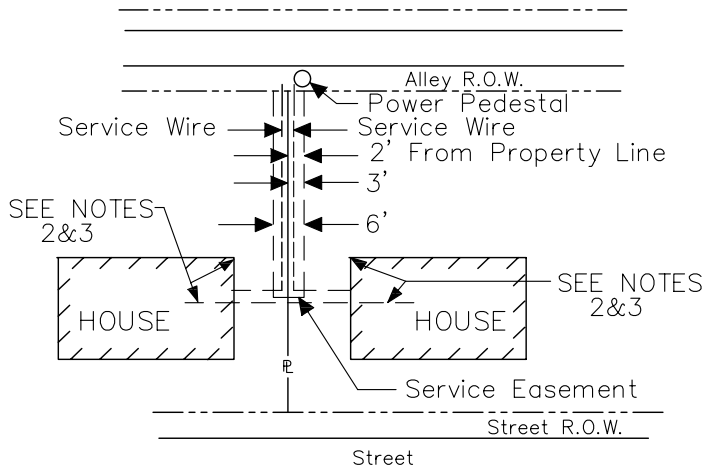
TYPICAL SINGLE SERVICE



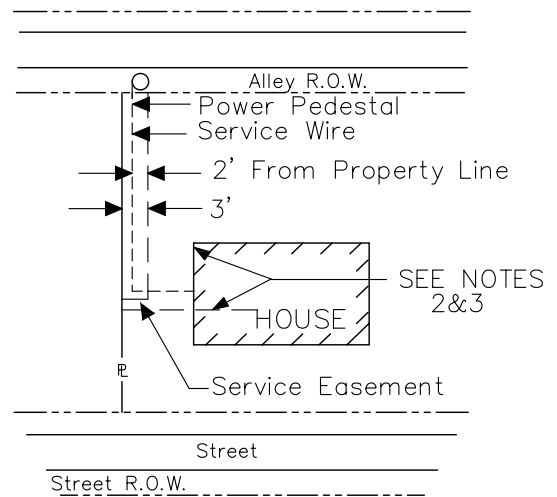
NOTES:

1. METER BASE 3 INCH SCHEDULE 80 PVC RISER CONDUIT, TO BE INSTALLED BY CUSTOMER.
2. METER SOCKET MAY BE LOCATED Laterally AT ANY POINT ON WALL WITHIN THIS DISTANCE FROM FRONT OF HOUSE.
3. METER SOCKET MUST BE LOCATED ON WALL NEAREST GARLAND POWER & LIGHT SERVICE EASEMENT.

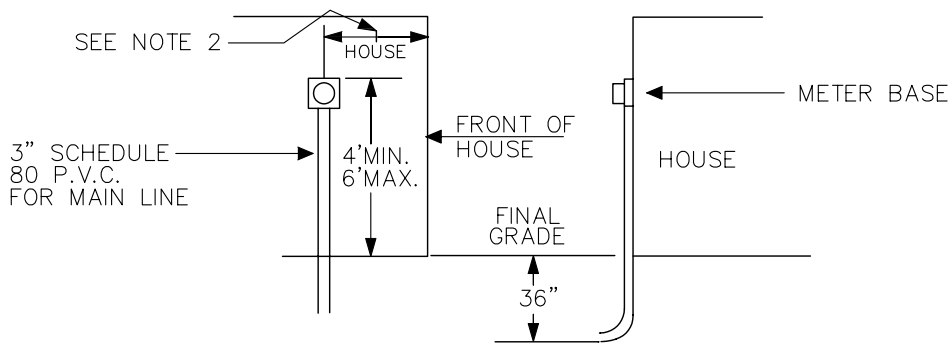
TYPICAL UNDERGROUND RESIDENTIAL SERVICE INSTALLATION FROM STREET



TYPICAL DOUBLE SERVICE



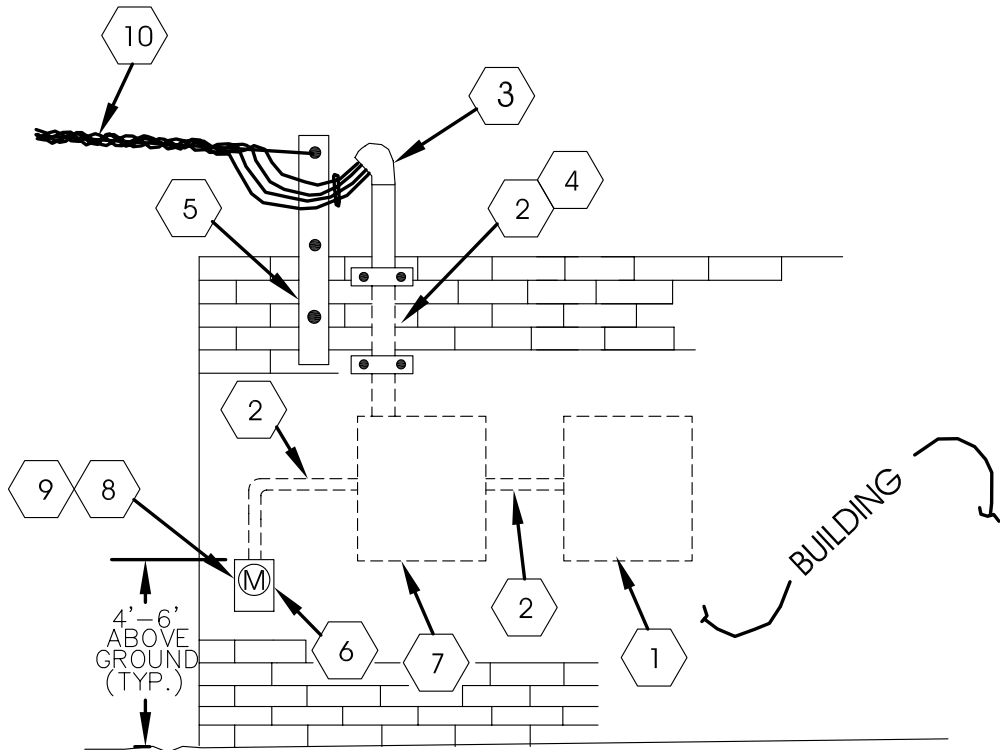
TYPICAL SINGLE SERVICE



NOTES:

1. METER BASE 3 INCH SCHEDULE 80 PVC RISER CONDUIT, TO BE INSTALLED BY CUSTOMER.
2. METER SOCKET MAY BE LOCATED Laterally AT ANY POINT ON WALL WITHIN THIS DISTANCE FROM FRONT OF HOUSE.
3. METER SOCKET MUST BE LOCATED ON WALL NEAREST GARLAND POWER & LIGHT SERVICE EASEMENT.

TYPICAL UNDERGROUND RESIDENTIAL SERVICE INSTALLATION FROM ALLEY



CUSTOMER TO FURNISH AND INSTALL

1. DISTRIBUTION PANEL
2. ALL CONDUITS
3. WEATHER HEAD
4. SERVICE ENTRANCE CONDUCTOR
5. SUPPORTS (See Dwg. 135A)

GARLAND POWER & LIGHT TO FURNISH, CUSTOMER TO INSTALL

6. METER ENCLOSURE (SINGLE OR THREE PHASE)
7. CT'S & CT CABINET (OUTDOOR)

NOTE:

CT CABINET WILL BE MOUNTED WITH TOP NO HIGHER THAN 7 FEET ABOVE FLOOR AND MINIMUM 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

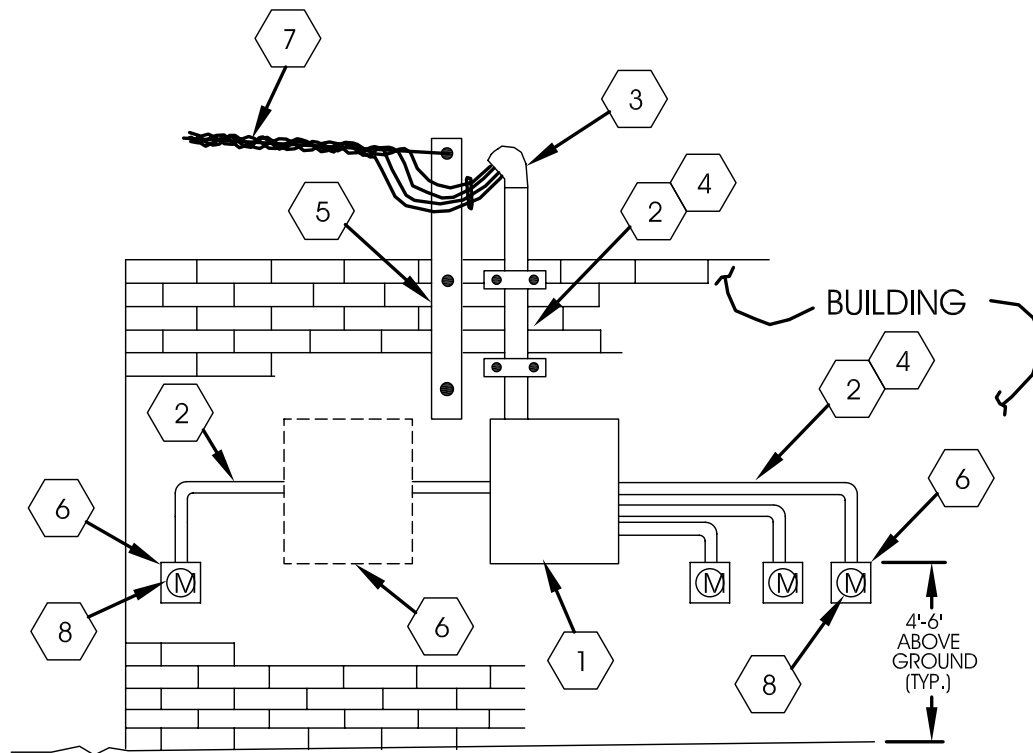
GARLAND POWER & LIGHT TO FURNISH AND INSTALL

8. METER & METER WIRING
9. TEST SWITCH
10. SERVICE CABLE ( AND CONNECT AT WEATHER HEAD)

## TYPICAL OVERHEAD SERVICE WITH CURRENT TRANSFORMERS

DRAWING NUMBER 205





CUSTOMER TO FURNISH AND INSTALL

1. SECONDARY TAP CAN
2. ALL CONDUITS
3. WEATHER HEAD
4. SERVICE ENTRANCE CONDUCTOR
5. SUPPORT (SEE DWG. 135A)

GARLAND POWER & LIGHT TO FURNISH, CUSTOMER TO INSTALL

6. METER BASE (CT'S & CT CABINET) METER ENCLOSURE

NOTE:

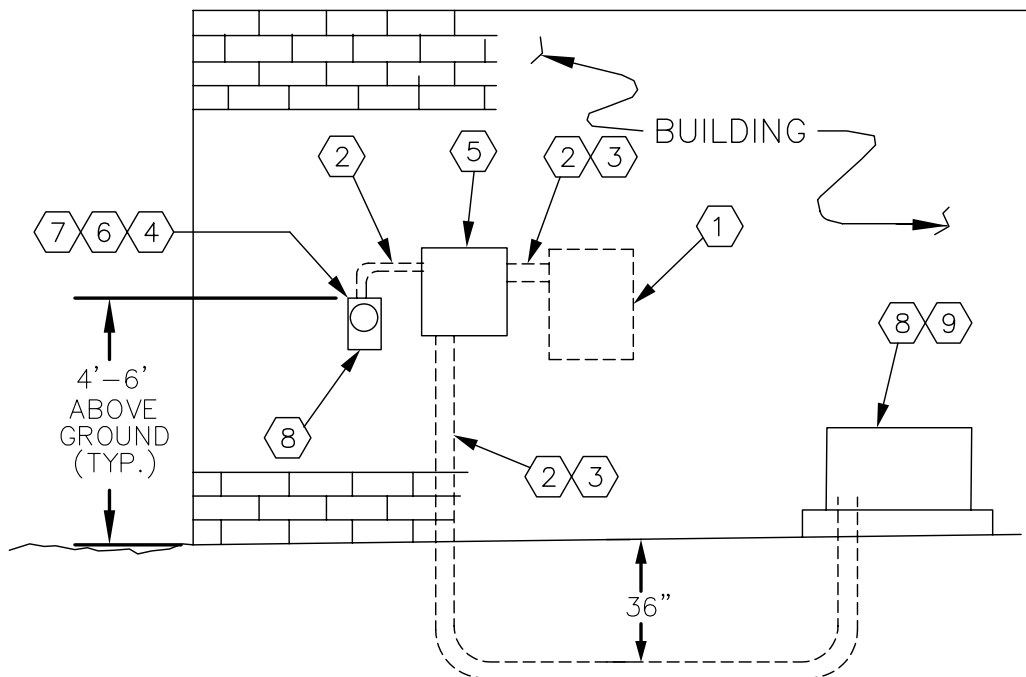
CT CABINET WILL BE MOUNTED WITH TOP NO HIGHER THAN 7 FEET ABOVE FLOOR AND MINIMUM 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

GARLAND POWER & LIGHT TO FURNISH AND INSTALL

7. SERVICE CABLE (AND CONNECT AT WEATHER HEAD)
8. METER & METER WIRING FOR CT METERS

NO RACEWAYS OR WIREWAYS ALLOWED  
ALL METERS MUST SHOW ADDRESSES

TYPICAL OVERHEAD SERVICE, MULTI-METER  
 WITH SECONDARY TAP CAN



CUSTOMER TO FURNISH AND INSTALL

1. DISTRIBUTION PANEL
2. ALL CONDUIT
3. SERVICE ENTRANCE CONDUCTOR (TO TRANSFORMER)

GARLAND POWER & LIGHT TO FURNISH, CUSTOMER TO INSTALL

4. METER ENCLOSURE
5. CT'S AND CT CABINET (OUTDOOR)

NOTE:

CT CABINET WILL BE MOUNTED WITH TOP NO HIGHER THAN 7 FEET ABOVE FLOOR AND MINIMUM 3 FEET CLEAR WORKING SPACE AND PASSAGE IN FRONT.

GARLAND POWER & LIGHT TO FURNISH AND INSTALL

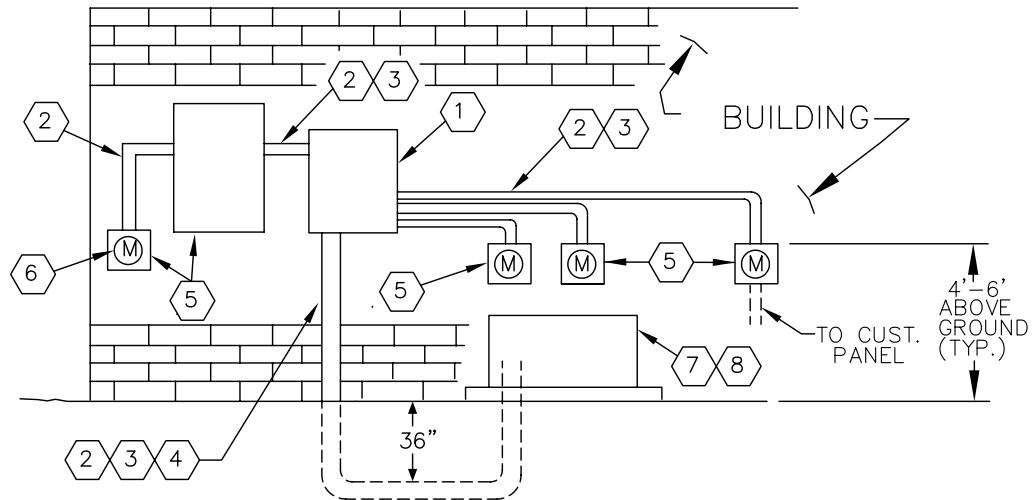
6. METER AND METER WIRING
7. TEST SWITCH
8. PAD MOUNT TRANSFORMER

CUSTOMER TO FURNISH AND GARLAND POWER & LIGHT TO INSTALL

9. TWO (2) – HOLE NEMA LUGS TO FIT CUSTOMER'S SECONDARY CONDUCTORS.

ALL METERS MUST SHOW ADDRESSES

TYPICAL UNDERGROUND SERVICE, ABOVE  
400 AMP WITH CURRENT TRANSFORMER



CUSTOMER TO FURNISH AND INSTALL

1. SECONDARY TAP CAN
2. ALL CONDUITS
3. SERVICE ENTRANCE CONDUCTORS
4. CONDUCTOR (FROM BUSS CABINET TO TRANSFORMER)

GARLAND POWER & LIGHT TO FURNISH , CUSTOMER TO INSTALL

5. METER BASE (CT'S & CT CABINET) METER ENCLOSURE, NO RACEWAYS OR OR WIREWAYS ALLOWED.

NOTE:

CT CABINET WILL BE MOUNTED WITH TOP NO HIGHER THAN 7 FEET ABOVE FLOOR AND A MINIMUM OF 3 FEET CLEAR WORKING SPACE.

GARLAND POWER & LIGHT TO FURNISH AND INSTALL

6. METER & METER WIRING FOR CT METER
7. PAD MOUNT TRANSFORMER

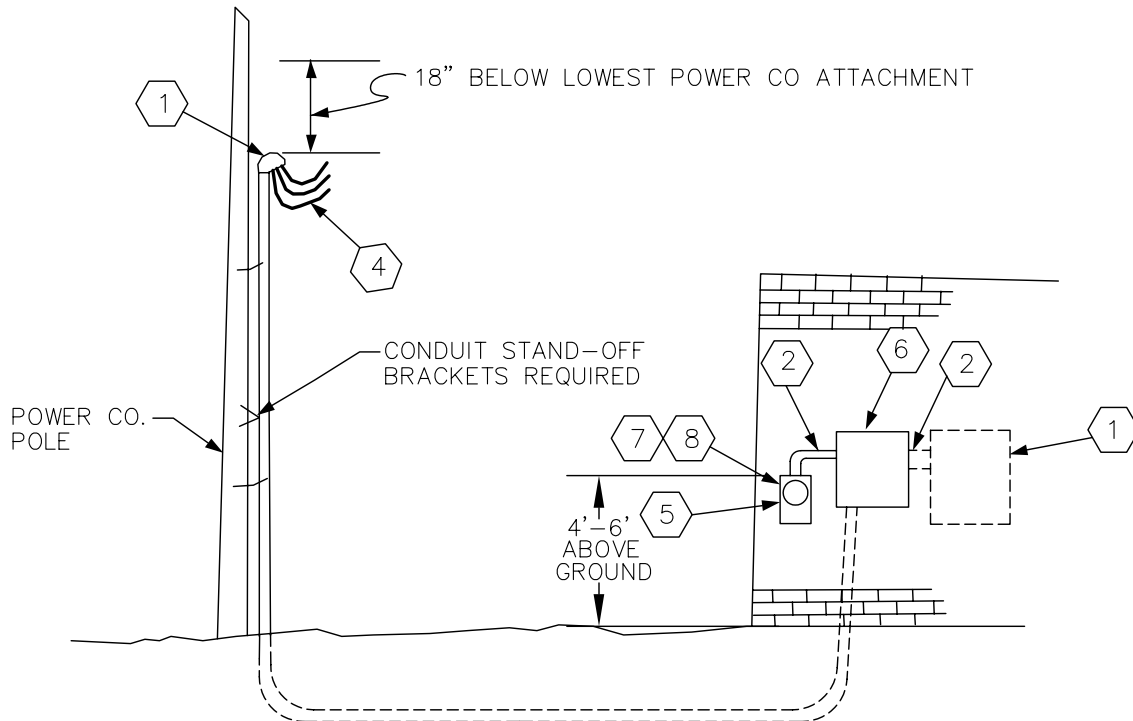
CUSTOMER TO FURNISH AND GARLAND POWER & LIGHT TO INSTALL

8. TWO (2) – HOLE NEMA LUGS TO FIT CUSTOMER'S SECONDARY CONDUCTORS.

ALL METERS MUST SHOW ADDRESSES

TYPICAL UNDERGROUND SERVICE, MULTI-METER  
WITH SECONDARY TAP CAN

DRAWING NUMBER 230



CUSTOMER TO FURNISH AND INSTALL

1. DISTRIBUTION PANEL
2. ALL CONDUITS & STANDOFF BRACKETS
3. WEATHER HEAD
4. SERVICE ENTRANCE CONDUCTOR

GARLAND POWER & LIGHT TO FURNISH AND CUSTOMER TO INSTALL

5. METER ENCLOSURE (ABOVE 400 AMP)
6. CT'S & CT CABINET

GARLAND POWER & LIGHT TO FURNISH AND INSTALL

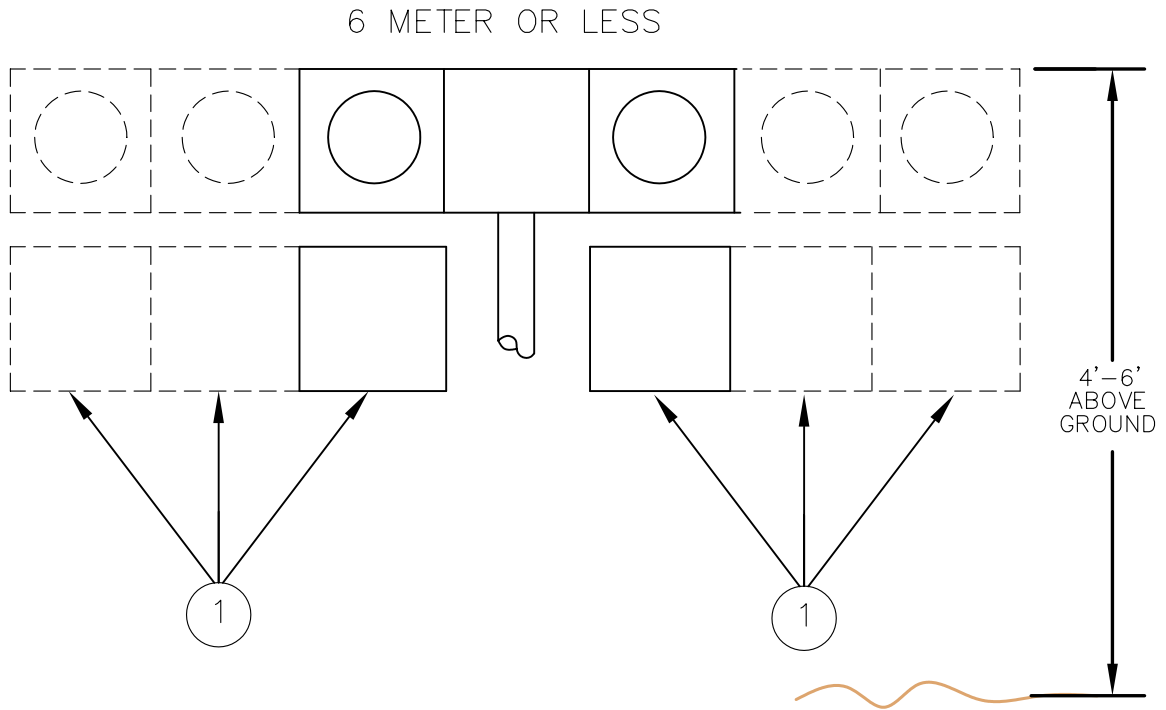
7. METER & METER WIRING
8. TEST SWITCH

NOTE: BEFORE ATTACHING ANYTHING TO GARLAND POWER & LIGHT POLES, CUSTOMER MUST CONTACT GARLAND POWER & LIGHT ENGINEERING.

ALL METERS MUST SHOW ADDRESSES

TYPICAL UNDERGROUND SERVICE ENTRANCE,  
ABOVE 400 AMPS WITH CURRENT TRANSFORMERS

DRAWING NUMBER 235



NOTE:

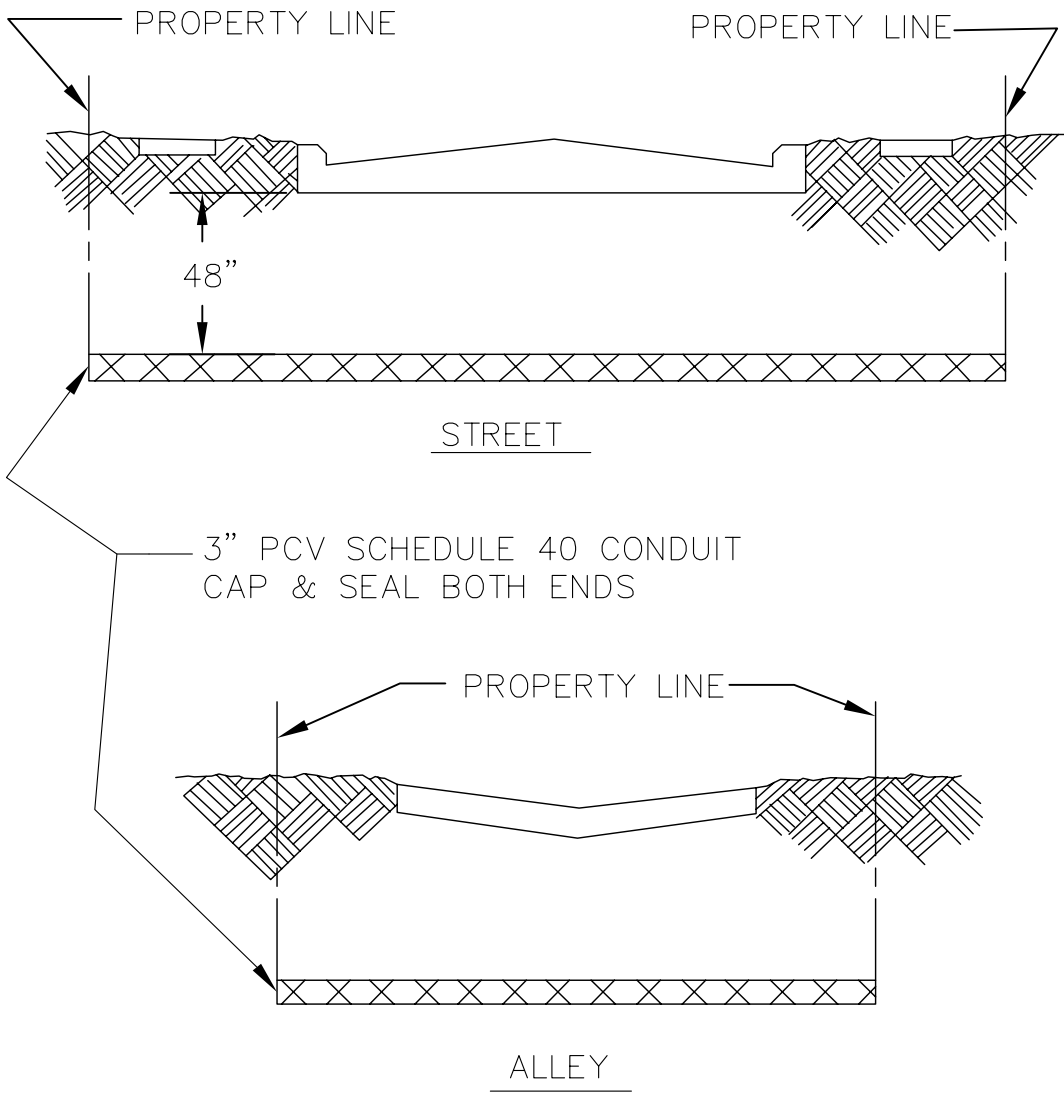
CONFIGURATION OF METERS VARY FROM BRAND TO BRAND,  
ELECTRICIANS SHOULD VERIFY WHICH BRAND IS IN STOCK TO  
DETERMINE EXACT DIMENSIONS TO BE USED.

① CUSTOMER'S MAIN DISCONNECT

ALL METERS MUST SHOW ADDRESSES

SINGLE PHASE GANGED METER  
ASSEMBLY

DRAWING NUMBER 246



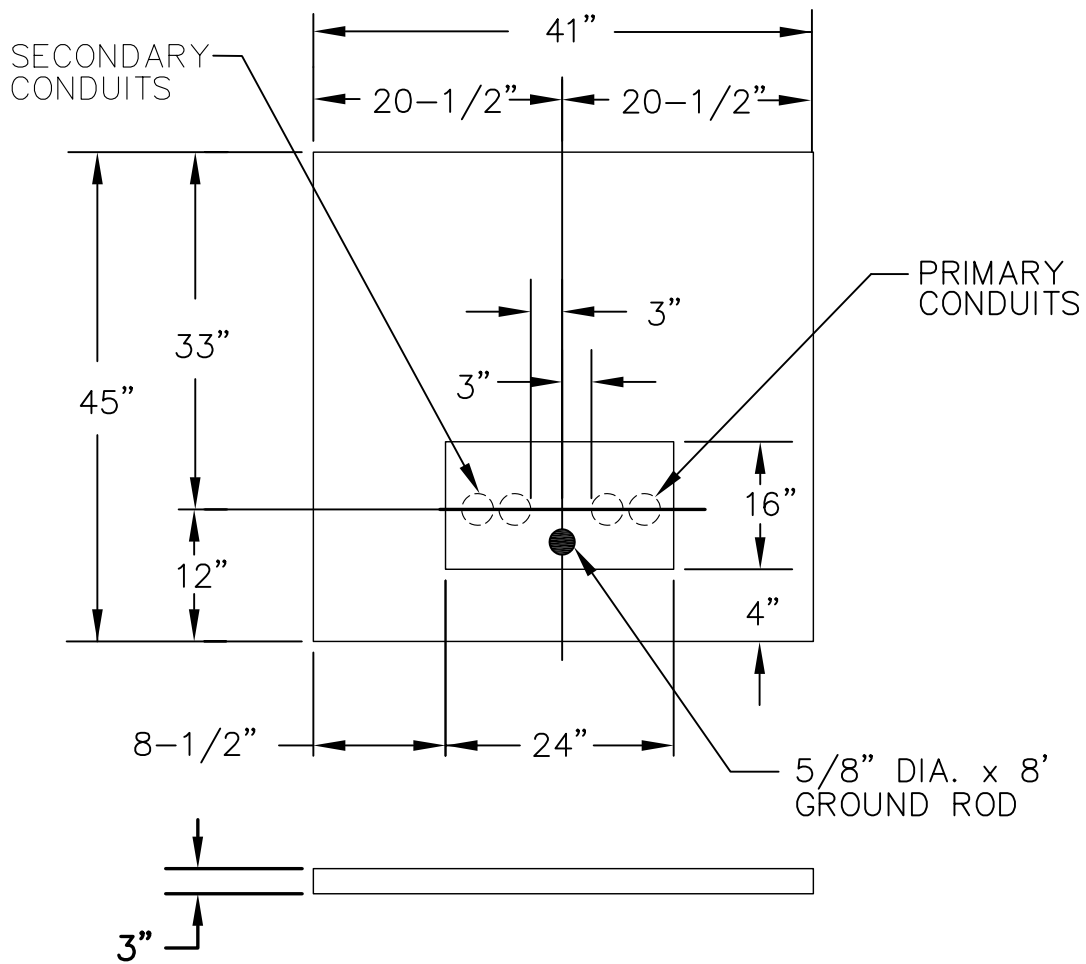
SUBDIVISION CONDUIT CROSSINGS  
STREET AND ALLEY

DRAWING NUMBER 300

DEVELOPER'S RESPONSIBILITY

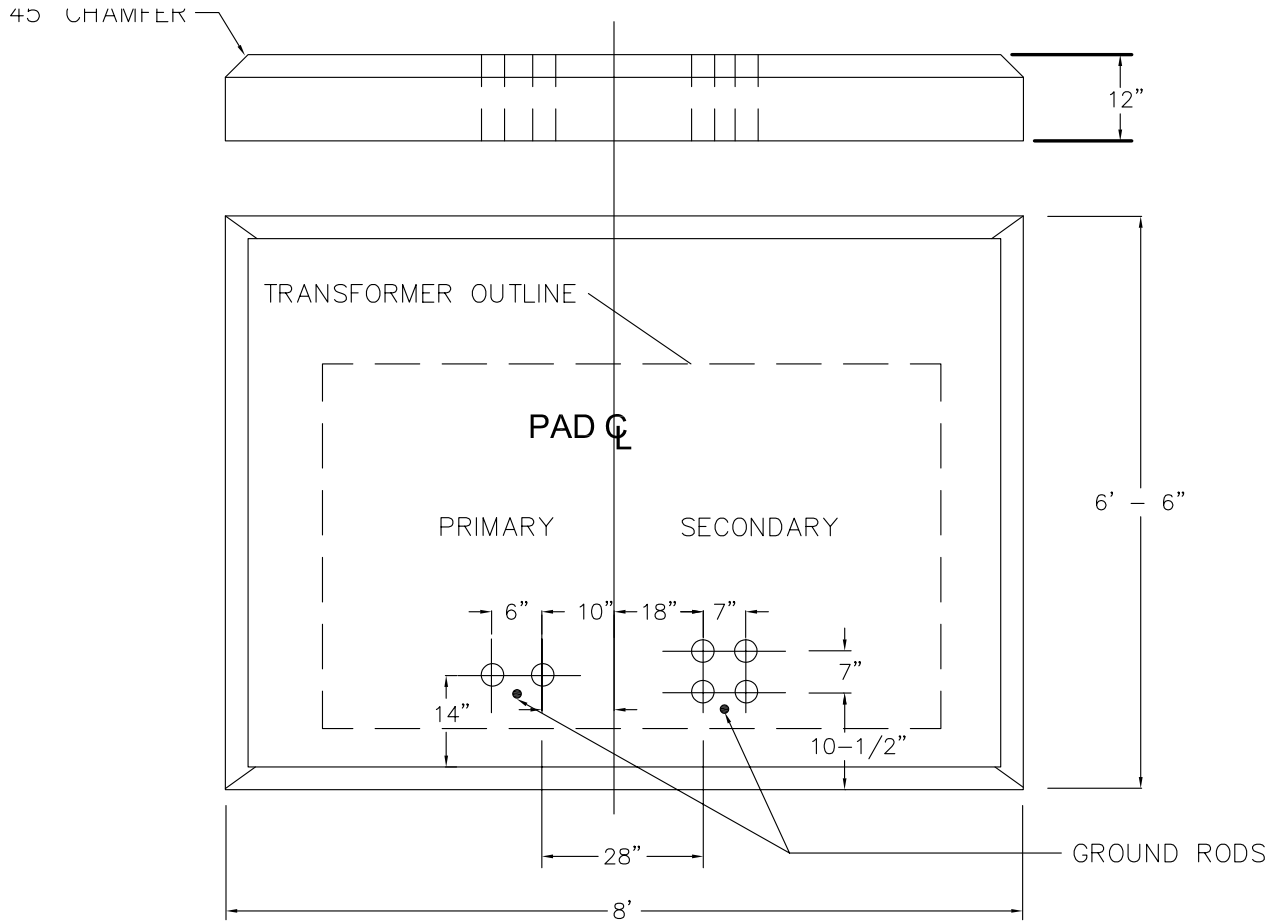
AS PER GARLAND POWER AND LIGHT'S SPECIFICATIONS AND LAYOUT THE DEVELOPER WILL INSTALL ALL CONDUITS. A 3 INCH PVC CONDUIT WITH PULL STRINGS WILL BE INSTALLED TO A DEPTH OF 48 INCHES FOR THE PRIMARY CABLE RUNS.

WHEN SETTING TRANSFORMERS, FACE TRANSFORMER AWAY FROM ANY BUILDING OR STRUCTURE.



INSTALLATION DETAIL FOR SINGLE PHASE  
PAD MOUNT TRANSFORMER  
(COMMERCIAL)

DRAWING NUMBER 305



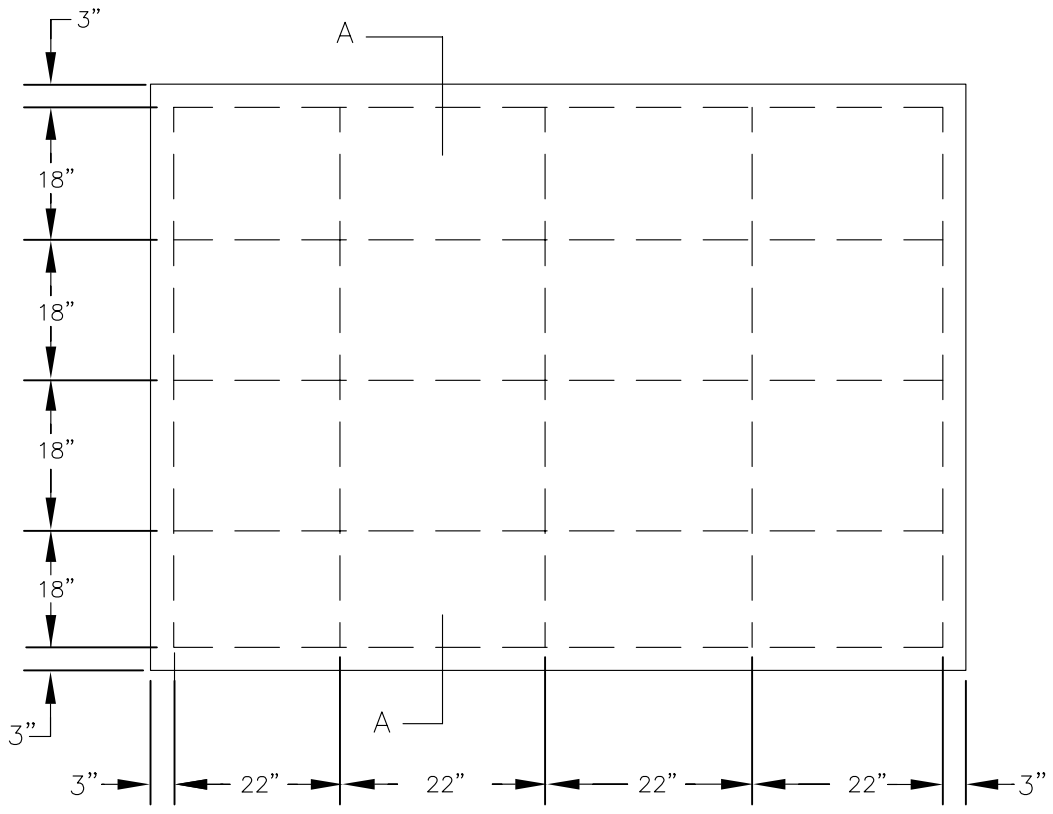
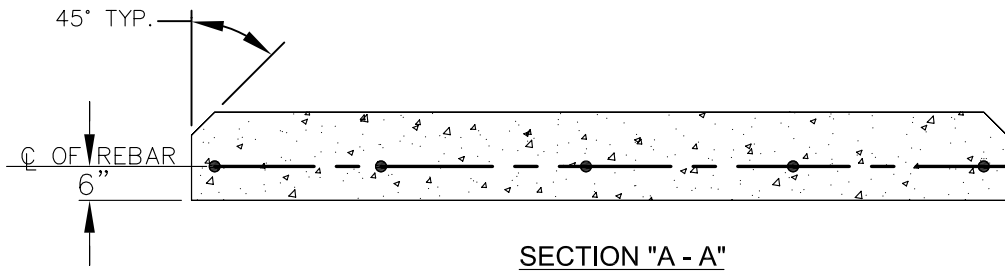
NOTES:

1. CUSTOMER TO PROVIDE & INSTALL CONDUIT FROM CUSTOMER M.L.S. TO TRANSFORMER PAD INCLUDING RIGID 4 INCH SWEEPING 90° BENDS IN PAD AND AT RISER. PRIMARY CONDUITS TO BE SCHEDULE 40 PVC.
2. CUSTOMER TO PROVIDE & INSTALL CABLE FROM M.L.S. TO TRANSFORMER, LEAVING SUFFICIENT CABLE IN TRANSFORMER SECONDARY COMPARTMENT TO FACILITATE CONNECTION.
3. CUSTOMER TO FURNISH AND INSTALL 5/8 INCH DIA. X 8 FEET GROUND ROD.
4. AREA BELOW PAD TO BE CLEAR OF FOREIGN PIPES, CONDUITS, ETC.
5. WHERE SERVICE ENTRANCE REQUIRES MORE THAN 4 CONDUCTORS PER PHASE, A SECONDARY CONNECTION CUBICAL MUST BE USED.

6'-6" x 8' DETAIL FOR CONCRETE TRANSFORMER  
PAD WHEN CUSTOMERS SECONDARY DOES NOT  
EXCEED 16 CONDUCTORS

DRAWING NUMBER 310

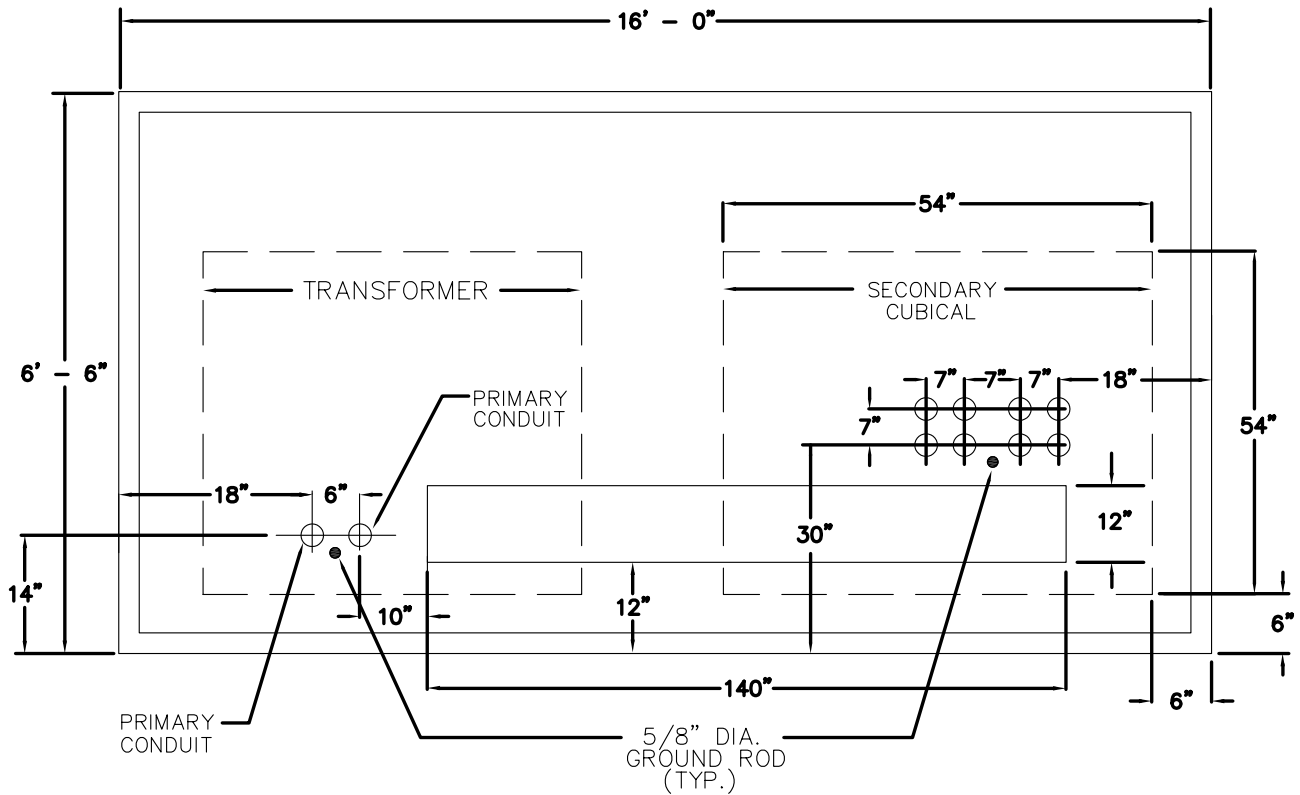




INSTALL 5/8" DIA. REBAR

6'-6" x 8' REBAR DETAIL FOR CONCRETE  
 TRANSFORMER PAD WHEN CUSTOMERS  
 SECONDARY DOES NOT EXCEED  
 16 CONDUCTORS

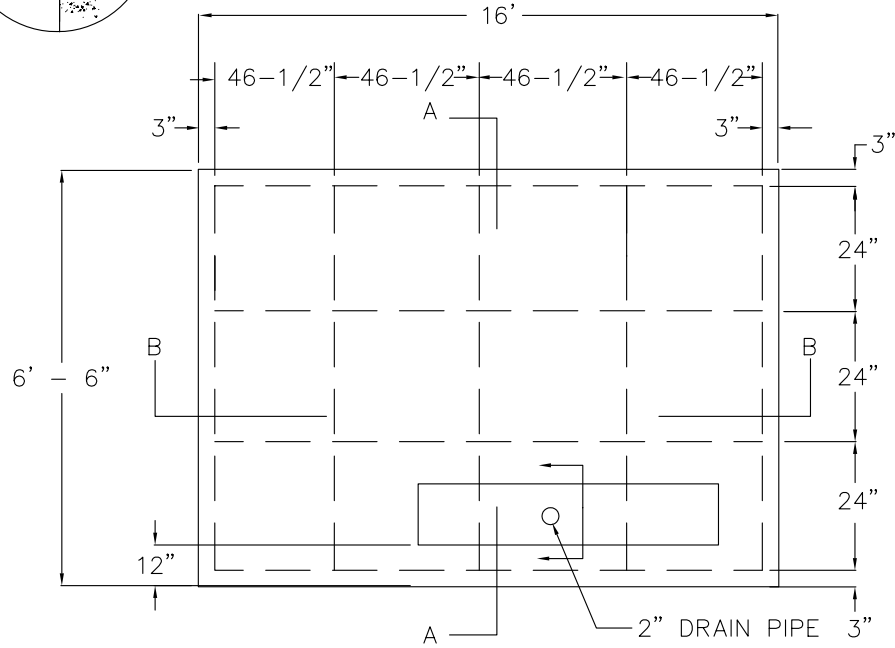
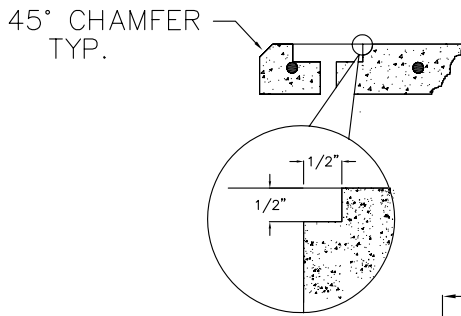
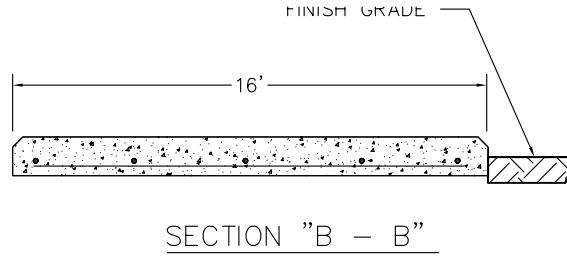
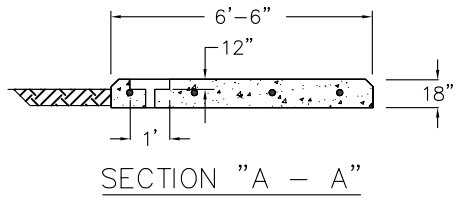
DRAWING NUMBER 310A



1. CUSTOMER TO PROVIDE & INSTALL CONDUIT FROM CUSTOMERS M.L.S. TO TRANSFORMER PAD INCLUDING RIDGED SWEEPING 4" 90° BENDS IN PAD AND AT RISER. PRIMARY CONDUITS TO BE SCHEDULE 40 4" PVC.
2. CUSTOMER TO PROVIDE AND INSTALL CABLE FROM M.L.S. TO CUBICAL LEAVING SUFFICIENT CABLE IN SECONDARY CUBICAL TO FACILITATE CONNECTION BY CUSTOMER.
3. CUSTOMER TO FURNISH AND INSTALL 5/8" DIA x 8' GROUND ROD.
4. AREA BENEATH PAD TO BE CLEAR OF FOREIGN PIPES, CONDUIT, ..ETC.

6'-6" x 16' DETAIL FOR CONCRETE  
TRANSFORMER PAD WHEN CUSTOMERS  
SECONDARY EXCEEDS 16 CONDUCTORS

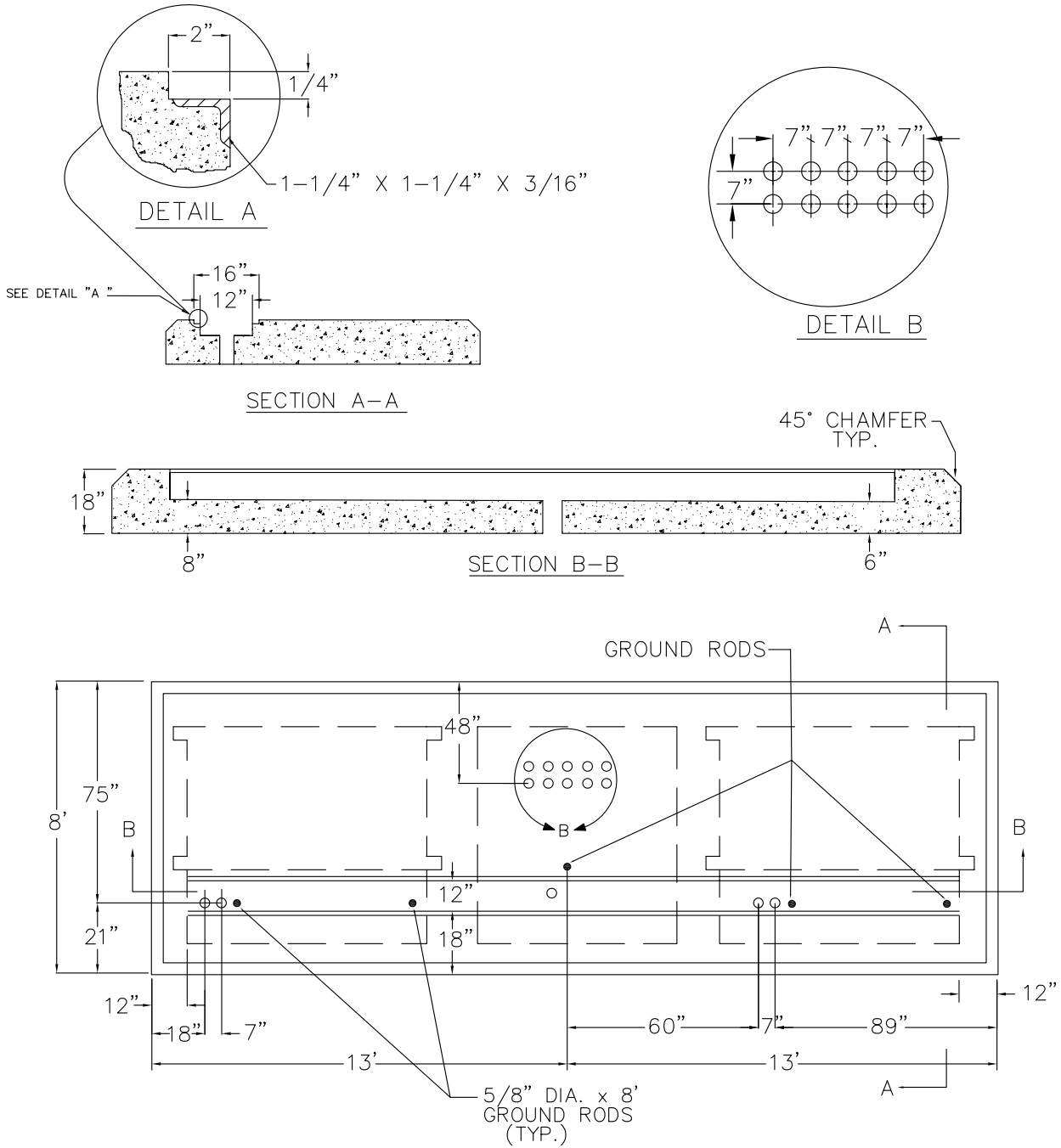
DRAWING NUMBER 315



INSTALL 5/8" DIA. REBAR

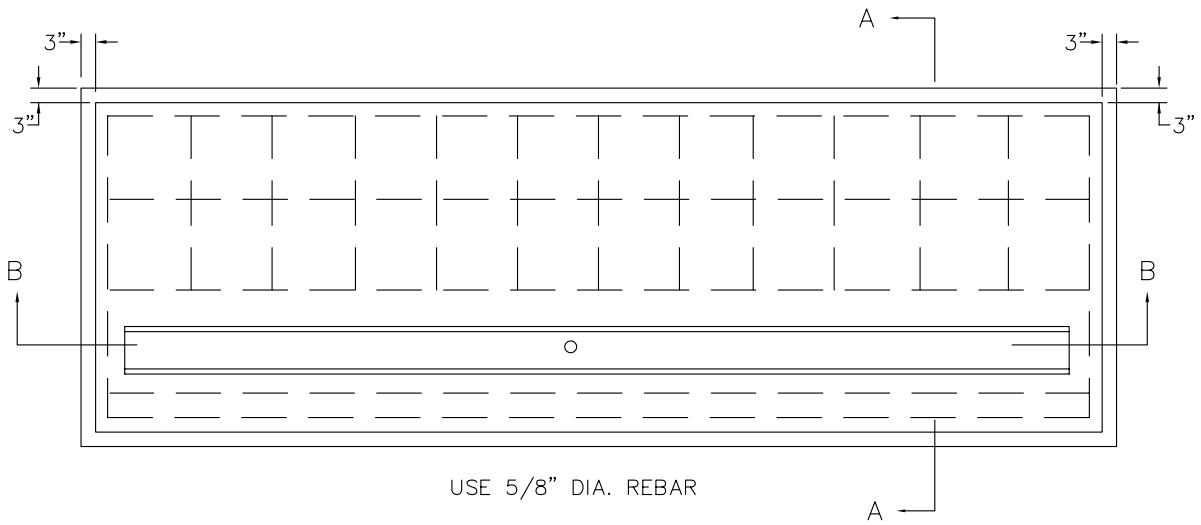
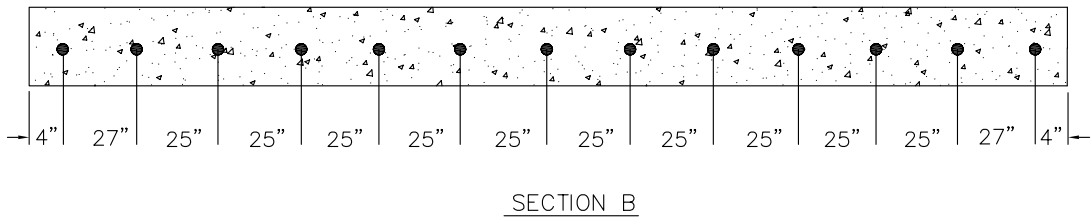
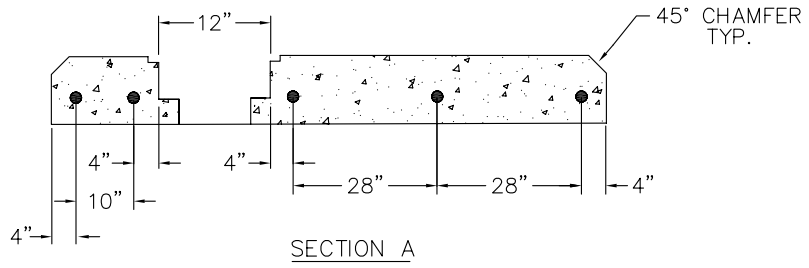
6'-6" x 16' REBAR DETAIL FOR CONCRETE  
TRANSFORMER PAD WHEN CUSTOMERS  
SECONDARY EXCEEDS 16 CONDUCTORS

DRAWING NUMBER 315A



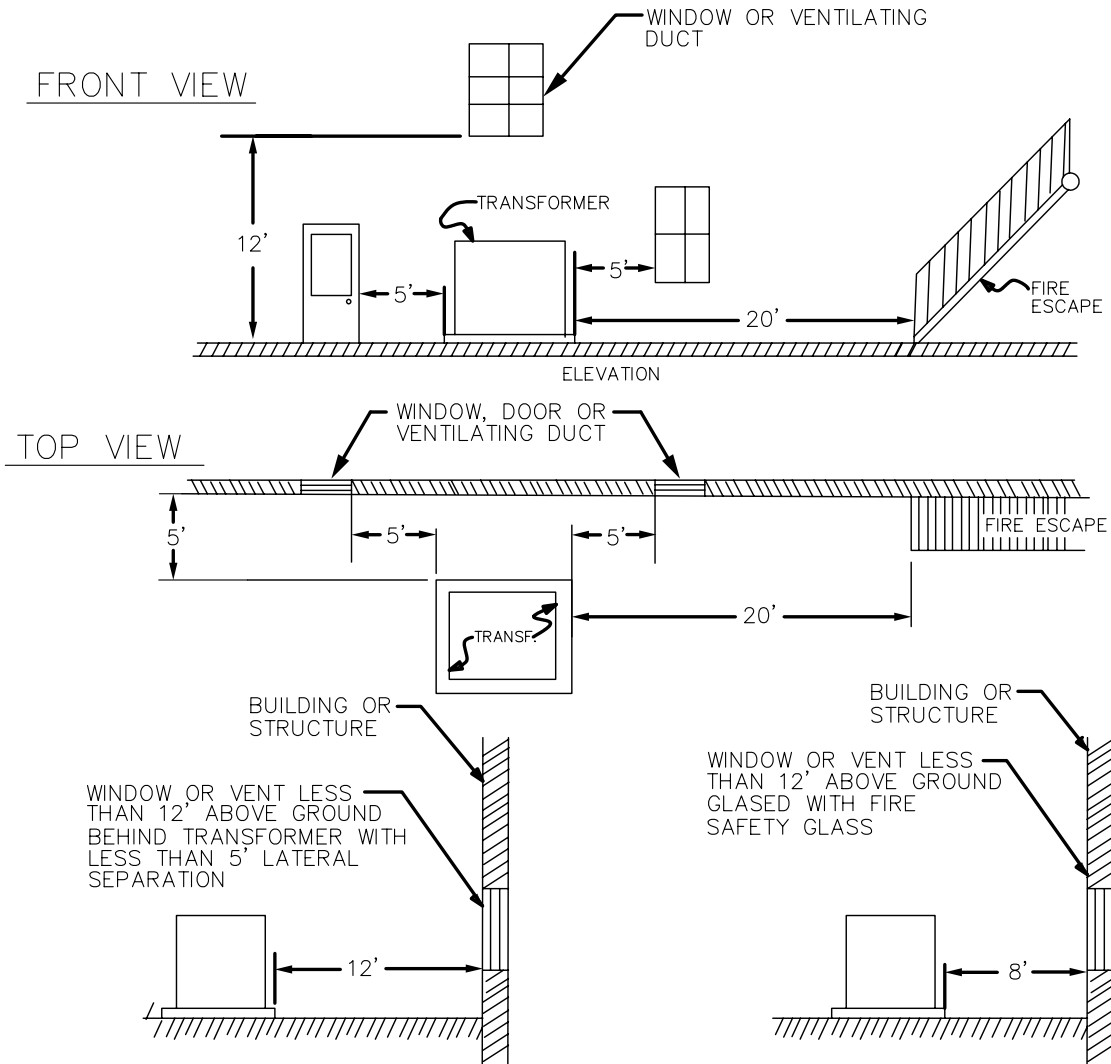
8' x 26' DETAIL FOR CONCRETE  
 TRANSFORMER PAD WHEN CUSTOMERS  
 LOAD EXCEEDS 2000 KVA

DRAWING NUMBER 320



8' x 26' REBAR DETAIL FOR CONCRETE  
 TRANSFORMER PAD WHEN CUSTOMERS LOAD  
 EXCEEDS 2000 KVA

DRAWING NUMBER 320A



**NOTES:**

1. ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS.
2. THIS DRAWING IS APPLICABLE ONLY TO BRICK OR MASONRY STRUCTURES, FOR THIS DRAWING IS APPLICATION, CONSULT THE ENGINEERING DEPARTMENT.
3. LIQUID FLOW OF AREA SURROUNDING TRANSFORMER SHOULD BE AWAY FROM BUILDING.
4. THERE SHOULD BE NO ABOVE GROUND OBSTRUCTIONS, SUCH AS SHRUB, AIR CONDITIONER, GAS METERS, CABLE AND PHONE UPRIGHT PEDESTALS WITHIN 5 FEET OF PAD.
5. THERE SHOULD BE NO UTILITIES OR OTHER OBSTRUCTIONS PASSING UNDER TRANSFORMER PAD.

**LOCATION OF PAD-MOUNT TRANSFORMER**