

# MEMBER INSTALLATION STANDARDS FOR ELECTRIC SERVICE



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## **Section 1. Introduction**

### **1.1 Purpose**

The information contained in this book is presented for the use in planning electrical wiring and apparatus installations intended for connection to electric power lines owned by Alcorn County Electric Power Association (ACE). If you are building a new home or business, remodeling, or doing any work that will require assistance from ACE, then please contact ACE as early as possible to avoid any delays.

This guide contains the different wiring standards for Residential and General Power (Commercial) members, including single-phase, three-phase, overhead and underground installations.

None of the standards in this guide are in intentional conflict with the National Electric Code (NEC<sup>®</sup>) of the National Fire Protection Association except where ACE's standards are more stringent.

### **1.2 Jurisdiction**

Wiring done within the City of Corinth shall be inspected and approved by the city electrical inspector before electrical service shall be rendered. Please contact the Building Inspector of Corinth for information about building permits and inspections or go to [www.cityofcorinthms.com](http://www.cityofcorinthms.com). ACE reserves the right to refuse connection of any service installation that does not meet the standards in this guide or the NEC regardless of whether it has passed an inspection by the city electrical inspector.

ACE standards and jurisdiction apply to the service equipment only. Wiring performed on the load side of the main disconnecting means is not inspected or approved by ACE.

### **1.3 Service Standards Availability and Revisions**

These Service Standards may be revised as new methods and improved equipment become available. These Service Standards will be re-issued with all revisions included when necessary. Changes of policy made after the publication date, will be in effect despite the fact that they will not be included in this document.

## **Section 2. Safety**

### **2.1 Safety**

Safety is essential. Please contact ACE immediately with any safety concerns. ACE will insist that any work stops that is believed to be dangerous to the public or to an individual.

### **2.2 Distance Requirements for Member Structures From ACE Power Lines**

Permanent or temporary structures should not be located within 10 feet horizontally of the ACE's aboveground electrical facilities. However, in many cases, signed easements require more distance between electrical facilities and member structures. Typical easements are 10 feet from secondary wires (600 volts or less), 20 feet from primary wires (600 volts or greater), and 25 feet from three phase primary wires. **Please consult with the ACE Engineering Department before building any temporary or permanent structures near electric overhead and underground power lines and facilities.**

ACE will not allow electrical service to be run over or under a pool. In addition, no pool should be constructed over or under electrical facilities. Please consult the ACE Engineering Department before installing a pool near an overhead or underground power line or any ACE facilities.

### **2.3 Use Caution When Working Near ACE's facilities**

Please contact ACE for the location of ACE's power lines and electrical facilities before operating any equipment near ACE's facilities. All members or contractors shall use extreme caution to avoid contact with ACE's overhead or underground power lines and all other electric facilities to prevent injury or death and to prevent damages to ACE's, the member's, or contractor's equipment. **The member or contractor shall notify Mississippi 811 simply by dialing 811 and shall have all underground facilities located before digging.**

## Section 3. General Guidelines

### 3.1 Location of Meter Base

ACE shall determine the specific location of the meter base, **which is furnished by ACE**, on the building. With the exception of temporary service only, **No self contained meter base shall be installed on an ACE owned pole.** ACE may require relocation of a meter base or rewiring of an existing service installation. Information as to the location of the meter base may be obtained by consulting the ACE Engineering Department and should be obtained before installation of the meter base.

**If the location of the meter base is established without prior approval by ACE, then ACE reserves the right to refuse connection until any relocation deemed necessary by ACE is made.** The meter base must be located at a point on the outside wall of the building. Porches and carports, either enclosed or open, are considered as being inside the building. **The meter base must not be located where it is subject to channeled or heavy running water off a roof.**

The meter base shall be readily accessible to the meter reader and shall not be located behind locked gates or shrubs, located over steps or require climbing over obstructions that would hinder reading and servicing. In general, no obstructions should be within a 5 feet radius of the meter base location. The ground shall be reasonably smooth and level around the meter location. The meter base shall not be installed within 3 feet of an exposed gas or water pipe.

### 3.2 General Meter Base Requirements

**The meter base shall be furnished by ACE and installed by the member.** The meter base shall be installed so that the center of the socket where the meter is installed is at a height between 5 feet and 6 feet above the ground level. In alleys or over sidewalks, the height shall be 7 feet as measured from the center of the meter socket to the ground level. **For locations with multiple meters, location description labels of brass or other rust resistant metal must be installed.** If ACE requires or allows the member to provide a meter base, **then the meter base shall have an Underwriters Laboratories (UL) Label and have a barrel lock with guard provision (BLG).** All single phase 320-amp meter bases and all three phase meter bases shall have a manual mechanical gang operated bypass switch. Horn bypasses and similar devices are not allowed. The lugs in 320 amp meter bases shall accept up to 500 MCM conductors. Meter base shall be sealable and in serviceable condition. **Any conductor located on the source side of the meter shall be secured behind separate barriers** if a combination meter/ breaker box is used. The combination meter/breaker box shall be designed so that member cannot have access to the compartment where the meter and ACE power wires are located. In addition, the combination meter/breaker box shall have one main breaker

for services rated 200-amp and below and may have up to six breakers only for services rated above 200-amp. The combination meter/breaker box shall also have a (UL) label and have a barrel lock with guard provision (BLG).

The meter base and conduit shall be mounted using non-corrosive straps and fasteners. Rigid or intermediate conduit shall be used from the weatherhead to the meter base, however only **rigid** conduit with an inside diameter of 2 inches or greater will be allowed for installations that require the conduit to go above the roof. **Rigid or intermediate conduit shall be used between the meter base and the main disconnect.** Locknuts and plastic bushings are required. No nails shall be used to attach either the meter base or the conduit. Heavy duty galvanized or non-corrosive straps shall be spaced a maximum of 24 inches apart on the conduit. The meter base shall be attached using a minimum of 4 fasteners. No fitting with a removable cover is allowed on the **line side (before)** the meter base.

### 3.3 Meters

#### 3.3.1 Type

All meters shall be of the outside type and will be provided and installed by ACE. ACE shall determine the location of the meter base, **which is furnished by ACE**, to be installed by the member. Please consult the engineering department before installing a meter base or meter cabinet.

The metering point shall be determined by ACE. The most feasible and economical location shall be chosen. ACE's present standard metering practices are as follows:

- For up to a 600-amp entrance, self-contained metering is used. The meter base shall be supplied by ACE and shall be mounted on the building by the member.
- For entrances 800-amp and larger, instrument rated metering is used. The meter cabinet shall be furnished by ACE and shall be installed by ACE on the pole for overhead installations. However, in some cases ACE may require the meter cabinet to be installed on the building by the member. On underground installations the meter cabinet shall be furnished by ACE and installed on the building by the member. In addition the member shall install 1" conduit from the pad mount transformer to the building. The 1" conduit shall be **rigid conduit** above ground and maybe schedule 80 underground. The distance from the ground level to the top of the 1" conduit shall be a minimum of 24 inches.

In some cases when the member is required to install the metering cabinet, the member shall also be required to provide and install a

current transformer enclosure and 1” conduit from the current transformer enclosure to the meter cabinet. Please consult the engineering department for current transformer enclosure requirements.

In the event the member wishes the metering point to be in a different location, the member shall be responsible for any additional costs incurred by the change.

### **3.3.2 Height of Meter**

The meter shall be installed at a height between 5 feet and 6 feet above ground level, as measured from the center of the meter socket. In alleys or over sidewalks, the height shall be 7 feet as measured from the center of the meter socket to the ground level.

## **3.4 Service Equipment - Disconnecting Means and Overcurrent Protection**

### **3.4.1 Service Equipment – Type**

An approved safety type service entrance switch with circuit breaker assembly or fuse receptacle shall be provided in all services as a service disconnecting means. This switch shall be enclosed in a metal case and be of the dead front type. The overcurrent device shall be an integral part of the disconnecting means. If the disconnecting means is used on the source side of a switchbox, then it must be a disconnect (**NOT A SUBPANEL BOX**). The neutral from the meter base must be properly terminated using the neutral lug in the disconnect, and then continue to the downstream switch box.

**One main service disconnecting means (main) shall be provided to disconnect all energized load-side conductors from the service-entrance conductors for entrances rated 200-amp or less.**

While it is permissible for the service disconnecting means to consist of not more than six circuit breakers (**Disconnecting means shall only hold six circuit breakers**) for entrances rated more than 200-amp, it is recommended that there be only one main disconnecting device for each service entrance. If more than one circuit breaker is required for the disconnecting means, then all circuit breakers used as the disconnect means will have to be located close to each other. **If one disconnecting means is required to be located outside on the source side of the main switch box, then an outside disconnect means will be required on the source side of all main switch boxes.**

Each service disconnecting means shall be permanently marked to identify it as a service disconnect, and it shall be suitable for the prevailing conditions of its environment.

### 3.4.2 Service Equipment - Size

The main service disconnecting means shall have a minimum rating of 100-amp. All single-phase installations shall be three-wire, 120/240 volts. Two-wire installations will not be connected. Consult with the Engineering Department about the main service disconnecting means size to be used for your project before beginning installation.

### 3.4.3 Service Equipment – Location

The main service disconnecting means shall be installed in a readily accessible location nearest the point of entry of the service entrance conductors either inside or outside the building **and be located no greater distance than 10 wire feet from the meter base**. Sufficient access and working space shall be provided in the vicinity of the main service disconnecting means and distribution panels. The operating handle of the main disconnecting means shall not be more than 6 feet from the floor or ground level at the point of installation. The bottom of the metal enclosure of the main disconnecting means shall be a minimum of 24 inches off the ground level. The main service disconnecting means should not be located within 36 inches of exposed water pipes or any device that is grounded.

Working space for the main service disconnecting means and distribution panels shall be as follows:

Depth of working space: 36 inches minimum  
Width of working space: 30 inches minimum  
Height of working space: 6 ½ feet minimum

The working space shall be kept clear and shall not be used for storage. **The main service disconnecting means and distribution panels shall not be located in the vicinity of easily ignitable material. The main service disconnecting means and distribution panels shall not be located in a bathroom.**

## 3.5 Wiring

### 3.5.1 Main Switch Box Wiring

The main switch box shall be securely mounted with the wiring arranged in a neat and orderly manner. **From the meter base to the main switch box, all conductors shall be in rigid or intermediate conduit.** Circuits shall enter the main switch box through approved connectors. No holes or open knockouts will be allowed in the switch case. Where conduit enters the switch case, locknuts shall be used on both sides of the case wall along with the necessary bushings to insure rigid construction and insulation protection.

The main switch box shall be bonded by connecting a piece of the appropriate size copper wire to the continuous ground using a split bolt and then connecting to the main switch box case using a solderless lug and also to the grounding bar in the switch box. **No transformers, relays, transfer switches, or other control equipment may be installed between the meter and the main switch box or the weatherhead and the main switch box.**

### 3.6 Detail of Meter Base and Disconnect

See Drawing 1.0 in Appendix A for Details of Typical Meter Base and Disconnect.

### 3.7 Grounding

#### 3.7.1 Grounding Conductor

There shall be a bare copper ground wire, of not less than no. 4-copper, extending from the grounding electrode (ground rod) to the weatherhead (**See proper drawing in Appendix A for actual size of grounding conductor or consult engineering department**). **Service entrances rated more than 200-amp requires a larger grounding conductor.** It may be installed inside or outside the conduit, however where exposed it shall be fastened with galvanized or other non-corrosive straps at intervals of not more than 12 inches. No more than four ground connections should be made to a single driven electrode, each ground wire having a separate clamp. **No splices** shall be allowed in the ground wire.

The meter base shall be bonded to the continuous ground. This may be done by: 1) running the continuous ground through the ground lug in the center of the meter base or 2) by connecting a piece of bare copper of the appropriate size to the continuous grounding conductor using a split bolt and then connecting to the ground lug in the meter base. **The main disconnecting means** switch case shall be bonded by connecting a piece of the appropriate size copper wire to the continuous ground using a split bolt and then connecting to the switch case using a solderless lug. In addition, the appropriate size copper wire must be attached to the grounding bar if the switchbox or disconnect has one.

#### 3.7.2 Grounding Electrode (Rod)

The grounding electrode shall be either: 1) 5/8-inch steel or iron rods, or 2) 1/2-inch copper or approved non-ferrous rods. All of ground rods shall be driven to a depth of 8 feet.

## Section 4. Overhead Service

### 4.1 General Requirements

#### 4.1.1 Point of Attachment and Location of Member's Weatherhead

The point of attachment:

- **SHALL BE DETERMINED BY ACE. ACE may require relocation of the point of attachment and member's weatherhead on rewiring of old service installations.** Information as to the location of the point of attachment may be obtained by consulting the Engineering Department and should be obtained before installation of the point of attachment and the weatherhead.
- shall be provided by the member for the Association's service drop to the member's premises and be suitable for attaching the service wires. In cases where the point of attachment is in masonry, brick, block, stucco, rock, metal, wood, etc., ACE may require the member to install an assembly (such as an eye bolt) furnished by ACE for the attachment of service conductors. In the event of low profile buildings, a mast-type riser shall be required to provide the proper clearances. See drawing 1.2 for residential or drawing 1.4 for commercial in Appendix A for details on a mast-type riser.
- shall be of sufficient height to permit the Association's service drop to meet the requirements of the National Electric Safety Code, the requirements of ACE shown in this installation guidebook, and any other controlling ordinances or orders of authorities having jurisdiction.
- shall not have any other attachments such as cable, internet, or telephone.
- shall either be accessible to Association's bucket truck or have proper surface and sufficient ground space on member's property to safely support a ladder.
- shall have clear line of sight to the pole from which the service is or will be attached.
- shall have a clearance of not less than 36 inches from windows, doors, porches, fire escapes, or similar locations. In some cases, conductors

run above the top level of a window are considered out of reach from that window. Please consult Engineering Department at ACE.

- shall be located within 36 inches of the weatherhead and shall be free of any obstacles or angles that would interfere with connection between the point of attachment and weatherhead unless otherwise granted by special permission.

ACE shall make only one point of attachment of its service conductors to a single building. If the point of attachment and location of weatherhead is established without prior approval by ACE, then ACE reserves the right not to make connection until any necessary relocation has been made to meet ACE standards.

**The point of attachment shall never be installed so the service drop would extend over a temporary structure, permanent structure, or a swimming pool.**

#### **4.1.2 Height of Attachment**

The point of attachment and height of weatherhead shall be no less than:

12 feet - above finished grade, sidewalks, or from any platform or projection from which they might be reached.

16 feet - above residential driveways and commercial areas such as parking lots and drive-in establishments not subject to truck traffic.

18 feet - above public streets, commercial areas, non-residential drive ways, parking lots, agricultural areas, or other areas subject to truck traffic.

In addition, the point of attachment shall be sufficient to maintain these same clearances for the service conductors coming from ACE's pole.

**Consult the Engineering Department at ACE concerning all clearances. The construction of a structure near, over, or under ACE's power lines may cause a code and/or safety violation.**

#### **4.2 Overhead Service Entrance Conductors**

The service entrance conductors shall extend a minimum of 3 feet beyond the weatherhead to provide space for proper attachment. It is preferable for the

conductors to have black insulation for hot wires and white for the neutral. Each installation shall have copper service entrance conductors including the grounding conductor. **Aluminum conductor is not permitted.**

The conductors shall be readily identifiable as to color, size, type, and insulation in accordance with the National Electrical Code. Where the proper color conductors are not readily available, painting or taping for identification is permissible. Conductors shall be continuous without splices.

### **4.3 Residential Overhead Service Detail Requirements**

#### **4.3.1 Meter Loop Installations**

See Drawing 1.1 in Appendix A

#### **4.3.2 Service Mast Installations**

See Drawing 1.2 in Appendix A

When the mast is extended more than 4 feet above the roof, it may be necessary to install sufficient bracing to relieve the strain from the conduit. Consult the ACE Engineering Department for proper bracing. **Additionally, no conduit couplings shall be installed above the roof line.**

### **4.4 General Power (Commerical) Overhead Service Detail Requirements**

#### **4.4.1 Meter Loop Installations**

See Drawing 1.3 in Appendix A

#### **4.4.2 Service Mast Installations**

See Drawing 1.4 in Appendix A

When the mast is extended more than 4 feet above the roof, it may be necessary to install sufficient bracing to relieve the strain from the conduit. Consult the ACE Engineering Department for proper bracing. **Additionally, no conduit couplings shall be installed above the roof line.**

## Section 5. Residential Underground Service Installations

### 5.1 General Residential Underground Requirements

A residence is defined as a single-family dwelling with a kitchen(s), bathroom(s), and sleeping quarters. Apartments that are separately metered are covered under the definition of residential installations.

ACE will, where practical, install underground services to new residential customers desiring such service; provided the customer pays the difference in the cost of the overhead versus underground (consult Engineering Department for costs) and meets the following requirements:

- **Member must provide and assemble, ready for mounting to pole, 3” rigid or intermediate conduit of required length; together with weatherhead, 90 degree rigid sweep, female adapter, bonds, all straps, stand-off brackets, grounding clamp, screws, etc., for attachment to ACE’s pole.**
- **Also, member will provide 3” schedule 40 PVC grey conduit the entire distance from where member’s 90 degree rigid sweep is located on the pole to the location where member installed conduit at the meter base.**
- Member agrees to locate meter base, **furnished by ACE**, on house at point determined by ACE and to **install rigid, intermediate, or schedule 80 PVC grey conduit as described in section 5.2 and shown in Drawing 1.6.**
- **Normally ACE will trench and install the 3” schedule 40 PVC grey conduit provided by member from where customer’s rigid conduit 90 degree sweep is located on the pole to location where member installed conduit at meter base provided that member pays appropriate fees to ACE.** In some cases, ACE may require member to install conduit. In these cases, member shall provide and install the 3” schedule 40 PVC grey conduit. The member shall install the conduit at a depth so that the distance from the ground to the top of the conduit is a minimum of 24 inches. In some circumstances the member may be required to install the conduit at a greater depth as determined by ACE.
- In cases where the electric service is being provided from a pad mount transformer, member will normally provide conduit and ACE will install conduit from pad mount transformer to location where member installed conduit at the meter base provided the member pays appropriate fees to ACE. However, in some cases, ACE may require member to install conduit. **The member shall not dig within 3 feet of the pad mount. The member shall contact Mississippi 811 by simply dialing 811 before digging and allow all utilities time to locate their facilities.** In these cases, member shall provide and install the 3” schedule 40 PVC grey conduit.

- The member shall install the conduit at a depth so that the distance from the ground to the top of the conduit is a minimum of 24 inches. However, the member may be required to install the conduit at a greater depth by ACE.

## 5.2 General Underground Meter Base Requirements

The installation of an underground meter base shall conform to the requirements in the **General Guidelines under Section 3 of this guide (See Page 7)** and also meet the following requirements:

- The meter base shall be furnished by ACE and installed by the member. The center of the meter socket shall be mounted between 5-feet and 6-feet above finished grade, and shall be readily accessible.
- The meter base and conduit shall be mounted using non-corrosive straps and fasteners. **Rigid, intermediate, or Schedule 80 PVC conduit** shall be used from the ground to the meter base. **Rigid or intermediate conduit** shall be used between the meter base and the main disconnecting means. No nails shall be used to attach either the meter base or the conduit. Fasteners and straps shall be spaced a maximum of 24 inches apart. The meter base shall be attached using a minimum of four fasteners.
- The conduit for the underground service conductors entering the meter base shall extend 24 inches below finished grade and shall contain no more than 90 degrees of bend. In other words only one 90 degree sweep (one 90 degree bend) will be allowed. **The distance from the ground level to the top of the conduit shall be a minimum of 24 inches.** The conduit from the meter base extending to the bottom of the ditch should lay flat against the building. Footings, etc. may require forming or breaking in order to comply. Due to difficulties in pulling conductors, **the Association will require a minimum of 3" conduit for 200 and 400 amp services. Two runs of 3" conduit will be required for 600 amp services.**
- **NOTE: Underground Service Installation is the ONLY instance where PVC conduit is allowed under ACE's standards.** ACE allows Schedule 80 PVC to be used from the ground to the meter base. **However rigid or intermediate conduit is required at the pole and between the meter base and the main service disconnecting means.**
- **NO unauthorized persons are permitted to climb or work on ACE's poles. Arrangements shall be made to have ACE personnel present or to have ACE's permission when conduit is to be extended up the power pole. Please contact ACE before you attach any conduit to ACE's Pole.**

## 5.3 Underground Service Detail Requirements

See Drawing 1.5 and 1.6 in Appendix A

## **Section 6. General Power (Commercial) Underground Service Installations**

### **6.1 General Power (Commercial) Underground Service Requirements**

A General Power Installation is any non-residence. This includes businesses, churches, offices, warehouses, **personal-use shops**, and any other installation not covered by the definition of a residence.

### **6.2 General Underground Meter Base Requirements**

The installation of an underground meter base shall conform to the requirements in the **General Guidelines under Section 3 (See Page 7)** and also meet the following requirements. The meter base shall be furnished by ACE and installed by the member. The center of the meter socket shall be mounted between 5-feet and 6-feet above finished grade, and shall be readily accessible.

The meter base and conduit shall be mounted using non-corrosive straps and fasteners. **Rigid, intermediate, or Schedule 80 PVC conduit** shall be used from the ground to the meter base. **Rigid or intermediate conduit** shall be used between the meter base and the main disconnect. No nails shall be used to attach either the meter base or the conduit. Fasteners and straps shall be spaced a maximum of 24 inches apart. The meter base shall be attached using a minimum of four fasteners.

The conduit for the underground service conductors entering the meter base shall extend 24 inches below finished grade and shall contain no more than 90 degrees of bend. In other words only one 90 degree sweep (one 90 degree bend) will be allowed. **The distance from the ground level to the top of the conduit shall be a minimum of 24 inches.** Footings, etc. may require forming or breaking in order to comply.

**NOTE: Underground Service Installation is the ONLY instance where PVC conduit is allowed under ACE Power Association's standards.** ACE allows Schedule 80 PVC to be used from the ground to the meter base. **However rigid or intermediate conduit is required at the pole. In addition rigid or intermediate conduit is required between the meter base and the main service disconnecting means.**

**NO unauthorized persons are permitted to climb or work on ACE's poles. Arrangements shall be made to have ACE personnel present or to have ACE's permission when conduit is to be extended up the power pole. Please contact ACE before you attach any conduit to ACE's Pole.**

### 6.3 Underground Service from Overhead System General Requirements

The member shall provide, install, and own all secondary wire. **ACE shall make the connections at the transformer. Member shall install enough secondary wire so that it can reach to transformer wire connectors near top of transformer. Please consult engineering department for proper length to be run out of weatherhead.**

The member shall provide, install, and own the conduit, straps, grounding bushing, grounding clamps, stand-off brackets, etc. to be attached to ACE's riser pole. ACE shall normally assist in attaching the conduit to the riser pole. Rigid conduit will be used on the pole including the elbow or "sweep L". **Schedule 80 PVC without encasement or Schedule 40 PVC encased in concrete can be used underground.**

### 6.4 Underground Service from Overhead System Detail Requirements

See Drawing 1.7 and Drawing 1.8 in Appendix A.

### 6.5 Underground Service from Underground System General Requirements (normally pad-mounted transformer)

When the member requests a pad-mounted transformer and underground service the member shall pay the necessary cost and the following requirements shall be met:

- ACE should be informed as early as possible as to the member's load, voltage requirements, ampacity of the service entrance, and the size of the secondary wire (**copper only**) for the service entrance so that the necessary transformer, connectors, etc. can be ordered if they are not in stock.
- The member shall pour a concrete pad for the three phase transformer that shall be a minimum of 12 inches thick. Drawings 1.10 and Drawing 1.11 shows the details. **Contact ACE Engineering Department to determine which drawing to use.** The pad is to be a minimum of 5 feet from the building (**if building surface is non-combustible**) and positioned so that the doors open away from the building to provide working clearance. **If building surface is combustible then pad must be a greater distance from the building. Please contact ACE for exact distance.** For single phase transformers ACE will provide the concrete pad in most cases. However, ACE may require the member to pour a concrete pad for a single phase transformer. The member shall provide 2 ground rods, one in the primary side of the cabinet and one in the secondary side of the cabinet. If the transformer is to be located in an area that is accessible to vehicles the member shall install barriers around the transformer.

- The member shall provide, install, and own all secondary wire and conduit. ACE shall make the connections at the transformer.
- The member shall provide, install, and own the conduit from the transformer to ACE's riser pole, including the conduit, standoff brackets, straps, grounding bushing, etc. to be attached to ACE Power's pole, and provide a pull rope. ACE Power shall assist in attaching the conduit to the riser pole. A minimum of 4" rigid conduit shall be required on the riser pole. The "Sweep L" at both the riser pole and transformer pad shall also be rigid conduit, minimum of 48" radius. A minimum of 4" schedule 40 PVC encased in concrete or schedule 80 PVC without encasement shall be used underground and shall be installed at a depth of 48 inches from the ground level to the top of the conduit. A spare run of conduit is recommended but not required. **However, at such time as the conduit must be replaced or repaired, the customer shall be responsible for providing a replacement.**
- ACE Power shall provide, install, and own the transformer and the primary cable. This shall include terminating the wire at the transformer and at the riser pole.

#### **6.6 Underground Service from Underground System Detail Requirements (normally pad-mounted transformer)**

See Drawing 1.9 in Appendix A. In addition, see drawings 1.10 and 1.11 for three phase transformer concrete pad specifications in Appendix A. Contact ACE Engineering Department to determine which drawing the member should follow. ACE will normally provide the concrete pad for single phase transformers.

## **Section 7. Mobile Homes and Temporary Services**

### **7.1 General Comments**

**Meter bases shall be provided by ACE for mobile home and temporary services.** In most cases, a fee may be charged to the member for meter bases on temporary poles.

All mobile homes shall have the service equipment located adjacent to the mobile home on a Mobile Home Service Pole and not mounted on or in the mobile home. **All mobile homes and temporary services shall have a main disconnecting means located on the service pole.** The main disconnecting means shall have a minimum rating of 100 amps. For all service disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance.

All temporary service poles shall be constructed in the same manner as Mobile Home Service Poles. All 120 volt circuits shall be protected by ground fault interrupters.

All fittings shall be galvanized or non-corrosive and the switch shall be rain tight and approved for outdoor use. Boxes, shields, or coverings will not be acceptable for making switches rain tight.

If upon notification by member, ACE makes a trip to render service and the member's service pole is found unacceptable for connection, the member may be billed for such trip and each unnecessary trip thereafter.

ACE will rent and install a temporary service pole if the member so desires in some cases. Temporary service poles used at the same location for longer than six months must have special permission from ACE.

### **7.2 Service Pole Requirements**

The Mobile Home Service Pole shall be a treated, wooden timber of minimum size 6 inches by 6 inches square timber or have a diameter of not less than 6 inches (21 inch circumference) at the ground line for a round pole. The minimum length shall be 20 feet, 16 feet extending out of the ground and shall be buried 4 feet deep, provided other clearance requirements are met. However, ACE may require a taller pole in some circumstances. Please consult the ACE Engineering Department before beginning project. In addition, call Mississippi 811 before you dig.

### **7.3 Mobile Home or Temporary Service General Requirements**

In addition to the other regulations in this guide, member shall install a minimum ½" galvanized eye bolt with a 2" x 2" washer. The eye bolt shall be installed 8-12" from the top of the pole.

**Rigid or intermediate conduit shall** be used above the meter base. The conduit shall be secured by using non-corrosive straps with a maximum separation of 24” between the straps. A minimum of four conduit straps shall be used. In addition, **rigid or intermediate conduit** shall be used between the meter base and the main service disconnecting means located on the pole. Locknuts and plastic bushings are required. Rigid, intermediate, PVC Grey conduit, or water tight flex with metal inside conduit walls may be used from the main service disconnecting means to the switch box.

The conduit shall be secured by means of galvanized or non-corrosive straps spaced every 2 feet under the chassis of the trailer when the meter pole is located no more than 1 foot from the surface of the trailer. The conductor shall be run underground in an approved fashion in conduit when the meter pole is greater than 1 foot from the trailer.

All fittings shall be galvanized or non-corrosive and the main service disconnecting means shall be rain tight and approved for outdoor use. Boxes, shields, or coverings shall not be acceptable for making switches rain tight.

Galvanized rigid or intermediate weatherheads shall be used. The service entrance conductors shall extend at least 3 feet out of the weatherhead. All service entrance conductors must be copper. **No Aluminum conductors will be accepted.**

Grounding of both electrical and non-electrical metal parts in a mobile home is through connection to a grounding bus in the mobile home distribution panel. The grounding bus is grounded by running the appropriate size copper wire from the mobile home distribution panel to the ground connection in the main disconnecting means, located adjacent to the mobile home. Neither the frame of the mobile home nor the frame of any appliance may be connected to the neutral conductor in the mobile home.

#### **7.4 Mobile Home or Temporary Service Detail**

The service equipment for the Service Pole shall consist of the appropriate size conductors, conduit, meter base, and main service disconnect. **Details are on Drawing 1.12 for Mobile homes and Drawing 1.13 for Temporary Services.**

#### **7.5 Signs, Billboards, etc.**

Signs, billboards, CATV amplifier installations, etc. shall conform to the standards listed in the General Guidelines in addition to this section.

## **Section 8. Multiple Meter Installations (Gang Meter Bases)**

### **8.1 General Comments**

All gang meter bases must be furnished and installed by the member and must conform to the regulations given in the General Guidelines in Section 3 of this guidebook in addition to the following requirements. All gang meter bases shall have an Underwriters Laboratories (UL) Label and each meter socket in the gang meter base shall have a barrel lock with guard provision (BLG). All gang meter bases must be approved by ACE before the gang meter base is installed. ACE reserves the right to deny service to any location with a gang meter base that does not meet ACE's requirements.

Meters must be protected from physical damage. Gang meter bases shall not be mounted on a pole.

**All gang meter bases used for General Power (commercial) installations shall have a manual bypass lever for each meter. This will normally allow ACE to change out meters without interrupting service to the member.**

All gang meter bases shall have a main service disconnecting means with appropriate size circuit breaker assembly or fuse receptacle located adjacent to each meter.

### **8.2 Labeling of Meters**

Details are on Drawing 1.14. **Labeling must be installed before ACE will connect the gang meter installation or any location that has multiple meter bases.**

### **8.3 Multiple Meter Installation Detail**

Details are on Drawing 1.14.

## Section 9. Three Phase Service

### 9.1 General Comments

When three phase service is requested by an applicant whose load could satisfactorily be serviced by single phase service, and three phase service is not readily available, three phase service may be provided at the discretion of ACE based on the following provision. The applicant will make an advance payment in aid of construction to ACE. This payment will be equal to the difference in cost of providing single phase service and the cost of providing three phase service. This payment will be credited against the cost of construction. No credit will be allowed on the applicant's electric bills, nor will any refund be made in the event of termination of service.

### 9.2 Details for Three Phase Service

In addition to the other regulations in this guide, members will follow Section 4 for Overhead Three Phase service and Section 6 for Underground Three Phase Service. **However, on 120/208 and 277/480 volt services, the member will be required to provide the same size neutral as the phase conductors. If member decides to use larger conductor than required for phase or neutral conductor, then contact ACE before installation. Conductors can be too large for meter base lugs.**

## **Section 10. Motor Loads**

### **10.1 Single Phase Motors**

1. Motors of five horsepower and smaller may be started across the line, provided, such starting does not cause undue interference to other consumers served from the same transformer. On equipment containing two or more motors exceeding five horsepower in total, the controls should be connected or operated so that motors will not be started simultaneously.
2. Motors in excess of five horsepower normally should have current limiting devices, such as: resistance starters, capacitor start, capacitor start-capacitor run characteristics or equivalent.
3. Any motor whose starting characteristics are such as to limit the starting current to 300 percent of full load current will be acceptable, regardless of type of starting device used, for single phase motors of 10 horsepower and smaller.
4. Normally, single phase motors larger than 10 horsepower will be considered as a special application and will be served only when the user meets the requirements set forth by ACE for this application.

### **10.2 Three Phase Motors**

1. 15 horsepower and smaller motors operated singly can be started across the line. On equipment containing two or more motors exceeding 15 horsepower in total, the controls should be connected or operated so that motors will not be started simultaneously.
2. Motors larger than 15 horsepower, up to and including 75 horsepower, must be equipped with starting devices so as to limit the starting current to 300 percent of full load current.
3. Motors in excess of 75 horsepower must be equipped with starting devices so as to limit the starting current to 250 percent of full load current.
4. Motors in excess of 150 horsepower shall be considered a special application and will be served only when the user meets the requirements set forth by ACE for this application.

In certain instances, special circumstances may require that further limitations be enforced by ACE.

## **Section 11. Member Owned Generators**

### **11.1 Generators Interconnected and Operated in Parallel with the Electric Utility Grid**

Contact the Engineering Department of ACE before beginning installation of any backup generator that will be connected before the main switch box.

Backup Generators shall be permitted to interconnect and operate in parallel with ACE's distribution system provided that all of the following conditions are met throughout the life of the interconnection:

1. The quality and reliability of service to any of ACE's members shall not be diminished or affected as a result of the interconnection.
2. The safety of the public and ACE's employees or equipment shall not be reduced or affected in any way as a result of the interconnection.
3. The generator is connected through a double pole, double throw transfer switch that has a visibly open break that can be verified by ACE's employees. The members shall supply a disconnect method acceptable to ACE. The disconnect and transfer switch shall normally be located on the outside of the facility and accessible to ACE personnel at all times.

**See Drawing 1.15 in Appendix A.**

# **APPENDIX A**

Detail Drawings of Member Installation Requirements For Electric Service

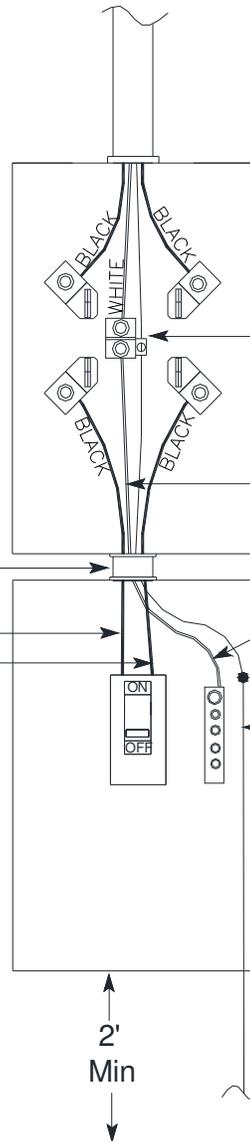
## DETAIL OF METER BASE AND DISCONNECT

Four wires are to run out the weatherhead:  
Two stranded copper wires with black insulation for the hot wires, one stranded copper wire with white insulation for the neutral, and one bare copper wire for the ground. Leave at least 3 feet of wire out of the weatherhead.

For all service-disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance.

Rigid or intermediate nipple between the meter base and switchbox. Locknuts and plastic bushings are required.

Two black wires run from the lugs in the meter base to the main circuit breaker in the top of switchbox or disconnect.



Grounding connector in the meter base has a slot for the white, insulated neutral and for the bare copper wire. Do not put both wires in the same slot.

White neutral wire to run from the grounding connector in the meter base to the neutral bus in the switchbox.

Bare copper wire must be unbroken from the ground rod, through the disconnect and meter base, and out the weatherhead. **It must be attached to the disconnect switchbox using a solderless lug and to the grounding bar if switchbox has one.** Do not run ground wire to Neutral bus.

Floor or Finished Grade

Minimum Copper Conductor and Conduit Sizes, **RESIDENTIAL** Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
100 amp(OH only)	100 amp	#4	#4	#4	1 1/4"
200 amp	200 amp	2/0	#2	#4	2"
200 amp	225 amp	3/0	#2	#4	if UG 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

Meter base or main disconnecting means shall not be located within 36 inches of gas meters.

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

Minimum Copper Conductor and Conduit Sizes, **COMMERCIAL** Installation

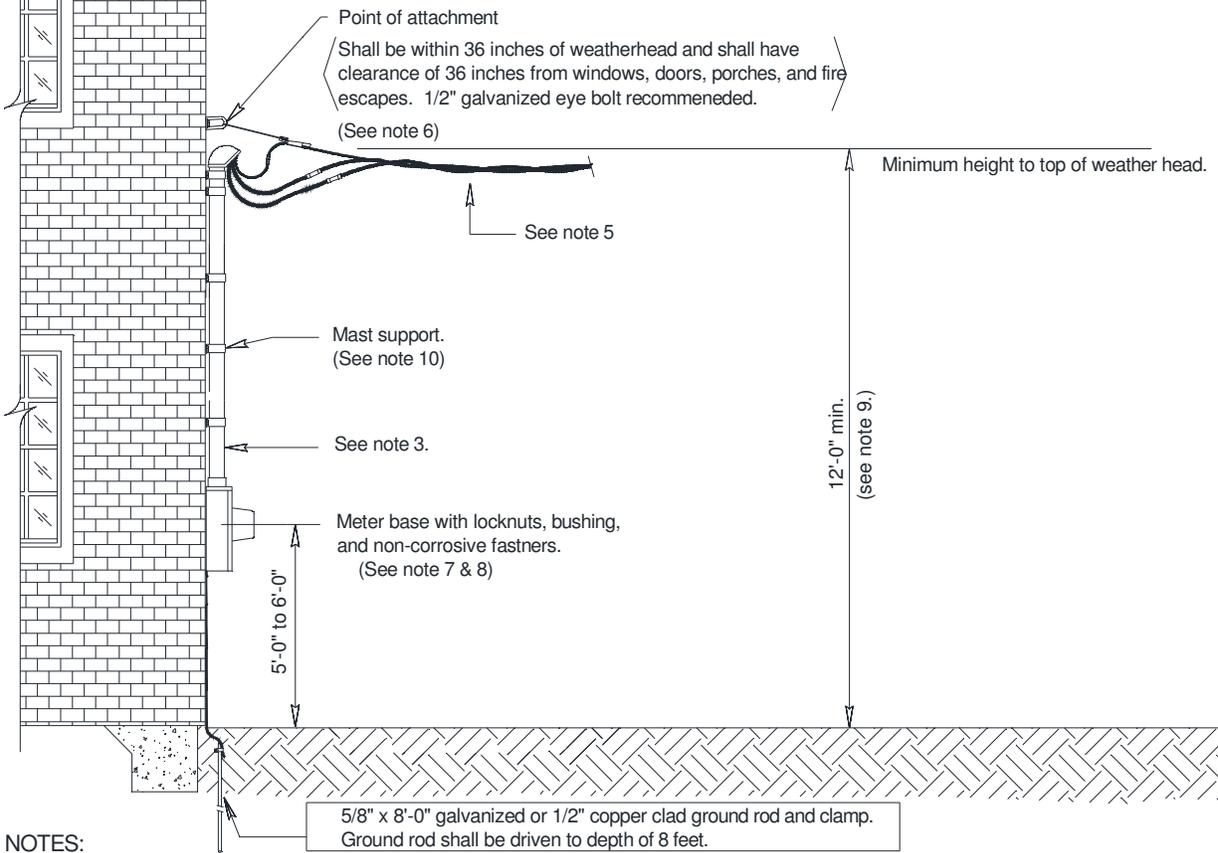
Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
100 amp single phase only	100 amp	#3	#4	#4	1 1/4"
200 amp	200 amp	3/0	#2	#4	2" if UG 2 1/2" or 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* On 3 phase 120/208 or 277/480 voltage: Neutral should be same size as conductor.

Drawing 1.0  
Drawn 7/13/12

# Typical Single Phase Residential Meter Loop Installation

Consult Engineering before installation of service entrance equipment.



## NOTES:

- Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
- Buildings or other facilities shall not be constructed under existing company supply lines, nor shall any company supply lines pass over existing buildings or facilities.
- Galvanized rigid or intermediate conduit. Weatherhead should be of the same material as the conduit.
- There shall be a bare copper ground wire, of not less than #4 copper, extending from the grounding electrode (ground rod) to 3' out of the weather head with no splices. See table below for actual size of ground. It shall be fastened with non-corrosive straps at interval no more than 12".
- A minimum of 3'-0" of each conductor must extend from the top of the service mast. The neutral must be white and conductors black.
- Member must supply and install point of attachment. Call Engineering Dept. to discuss location.
- Main breaker should be within 10-wire feet of meter base. Outside wall is recommended. If main breaker is not within 10-wire feet, then disconnect is required. For all service-disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance. Rigid or intermediate conduit required between meter base and main breaker.
- Member must install meter base provided by ACE. Physical location must be approved by ACE. Shall not be located inside building or under porches and carports. Shall be readily accessible to Meter Reader. (Meter shall be provided and installed by ACE)
- Additional height may be required to maintain clearance (16' over driveways). Point of attachment can be no higher than 25'.
- Non-corrosive conduit straps and fasteners, no nails allowed. Max 24" separation between straps. Double straps must be used at weatherhead.

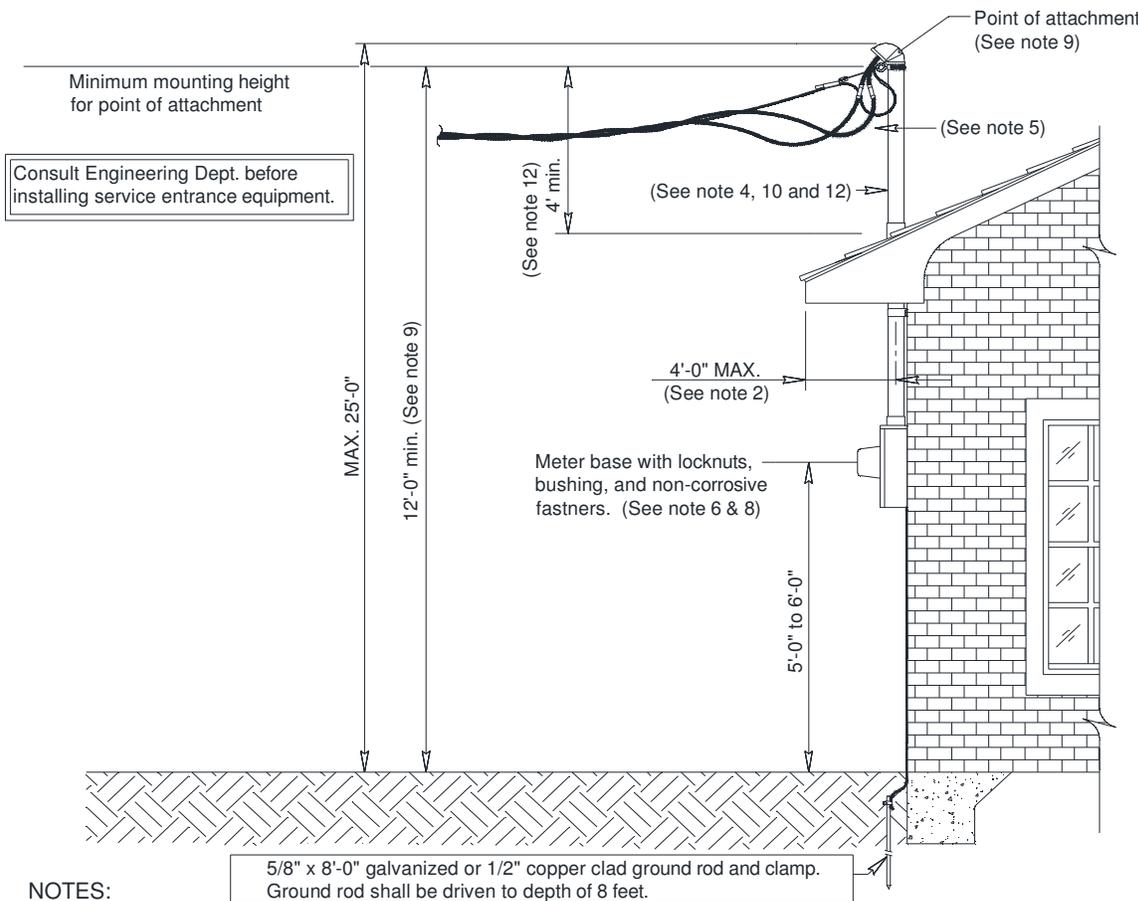
Minimum Copper Conductor and Conduit Sizes, **RESIDENTIAL** Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
100 amp(OH only)	100 amp	#4	#4	#4	1 1/4"
200 amp	200 amp	2/0	#2	#4	2"
200 amp	225 amp	3/0	#2	#4	if UG 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

Drawing 1.1  
Drawn 7/13/12

# Typical Single Phase Residential Service Mast Installation



## NOTES:

- Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
- Distance from facia to center of mast to be 4'-0" max. NEC 230-24
- Buildings or other facilities shall not be constructed under existing company supply lines, nor shall any company supply lines pass over existing buildings or facilities.
- Galvanized rigid weatherhead and conduit, minimum 2" inside diameter. No coupling allowed above the roofline.
- A minimum of 3'-0" of each conductor must extend from the top of the service mast. The neutral must be white and conductors black.
- Main breaker should be within 10-wire feet of meter base. Outside wall is recommended. If main breaker is not within 10-wire feet, then disconnect is required. For all service-disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance. Rigid or intermediate conduit required between meter base and main breaker.
- Non-corrosive conduit straps and fasteners, no nails allowed. Max 24" separation between straps.
- Member must install meter base provided by ACE. Physical location must be approved by ACE. Shall not be located inside building or under porches and carports. Shall be readily accessible to Meter Reader. (Meter shall be provided and installed by ACE)
- Additional height may be required to maintain clearance (16' over driveways). Point of attachment can be no higher than 25'.
- No telephone or cable attachment allowed on mast. NEC 230-28
- There shall be a bare copper ground wire, of not less than #4 copper, extending from the grounding electrode (ground rod) to 3' out of the weather head with no splices. See table below for actual size of ground. It shall be fastened with non-corrosive straps at interval no more than 12".
- Guy is required if 5' above roof line.

Minimum Copper Conductor and Conduit Sizes. RESIDENTIAL Installation

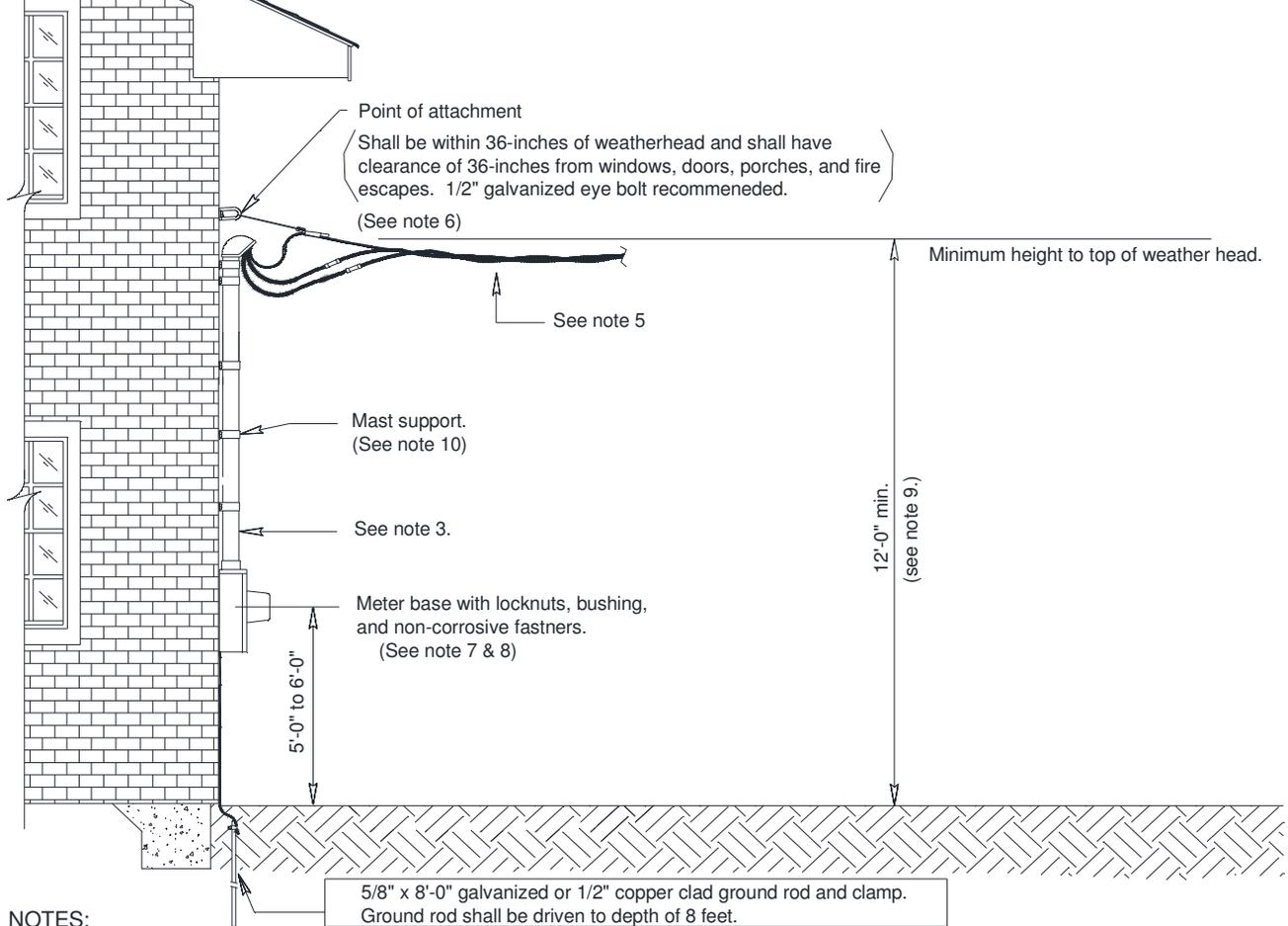
Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
100 amp(OH only)	100 amp	#4	#4	#4	1 1/4"
200 amp	200 amp	2/0	#2	#4	2"
200 amp	225 amp	3/0	#2	#4	if UG 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

Drawing 1.2  
Drawn 7/13/12

# Typical Commercial Meter Loop Installation

Consult engineering before installation of service entrance equipment.



**NOTES:**

- Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
- Buildings or other facilities shall not be constructed under existing company supply lines, nor shall any company supply lines pass over existing buildings or facilities.
- Galvanized rigid or intermediate conduit. Weatherhead should be of the same material as the conduit.
- There shall be a bare copper ground wire, of not less than #4 copper, extending from the grounding electrode (ground rod) to 3' out of the weather head with no splices. See table below for actual size of ground. It shall be fastened with non-corrosive straps at interval no more than 12".
- A minimum of 3'-0" of each conductor must extend from the top of the service mast. The neutral must be white and conductors black.
- Member must supply and install point of attachment. Call Engineering Dept to discuss location.
- Main breaker should be within 10-wire feet of meter base. Outside wall is recommended. If main breaker is not within 10-wire feet, then disconnect is required. For all service-disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance. Rigid or intermediate conduit required between meter base and main breaker.
- Member must install meter base provided by ACE. Physical location must be approved by ACE. Shall not be located inside building or under porches and carports. Shall be readily accessible to Meter Reader. (Meter shall be provided and installed by ACE)
- Additional height may be required to maintain clearance (18' over driveways). Point of attachment can be no higher than 25'.
- Non-corrosive conduit straps and fasteners, no nails allowed. Max 24" separation between straps. Double straps must be used at weatherhead.

Minimum Copper Conductor and Conduit Sizes, **COMMERCIAL** Installation

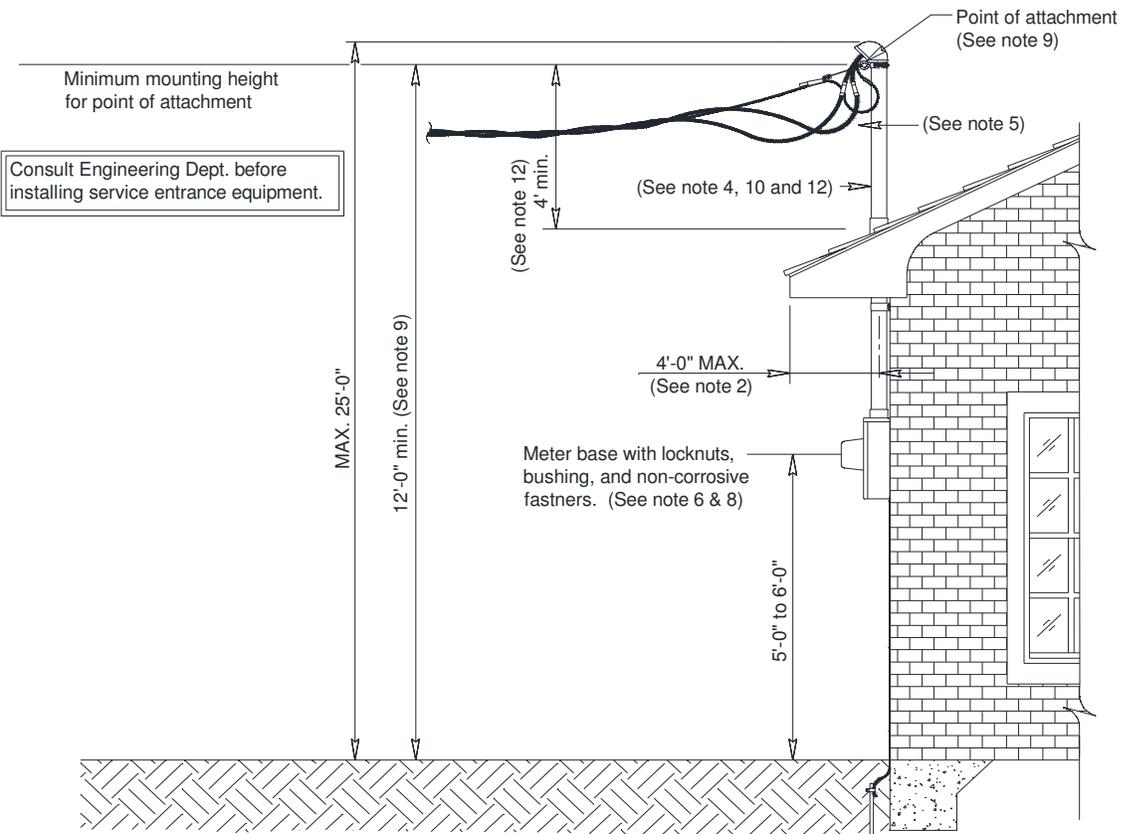
Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
100 amp single phase only	100 amp	#3	#4	#4	1 1/4"
200 amp	200 amp	3/0	#2	#4	2"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

\* On 3 phase 120/208 or 277/480 voltage: Neutral should be same size as conductor.

Drawing 1.3  
Drawn 7/13/12

# Typical Commercial Service Mast Installation



**NOTES:**

5/8" x 8'-0" galvanized or 1/2" copper clad ground rod and clamp.  
Ground rod shall be driven to depth of 8 feet.

1. Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
2. Distance from fascia to center of mast to be 4'-0" max. NEC 230-24
3. Buildings or other facilities shall not be constructed under existing company supply lines, nor shall any company supply lines pass over existing buildings or facilities.
4. Galvanized rigid weatherhead and conduit, minimum 2" inside diameter. No coupling allowed above the roofline.
5. A minimum of 3'-0" of each conductor must extend from the top of the service mast. The neutral must be white and conductors black.
6. Main breaker should be within 10-wire feet of meter base. Outside wall is recommended. If main breaker is not within 10-wire feet, then disconnect is required. For all service-disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance. Rigid or intermediate conduit required between meter base and main breaker.
7. Non-corrosive conduit straps and fasteners, no nails allowed. Max 24" separation between straps.
8. Member must install meter base provided by ACE. Physical location must be approved by ACE. Shall not be located inside building or under porches and carports. Shall be readily accessible to Meter Reader. (Meter shall be provided and installed by ACE)
9. Additional height may be required to maintain clearance (18' over driveways). Point of attachment can be no higher than 25'.
10. No telephone or cable attachment allowed on mast. NEC 230-28
11. There shall be a bare copper ground wire, of not less than #4 copper, extending from the grounding electrode (ground rod) to 3' out of the weather head with no splices. See table below for actual size of ground. It shall be fastened with non-corrosive straps at interval no more than 12".
12. Guy is required if 5' above roof line.

Minimum Copper Conductor and Conduit Sizes. COMMERCIAL Installation

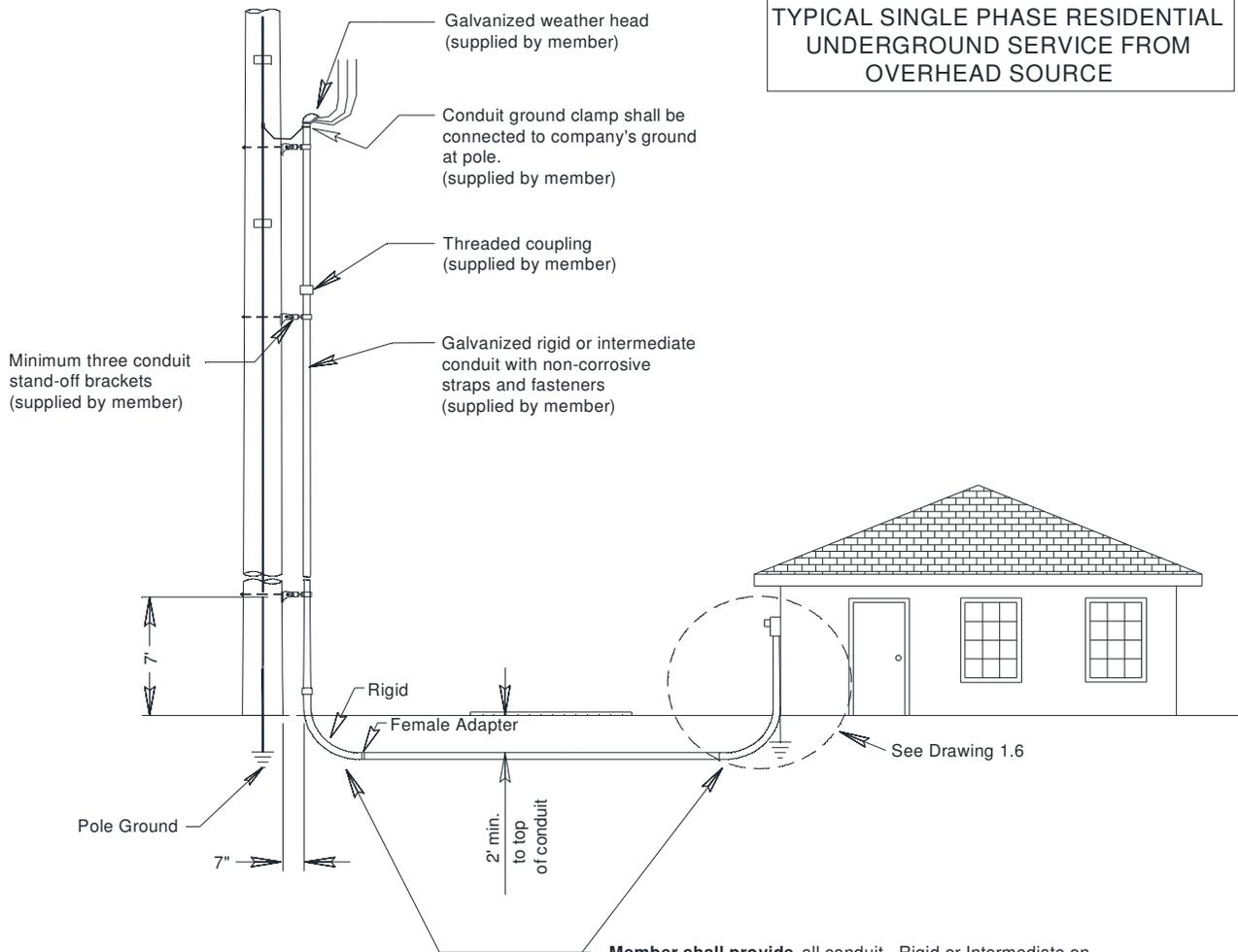
Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
100 amp single phase only	100 amp	#3	#4	#4	1 1/4"
200 amp	200 amp	3/0	#2	#4	2"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

\* On 3 phase 120/208 or 277/480 voltage:  
Neutral should be same size as conductor.

Drawing 1.4  
Drawn 7/13/12

**TYPICAL SINGLE PHASE RESIDENTIAL UNDERGROUND SERVICE FROM OVERHEAD SOURCE**



**Member shall provide** all conduit. Rigid or Intermediate on Pole. Schedule 80 PVC grey at house and Schedule 40 PVC grey below ground. (See Note 5 & 6)

**Notes:**

1. Underground conductor and trenching furnished by ACE.
2. Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
3. All conduit connections to be raintight. Physical location of meter base must be approved by ACE Power. Call Engineering Dept. for meeting.
5. **Member must provide** and install conduit at meter base. Schedule 80 PVC electrical grade grey conduit.
6. **Member must provide** conduit, weatherhead, 90-degree sweeps, bonds, all straps, grounding clamp, female adapter, screws, stand offs, etc. ACE will assemble and install material when service is installed. Rigid or Intermediate conduit required at pole. Schedule 40 PVC Grey or greater required below ground the entire distance from pole to house.
7. Ground rod and bare ground wire may be required at pole. Contact Engineering Dept. for requirements.

The weather head shall extend up ACE's pole in accordance with the chart below. The height will vary depending upon the length of the power pole which along with additional information is engraved on the pole. Contact Engineering Dept. for required height. A close estimate on the height is as follows:

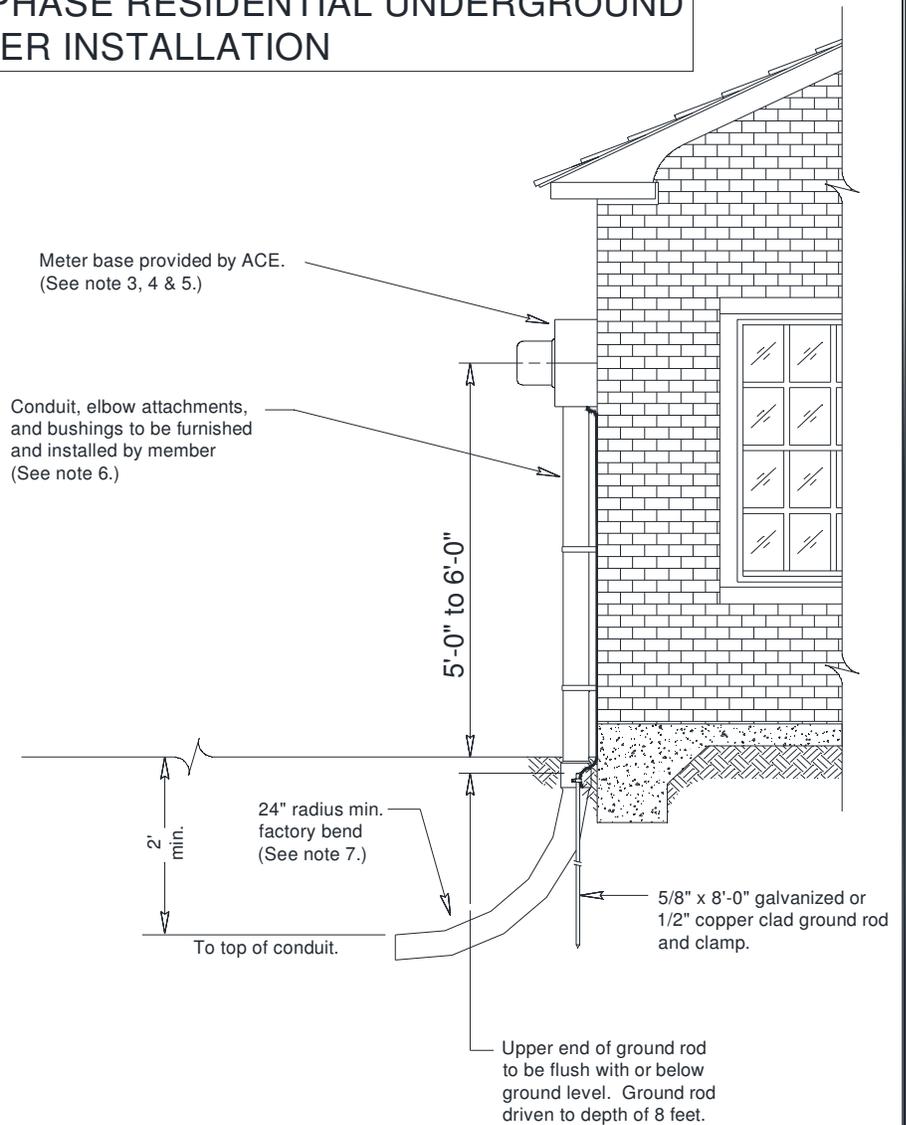
Length of Pole	Height of Weatherhead
30 feet	20 feet minimum
35 feet	20 feet minimum
40 feet	25 feet minimum
45 feet	30 feet minimum

**Minimum Copper Conductor and Conduit Sizes, RESIDENTIAL Installation**

Meter Base Size	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
200 amp	200 amp	2/0	#2	#4	3"
200 amp	225 amp	3/0	#2	#4	
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	(2) - 3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	

Drawing 1.5  
Drawn 7/13/12

# TYPICAL SINGLE PHASE RESIDENTIAL UNDERGROUND METER INSTALLATION



**Notes:**

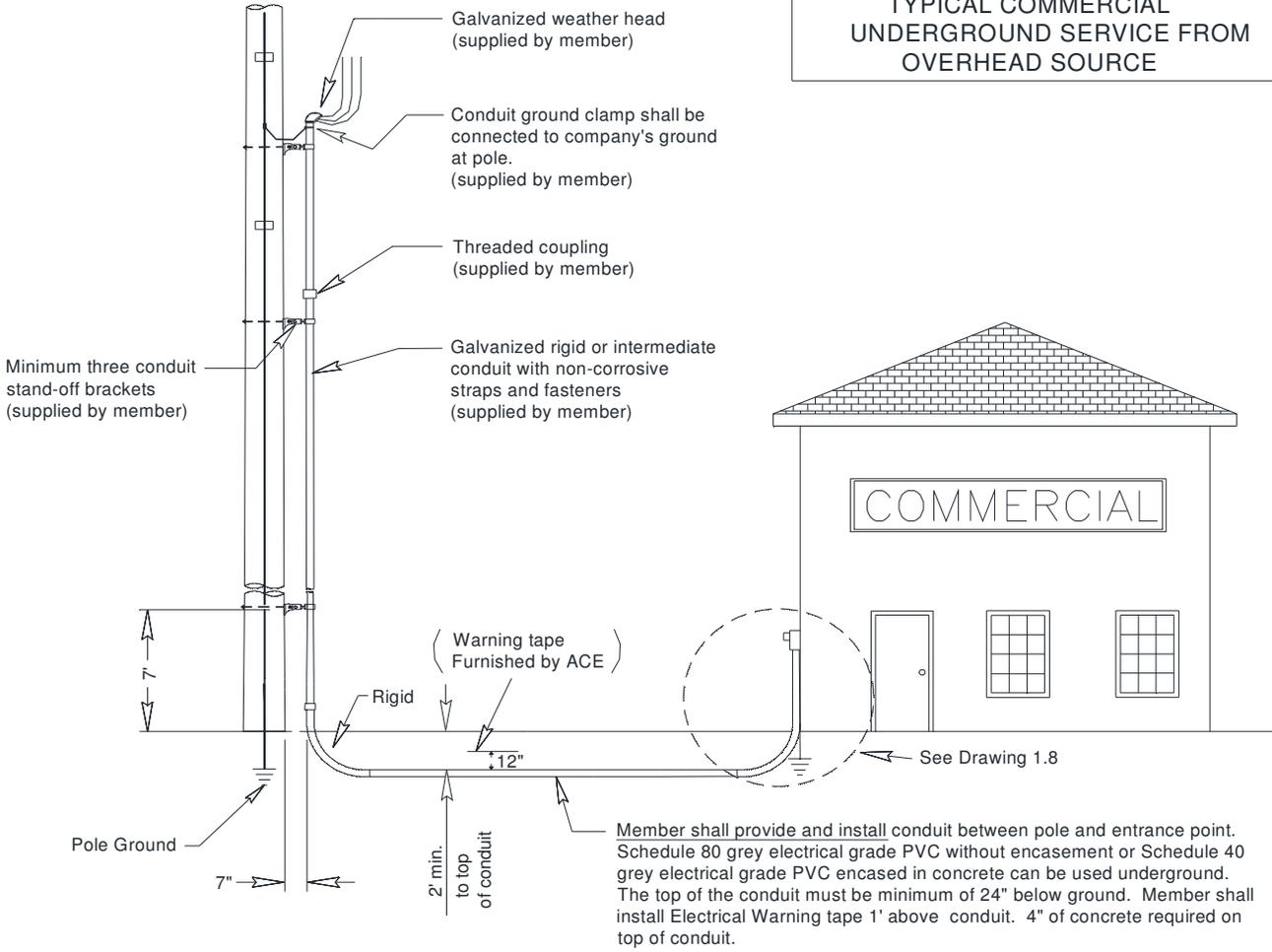
1. Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
2. All conduit connections to be rain tight.
3. Physical location of meter base must be approved by ACE Power. Call Engineering Dept. for meeting.
4. Member must provide and install conduit including sweep at meter base.
5. Main breaker shall be within 10-wire feet of meter. Outside wall is recommended. If main breaker is not within 10-wire feet, then disconnect is required. Rigid or intermediate conduit required between meter base and main breaker.
6. If PVC, Schedule 80 grey electrical grade conduit is required.
7. If PVC, Schedule 40 or 80 grey electrical grade conduit is required. (90 degree 24" radius required)

Minimum Copper Conductor and Conduit Sizes, **RESIDENTIAL** Installation

Meter Base Size	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
200 amp	200 amp	2/0	#2	#4	3"
200 amp	225 amp	3/0	#2	#4	
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

Drawing 1.6  
Drawn 7/13/12

**TYPICAL COMMERCIAL UNDERGROUND SERVICE FROM OVERHEAD SOURCE**



**Notes:**

1. Member will provide, install, and own all secondary wire and conduit.
2. Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
3. Member must provide a sufficient amount of wire to reach top of transformer(s).
4. Physical location of meter base must be approved by ACE Power. Call Engineering Dept. for meeting.
5. Member must provide and install conduit at meter base, on pole, and underground.
6. Member must provide conduit, weatherhead, 90 degree sweeps, bonds, all straps, grounding clamp, screws, stand offs, etc.
7. ACE Power must install riser pole before customer installs elbow or "sweep L" at the riser pole. The member will attach the first full piece of conduit on ACE Power's riser pole. ACE Power will assist in attaching the remaining conduit to the riser pole.
8. ACE Power will make connection to transformer.
9. Ground rod and bare ground wire may be required at pole. Contact Engineering Dept. for requirements.

The weather head shall extend up ACE's pole in accordance with the chart below. The height will vary depending upon the length of the power pole which along with additional information is engraved on the pole. Contact Engineering Dept. for required height. A close estimate on the height is as follows:

Length of Pole	Height of Weatherhead
30 feet	20 feet minimum
35 feet	20 feet minimum
40 feet	25 feet minimum
45 feet	30 feet minimum

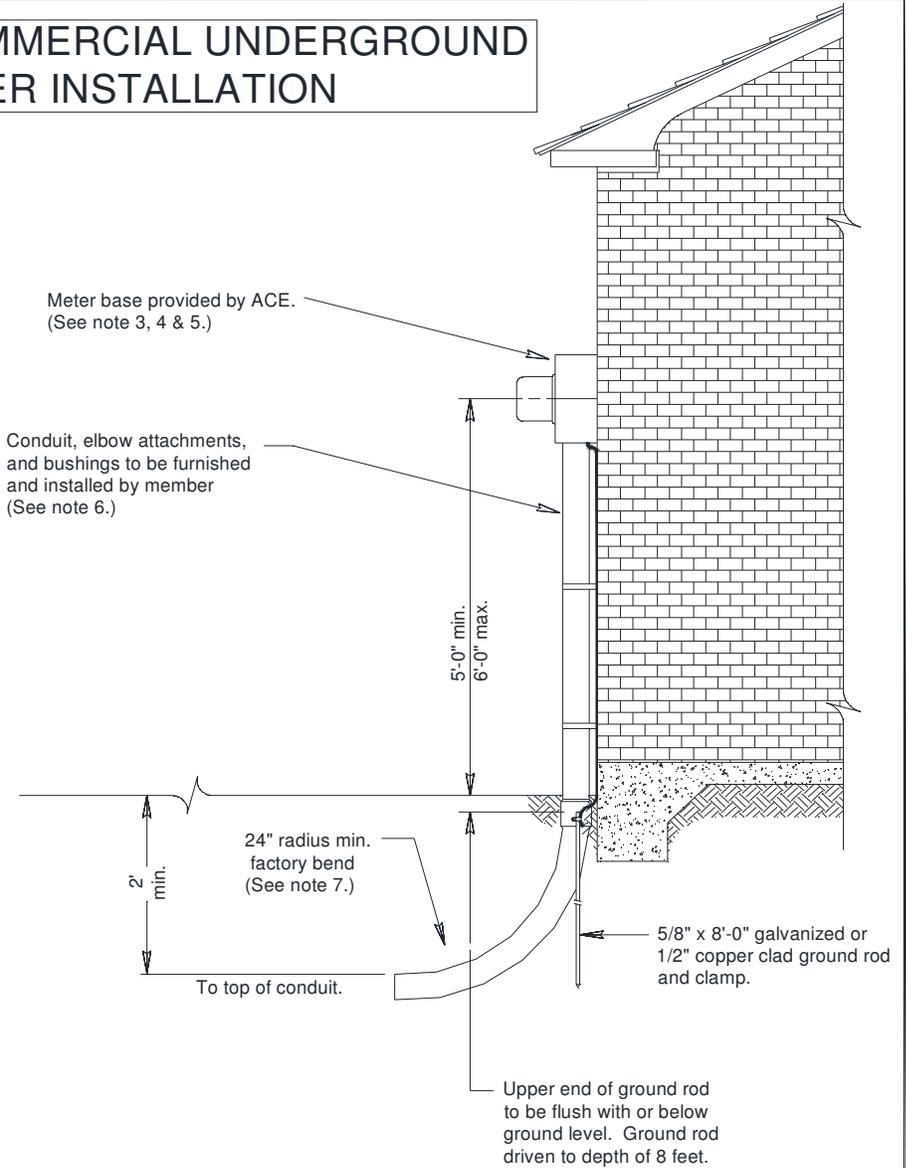
**Minimum Copper Conductor and Conduit Sizes, COMMERCIAL Installation**

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
200 amp	200 amp	3/0	#2	#4	2 1/2" or 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	(1) - 2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.  
 \* On 3 phase 120/208 or 277/480 voltage: Neutral should be same size as conductor.

Drawing 1.7  
 Drawn 7/13/12

# TYPICAL COMMERCIAL UNDERGROUND METER INSTALLATION



**Notes:**

1. Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
2. All conduit connections to be rain tight.
3. Physical location of meter base must be approved by ACE Power. Call Engineering Dept. for meeting.
4. Member must provide and install conduit at meter base.
5. Main breaker should be within 10-wire feet of meter. Outside wall is recommended. If main breaker is not within 10-wire feet, then disconnect is required. Rigid or intermediate conduit required between meter base and main breaker.
6. If PVC, Schedule 80 grey electrical grade conduit is required.
7. If PVC, Schedule 40(encased in concrete) or 80 grey electrical grade conduit is required. (90 degree 24" radius required)

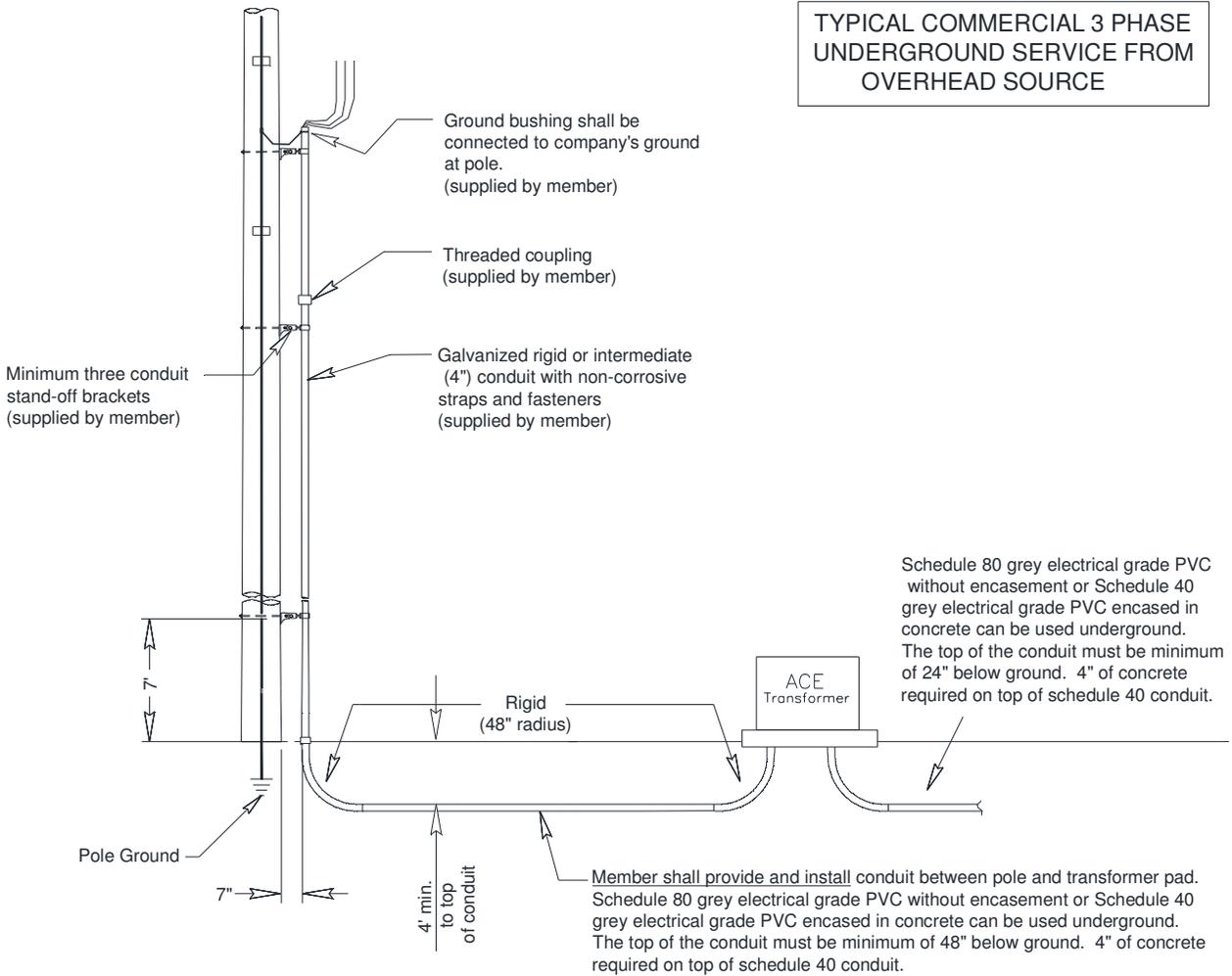
Minimum Copper Conductor and Conduit Sizes, **COMMERCIAL** Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
200 amp	200 amp	3/0	#2	#4	2 1/2" or 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	(1) - 2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head or transformer is to meet or exceed the amp rating of meter base size.  
 \* On 3 phase 120/208 or 277/480 voltage:  
 Neutral should be same size as conductor.

Drawing 1.8  
Drawn 7/13/12

**TYPICAL COMMERCIAL 3 PHASE UNDERGROUND SERVICE FROM OVERHEAD SOURCE**



**Notes:**

1. Member will provide, install, and own all secondary wire and conduit.
2. Member facilities shall comply with the National Electrical Code and authorities having jurisdiction.
3. Member must provide and install secondary wire from main or meter base to a minimum of 6' out of conduit at concrete pad.
4. Physical location of meter base must be approved by ACE Power. Call Engineering Dept. for meeting.
5. Member must provide and install conduit at meter base, on pole, and underground.
6. Member must provide (4") conduit, weatherhead, 90 degree sweeps, bonds, all straps, grounding bushing, screws, stand offs, etc.
7. ACE Power must install riser pole before member installs elbow or "sweep L" at the riser pole. The customer will attach the first full piece of conduit on ACE Power's riser pole. ACE Power will assist in attaching the remaining conduit to the riser pole.
8. ACE Power will provide, install, and own the transformer and the primary cable. This will include terminating the wire at the transformer and at the riser pole.

The conduit shall extend up ACE's pole in accordance with the chart below. The height will vary depending upon the length of the power pole which along with additional information is engraved on the pole. Contact Engineering Dept. for required height. A close estimate on the height is as follows:

Length of Pole	Height of Weatherhead
30 feet	20 feet minimum
35 feet	20 feet minimum
40 feet	25 feet minimum
45 feet	30 feet minimum

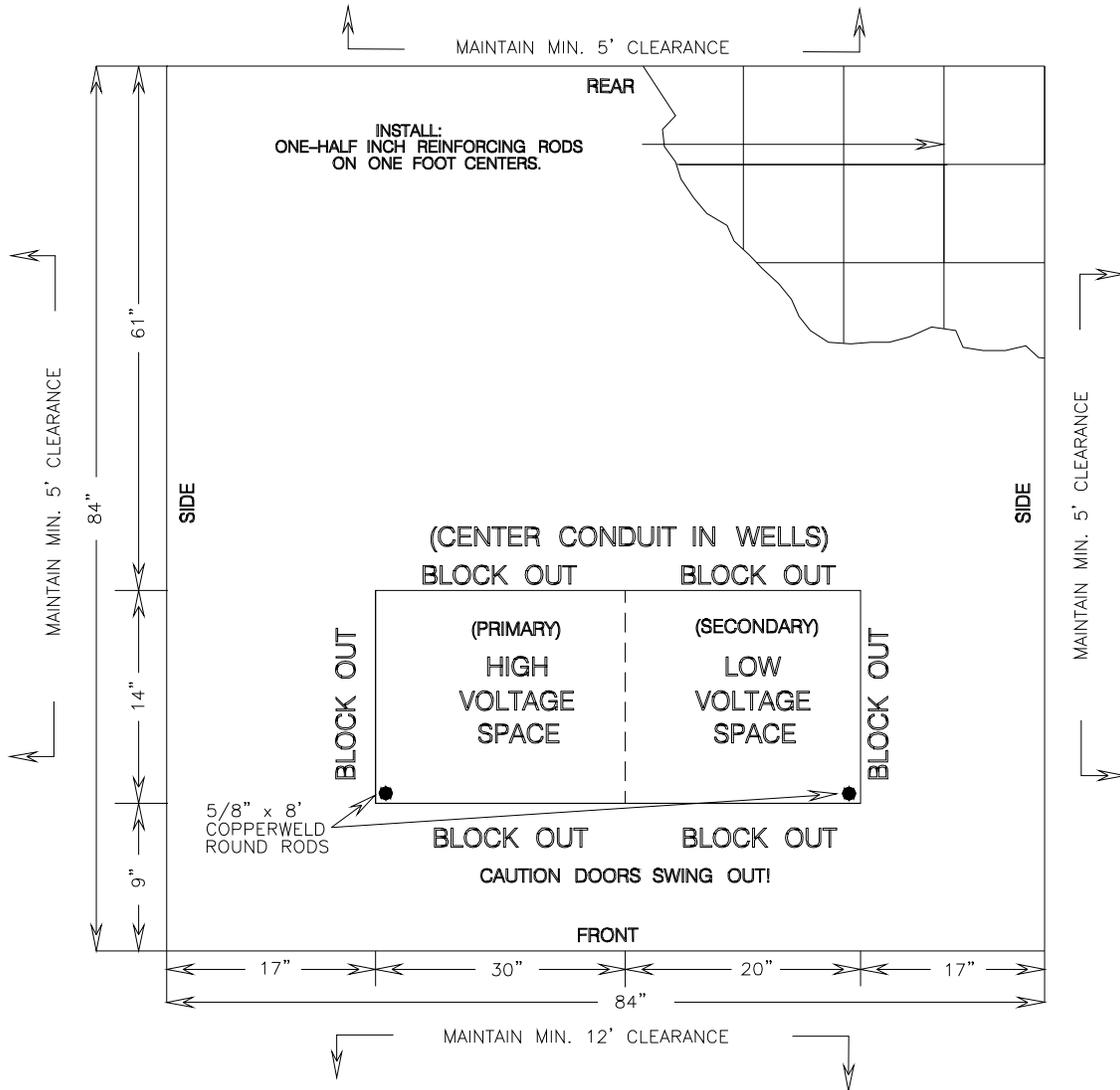
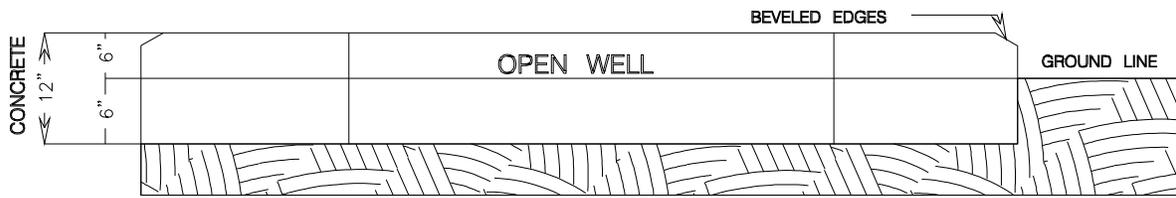
**Minimum Copper Conductor and Conduit Sizes, COMMERCIAL Installation**

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
200 amp	200 amp	3/0	#2	#4	2 1/2" or 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	(1) - 2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to transformer is to meet or exceed the amp rating of meter base size.

\* On 3 phase 120/208 or 277/480 voltage: Neutral should be same size as conductor.

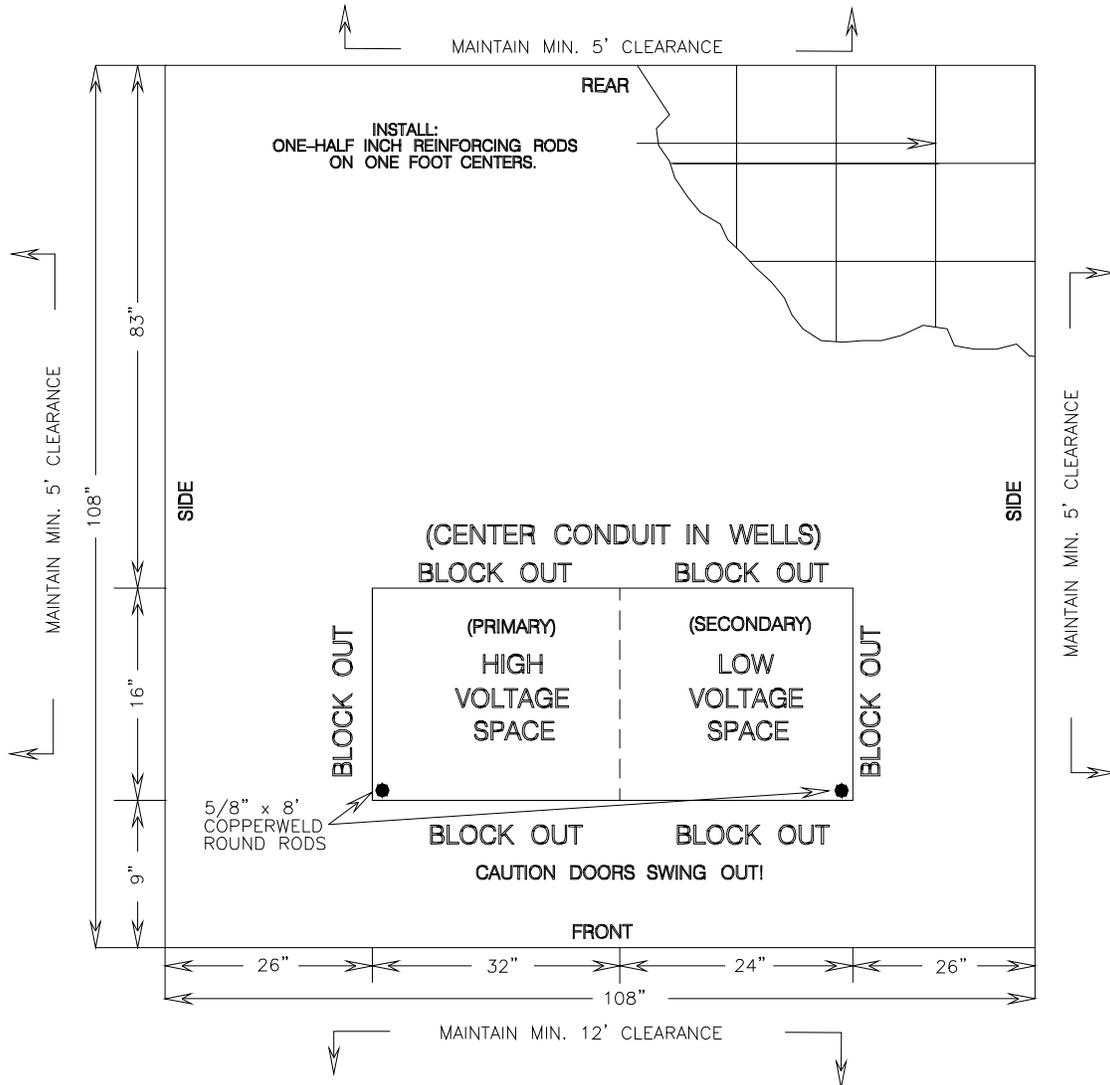
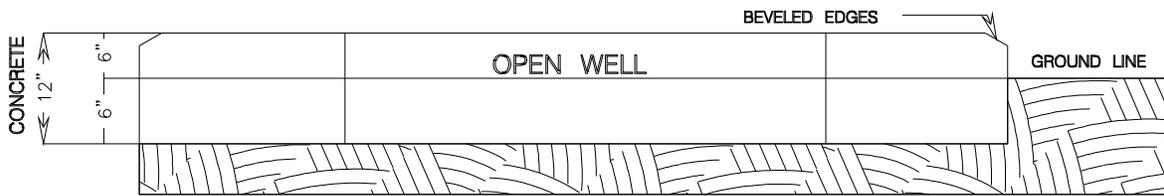
Drawing 1.9  
Drawn 7/13/12



**NOTES:**

1. Concrete shall have 3500 PSI minimum 28 day compressive breaking strength.
2. One 5/8" x 8' copperweld round rod must be installed in primary compartment and secondary compartment.
3. Primary and secondary conduit should not extend any more than 2" above pad.

ALCORN COUNTY EPA CORINTH, MISSISSIPPI
Drawing 1.10
DETAIL SPECIFICATIONS FOR THREE PHASE PAD MOUNT TRANSFORMER
150-500 KVA

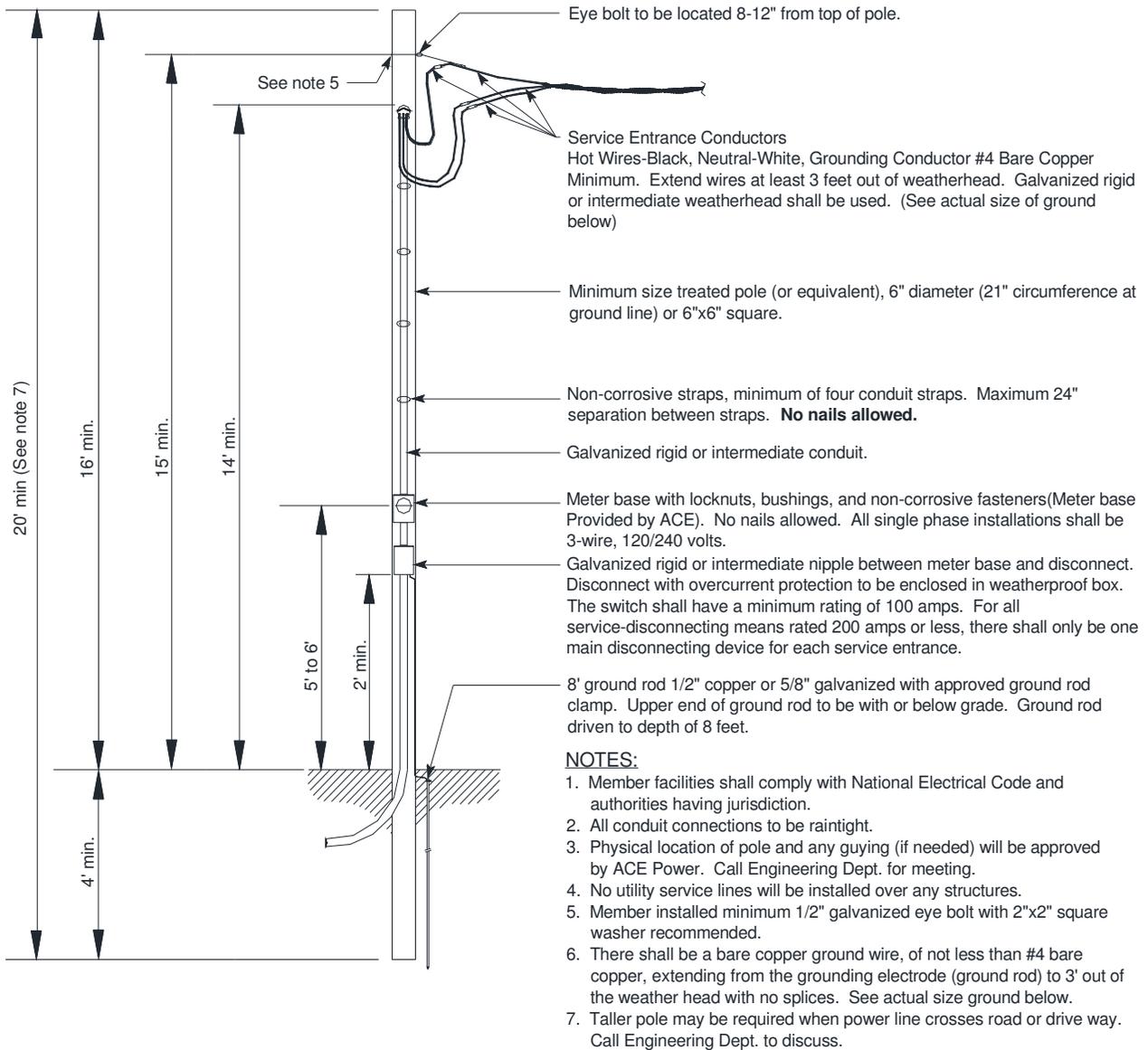


**NOTES:**

1. Concrete shall have 3500 PSI minimum 28 day compressive breaking strength.
2. One 5/8" x 8' copperweld round rod must be installed in primary compartment and secondary compartment.
3. Primary and secondary conduit should not extend any more than 2" above pad.

ALCORN COUNTY EPA CORINTH, MISSISSIPPI
Drawing 1.11
DETAIL SPECIFICATIONS FOR THREE PHASE PAD MOUNT TRANSFORMER
750-2500 KVA

## TYPICAL SINGLE PHASE SERVICE POLE INSTALLATION



Minimum Copper Conductor and Conduit Sizes, RESIDENTIAL Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
100 amp(OH only)	100 amp	#4	#4	#4	1 1/4"
200 amp	200 amp	2/0	#2	#4	2"
200 amp	225 amp	3/0	#2	#4	
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

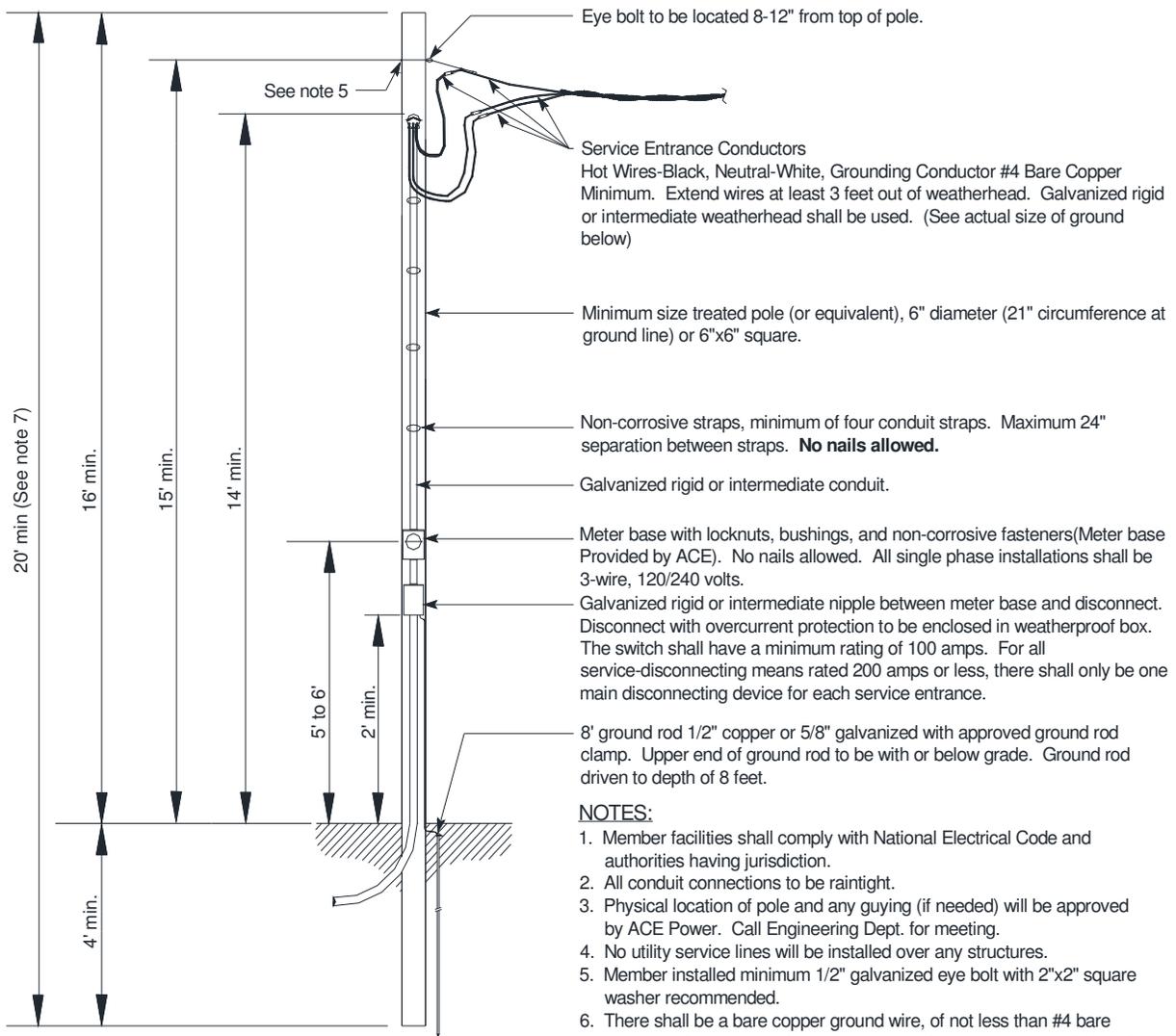
\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

### Call Before You Dig (811)

The Member shall notify One Call and shall have One Call locate all underground facilities before digging. It shall be the responsibility of the Member to stay clear of all underground facilities.

Drawing 1.12  
Drawn 7/13/12

## TYPICAL TEMPORARY SERVICE POLE INSTALLATION



**NOTES:**

1. Member facilities shall comply with National Electrical Code and authorities having jurisdiction.
2. All conduit connections to be raintight.
3. Physical location of pole and any guying (if needed) will be approved by ACE Power. Call Engineering Dept. for meeting.
4. No utility service lines will be installed over any structures.
5. Member installed minimum 1/2" galvanized eye bolt with 2"x2" square washer recommended.
6. There shall be a bare copper ground wire, of not less than #4 bare copper, extending from the grounding electrode (ground rod) to 3' out of the weather head with no splices. See actual size ground below.
7. Taller pole may be required when power line crosses road or drive way. Call Engineering Dept. to discuss.

Minimum Copper Conductor and Conduit Sizes, **COMMERCIAL** Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
100 amp single phase only	100 amp	#3	#4	#4	1 1/4"
200 amp	200 amp	3/0	#2	#4	2"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

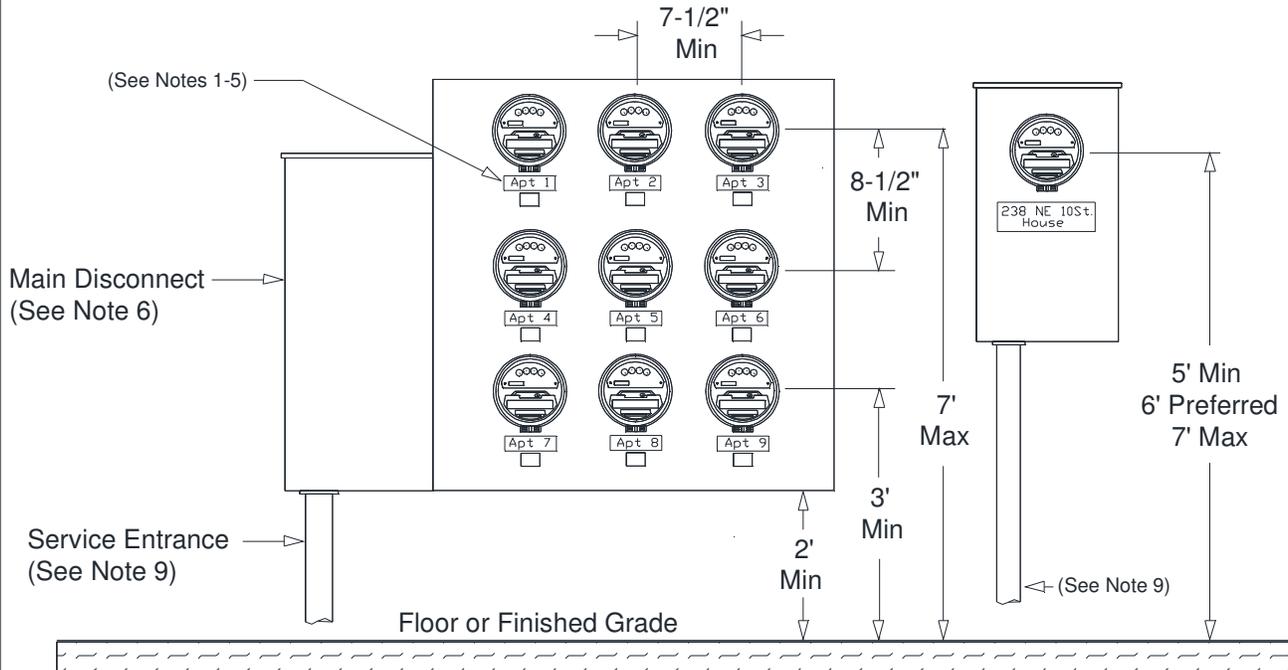
\* On 3 phase 120/208 or 277/480 voltage:  
Neutral should be same size as conductor.

### Call Before You Dig (811)

The Member shall notify One Call and shall have One Call locate all underground facilities before digging. It shall be the responsibility of the Member to stay clear of all underground facilities.

Drawing 1.13  
Drawn 7/3/12

## MULTIPLE METER INSTALLATIONS (Gang Meter)



### Notes:

1. Labels must be brass or other rust-resistant metal.
2. Identification numbers and letters must be stamped, and must be one-inch in height.
3. Labels must be fastened to the meter center with two rivets. Gluing is not acceptable.
4. Labels must be placed on the front panel adjacent to the meter serving that apartment number, or business, or street address(See Figure above).
5. Owners or management companies are responsible for ACE time spent correcting crossed meters due to incorrectly marked bases.
6. A main disconnect is required for seven or more disconnects.
7. All self-contained nonresidential meter sockets (except temporary services) require a manual lever bypass. Call Engineering Dept. for approval of gang meter base.
8. Member to obtain meter location from ACE Power.
9. Schedule 80 PVC electrical grade grey conduit or rigid conduit may be used.
10. Gang meter base shall have an UL label and each meter socket shall have a barrel lock with guard provision(BLG).

#### Minimum Copper Conductor and Conduit Sizes, **COMMERCIAL** Installation

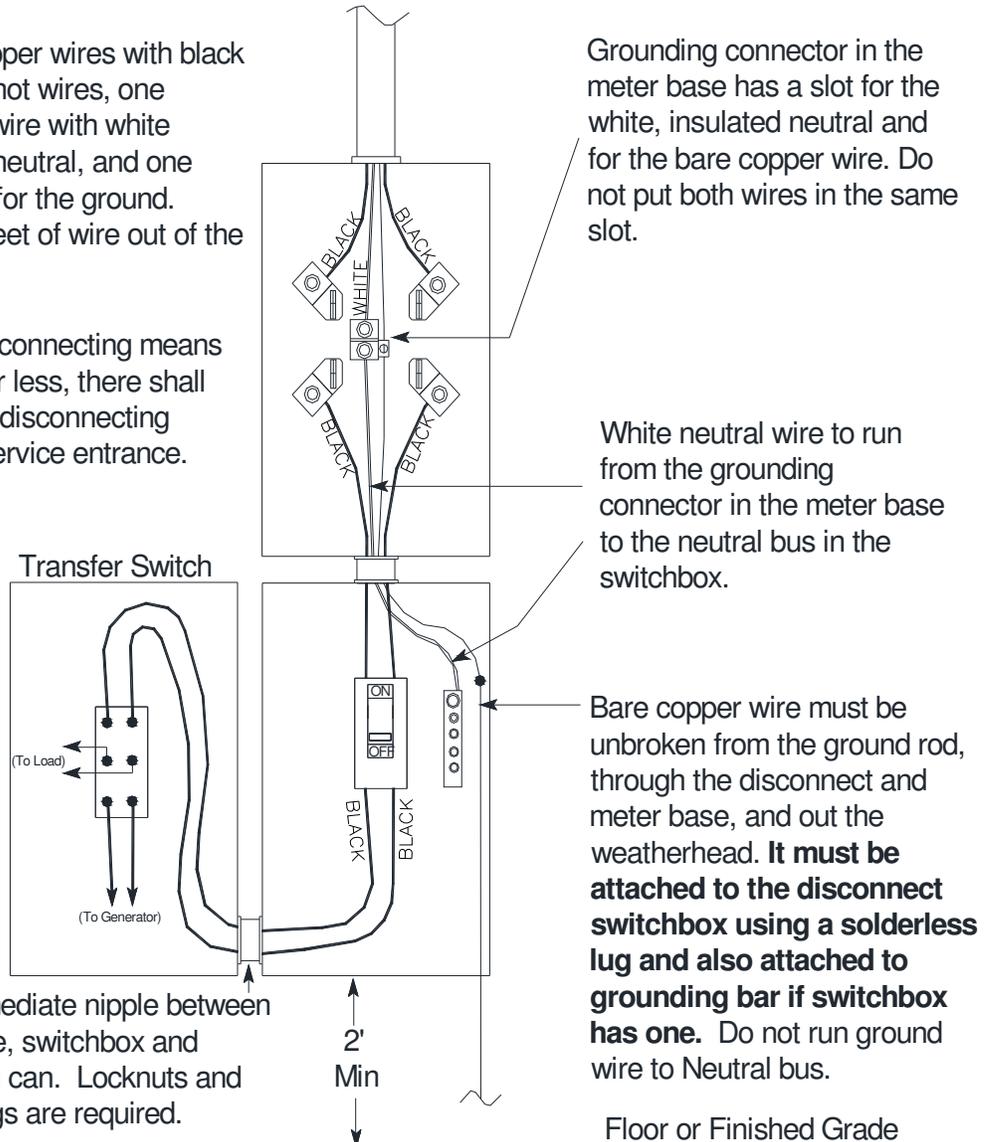
Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
200 amp	3/0	#2	#4	2 1/2" or 3"
400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	(2) - 350	(2) - 3/0	(1) - 2/0 or (2) - 1/0	(2) - 3"

Drawing 1.14  
Drawn 7/13/12

## DETAIL OF METER BASE, DISCONNECT & TRANSFER SWITCH

Four wires are to run out the weatherhead:  
 Two stranded copper wires with black insulation for the hot wires, one stranded copper wire with white insulation for the neutral, and one bare copper wire for the ground. Leave at least 3 feet of wire out of the weatherhead.

For all service-disconnecting means rated 200 amps or less, there shall only be one main disconnecting device for each service entrance.



Rigid or intermediate nipple between the meter base, switchbox and transfer switch can. Locknuts and plastic bushings are required.

Floor or Finished Grade

Minimum Copper Conductor and Conduit Sizes, **RESIDENTIAL** Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size	Ground Size	Conduit Size
100 amp (OH only)	100 amp	#4	#4	#4	1 1/4"
200 amp	200 amp	2/0	#2	#4	2"
200 amp	225 amp	3/0	#2	#4	if UG 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

Meter base or main disconnecting means shall not be located within 36 inches of gas meters.

\* Copper conductor from meter base to top of weather head is to meet or exceed the amp rating of meter base size.

Minimum Copper Conductor and Conduit Sizes, **COMMERCIAL** Installation

Meter Base Size *	Main Switch Size	Conductor Size	Neutral Size *	Ground Size	Conduit Size
100 amp single phase only	100 amp	#3	#4	#4	1 1/4"
200 amp	200 amp	3/0	#2	#4	2" if UG 2 1/2" or 3"
400 amp	400 amp	500 MCM or (2) - 3/0	3/0 or (2) - #2	1/0	3"
600 amp	600 amp	(2) - 350	(2) - 3/0	2/0 or (2) - 1/0	(2) - 3"

\* On 3 phase 120/208 or 277/480 voltage: Neutral should be same size as conductor.

Drawing 1.15  
 Drawn 7/13/12

## APPENDIX B

### Major Changes from Previous Wiring Guide

1. Page 7, Section 3.1 - No self-contained meter bases shall be installed on an ACE owned Pole.
2. Page 9, Section 3.4.1 - One main, service disconnecting means (main) shall be provided to disconnect all energized load-side conductors from the service-entrance conductors for entrances rated 200 amperes or less.
3. Page 11, Section 3.7.1- Services entrances rated more than 200 amperes required a larger grounding conductor. (See proper drawing in Appendix A for actual size of grounding conductor.
4. Page 15, Section 5.1 - Member shall provide 3” schedule 40 PVC grey conduit or greater for all residential services to be installed below ground by ACE. Rigid or Intermediate conduit is still required at the pole and must be provided by the member. A minimum of Schedule 80 PVC grey conduit is still required at the house above ground and must be provided and installed by the member. Rigid or intermediate conduit required between meter base and main disconnecting means. Also see Drawing 1.5 on page FF and Drawing 1.6 on page GG.
5. Page 22, Section 8.1 All gang meter bases shall have an Underwriters Laboratories (UL) Label and each meter socket in the gang meter base shall have a barrel lock with guard provision (BLG). All gang meter bases used for General Power (Commercial) Members shall have a manual bypass lever for each meter. This will normally allow ACE to change out meters without interrupting service to the member.
6. Page 25, Section 11 This whole section is new to the wiring guide.

