



***ELECTRIC
SERVICE
MANUAL***

Revised December 2017

You can access this manual on the

www.ameren.com/servicemanual

Note: Updates to this manual will be made on a regular basis and posted at the website mentioned above. It will be the responsibility of the holder of this manual to update the manual from information at the website.

Disclaimer

The information in this manual provides guidelines necessary to expedite the connection of electric service. Where details are shown, they are provided to assure the safety of individuals in the immediate vicinity of the electric service entrance. It is the responsibility of the customer, his engineers, and his contractors to assure that the installation meets all applicable codes. Ameren does not assume this responsibility.

AMEREN ELECTRIC SERVICE MANUAL

Foreword: Ameren is committed to providing a quality reference guide that facilitates the planning and installation of electrical equipment in a safe and professional manner. The Electric Service Manual incorporates Company Metering Requirements, Standards, and language in Company filed Schedule of Rates for Electric Services. This manual serves as a supplement not a replacement for the National Electrical Code, National Electrical Safety Code and any local authority guidelines. Qualified users of this manual should contact Ameren representatives for clarification of requirements and specifications. All electrical service wiring and equipment where Ameren owned conductors will be terminated, or that will contain Ameren owned metering equipment, shall be listed and used for the intended purpose as defined in the NEC, and shall be approved by Ameren.

Ameren Contact Centers

- Ameren Illinois: 800-755-5000
- Ameren Missouri: 866-992-6619

Call Before You Dig!

- Nationwide: 811
- Illinois: 800-755-5000
- JULIE (Joint Utility Locating Information for Excavators)
- Missouri: 800-DIG-RITE (344-7483)

Customer Owned Underground Facilities

Underground facilities on a customer's premises that are owned by the customer, are not located by JULIE or DIG-RITE. These facilities may include but are not limited to septic systems, irrigation systems, underground wiring, and drainage systems. The customer is responsible for locating these facilities. Ameren will not be responsible for damage to facilities that are not properly located.



AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

100. General Information – Access to Customer’s Premises

- 101. Application for Service
- 102. Availability of Service
- 103. Company Obligations
- 104. Customer Obligations
- 105. Delivery Point of Service
- 106. Disconnection and Reconnection of Service
- 107. Inspections and Permits
- 108. Limitation of Liability
- 109. Meter Tampering
- 110. Number of Services
- 111. Service Relocation
- 112. Residential Service Upgrade or Change

150. Glossary

200. Metering Requirements

200.01 Location

200.02 Installation

A. General

B. Self Contained meters Services

- 1. 1–phase 480 volts, 3–phase 480V, 3–phase 480/277 volts 200 amperes max services
- 2. 1–phase 120/240 volts, 3–phase 240 volts, 3–phase 4–wire 120/208 volts, 201–400 amperes services

C. Instrument Transformer (CT, PT) Rated Meter Installations – Section 1001

200.03 Drawings

Figure 200–1 Meter Mounting Heights

Figure 200–2 Meter Equipment Protective Barrier

Figure 200–3 Location for Point of Delivery on Buildings

Figure 200–4 Meter Location on Side of House

300. Customer’s Service Equipment

300.01 CUSTOMER’S SERVICE EQUIPMENT

300.02 UNAUTHORIZED USE OF DEDICATED SPACE FOR AMEREN EQUIPMENT

300.03 UNAUTHORIZED AFTERMARKET EQUIPMENT

400. Standard Service Voltages

400.01 THREE PHASE AVAILABILITY



AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

400.02 STANDARD SERVICE VOLTAGES

1. Single Phase

120/240 volts 3-wire

120/208 volts 3-wire

2. Three Phase

Where the Ameren primary voltage (transformer high side voltage) is 12.5 kV or 13.2 kV:

208Y/120 volts 4-wire

480Y/277 volts 4-wire

Where the Ameren primary voltage (transformer high side voltage) is 4.16 kV:

208Y/120 volts 4-wire

480Y/277 volts 4-wire

Where the Ameren primary voltage (transformer high side voltage) is 34.5 kV:

208Y/120 volts 4-wire

480Y/277 volts 4-wire

400.03 NON-STANDARD SERVICE VOLTAGES

240 volts, 3-wire, grounded corner delta, limited to 600 amperes max

480 volts, 3-wire, grounded corner delta, limited to 600 amperes max

240 volts, 3-wire, un-grounded delta, limited to 600 amperes max

480 volts, 3-wire, un-grounded delta, limited to 600 amperes max

240/120 volts, 4-wire delta, grounded center tap, limited to 600 amperes max

400.04 NON-STANDARD SERVICE

400.05 PRIMARY DISTRIBUTION SERVICE

500. **Grounding**

500.01 GENERAL

500.02 INTER-SYSTEM BONDING

500.03 GROUNDING METHODS

500.04 DRAWINGS

Figure 500-1 Inter-System Bonding

Figure 500-2 Single-phase and 3-phase Self-Contained Metering Less Than 480 volts,
Option 1 – Interior Main Disconnect

Figure 500-3 Single-phase and 3-phase Self-Contained Metering Less Than 480 volts
Option 2 – Exterior Main Disconnect

Figure 500-4 Single-phase and 3-phase Cold Sequence Metering 480 volts
(Meter Disconnect/Meter Socket in Separate Enclosures)
Option 1 – Interior Main Disconnect

AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

- Figure 500-5** Single-phase and 3-phase Cold Sequence Metering 480 volts
(Meter Disconnect/Meter Socket in Separate Enclosures)
Option 2 – Exterior Main Disconnect
- Figure 500-6** Single-phase and 3-phase, Cold Sequence Metering 480 volts
(Meter Disconnect/Meter Socket Combination)
Option 1 – Interior Main Disconnect
- Figure 500-7** Single-phase and 3-phase, Cold Sequence Metering 480 volts
(Meter Disconnect/Meter Socket Combination)
Option 2 – Exterior Main Disconnect
- Figure 500-8** Single-phase and 3-phase, Instrument Transformer Metering
(Separate Enclosures)
Option 1 – Interior Main Disconnect
- Figure 500-9** Single-phase and 3-phase, Instrument Transformer Metering
Option 2 – Exterior Main Disconnect
- Figure 500-10** Single-phase and 3-phase, Instrument Transformer Metering
Option 3 – CT or CT/PT Mounted in Switchgear

600. Overhead Service Applications

- 600.01 SERVICE AVAILABILITY
- 600.02 SERVICE DROP ATTACHMENT
- 600.03 METER POLES
- 600.04 TEMPORARY ELECTRIC SERVICE
- 600.05 DRAWINGS

- Figure 600-1** TYPICAL PERMANENT SERVICE DROP
- Figure 600-2** MAX ATTACHMENT HEIGHT FOR STEEL CONDUIT MAST DE FOR STANDARD SERVICE DROP
- Figure 600-3** OVERHEAD SERVICE TO MULTIPLE WEATHERHEADS
- Figure 600-4** OVERHEAD TEMPORARY SERVICE POLE CLEARANCE AND METER
- Figure 600-5** CUSTOMER-OWNED SEC METERING UG DIST INSTALLATION 100 OR 200 AMPERES, SINGLE-PHASE
- Figure 600-6** OVERHEAD SERVICE SPECIFICATIONS ATTACHMENT
- Figure 600-7** SERVICE SPECIFICATIONS – OVERHEAD SERVICES ATTACHED TO BUILDINGS

700. Underground Service Applications

- 700.01 GENERAL
- 700.02 COMPANY OWNED RESIDENTIAL SERVICE INSTALLATIONS
 - A. Direct Buried (Illinois ONLY)
 - B. Continuous Conduit (Missouri – REQUIRED, Illinois – OPTIONAL)

AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

700.03 NON-RESIDENTIAL SERVICE INSTALLATIONS

- A. General
- B. Service from a Pole
- C. Service from a Padmount Transformer
- D. Service from a Pedestal

700.04 TEMPORARY

SERVICES 700.05 DRAWINGS

Figure 700-1 SERVICE CABLE AND METER CONNECTIONS SINGLE FAMILY DWELLING RESIDENTIAL (200 amperes SERVICE)

Figure 700-2 SERVICE CABLE AND METER CONNECTIONS SINGLE FAMILY DWELLING RESIDENTIAL (320 amperes CONTINUOUS/400 amperes MAX)

Figure 700-3 EQUIPMENT – CONNECTIONS SERVICE CABLE AND METER CONNECTIONS MULTIPLE FAMILY DWELLING FOR 2 TO 6 METERS

Figure 700-4 TYPICAL VERTICAL GANGED METER STACK UNDERGROUND SERVICE BY AMEREN

Figure 700-5 CONTINUOUS SERVICE CONDUIT INSTALLATION CONNECTION TO PEDESTAL, TRANSFORMER, OR POLE AMEREN SERVICE CABLE (Illinois ONLY)

Figure 700-6 CUSTOMER OWNED AND INSTALLED SEV CONDUIT CONNECTION TO PEDESTAL OR TRANSFORMER (MO RESIDENTIAL SUBDIVISIONS)

Figure 700-7 CUSTOMER OWNED AND INSTALLED SEV CONDUIT – CUSTOMER DRAINAGE AT METER/POLE IF REQUIRED(MO RESIDENTIAL SUBDIVISIONS)

Figure 700-8 CUSTOMER OWNED AND INSTALLED SERVICE CABLE CONNECTION TO PEDESTAL OR TRANSFORMER, OR POLE NON RESIDENTIAL

Figure 700-9 SELF-CONTAINED METER SUPPORT FOR UG METER SERVICE

Figure 700-10 METER SUPPORT FOR CUSTOMER PROVIDED TRANSFORMER RATED METER MOUNTING ENCLOSURE

Figure 700-11 MINIMUM BENDING AND TERMINATING SPACE LOW VOLTAGE SWITCHBOARD, PANELBOARDS, AND PREBUSSED TERMINAL BOXES

Figure 700-12 CUSTOMER OWNED LIGHTING (6M) UNMETERED INSTALLATION

Figure 700-13 UG TEMPORARY SERVICE

Figure 700-14 METER PEDESTAL INSTALLATION, SINGLE OR DUAL METER

AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

800. Clearances

900. Utilization Equipment

1000. Customer Furnished Self-Contained Meter Mounting Sockets Requirements

1000.01 INTRODUCTION

1000.02 GENERAL REQUIREMENTS

Minimum Dimension Requirement for Self-Contained Meter Sockets UG Services

1000.03 METER BYPASS REQUIREMENTS

1000.04 MULTI-METER REQUIREMENTS

1000.05 LOAD CENTERS

1000.06 METER SOCKET MAINTENANCE

1000.07 DRAWINGS

Figure 1000-1 Meter Socket Connections – 3-wire, 120/240 volts, Single – phase

Figure 1000-2 Meter Socket Connections – 3-wire, 240/480 volts, Single –phase

Figure 1000-3 Meter Socket Connections – 3-wire, 208/120 volts, Single –phase

Figure 1000-4 Meter Socket Connections – 4-wire, 208/120 volts, 3-phase

Figure 1000-5 Meter Socket Connections – 4-wire, 480/277 volts, 3-phase

Figure 1000-6 Meter Socket Connections – 3-wire, 480 volts, 3-phase

Figure 1000-7 Meter Socket Connections – 3-wire, 240 volts, 3-phase

Figure 1000-8 Meter Socket Connections – 4-wire, 240 volts, 3-phase

Figure 1000-9 Meter Socket Connections – 4-wire, 120/240 volts, Grounded Delta, 3-Phase

Figure 1000-10 Meter Socket Connections – 3-wire, 120/240 volts, Single-Phase, Temporary

Figure 1000-11 Metering Requirements

1001. Current Transformer Installations – Services Under 600 Volts

1000.01 SERVICES

1000.02 REQUIREMENTS FOR STAND ALONE CT/PT ENCLOSURES (UP TO 3000 AMPERES)

1000.03 SWITCHBOARDS (SECONDARY, BELOW 600 VOLTS)

General requirements for CT/PT compartments in switchboards (Up to 3000 amperes)

CT compartment dimensions and requirements (401 thru 3000 amperes 120 volts, 240 volts and 201-3000 amperes, 277 volts, 480 volts)

PT compartment for 277/480 volts and 480 volts services

1000.04 METER ENCLOSURE/SOCKETS

1000.05 CURRENT TRANSFORMERS – BELOW 600 VOLTS – SECONDARY WIRING

1. Ameren Missouri

2. Ameren Illinois



AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

1000.06 PICKUP OF COMPANY FURNISHED METER ITEMS (AMEREN MISSOURI)

1000.07 DELIVERY OF COMPANY FURNISHED METER ITEMS (AMEREN ILLINOIS)

1000.08 SWITCHBOARD'S DRAWINGS

1. Current Transformer Installations – Eaton/Cutler–Hammer 3000A max

Figure 1001–2A 1201–3000 amperes OH Feed w/o main

Figure 1001–2B 200–1200 amperes OH Feed w/o main

Figure 1001–2C 1201–3000 amperes UG Feed w/o main

Figure 1001–2D 200–1200 amperes UG Feed w/o main

2. Current Transformer Installations – Siemens 3000 amperes max

Figure 1001–3A

3. Current Transformer Installations – GE 3000 amperes max

Figure 1001–4A 201–1200 amperes with Bar Type CT Compartment (switchboard)

Figure 1001–4B 1201–3000 amperes with Window Type CT Compartment (switchboard)

Figure 100–4C 1201–3000 amperes with Window Type CT Compartment (Switchboard)

4. Current Transformer Installations – Square D 201–1200 amperes

Figure 1001–5A

Figure 1001–5B

Figure 1001–5C

5. Current Transformer Installations – Square D 1201–3000 amperes

Figure 1001–5D

Figure 1001–5E

Figure 1001–5F

6. Current Transformer Installations –American Midwest Power 201–3000 amperes

Figure 1001–6A

1001.09 CT/PT ENCLOSURE INSTALLATION DRAWINGS

Figure 1001–7 120/240 volts, single–phase, 3–wire, 401–800 amperes and 240 volts, 3–phase, 3–wire, 401–1200 amperes installations

Figure 1001–8 480 volt, 3–phase, 3–wire, 201–600 amperes installations

Figure 1001–9 208/120 volts 3–phase, 4–wire 401–1200 amperes installations

Figure 1001–10 208/120 volts, 3–phase, 4–wire, 1201–3000 amperes installations

Figure 1001–11 480/277 volts, 3–phase, 4–wire, 201–1200 amperes installations

Figure 1001–12 480/277 volts, 3–phase, 4–wire, 1201–3000 amperes installations

Figure 1001–13 CT Enclosure with Side Gutter

1100. **Approved Meter Mounting Devices List** www.ameren.com/servicemanual

1200. **Customer Generator Installations**



AMEREN ELECTRIC SERVICE MANUAL

Table of Contents

1300. Network and Heavy Underground Systems

Ameren Missouri Only (1300.01 – 1300.04)

1300.01 GENERAL

1300.02 CUSTOMER INDOOR SUBSTATIONS

1300.03 216Y/125 VOLTS NETWORK SERVICE

Figure 1300–1A Network Tap Box Specification Drawing

Figure 1300–1B Network Tap Box Side Specification Drawing

Figure 1300–2A Network High Rise Service EQ Configuration

Figure 1300–2B Padmount Transformer High rise Service EQ Configuration

1300.03A NETWORK DISTRIBUTED RESOURCES INTERCONNECT REQUESTS

1300.04 COMMERCIAL/RESIDENTIAL HIGH–RISE MULTI–METER INSTALLATIONS Ameren Illinois Only (1300.5A – C)

1300.05 NETWORK AND HEAVY UNDERGROUND AREAS

1300.05A CUSTOMER INDOOR METERING

1300.05B 208/120 VOLTS OR 480/277 VOLTS NETWORK SERVICE (BLOOMINGTON, DECATUR AND PEORIA ONLY)

1300.05C COMMERCIAL/RESIDENTIAL HIGH–RISER MULTI–MEER INSTALLATIONS

1400. Customer – Generator Systems in Parallel/Ameren Dist. System with Capacity of 10 kW or Less (For Missouri Only)

1400.01 – 1400.07 GENERAL

1400.08 GENERAL REQUIREMENTS

1400.09 METERING

1500. Customer Distributed Energy Resources (DER) in Parallel/Ameren Illinois Distribution System

1500.01 – 1500.07 GENERAL

1500.08 GENERAL REQUIREMENTS

1500.09 DISTRIBUTION RESOURCES INTERCONNECT REQUIREMENT

1500.10 METERING

Section 100

General Information

100. ACCESS TO CUSTOMER'S PREMISES

Customer shall permit, at all reasonable hours, authorized agents of the Company, free and safe access to customer premises for the purpose of installing, inspecting, reading, removing, repairing, testing Company metering equipment, or any other purpose deemed necessary by the Company. Customer must provide suitable working space on customer property, utility easement, and/or Public right of way, which is free of obstructions and is not used for storage.

Permanent ladders or stairways shall be provided by the customer to meet OSHA requirements, and meet the latest NEC, at no cost to Ameren, when Ameren's equipment is located on platforms, balconies, mezzanine floors, roofs, or other hard to reach areas as specified by Ameren. Proper access will ensure safety for Ameren's employees and safe, reliable service for the customer.

101. APPLICATION FOR SERVICE

Any person, developer, firm, organization, association, corporation or entity whose premises is located within the territory served by Company can request service by making application through the Company's Customer Contact Centers listed in the Foreword of this manual or through www.ameren.com via the internet.

102. AVAILABILITY OF SERVICE

Electric service is available to any Customer located in Company's Service Area. Customer will agree to abide by Company's Terms and Conditions, Standards and Qualifications for Electric Service and any other requirements of the Schedule of Rates for Electric Services. The standard electric service furnished by Company is 60 Hertz alternating current.

103. COMPANY OBLIGATIONS

Company shall furnish service within a reasonable length of time dependent upon the availability of labor and material and after all necessary permits and approvals are obtained from the customer and other governmental and regulatory authorities having jurisdiction. Fees for service may apply.

104. CUSTOMER OBLIGATIONS

Inform Company as to the size and characteristics of the load that is to be initially and thereafter served, the location of the Premises, the need date, and any special circumstances or conditions affecting the supply of electric service by Company. Customer is responsible for securing information from Company regarding available facilities at a particular location. Equipment is to be installed in a condition acceptable to and approved by the governmental inspection authority having jurisdiction in the territory in which the Customer's Premises is located or, where no authority exists, in accordance with Company's standards and the requirements of the latest edition of the National Electrical Code. Be responsible for any damage, alteration or interference with company metering or other electrical equipment on Premises. Refer to Standards and Qualifications for Electric Service for additional information.

105. DELIVERY POINT OF SERVICE

"Point of Delivery" means the point at which the entity providing distribution facilities connects its lines or equipment to the lines or facilities owned or rented by the Customer, without regard to the location or ownership of transformers, substations or meters, unless otherwise provided for by written contract or tariffs.

106. DISCONNECTION AND RECONNECTION OF SERVICE

The Company has the right to discontinue service to any Customer and remove its property from Customer's Premises, after due notice. If Customer wiring and equipment is found to be unsafe or unsuitable to receiving electric service and a harmful condition exists, Company reserves the right to terminate service immediately. A Customer's service that has been disconnected shall be reconnected after customer has furnished satisfactory evidence of compliance with the Company's Terms and Conditions and paid all applicable fees and charges. For additional information, go to:

Ameren Illinois: [Standards and Qualifications for Electric Service](#)

Ameren Missouri: [Disconnection and Reconnection of Service](#)



Section 100 General Information

107. INSPECTIONS AND PERMITS

The Customer shall secure and pay for all permits required by constituted authorities, for the installation and operation of the electrical wiring and other electrical equipment on the Premises. Company must receive notice of approval from said authorities prior to connection. In service areas void of inspection authority, Customer service entrance must conform to Company metering standards and current National Electrical Code. Company will not inspect nor be held liable for the condition or safe operation of Customer wiring beyond service disconnecting means. Company retains the right to refuse or terminate service. A wiring approval is required on all private and public property unless the authority having jurisdiction has in writing waved this requirement, or in areas there is no inspection authority.

108. LIMITATION OF LIABILITY

The Company will use reasonable diligence in furnishing uninterrupted and regular Electric Service, but will in no case be liable for interruptions, deficiencies or imperfections of service, except to the extent of a pro rata reduction of the monthly charges. Refer to Customer Terms and Conditions for additional information.

109. METER TAMPERING

The Company shall have the right to discontinue electric service to any Customer and remove its property from Customer premises, if there is evidence found of tampering with any meter or service wiring leading thereto, and where such tampering is for the purpose of reducing the registration of the Customer's electric consumption. See Customer Terms and Conditions pertaining to your service provider for additional information.

110. NUMBER OF SERVICES

The Company will normally provide service to Customer at only one Point of Delivery on each premises. The point on the Company's system where the Service Extension will terminate will be as designated by the Company. The Company may agree to provide service through multiple delivery points as described in the Excess Facilities section of the Standards and Qualifications For Electric Service.

111. SERVICE RELOCATION

Customers who request Company to relocate, convert or in some manner modify these facilities will reimburse the Company if the Company agrees to make the changes. Refer to Standards and Qualifications For Electric Service.

112. RESIDENTIAL SERVICE UPGRADE OR CHANGE (AMEREN MISSOURI – ST. LOUIS CITY & COUNTY) DISCONNECT/RECONNECT CUSTOMER'S SERVICE TO PERFORM WIRING OR REPLACE CUSTOMER-OWNED ELECTRICAL EQUIPMENT

For services to be disconnected to replace/repair customer wiring or equipment, the following process applies:

In St. Louis City and St. Louis County:

Contractors may disconnect and reconnect customer's service ONLY when ALL of the following conditions apply:

- The electrical contractor is licensed in the county or municipality where the work is to be completed
- The service is a single residential Ameren Missouri customer
- The meter is a typical residential type electric meter (120/240V, single phase, self contained)
- The service size will remain the same after the work is completed
- The same meter will be removed and reinstalled during the same day
- The billing account is active at this service location

Section 100 General Information

If **ALL** of the above conditions apply, the contractor must complete the following requirements before proceeding with the work:

- Call Ameren Missouri Construction Hotline at 866-992-6619 (M-F, 7AM to 5:30PM) to obtain approval; notification to be made within 24 hours of performing the intended work
- Provide inspection permit number to Ameren Missouri

If **ALL** of the above conditions **DO NOT APPLY**, call 866-992-6619 to schedule Ameren Missouri personnel to perform the work.

Outside St. Louis City and St. Louis County:

If the customer's service is located outside of St. Louis City or St. Louis County, the contractor must **NOT** disconnect or reconnect the service. Call one of the following numbers to schedule Ameren personnel to perform the work:

Ameren Illinois	800-755-5000
Ameren Missouri	866-992-6619



Section 150 Glossary

Ampacity: The current in amperes a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

Applicant: Applicant means a Person who applies for Residential or Non-Residential service and/or who requests an Extension.

Approved: Acceptable to the authority having jurisdiction. See : Local Inspection Authority

Bonding Conductor: The conductor that provides the required electrical conductivity between metal parts that are required to be electrically connected.

Bypass, Clamp Jaw Lever Type: A mechanical lever bypass is an integral component designed into the meter socket block assembly of a ring-less type meter socket. The lever action has two primary functions:

(1) When engaged downward, the mechanism provides jaw clamping forces to help secure the meter and make continuity to the meter spades while in normal operation.

(2) When engaged upward into "bypass" mode, the mechanism releases the clamping pressure on the meter spades and diverts the current flow from the meter to the internal bypass. This allows for the exchange, inspection or repair of a meter without service interruption to the customer. **Note: Meter cover can not be reinstalled or sealed with lever handle in upward "bypass" position.**

Commission: The agency responsible for regulating the regulated portions of investor owned public utilities.

- In Illinois, the Illinois Commerce Commission (ICC) or any duly constituted successor
- In Missouri, the Missouri Public Service Commission (PSC) or any duly constituted successor

Company: Company means the legal entity noted in the header for which this Schedule is applicable.

Customer or Retail Customer: Customer means a Person legally receiving service at a Premises or whose facilities are connected for utilizing service at the Premises.

Delivery Voltage: The voltage of Company's lines at the Point of Delivery.

Demand or Billing Demand: The highest average load in kilowatts (kW) during any fifteen minute interval during the time between regular meter readings. There shall be four fixed 15 minute intervals per hour with the first interval beginning at the top of the hour as registered on the meter.

Distribution System: Distribution System, for purposes of determining Line and/or Service Extension applicability, means those poles, wire, and other equipment used to distribute electricity either overhead or underground at 20kV or less for Illinois and at 69kV or less for Missouri.

Ground: A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or to some conducting body that serves in place of the earth.

Illinois Commerce Commission (ICC): See Commission

Local Inspection Authority and Authority Having Jurisdiction(AHJ): As it pertains to this document, the agency responsible for the inspection of a customer's electrical installations. This authority can be an agency of an incorporated City or Town or of the County, State, or Federal Government. The Ameren Companies are not inspection authorities.

Meter disconnect – A safety switch that is located on the line side 480/277V or 480/240V system. The safety switch can be either a knife blade switch or a molded case switch without over current protection device (OCPD).

Meter Voltage: The voltage of the Company's or Customer's electric system at the point at which the metering is connected for the purpose of measuring power and energy for utility billing purposes.

Section 150 Glossary

Meter Socket, Multi-Meter: The mounting device consisting of jaws, connectors, and enclosure for multiple socket type meters where no CT's or PT's are used.

Meter Socket, Self Contained: The mounting device consisting of jaws, connectors, and enclosure for socket type meters where no CT's or PT's are used.

Meter Socket, Transformer Rated: The mounting device consisting of jaws, connectors, and enclosure for socket type meters where CT's and/or PT's are used.

Metering Instrument Transformer, Current (CT): A device that precisely steps down the current from its primary current to a workable current that can be measured with conventional meters.

Metering Instrument Transformer, Potential (PT): A device that precisely steps down the voltage from its primary voltage to a workable voltage that can be measured with conventional meters.

Missouri Public Service Commission (PSC): See Commission

Multi-Tenant: (Illinois applications) A multiple occupancy building with three or more Customers who each qualify for the Residential rate or two or more Customers who each qualify for a Non-Residential rate or buildings with one commercial and one residential service.

Multiple-Occupancy Dwellings: (Missouri applications) structures for permanent occupancy of 2 or more single-family residences.

NEC: National Electrical Code. Generally speaking, this is the code document that governs building and premise wiring.

NESC: National Electrical Safety Code. Generally speaking, this is the code document that governs electric and communication utilities.

Premises: A contiguous tract of land separated by nothing more than a highway, street, alley or railroad right-of-way, where all buildings and/or electric consuming devices located thereon are owned or occupied by a single Customer or applicant for electric service, or where all electricity delivered thereto is utilized to supply one or more buildings and/or electrical loads which the Company considers as components of a unified operation.

Sequence, Cold Sequence: An installation where a breaker, fused disconnect, or pull out type fused switch is located on the line side of the meter.

Sequence, Hot Sequence: An installation where a breaker, fused disconnect, or pull out type fused switch is located on the load side of the meter.

Service: As used in this document, service refers to the conductors connecting a point of delivery to the utilization voltage of the electric distribution system serving the customer.

This definition should not be confused with the Illinois tariffs, which define Service Extension, for the purpose of calculating Extension charges, as the portion of the extension, dedicated to the Customer, on Customer's Premises, regardless of voltage.

Service Equipment: The necessary equipment, usually consisting of a circuit breaker or switch and fuses, and their accessories, located near the point of entrance of supply conductors to a building or other structure, or an otherwise defined area, and intended to constitute the main control and means of cutoff of the supply.

Underwriters Laboratories Inc (UL) and Intertek Testing Services (ET): Ameren approved equipment testing laboratories for the equipment used and installed in accordance with the listing and labeling instructions.

Section 200 Metering Requirements

200.01 LOCATION

A. General

1. The customer shall provide a suitable place for the installation of metering equipment.
 - a) The equipment shall be installed on the outside wall of the customer's building or approved metering structure and be so located that adequate space and unobstructed access is provided to the Company's representatives for reading, testing, maintaining and exchanging of such equipment.
 - b) In flood areas, the bottom of the meter device shall normally be raised above the highest water line on record. Non-residential meters if necessary to raise above 5'6" to grade, shall have a permanent platform and ladder installed and maintained at the meter by customer for access purposes, see Section 100.
 - c) The customer shall consult the Company regarding the proper location of the equipment.
2. Metering equipment shall not be located on Company owned poles or on buildings adjacent to driveways, alleys, streets or other similar exposed places where it can be damaged by moving vehicles unless the equipment is protected by a substantial guard rail or posts. The customer shall consult the Company representative regarding providing adequate protected barrier.

Nor shall any portion of the metering equipment be located below, above, or within:

- a) 3 feet radius of a gas meter and regulator installation shown Figure 200-4
 - b) 6 feet to any electric motor, generator, belt, or other moving machinery
 - c) Other hazards which would endanger the safety of those reading or working on metering devices.
 - d) Location must also satisfy NEC Article 110.26, clear working space around meter, as described below in 200.01.A.3 and also illustrated in Figure 200-4.
3. Clear working spaces shall not be used for storage.
 - a) A minimum of 3 1/2 feet of clear working space shall be provided in front of all meter and instrument transformer enclosures.
 - b) There shall be a minimum working clearance of 6 inches above, below, and to each side of the metering equipment.
 4. Metering equipment shall not be mounted on portable trailers, buildings, mobile home or manufactured (modular) home, recreational trailers, or truck trailers; unless the manufactured (modular) home meets the conditions stated in the latest NEC.
 5. Metering equipment must be installed in a workman like manner and firmly attached to the surface on which it is mounted.
 6. All locations where metering equipment is installed shall have a minimum standing headroom of 6 feet, 6 inches.
 7. On locations where more than one meter is installed on any one premises, the customer shall permanently mark all meter sockets and associated service equipment to identify the area and full street address for which each is installed, the location of the tenant is to match the identification of the premises or panel. Such marking must be made with metal letters, engraved plate, or other permanent methods. Any marking with stickers and sharpie will not be allowed.
 8. Rules Defining Rewire Work and Meter Location on Existing Buildings
 - 8.1 Definitions:

Rewire work is defined as electrical work that involves (1) relocation, (2) replacement or (3) ampacity changes of customer owned service cables, service entrance conductors, meter socket or service equipment. Rewiring work shall include the updating of metering equipment and requires that all meters be installed and located in accordance with the requirements of the latest Ameren Electric Service Manual.

Section 200

Metering Requirements

Service entrance conductors are defined as the conductors between the terminals of the service equipment and the tap or splice to the service drop, service lateral or secondary distribution.

Service equipment is defined as consisting of the circuit breaker(s) or switch(s) and fuse(s) and their accessories located near the point of entrance of the supply conductors to a building and intended to constitute the main control and means of cutoff of the supply.

8.2 Additional Meters:

New meters may be added to the existing service subject to the ampacity limitations of the service entrance conductors or service equipment. If existing meters are indoors, the added meters may be located indoors. If the added loads served from the new meters require rewiring, then all (new and existing) meters shall be located in accordance with the meter location policy. New meter usage will not be cumulative with existing meters.

8.3 Additional Service Entrances:

- a) On residential buildings of 15 meters or less (on three occupied floors or less), additional service entrance conductors and/or ampacity requires all meters to be relocated outdoors per the meter location policy.
- b) On residential buildings exceeding 15 meters (on three occupied floors or less), if additional service entrances are wired to the building, meters associated with the new services shall be located outdoors if there are 15 or less meters per additional service entrance. Exception: If all meters and services are in one approved location, meters may remain indoors.

8.4 Rewiring Exceptions:

- a) In multi-tenant buildings of six units or less, with indoor meters, where all units are served from common service and each unit has its own means of disconnect, the ampacity or the disconnect may be increased without relocating the meter(s) outdoors subject to the limitation of the service entrance conductor ampacity. Work to increase the service entrance conductor ampacity; however, is rewire work and requires all indoor meters on the service to be relocated outdoors.
- b) The CT for rewired 800 amperes services may be left indoors if the rewiring can reuse the existing CT enclosure as is. Appropriate CT shall be installed. The meter will be located outdoors.

B. Indoor Location

All requests for inside metering including CT and PT locations must be approved and evaluated by Ameren on a case by case basis.

1. In exceptional cases where it is physically impractical to make outdoor installations, as in the case of large apartment houses or where there is no suitable outdoor location, meters may be installed indoors, with Company approval.
 - a) Meters shall be mounted on a rigid wall or panel which is free from vibration.
 - b) Meters shall be located in a clean, dry and safe place as near as practical to the point where the service entrance enters the building.
 - c) Meters shall not be located in sheds, attics, bedrooms, living rooms, bathrooms, restaurant kitchens, stairways, ventilating shafts, closets, coal bins, coal furnace rooms, or in any location where the visits of Company employees will inconvenience either the customer or the employee.
 - d) Meters shall not be located in basements or in other locations which are not accessible by permanent stairs. A ladder cannot be accepted as a substitute for stairs.
 - e) Meters and service equipment installed indoors for a multiple-occupancy building, shall be grouped in an accessible public space where the Building Management and Ameren representatives have access at all times. If meter room is locked and a key is not readily accessible from the customer, Ameren will require a lock-box to be placed near the access door.
 - f) In cases where there are several floors and several customers on each floor, thus making it impractical to locate the meters in one location, the meters may, with Company approval, be grouped in an accessible public space on designated floors.

Section 200 Metering Requirements

- g) If indoor metering approval is given, 1-1/2" conduit will be ran from the meter room to an Hoffman 6"x6" box (part#AHE6x6x4 or comparable) for remote meter equipment, 7' minimum mounting height, in an outdoor location.
2. If a customer makes additions or rearrangements to his building which result in a meter being located or enclosed in a location unacceptable to the Company, the customer shall relocate meter and service entrance at his expense within 30 days of written notification.
3. **Indoor Meter Locations including CT and PT**

Indoor metering will be allowed only in certain limited situations. These situations are:

- a) In designated underground areas, such as Downtown and Clayton, if supplied from indoor transformer rooms or network manholes or vaults.
- b) General Service Rate (commercial) CT enclosures for underground services and CT Enclosures for overhead services greater than 800 amperes with "Ameren approval" may be located indoors. CT Enclosures for overhead services 800 amperes or less and all residential services shall be located outdoors. The associated meter socket for all CT meters shall usually be mounted outdoors unless approved indoors by the District Supervising Engineer.
- c) Multiple Occupancy Buildings:
 1. Residential Service Rate buildings, three (3) occupancy floors or less with sixteen (16) or more meters per service. Fifteen (15) or less meters per service must be located outdoors.
 2. General Service Rate buildings, three (3) occupancy floors or less with more than six (6) meters per service. Six (6) meters or less per service must be located outdoors.
 3. Buildings with four (4) or more floors constructed for multiple occupancy.
- d) Primary meters
- e) Outdoor locations that may subject the meter to physical harm.

If Customer/Contractor plans to install meters indoors as permitted in the above situations, Company must be furnished with information detailing location, access, unmetered wiring methods and security provisions to meet the requirements of the Service Manual. This information must be submitted to the Customer Service Metropolitan or Regional District Office and must be approved by the appropriate District Supervising Engineer before wiring work is started.

- 1) On residential buildings of 15 meters or less (on three occupied floors or less), additional service entrance conductors and/or ampacity requires all meters to be relocated outdoors per the meter location policy.
- 2) The CT for rewired 800 amperes services may be left indoors if the rewiring can reuse the existing CT enclosure as is. Appropriate CT shall be installed. The meter will be located outdoors.

200.02 INSTALLATION

A. General

1. The customer shall furnish and install, at his expense, all necessary service entrance facilities.
2. All meter sockets or meter enclosures shall be fastened in place with non-ferrous or galvanized screws.
3. Anchoring to supply adequate support shall be used on brick, tile or other types of masonry buildings.
4. Where necessary on hollow tile walls, non-ferrous or galvanized toggle bolts may be used.
5. Meter boards no less than 3/4 in. thick shall be installed by the customer on indoor locations where plastered walls and other direct mounting surfaces are of insufficient strength.
6. Use of sheet rock style screws will not be accepted as fasteners for service entrance equipment on any installation.
7. All fasteners and straps must be of adequate size and material to rigidly secure the equipment to the structure.

Section 200 Metering Requirements

8. All metered and un-metered conductors shall be separated by barriers or in separate raceways.
9. Line or service entrance cable, conduit or bus duct shall enter the hubs of meter socket and transformer enclosures on all overhead service installations, except where a customer's main line switch or a junction box is installed on the line or source side of the metering equipment.
10. All unused openings of service equipment and metering sockets shall be closed with internally secured hub plugs or plates to afford protection nearly the same as the solid wall of the cabinet or enclosure.
11. Where service-entrance cable is allowed, aluminum waterproof connectors shall be used.
12. Lock nuts and bushings shall be used where conduits enter the back, bottom or side knockouts of sockets or enclosures.
13. Inhibitor is required on service conductors at meter socket terminators if unlike materials are used.
14. The neutral conductor shall have an outer covering of continuous white or gray with a readily distinguishable colored stripe other than green running along its insulation. The neutral can also be distinguished at the time of installation by white or gray tape encircling the conductor or insulation.
15. Grounded delta 3-phase sockets require high leg/wild leg to be placed in the right position at the meter socket and this conductor will be marked orange in color. The high leg (also referred to as the wild leg) will terminate in the middle position on the customer main disconnect, except in panel boards, switchgear arrangement ahead of and beyond metering compartments.

B. Self-Contained Meters Services (Refer to Section 1000 for Additional Information)

1. 1Ph 480 volts, **200 amperes max.** and 3-phase 480 volts, 3-phase 480Y/277 volts **200 amperes max** services (with exception, see item d)
 - a) Meter disconnect (safety switch) located on the line side of the meter (cold sequence metering) is required for 480Y/277 volts and 480 volts 3-phase services and 480 volts single-phase services 200 amperes max. Meter disconnect (safety switch) shall be lockable or under a lockable door. Ameren will maintain the meter disconnect (safety switch) as closed and locked. Customer shall permanently mark the meter sockets to identify 480 volts, and such marking shall be made with metal letters, engraved plate, or other permanent methods. Stickers and sharpie will not be allowed. Customer will maintain ownership of equipment.
 - b) If local inspection authority or the load of the fire pump and protection equipment require more than a 200 amperes service, then the CT/PT enclosure must be used as describe in section 1001.02. If the service to the fire protection equipment can be sized at 200 amperes or below, then Ameren will still require a meter disconnect in front of the meter socket.
 - c) Ameren should be contacted to determine available short circuit current.
 - d) For services greater than 200 amperes, a CT/PT enclosure is a standard installation. Self-contained meter services for cold sequence 3-phase 480/277 volts 320 amperes continuous/400 amperes max may be allowed in the Ameren services with approval by Ameren. Allowances can be made if there is insufficient room for a CT cabinet. The customer will be responsible for providing the combination Meter Socket with meter disconnect (safety switch) or separate enclosures for the line side meter disconnect (safety switch) and the meter socket.
 - e) Use of separate enclosures for the line side meter disconnect (safety switch) and the meter socket is acceptable. However they must be mounted directly above, or on a horizontal plane, within 4 feet of one another.
 - f) Continuous conduit is required with no LB's or any other connector that could allow access to un-metered wiring between the meter disconnect (safety switch) enclosure and meter socket.
 - g) Sealing provisions for the line side meter disconnect (safety switch) must be provided to prevent access to un-metered conductors within this enclosure.
 - h) A pad lockable door for access by the customer to operate the meter disconnect (safety switch) should be provided.

Section 200 Metering Requirements

2. Single-phase 120/240 volts, 3-phase, 240 volts, 3-phase, 4-wire, 208Y/120 volts, 201-400 amperes Services
 - a) The use of K-base meters will not be allowed on new service installations.
 - b) Enclosures for 320 amperes continuous/400 amperes max are required in this application.
 - c) The customer installed load side protection must be chosen to limit total current draw to 320 amperes. This is **ONLY** accomplished by installing one of the following:
 - One 400 amperes breaker with an 80% rating
 - Two 200 amperes breakers with an 80% rating

C. Instrument Transformer (CT, PT) Rated Meter Installations

For voltage and current combinations not covered in this section, refer to Section 1001.

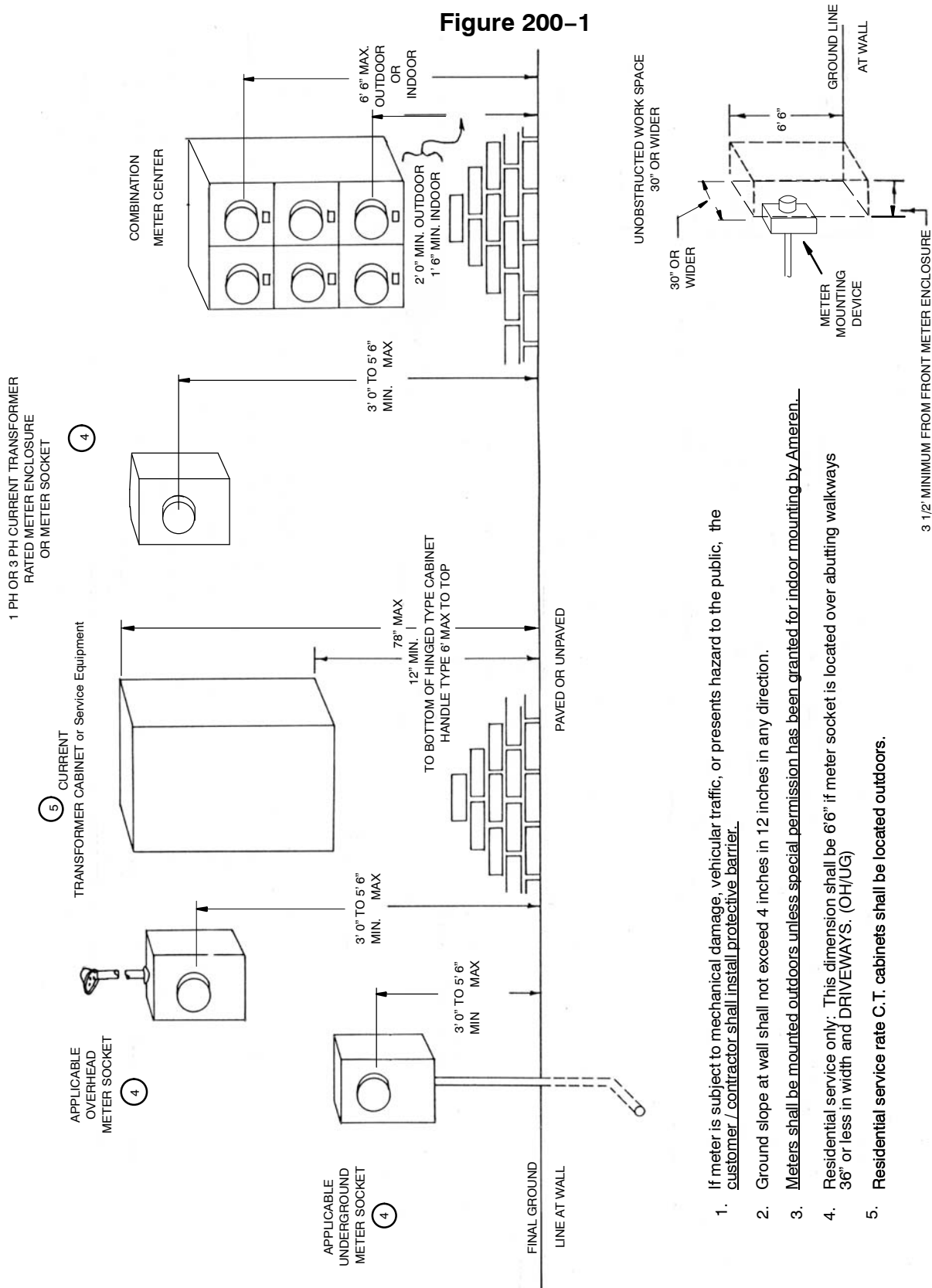
200.03 DRAWINGS

1. Figure 200-1 Meter Mounting Heights
2. Figure 200-2 Meter Equipment Protective Barrier
3. Figure 200-3 Location for Point of Delivery on Buildings
4. Figure 200-4 Meter Location on Side of House

Section 200
Metering Requirements

METER MOUNTING HEIGHTS

Figure 200-1

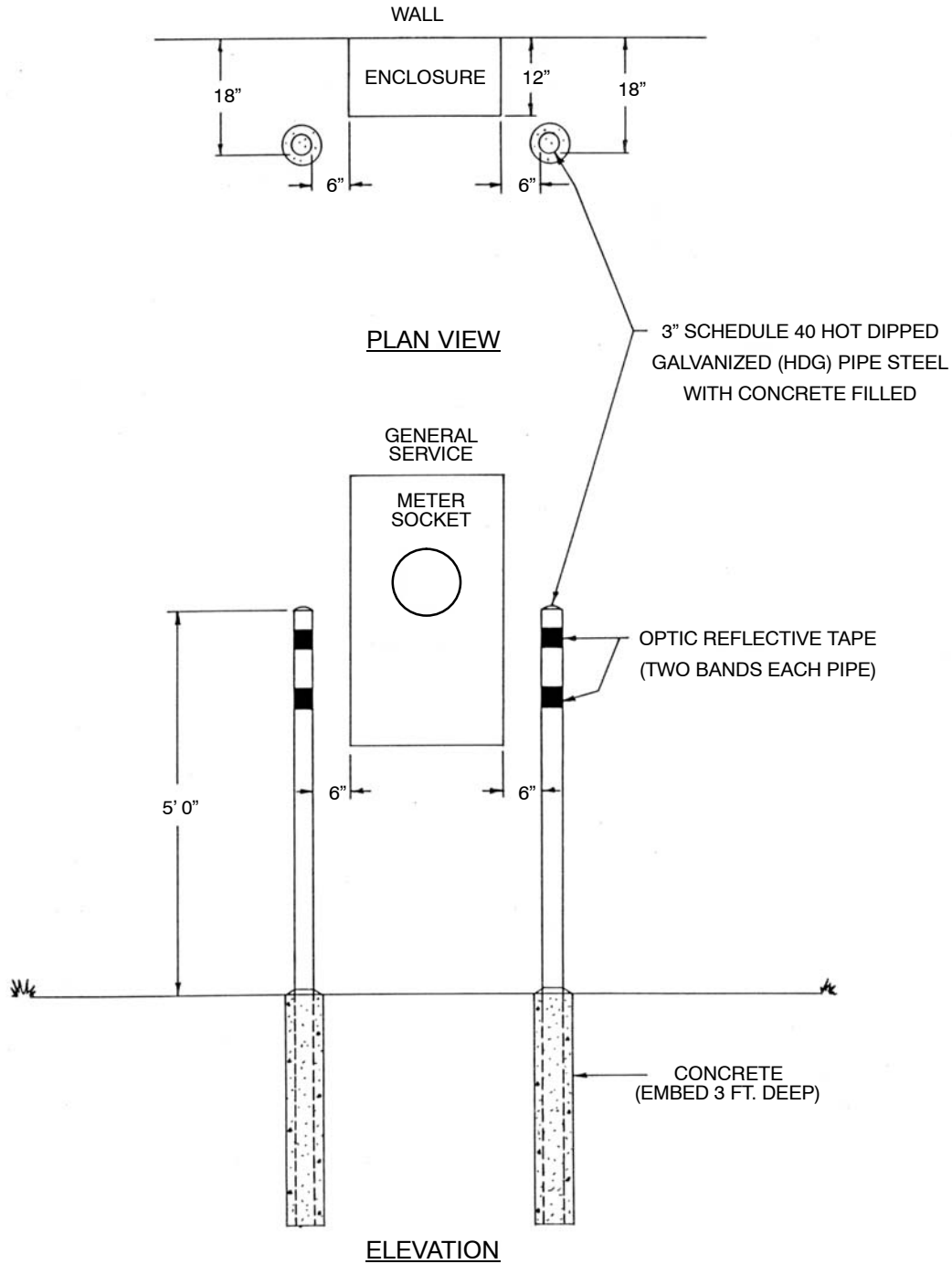


1. If meter is subject to mechanical damage, vehicular traffic, or presents hazard to the public, the customer / contractor shall install protective barrier.
2. Ground slope at wall shall not exceed 4 inches in 12 inches in any direction.
3. Meters shall be mounted outdoors unless special permission has been granted for indoor mounting by Ameren.
4. Residential service only: This dimension shall be 6'6" if meter socket is located over abutting walkways 36" or less in width and DRIVEWAYS. (OH/UG)
5. Residential service rate C. T. cabinets shall be located outdoors.

Section 200
Metering Requirements

**METER EQUIPMENT PROTECTIVE BARRIER
(METER ENCLOSURES SHOWN—
OTHER DEVICES SHALL BE SIMILAR)
CUSTOMER INSTALLED**

Figure 200-2



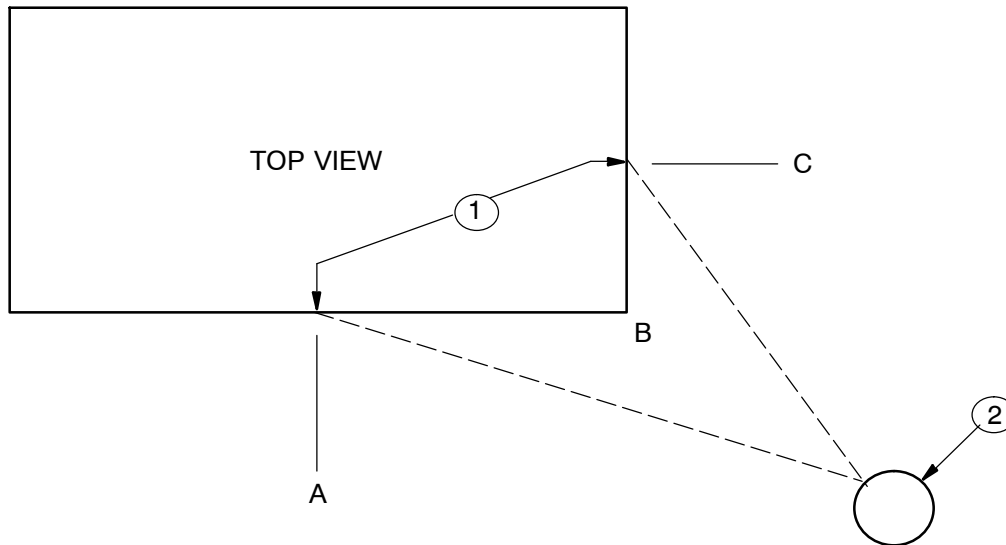
ALTERNATIVE BARRIERS
INCLUDE:

- A. WALL SUPPORTED BRACKETS FOR PUBLIC SAFETY.
- B. CONCRETE CURBS FOR VEHICULAR BARRIER.

Section 200 Metering Requirements

LOCATION FOR POINT OF DELIVERY ON BUILDINGS Figure 200-3

AN APPROVED LOCATION FOR THE POINT OF DELIVERY TO A CUSTOMER'S PREMISES WILL NORMALLY BE BETWEEN THE MIDPOINTS OF THE BUILDING FROM THE CORNER NEAREST THE COMPANY'S DISTRIBUTION SYSTEM.



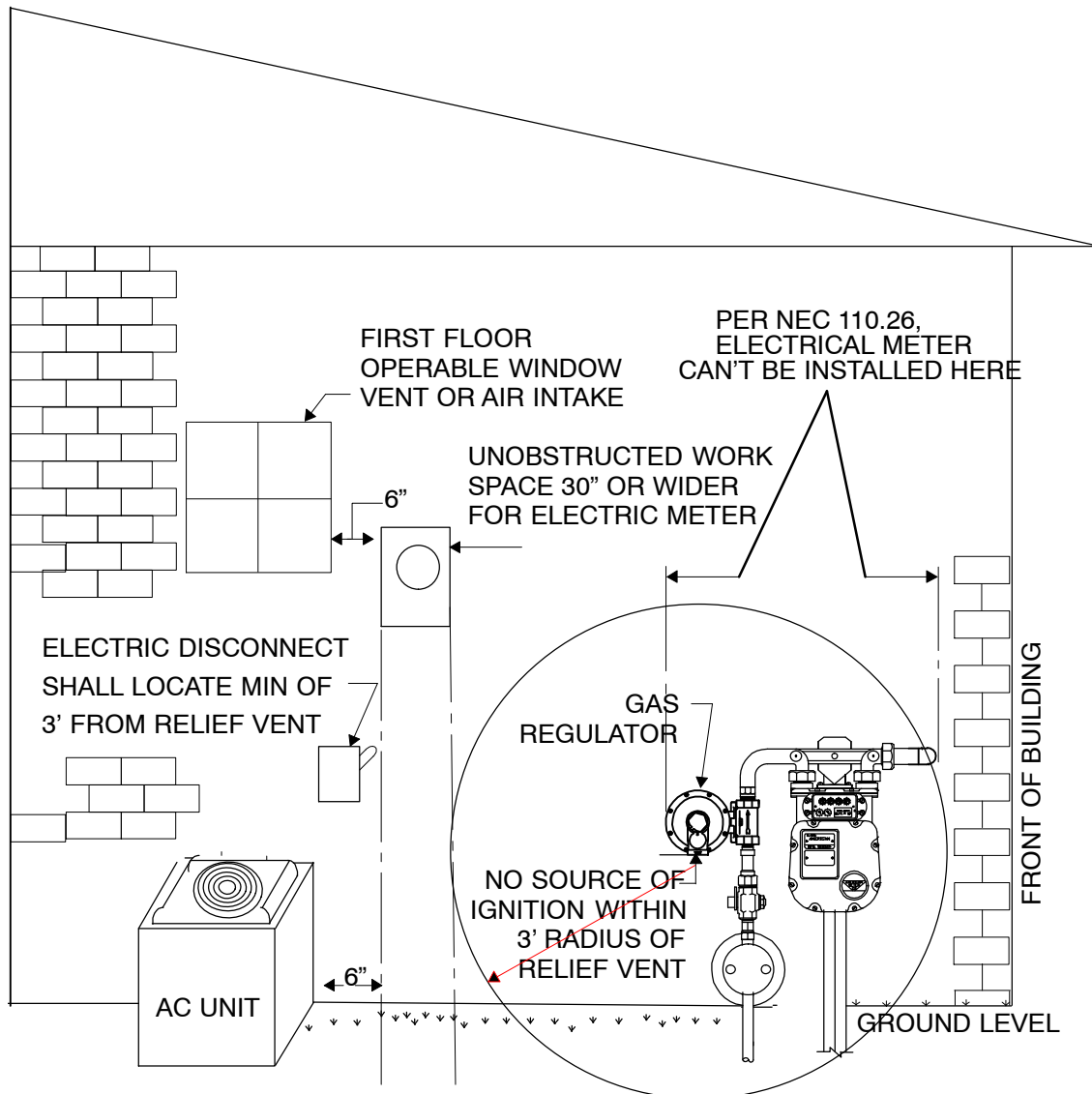
NOTES:

1. These guidelines apply to the Ameren Illinois only. In Missouri, contact your local Ameren representative for the guidelines that apply in the area where service is being requested.
2. A and C are the midpoints of the building. The service may be located anywhere between A and B or B and C observing clearance requirements from windows, chimneys, driveways, trees, etc. outlined in Figure 600-6 and Section 200.01 Location.
3. Distribution point from Ameren System may be overhead or underground. Refer questions to an Ameren representative if recommended location is not feasible.
4. Applicable charges are governed by State tariffs. Contact your local Ameren representative for an explanation of charges that may apply.

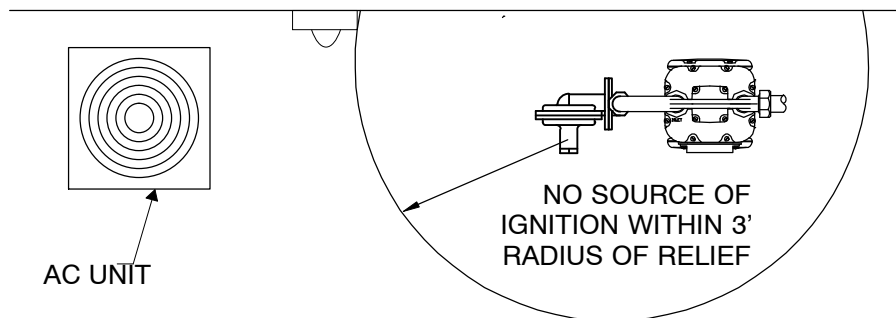
Section 200
Metering Requirements

METER LOCATION ON SIDE OF HOUSE

➔ Figure 200-4



NOTE: METER EQUIPMENT'S LOCATION MUST SATISFY NEC 110.26, BOTH 3' VENT CLEARANCE TO GAS METER, AND 30" WORKING SPACE



Section 300 Service Equipment

300.01 CUSTOMER'S SERVICE EQUIPMENT

1. The location of the main disconnect shall be located next to the meter installation or at the nearest point of entry. If the nearest point of entry is not readily accessible, the service equipment is to be located outdoors and shall be of NEMA type 3R, weatherproof construction.
2. Service equipment shall consist of either externally-operable fused switches, dead-front panels with pullout fused disconnects, or manually-operable automatic circuit breakers.
3. Each service disconnecting means shall be permanently marked to identify it and the load served.
4. Equipment must be certified by an approved independent testing laboratory using the appropriate UL standard for the certification. At present Ameren recognizes UL and ETL as approved testing laboratories for equipment installed on the Ameren system.
5. Disconnects designed for vertical mounting will indicate "ON" when in the "UP" position and "OFF" when in the "down" position.
6. A gang operated disconnecting means shall be located on the supply side of ALL fused service entrance equipment installations.
7. The grounded circuit conductor shall not normally contain disconnecting devices. Exceptions are required for separately derived systems. All exceptions must be approved by Ameren.
8. More than one disconnect or circuit breaker for the service equipment:
 - A. The Company recommends that a suitable bussed multiple switch or breaker, service-entrance panel be installed.
 - B. The service equipment shall contain no more than six operative switch positions and all shall be grouped together per NEC requirements.
 - C. No more than two Service Entrance masts per meter point location, without prior company approval.
9. Fire pumps and emergency lighting will be allowed to be connected per latest edition of the NEC, and the connections will be reviewed by the Company.

300.02 UNAUTHORIZED USE OF DEDICATED SPACE FOR AMEREN EQUIPMENT

Meter sockets and metering equipment enclosures are not to be used as junction boxes or raceways for customer distribution circuit wiring. Only service entrance wires are permitted in those enclosures. Unauthorized wiring shall be removed by the customer at no cost to AMEREN.

300.03 UNAUTHORIZED AFTERMARKET EQUIPMENT

Equipment including but not limited to covers, surge protection, and alternative generation shall not be connected to the meter and/or meter socket or any Ameren service equipment.

Section 400 Service Voltages

Company standard service is 60 Hertz alternating current.

400.01 THREE PHASE AVAILABILITY

Customers should contact the Company regarding the need for three phase service prior to the purchase of equipment or construction of facilities. In outlying and residential areas where three-phase energy is not readily available, greater than 7.5 horsepower single-phase motors may be permitted, but only with the prior approval of Company.

Three-phase service is not normally available for residential customers.

400.02 STANDARD SERVICE VOLTAGES

1. Single Phase

- 120/240 volts, 3-wire, grounded neutral, limited to 800 amperes maximum
- 240/480 volts, 3-wire, grounded neutral, limited to 400 amperes maximum and to specialized applications such as area lighting and irrigation systems.
- 208Y/120 volts, 3-wire, grounded neutral, limited to 200 amperes maximum. This voltage is derived from a 3-phase 208Y/120 volts, 4-wire system, typically used to serve large multi-tenant residential locations.

2. Three Phase

Where the Ameren primary voltage (transformer high side voltage) is 12.5 kV or 13.2 kV:

- 208Y/120 volts, 4-wire, grounded wye, limited to 1000 kVA of utility peak demand
- 480Y/277 volts, 4-wire, grounded wye, limited to 2500 kVA of utility peak demand

Where the Ameren primary voltage (transformer high side voltage) is 4.16 kV:

- 208Y/120 volts, 4-wire, grounded wye, limited to 750 kVA of utility peak demand
- 480Y/277 volts, 4-wire, grounded wye, limited to 750 kVA of utility peak demand

Where the Ameren primary voltage (transformer high side voltage) is 34.5 kV:

- 208Y/120 volts, 4-wire, grounded wye, limited to 750 kVA of utility peak demand
- 480Y/277 volts, 4-wire, grounded wye, limited to 3000 kVA of utility peak demand

In all cases outlined above, the customer or their agent is responsible for reviewing the Customer Obligations in Section 100 of this manual.

Ameren understands that NEC load calculations will sometimes exceed the maximum size transformer Ameren has to serve that calculated load. Ameren will work with the customer and their agents to determine what a realistic anticipated demand will be while also allowing for some amount of load growth. For this reason, Ameren requests that we will be contacted early in the customer's design phase, for any service larger than 2000 amperes.

400.03 NON-STANDARD SERVICE VOLTAGES

Company is presently supplying service at other voltages and configurations throughout service territory in Illinois and Missouri. Existence of service in a voltage type listed is not a guarantee of future availability for new connections or expansion of existing services. Customers are strongly encouraged to discuss changes in their equipment with the Company prior to the purchase of said equipment, or changes in premise wiring. Non-Standard services by their nature do not provide the well balanced voltages required by modern electrical devices. Therefore, the Company discourages their use.



Section 400 Service Voltages

In areas of limited three-phase primary circuitry, or for other engineering reasons, the following delta voltages may only be available at the Company's discretion. It is the Company's sole discretion on whether this service is available to any new customer. Existing customers adding load, or any customer that may add load in the future will be required to take a standard service offering.

- 240 volts, 3-wire, grounded corner delta, limited to 600 amperes maximum
- 480 volts, 3-wire, grounded corner delta, limited to 600 amperes maximum
- 240 volts, 3-wire, un-grounded delta, limited to 600 amperes maximum (see requirement in 500.01)
- 480 volts, 3-wire, un-grounded delta, limited to 600 amperes maximum (see requirements in 500.01)
- 240/120 volts, 4-wire delta, grounded center tap, limited to 600 amperes maximum.

240/120 VOLTS, 4-WIRE DELTA, GROUNDED CENTER TAP, NON-STANDARD

It is the Company's intent to limit the availability of this service voltage for the following reasons:

- Unequal loading of transformer coils which naturally occurs with this connection and requires the de-rating of the transformers.
- The Company's cost associated with owning and stocking 3-phase padmount transformers at this voltage.
- Power quality issues that may occur depending on the combination of the customer's equipment, customer loads, and distribution system loading.
- Imbalance that can occur on the Company's distribution system as a result of this connection

For the reasons stated above, the following limitations are being placed on this non-standard service voltage which will be offered at the Company's discretion.

- Limited to 600 amperes
- In areas where 3-phase aerial primary is available, full delta and open delta service from overhead transformers may be provided. However, the customer may be required to take a wye service.
- In areas where 2-phase primary is available, open delta service from overhead transformers may be provided.
- Open-delta service may be provided from 1-phase pad mounted transformers. When this may be the case and 3-phase primary becomes available in the future, the customer will be required to upgrade to a wye secondary voltage if they require additional capacity. For this reason, the customer and their electrician should choose and configure their equipment so that future impact to the customer is minimized
- No additional 3-phase padmount transformers at this voltage will be installed. If a transformer at an existing installation fails, service at this voltage will be maintained by the Company. The customer may be required to upgrade to a wye secondary voltage if they require additional capacity. For this reason, the customer and their electrician should choose and configure their equipment so that future impact to the customer is minimized.
- The Company reserves the right to provide 3-phase services from an open delta installation to serve small 3-phase loads. One example would be a small lift station in a residential area.

Again, all non-standard voltages were not, and are not available in all areas served by the Ameren Companies. **Check with local contacts to verify the service voltage and configurations available.**

400.04 NON-STANDARD SERVICE

Request for amperages and/or configurations not specified above will be evaluated on a case by case basis. Company at its sole discretion may elect to provide non-standard service provided customer pays any and all excess cost relating to providing the non-standard service.

Refer to Section 500 regarding un-grounded services.

Section 400 Service Voltages

400.05 PRIMARY DISTRIBUTION SERVICE

Primary service is offered at voltages designated by the Company. Primary voltages are defined in the rate manual. Such service is normally supplied by extending primary distribution lines to a substation or customer switchgear located on the customer's premises. The substation transformers may be Company or Customer owned. For engineering, economic, or other reasons, the Company may, in some cases, elect to supply primary service from a substation located on Customer Property. The Customer is requested to discuss power requirements with Company before customer engineering begins, before customer engineering begins purchasing equipment, or before the start of Customer wiring.

The customer shall contact the appropriate Company Division Operating Center a minimum of six months prior to the desired in-service date. A minimum of six months is required to allow for Company/Customer engineering, equipment purchase, and construction.

The Company will provide primary meter service specifications specific to Ameren Illinois or Ameren Missouri requirements. This will provide detail information pertaining to physical connection, over-current protection, gang disconnect, system metering, and other site requirements. For special circumstance such as primary metered locations in bottom ground that normally floods greater than 5 feet deep, customer provided stair case and landing will be required to access elevated meter socket (see section 100).

Section 500 Grounding

500.01 GENERAL

All **standard services** that operate below 1000 volts as defined in Section 400 shall contain a grounded neutral conductor.

A **non-standard** service that operates below 1000 volts as defined in Section 400 may have a grounded phase conductor used as a circuit conductor in the system.

The grounded neutral or grounded phase conductor is earth grounded at the utility transformer and is extended to the self-contained meter socket, meter disconnect, or CT enclosure and to each service disconnect in accordance with the latest edition of the NEC.

For underground systems, the service riser conduit(s) on the supply side of the customer's meter disconnect, self-contained meter socket, or CT enclosure shall not contain the grounding electrode conductor. If a customer chooses to secure/protect the grounding electrode conductor in a conduit, this conduit shall be dedicated solely for this purpose.

Customers requiring an ungrounded service for operations as permitted by the NEC, shall submit an exception request detailing the special circumstances necessitating the request. In addition, the customer shall state in the exception request that they are aware of and accept the increased risks to personal safety associated with an ungrounded service. Customers who receive an ungrounded service from the Company **MUST INSTALL** ground detection sensing equipment. When supplying an ungrounded service results in an additional cost to the Company, this may be passed on to the customer.

For electric service installations where galvanized or EMT metallic conduit is used on the supply side of the service main disconnect, bonded bushings or threaded hubs shall only be used at one end of the conduit to prevent appreciable circulating currents from flowing on the equipment enclosures. An exception to this would be when using metallic conduit for protection of the grounding electrode conductor. In this case, the NEC requires bonded busings on both ends of this metallic conduit to prevent causing a high impedance path or inductive choke.

500.02 INTER-SYSTEM BONDING

The National Electrical Code requires in most situations an inter-system bonding termination to be made between the electrical system and other communication/broadband(CATV) systems located external to the main service disconnect, CT enclosure, or self-contained meter socket to minimize the potential differences between equipment of different systems. This inter-system bond shall not be attached to the meter socket, meter socket lid, or CT enclosure. This connector must be listed for the intended purpose and solidly affixed to the premises wall or other substantial premises structure.

500.03 GROUNDING METHODS

These notes relate to the drawings found in the Grounding Section of this manual.

1. The grounding method drawings are schematic in nature. Actual wiring details will vary between equipment and manufacturer.
2. The details shown in these drawings are not a substitute for an understanding of the grounding and bonding requirements of the National Electrical Code (NEC) and the requirements of the Authority Having Jurisdiction for the area the work is taking place.

(Continued on next page)



Section 500 Grounding

500.03 GROUNDING METHODS (Continued)

3. Ameren requires an external grounding electrode to be electrically connected to the case and grounded conductor for self-contained meter sockets, meter disconnects, and CT enclosures that are mounted outdoors on most installations.
 - This electrode may act either as the sole or auxiliary electrode for the service equipment associated with the premises. Installation and material used for the Ameren required external grounding electrode must meet all NEC requirements for size, material, and installation. If an external grounding electrode system is connected in an outdoor location at the self-contained meter socket or CT enclosure provided by the customer to meet NEC grounding requirements, then this grounding electrode system will also meet Ameren's requirement for an external grounding electrode.
 - Where other electrodes are available inside a premises, these become the grounding electrode system and **MUST NOT** be connected to the driven outside electrode that terminates within the self-contained meter socket, meter disconnects, or the CT enclosure, **EXCEPT** via the grounded (neutral) conductor. This wiring method will ensure that normal neutral currents **WILL NOT** flow on equipment grounding conductors. This method is allowed by the NEC where certain conditions are met. (Reference the latest NEC 250.142(A), for grounding equipment use of grounded circuit conductor.)
 - Where the customer has a main service disconnect mounted within 10 feet and in sight of the Ameren self-contained meter socket or CT enclosure, connection of an external grounding electrode system to the service equipment disconnect is acceptable in lieu of landing in the utility metering equipment.
4. For a location where metering CT or CT/PT instruments are mounted inside customer owned switchgear, the grounding electrode system is established inside the switchgear. The outdoor meter socket is grounded only by the equipment ground provided in the 11 conductor meter cable (Missouri) or the #10 copper equipment ground conductor run inside the meter cable conduit (Illinois).
5. Exceptions to the grounding methods found in section 500 must be approved by Ameren Engineering prior to construction.

500.04 DRAWINGS

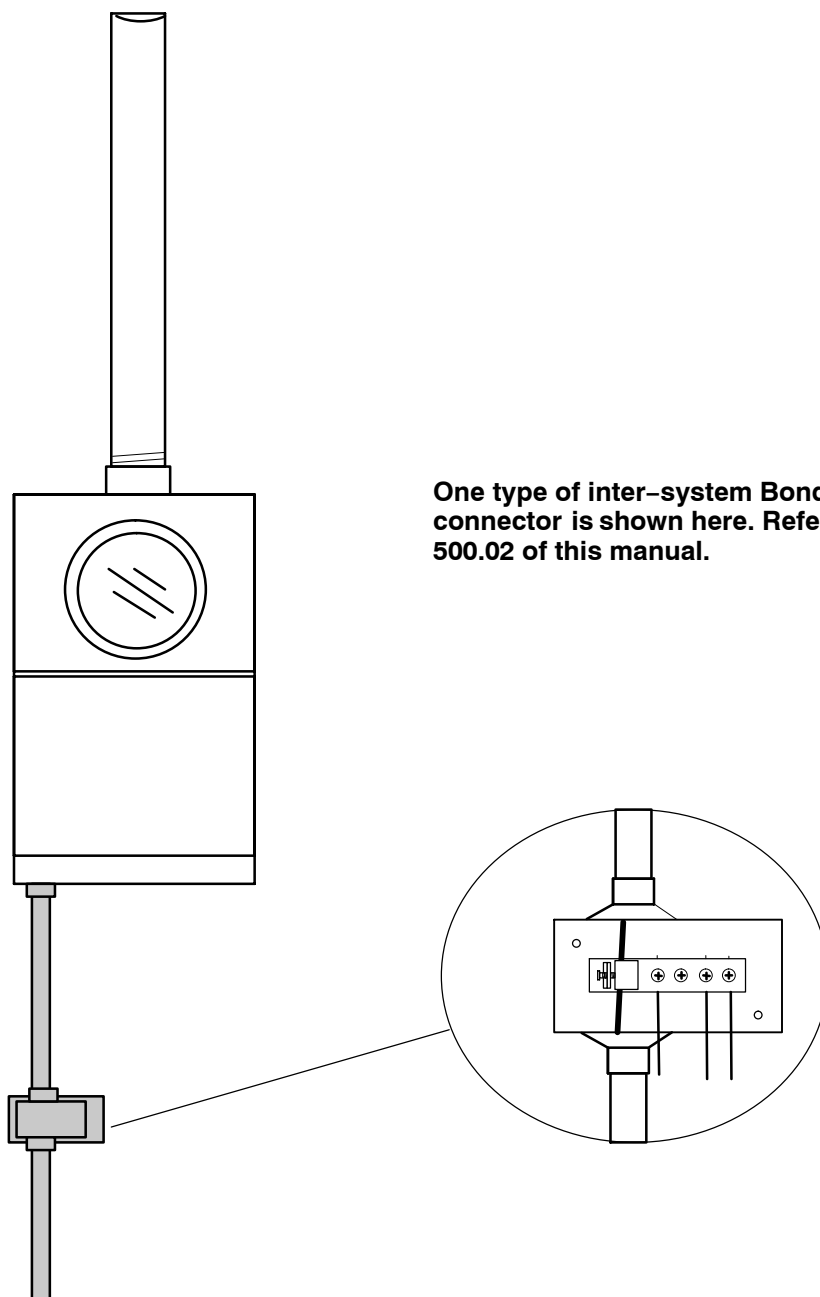
1. **Figure-1**
Inter-System Bonding
2. **Figure 500-2**
1Ø and 3Ø Self-Contained Metering Less Than 480 Volts,
Option 1 – Interior Main Disconnect
3. **Figure 500-3**
1Ø and 3Ø Self-Contained Metering Less Than 480 Volts
Option 2 – Exterior Main Disconnect
4. **Figure 500-4**
1Ø and 3Ø Self-Contained Cold Sequence Metering 480 Volts
(Meter Disconnect/Meter Socket in Separate Enclosures)
Option 1 – Interior Main Disconnect
5. **Figure 500-5**
1Ø and 3Ø Self-Contained Cold Sequence Metering – 480 Volts
(Meter Disconnect/Meter Socket in Separate Enclosures)
Option 2 – Exterior Main Disconnect



6. **Figure 500-6**
1Ø and 3Ø, Self-Contained Cold Sequence Metering – 480 Volts
(Meter Disconnect/Meter Socket Combination)
Option 1 – Interior Main Disconnect
7. **Figure 500-7**
1Ø and 3Ø, Self-Contained Cold Sequence Metering – 480 Volts
(Meter Disconnect/Meter Socket Combination)
Option 2 – Exterior Main Disconnect
8. **Figure 500-8**
1Ø and 3Ø, Instrument Transformer Metering
(Separate Enclosures)
Option 1 – Interior Main Disconnect
9. **Figure 500-9**
1Ø and 3Ø, Instrument Transformer Metering
Option 2 – Exterior Main Disconnect
10. **Figure 500-10**
1Ø and 3Ø, Instrument Transformer Metering
Option 3 – CT or CT/PT Mounted in Switchgear

GROUND METHODS

TYPICAL INTER-SYSTEM BONDING FIGURE 500-1



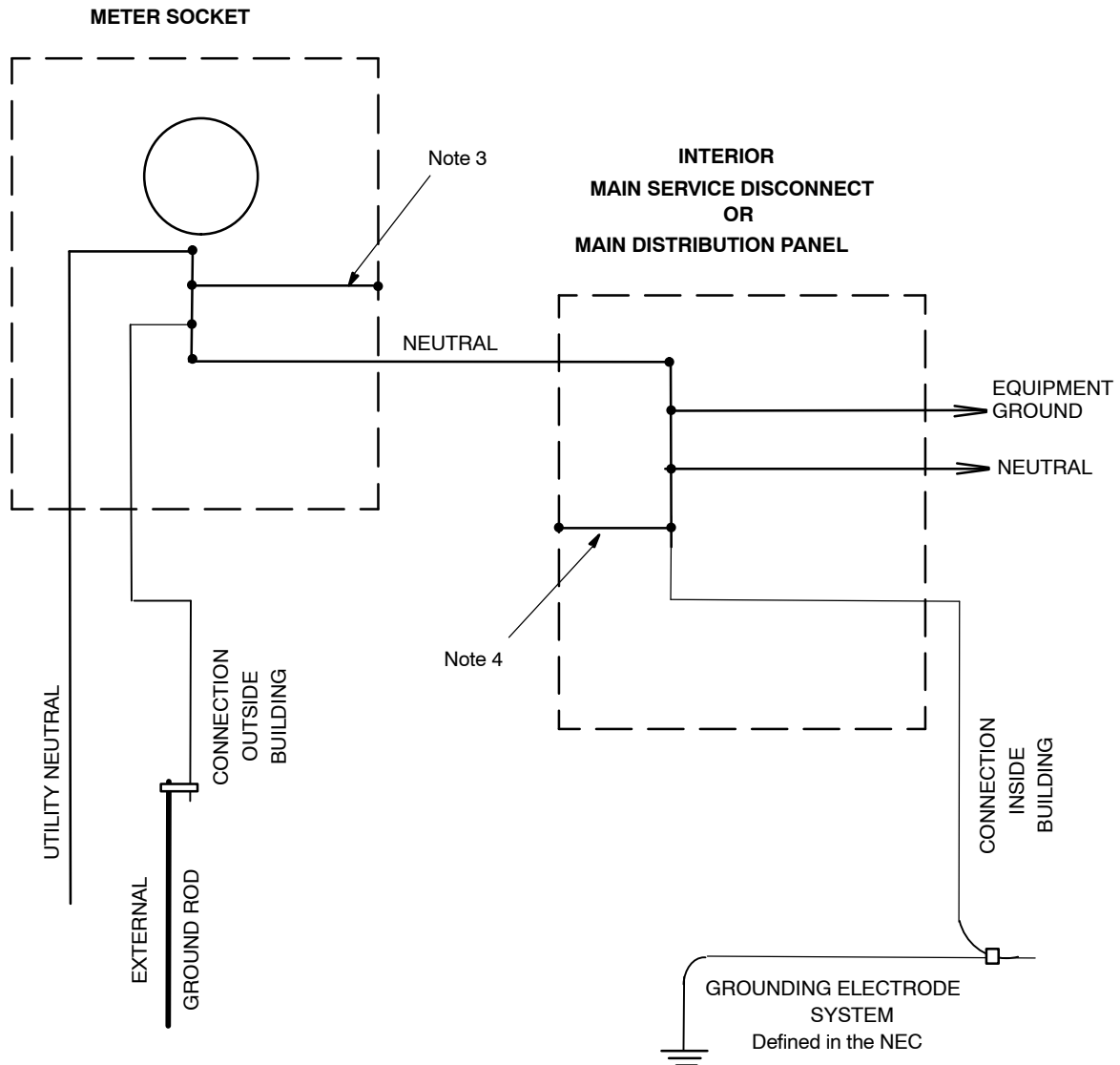
One type of inter-system Bonding connector is shown here. Refer to Section 500.02 of this manual.

GROUNDING METHODS

→ 1Ø AND 3Ø SELF-CONTAINED METERING LESS THAN 480 VOLTS

Option 1 – Interior Main Disconnect

Figure 500-2



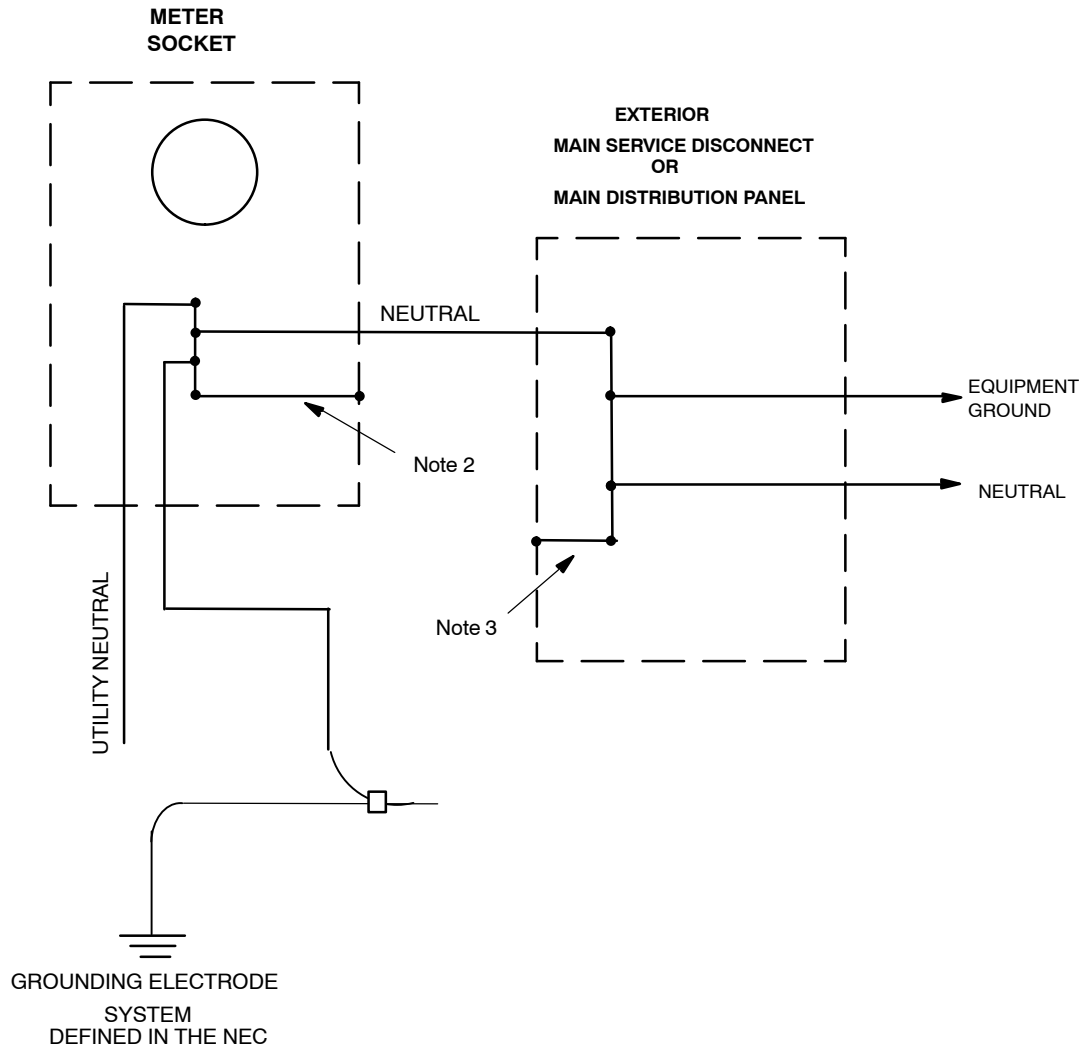
Notes:

1. Refer to section 500.03.
2. If an external grounding electrode system is connected in an outdoor location at the self-contained meter socket provided by the customer to meet NEC grounding requirements, then this grounding electrode system will also meet Ameren's requirement for an external grounding electrode.
3. Bonding jumper between neutral and case
4. **Main** bonding jumper between neutral and case

GROUNDING METHODS

➔ 1Ø AND 3Ø SELF-CONTAINED METERING LESS THAN 480 VOLTS
OPTION 2 – Exterior Main Disconnect

Figure 500-3

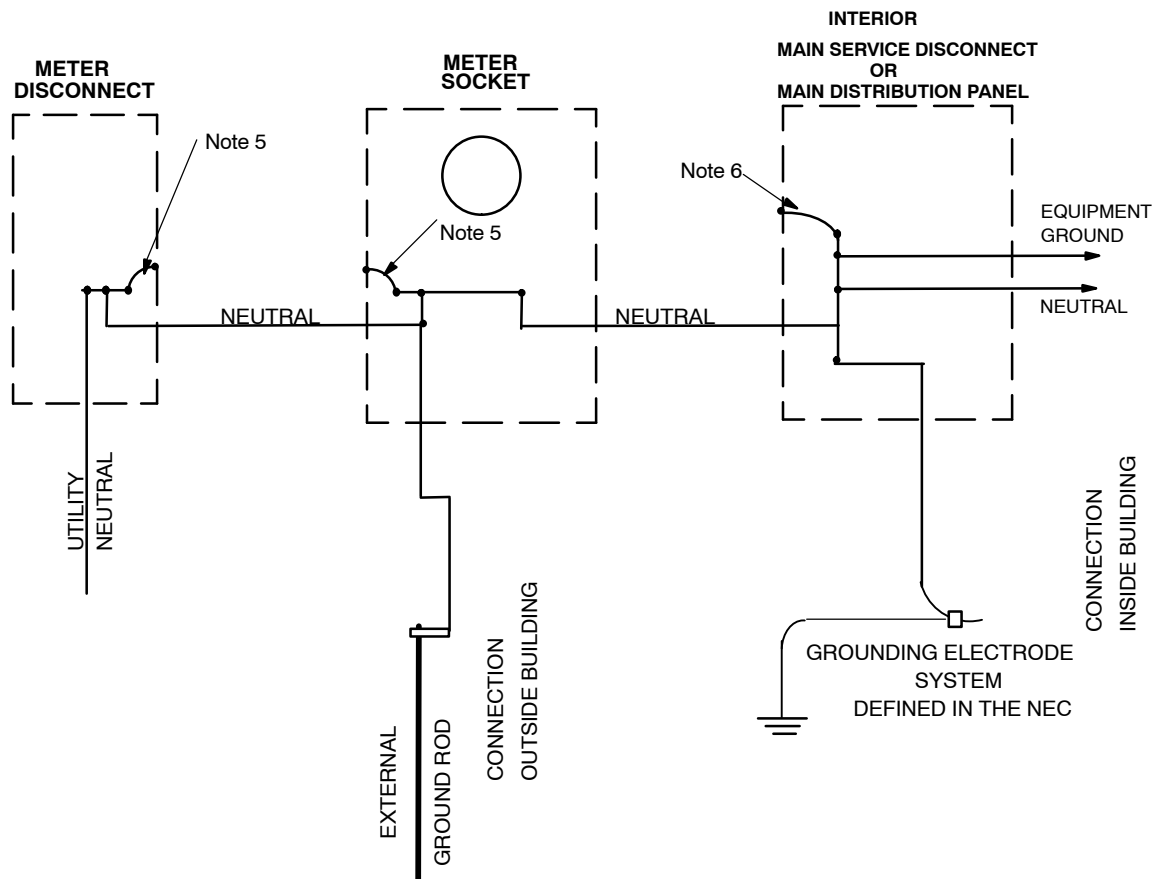


Notes:

1. Refer to section 500.03
2. Bonding jumper between neutral and case
3. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

→ 1Ø AND 3Ø SELF-CONTAINED COLD SEQUENCE METERING – 480 VOLTS
OPTION 1 – Interior Main Disconnect
Figure 500–4



Notes:

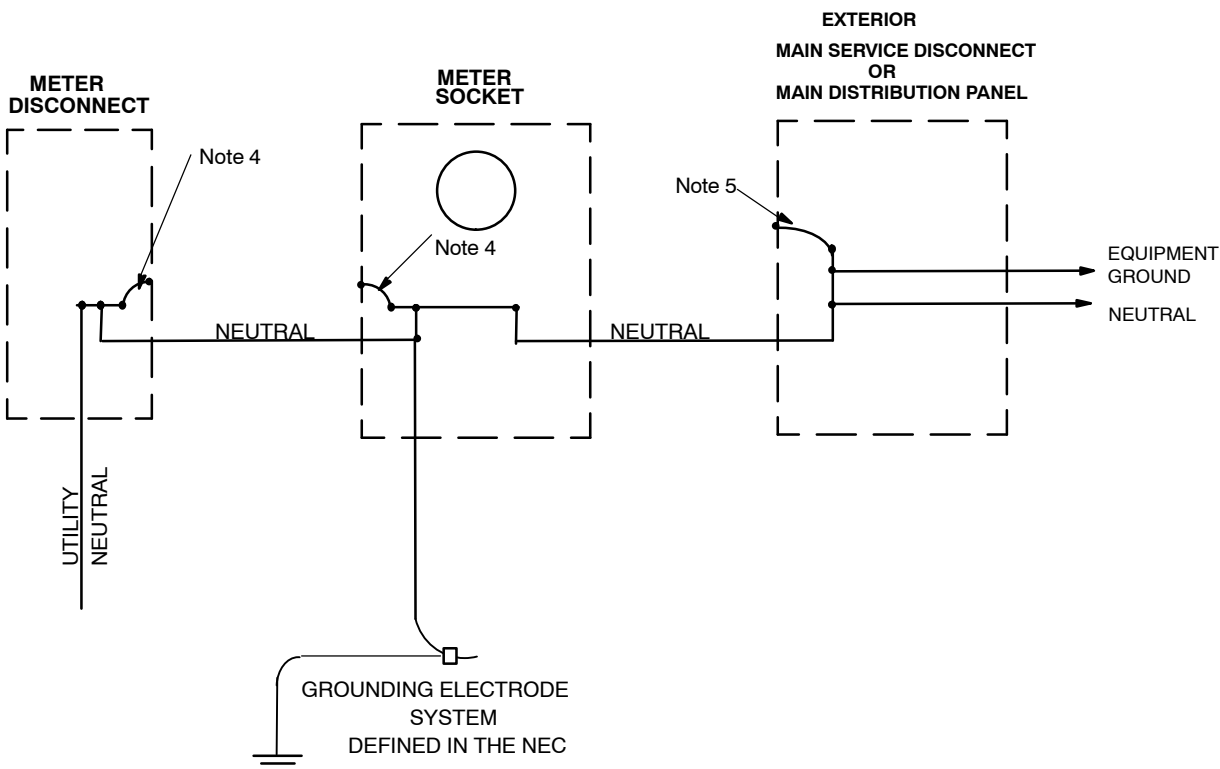
1. Refer to section 500.03
2. The Ameren preferred external ground rod termination is in the meter socket. However, an alternate location for this external ground rod termination would be in the meter disconnect.
3. If an external grounding electrode system is connected in an outdoor location at the self-contained meter socket or meter disconnect provided by the customer to meet NEC grounding requirements, then this grounding electrode system will also meet Ameren's requirement for an external grounding electrode.
4. Meter disconnect must be a knife blade or molded case switch, with no over-current protection
5. Bonding jumper between neutral and case
6. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

➔ 1Ø AND 3Ø SELF-CONTAINED COLD SEQUENCE METERING – 480 VOLTS

OPTION 2 – Exterior Main Disconnect

Figure 500-5



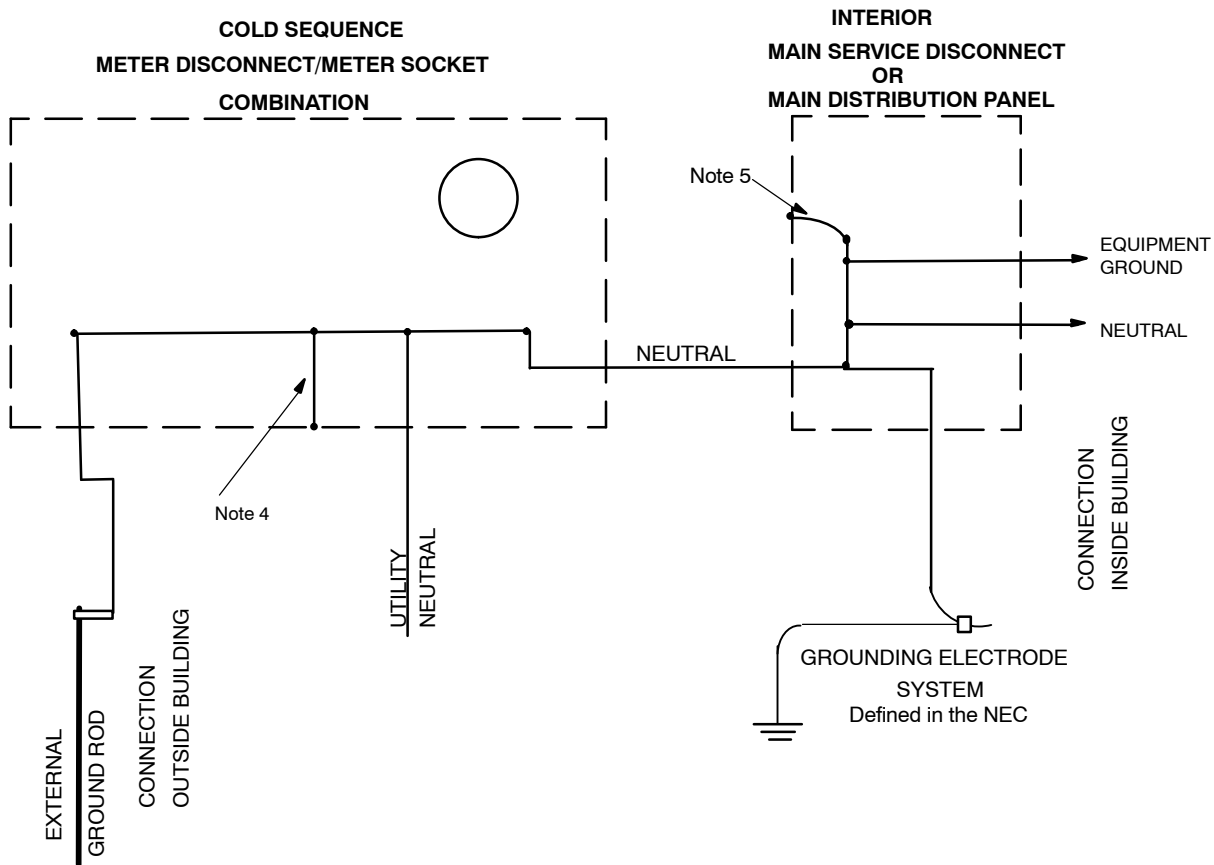
Notes:

1. Refer to section 500.03
2. When the main disconnect is **exterior** of building and within 10 ft of metering, the Ameren preferred location to terminate the grounding electrode system is at the meter socket or meter disconnect. An alternate location allowed by NEC is at the Main Service Disconnect
3. Meter disconnect must be a knife blade or molded case switch, with no over-current protection
4. Bonding jumper between neutral and case
5. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

➔ 1Ø AND 3Ø SELF-CONTAINED COLD SEQUENCE METERING – 480 VOLTS
METER DISCONNECT/METER SOCKET COMBINATION
OPTION 1 – INTERIOR MAIN DISCONNECT

Figure 500–6

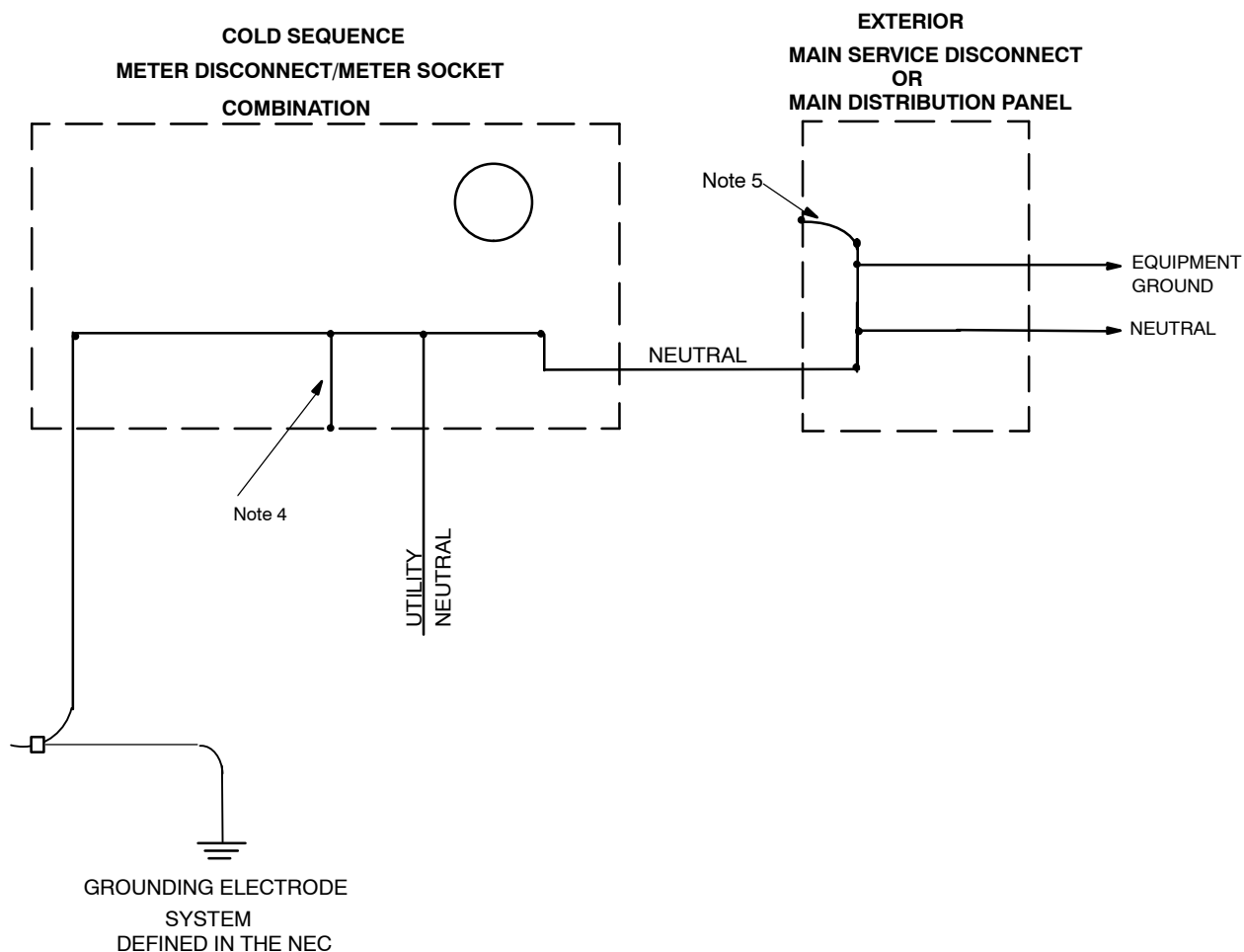


Notes:

1. Refer to section 500.03
2. If an external grounding electrode system is connected in an outdoor location at the self-contained meter disconnect/meter socket combination enclosure provided by the customer to meet NEC grounding requirements, then this grounding electrode system will also meet Ameren's requirement for an external grounding electrode.
3. Meter disconnect must be a knife blade or molded case switch, with no over-current protection
4. Bonding jumper between neutral and case
5. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

- ➔ 1Ø AND 3Ø SELF-CONTAINED COLD SEQUENCE METERING – 480 VOLTS
METER DISCONNECT/METER SOCKET COMBINATION
OPTION 2 – EXTERIOR MAIN DISCONNECT
Figure 500–7

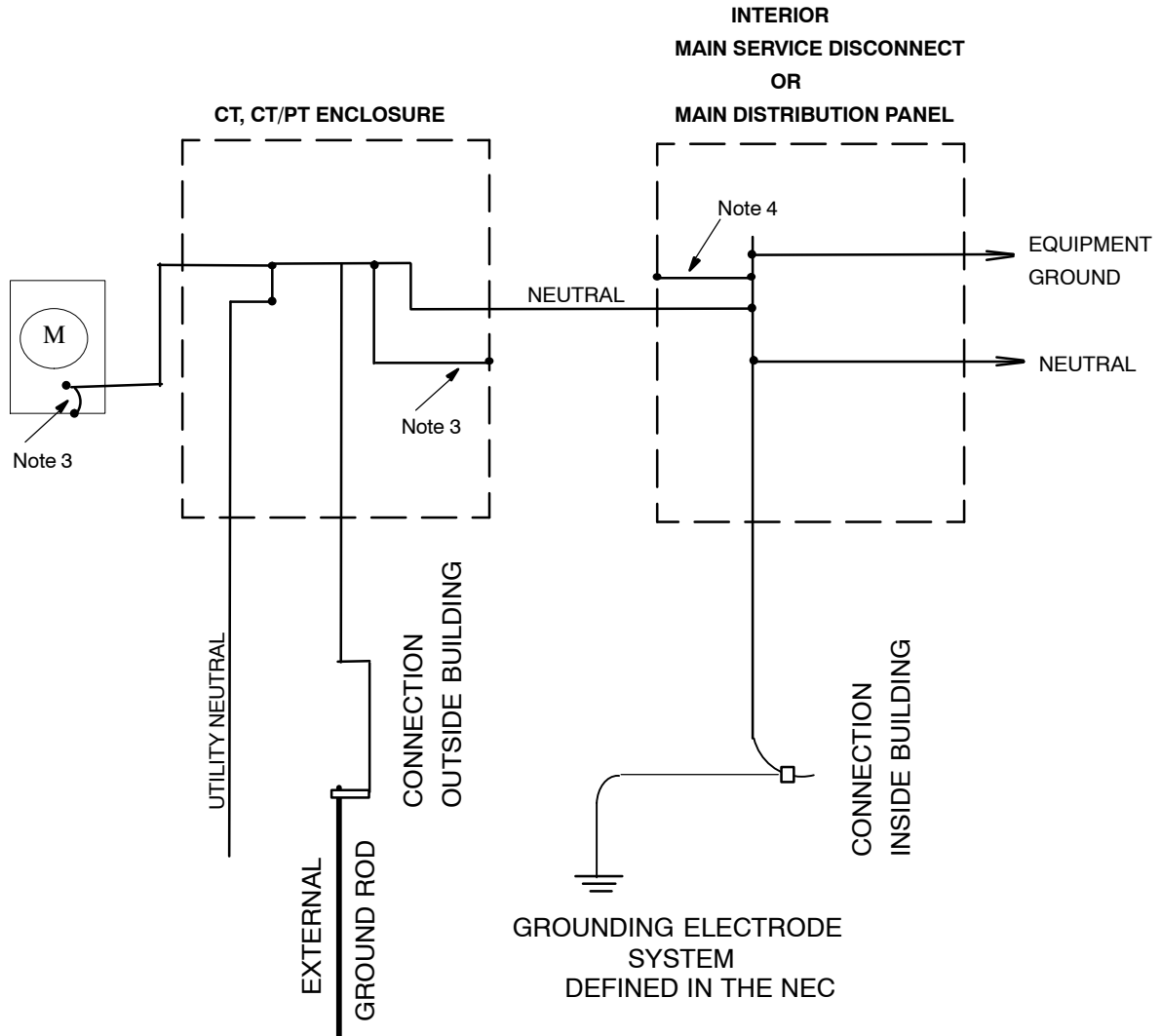


Notes:

1. Refer to section 500.03
2. When the main disconnect is **exterior** of building and within 10 ft of metering, the Ameren preferred location to terminate the grounding electrode system is at the meter disconnect/meter socket combination enclosure. An alternate location allowed by NEC is at the Main Service Disconnect
3. Meter disconnect must be a knife blade or molded case switch, with no over-current protection
4. Bonding jumper between neutral and case
5. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

➔ 1Ø AND 3Ø INSTRUMENT TRANSFORMER METERING
OPTION 1 – INTERIOR MAIN DISCONNECT
Figure 500–8



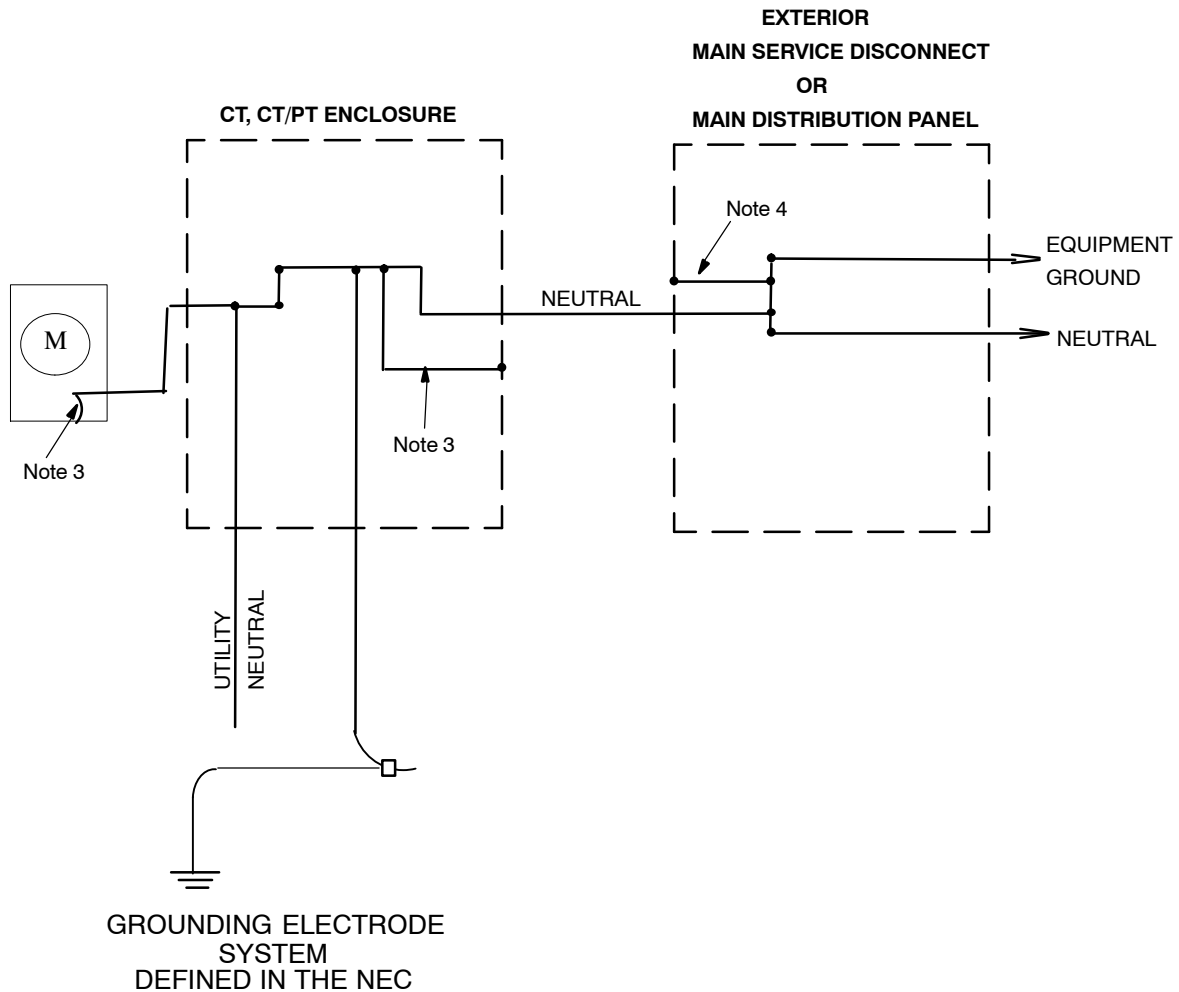
Notes:

1. Refer to section 500.03
2. If an external grounding electrode system is connected in an outdoor location at the CT enclosure provided by the customer to meet NEC grounding requirements, then this grounding electrode system will also meet Ameren's requirement for an external grounding electrode.
3. Bonding jumper between neutral and case
4. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

➔ 1Ø AND 3Ø INSTRUMENT TRANSFORMER METERING OPTION 2 – EXTERIOR MAIN DISCONNECT

Figure 500–9

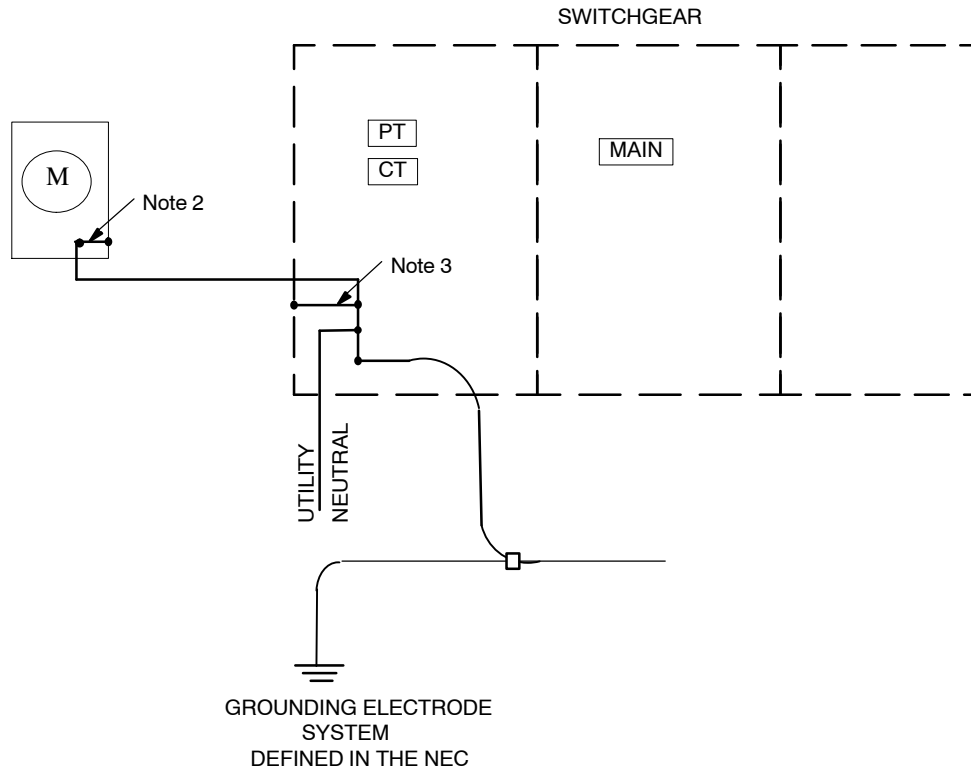


Notes:

1. Refer to section 500.03
2. When main disconnect is **exterior** of building and within 10 ft of the CT, CT/PT enclosure, the Ameren preferred location to an alternate location allowed by the NEC is at the main service disconnect.
3. Bonding jumper between neutral and case
4. **MAIN** bonding jumper between neutral and case

GROUNDING METHODS

→ 1Ø AND 3Ø INSTRUMENT TRANSFORMER METERING
OPTION 3 – CT OR CT/PT MOUNTED IN SWITCHGEAR
Figure 500-10



Notes:

1. Refer to section 500.03
2. Bonding jumper between equipment ground and case
3. **MAIN** bonding jumper between neutral and case

Section 600 Overhead Services

600.01 SERVICE AVAILABILITY

It is the customer's responsibility to contact the Company to obtain service availability information, approved point of delivery and meter location, and to sign construction agreements when required. Some service characteristics, such as certain voltages or number of phases may not be available at or near the customer's location. Customers or their representatives should contact the Company to confirm service availability prior to purchasing and installing equipment. Requests for assistance should be made early in the customer's planning process. Sufficient time must be allowed for the Company to plan and make changes that may be necessary to its distribution system.

600.02 SERVICE DROP ATTACHMENT

The Company has the right to designate the "spot" or "point of attachment" of its service drop to the customer's structure. The point of attachment is designated as the location where the Company's facilities attach to the customer's facilities. This point of attachment of the overhead service to the customer's building should be designated such as to reasonably minimize the length of the service drop.

The company may be contacted for approval of the feasibility of service route and attachment location. If, after so designating the attachment point, the length of the service would be excessively long and would create undue stress on the customer's attachment device and/or structure, a service support pole, including necessary guying, additional service cable, and other items will be installed and may be billable.

This section of the Service Manual communicates to customers guidance for acceptable placement of points of attachment. If the customer is not certain about the proper location of an attachment point, the Company should be contacted to obtain specific direction. If a customer ignores the guidance given, making a service drop pole or other additional facilities necessary, the excess facilities of all additional items shall be borne by the customer. If the customer opts for a particular attachment point that requires additional facilities for the Company to reach (instead of one that would be preferable to the Company) as the economic choice for his customer's special needs, the customer shall pay the installed cost of such facilities.

The customer shall provide safe, substantial support for the Company's service wires. Failure to maintain safe and substantial support for Ameren facilities may lead to termination of service until the condition is corrected. The Company will not be responsible for the condition of, or damage to, a customer's building or structure to which the service drop is attached. Cinder block, stucco, veneer, and other similar type walls generally require galvanized bolts with metal backing plates to provide adequate support. Parapet walls, fire walls, and rooftop or fireplace chimneys are not acceptable supports for the point of attachment. Ranch style homes or buildings with flat roofs may require service masts to provide proper clearances. Where through the roof service masts are installed, the customer assumes all responsibility for roof leaks. Service masts must be of adequate strength or be supported by braces or guy wires to safely withstand the strain imposed by the service drop. The Attachment point must have sufficient height to meet clearance requirements.

600.03 METER POLES – LESS THAN 1000 VOLTS

Meter service poles installation less than 1000 volts shall be supplied and installed by the customer at no cost to the Company for temporary services, portable buildings, mobile homes, trailers, recreational vehicles, and where several buildings are served from a single point. Poles are required to be of adequate strength and sufficiently supported. Failure to maintain safe and substantial support for Ameren facilities may lead to termination of service until the condition is corrected. A weatherproof disconnecting means with over current protection shall be provided by the customer where a service drop terminates on a privately owned meter pole structure. GFCI protection shall be provided as required by applicable codes.

Section 600 Overhead Services

600.04 TEMPORARY ELECTRIC SERVICE

When a temporary electric service is supplied for construction jobs, traveling shows, and mobile homes not deemed to be permanent, the Company will provide temporary service provided it has service in the area and has sufficient capacity available. The customer shall pay the cost of installing and removing the temporary line extensions or service connections and any other facilities of a temporary nature.

The customer shall provide a service entrance which meets the requirements of a permanent installation with respect to service drop clearances, safety and adequate structure, guying or bracing as required by the Company. Temporary electric service installations do not require a lever bypass for 200 amp and less.

The customer furnishes and installs conductors from the meter socket on his structure to be connected to source and leaves sufficient length for Company to connect into the Company's transformer or pedestal in underground installations. Company connects customer's wires to the source and installs meter. The Company shall provide a suitable meter.

Customer using temporary service is expected to give prompt notice to the Company when such service is to be disconnected. Notice shall include account number, location and meter number to insure proper identification.

Underground (padmount or pedestal)

1. Customer furnishes and installs his meter structure in close proximity to the Company's transformer or pedestal.
2. Some local municipalities require customer to obtain a variance for overhead temporary service in an underground subdivision. A municipal inspection may also be required for any underground or overhead temporary installation.

Overhead

1. The customer furnishes and installs the meter pole near the Company's power pole, but at least 10 feet away. It is recommended that the customer install the meter pole within 75 feet of power source.

600.05 CONDUCTOR MARKING

All neutral conductors at the time of installation must be marked with distinctive white or gray marking at its termination ends.

On a 4-wire, delta-connected system where there is a high leg (or wild leg) present, this conductor must be permanent marked with orange color at termination ends.

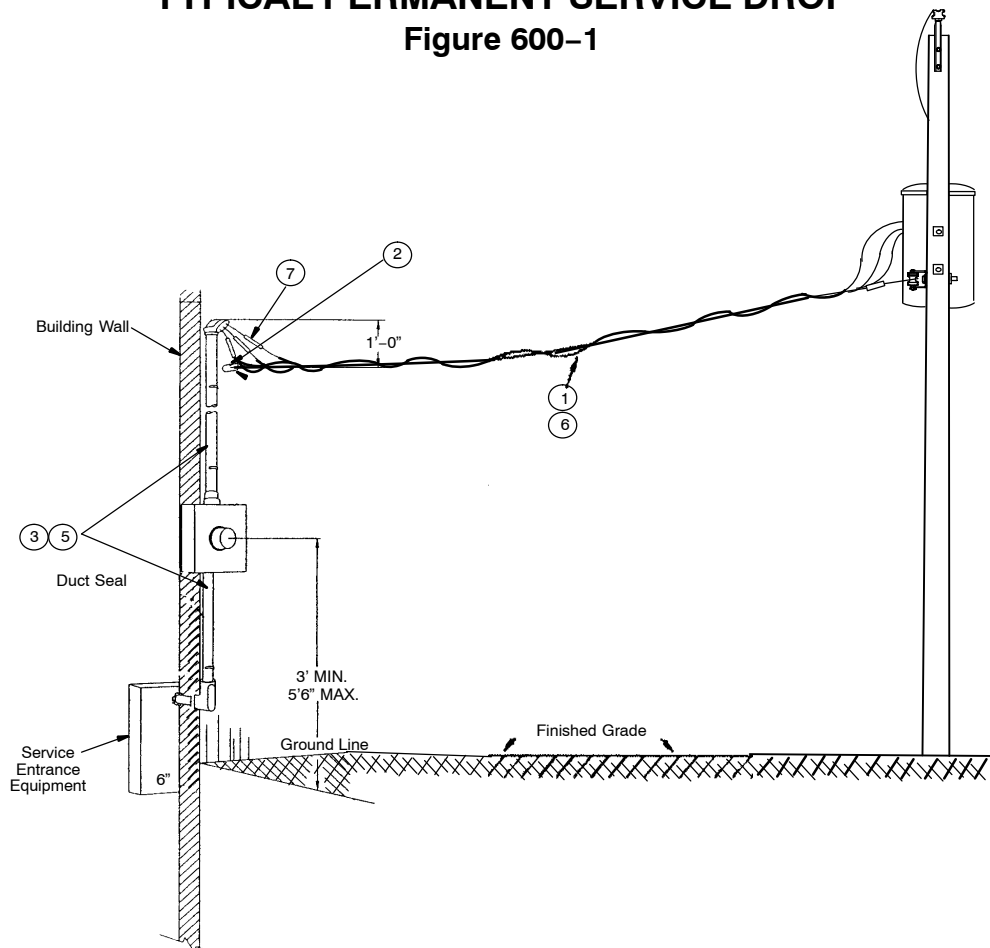
600.06 DRAWINGS

1. Figure 600-1 TYPICAL PERMANENT SERVICE DROP
2. Figure 600-2 MAX ATTACHMENT HT FOR STL CONDUIT MAST DE FOR SERVICE DROP
3. Figure 600-3 OVERHEAD SERVICE TO MULTIPLE WEATHERHEADS
4. Figure 600-4 OVERHEAD TEMPORARY SERVICE POLE CLEARANCE AND METER
5. Figure 600-5 CUSTOMER-OWNED SEC METERING UG DISTRIBUTION 100 OR 200 AMPERES, SINGLE-PHASE
6. Figure 600-6 OVERHEAD SERVICE SPECIFICATIONS ATTACHMENT TO BUILDINGS
7. Figure 600-7 SERVICE SPECIFICATIONS - OVERHEAD SERVICES ATTACHED TO BUILDINGS

Section 600 Overhead Services

TYPICAL PERMANENT SERVICE DROP

Figure 600-1

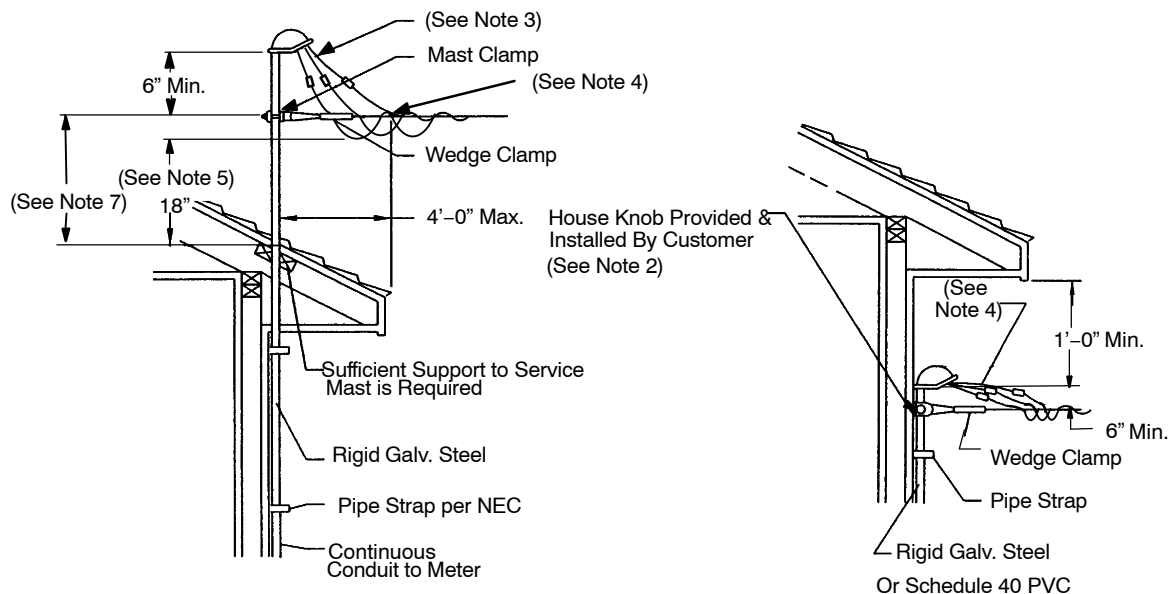


NOTES:

1. Overhead service drops and the connections at each end of the service drop will be owned, installed, and maintained by Ameren.
2. Customer shall install a service drop attachment of adequate strength for the installation of Ameren service. See Figure 600-2.
3. The weather-head service raceway or conduit, service entrance conductors, grounding electrode system, meter socket, and service entrance equipment will be installed, owned and maintained by the customer. This installation shall meet the requirements of the Authority Having Jurisdiction.
4. Grounding shall meet the requirements of the latest edition of the National Electrical Code (NEC) or the requirements of the Authority Having Jurisdiction.
5. Refer to Section 200 and Figures 200-1, 200-3, and 600-6 within this manual for details regarding the location, installation, and placement of customer owned facilities.
6. For maximum residential service drop length, see Figure 600-2, Note 4. For the maximum lengths of commercial overhead services, contact your local Ameren representative. Large service sizes, uneven grades, or a combination of these may require reduced service lengths or additional poles to maintain the required ground clearances. Additional charges may apply. Clearance requirements are outlined in Section 800 of this manual.
7. Service entrance conductors will extend approximately 3 feet from the weather-head.
8. If the installation is a Current Transformer installation, refer to Section 1001 for additional information.
9. The neutral conductor shall have an outer covering of continuous white or gray with a readily distinguishable colored stripe other than green running along its insulation. The neutral can also be distinguished at the time of installation by white or gray tape encircling the conductor or insulation.
10. If high leg or wild leg is present, this conductor must be marked as orange.

Section 600 Overhead Services

MAXIMUM ATTACHMENT HEIGHT FOR STEEL CONDUIT MAST DEADEND FOR STANDARD SERVICE DROP (SUPPLIED & INSTALLED BY CUSTOMER) FIGURE 600-2



NOTES:

1. Before installing electrical facilities, check for compliance with local codes as well as NEC.
2. The screw of the knob shall be imbedded at least 2 in. into a vertical stud or masonry of the house. Another acceptable attachment such as clevis, bolt and backing plate may be substituted.
3. Approximately 36 in. or longer of conductor will extend from weather-head.
4. #2 triplex cable shall not be used where the span length exceeds 140 ft and 1/0 and 4/0 triplex and quadruplex shall not exceed 100 ft.
5. 18 in. minimum permitted within 6 ft of service mast, providing voltage between conductors does not exceed 600 volts, the service mast is no more than 4 ft from the edge of the roof, and the service is terminated at the service mast.
6. Refer to Section 800 for required clearances.
7. Heights greater than shown in Table 1 are possible provided that adequate guying and support are provided and approved by Ameren.
8. The conduit size specified are the minimum required for either conduit fill or strength required to support the overhead service, whichever is greater.
9. Ranch style homes or buildings with flat roofs may require service masts to provide proper clearance. When through the roof service masts are installed, the customer assumes all responsibility for roof leaks. Service masts must be of adequate strength or be supported by brackets or guy wires to safely withstand the strain imposed by the service drop. The attachment point must have sufficient height to meet clearance requirements.
10. The roof support plate provides the main means of support for the mast. It shall be securely lagged to roof rafters. This can be accomplished by reinforcing underneath the roof decking with 2 in. X 6 in. wood material or by utilizing the following manufacturer roof support plate.

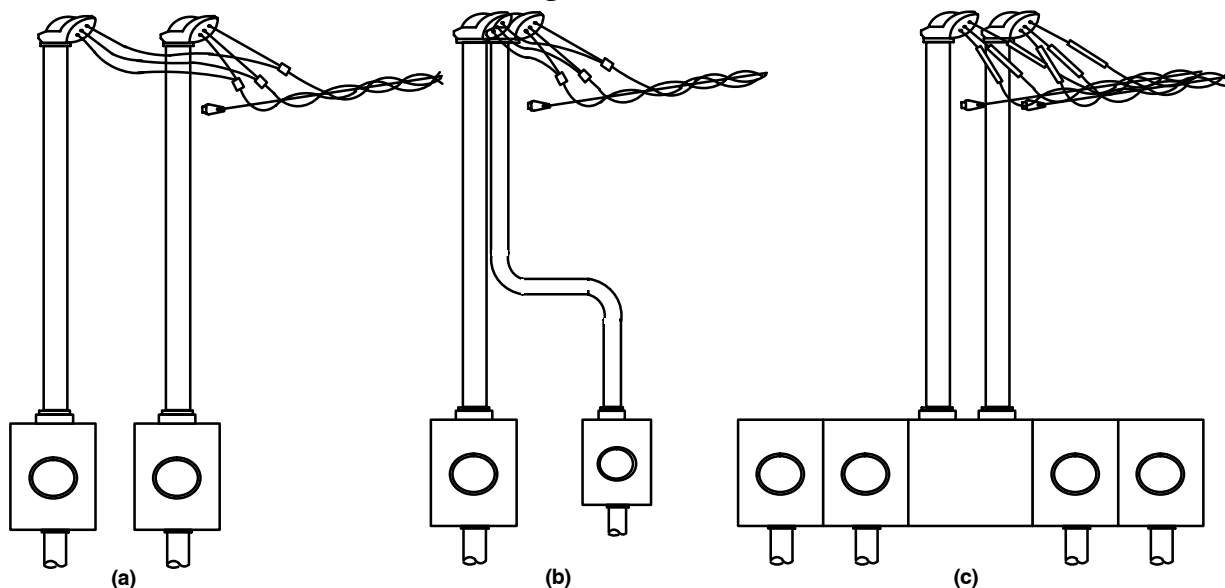
Manufacturer	2 in. Conduit	2-1/2 in. Conduit
PPC Insulators	7510	7511

Amperes	Phase	Utility Supplied Service Drop	2 in. Rigid Steel Conduit	2 1/2 in. Rigid Steel Conduit	3 in. Rigid Steel Conduit
100 A	1	#2 Al, Triplex	2 ft 2 in.	4 ft 1 in.	–
200 A	1	#2 Al, Triplex	2 ft 2 in.	4 ft 1 in.	–
200 A	1	1/0 Al Triplex	–	4 ft	–
200 A	3	1/0 Al, Quadruplex	–	4 ft	–
400 A	1	4/0 Al, Triplex	–	–	4 ft
400 A	3	4/0 Al, Quadruplex	–	–	4 ft

**Section 600
Overhead Services**

OVERHEAD SERVICE TO MULTIPLE WEATHERHEADS

Figure 600-3

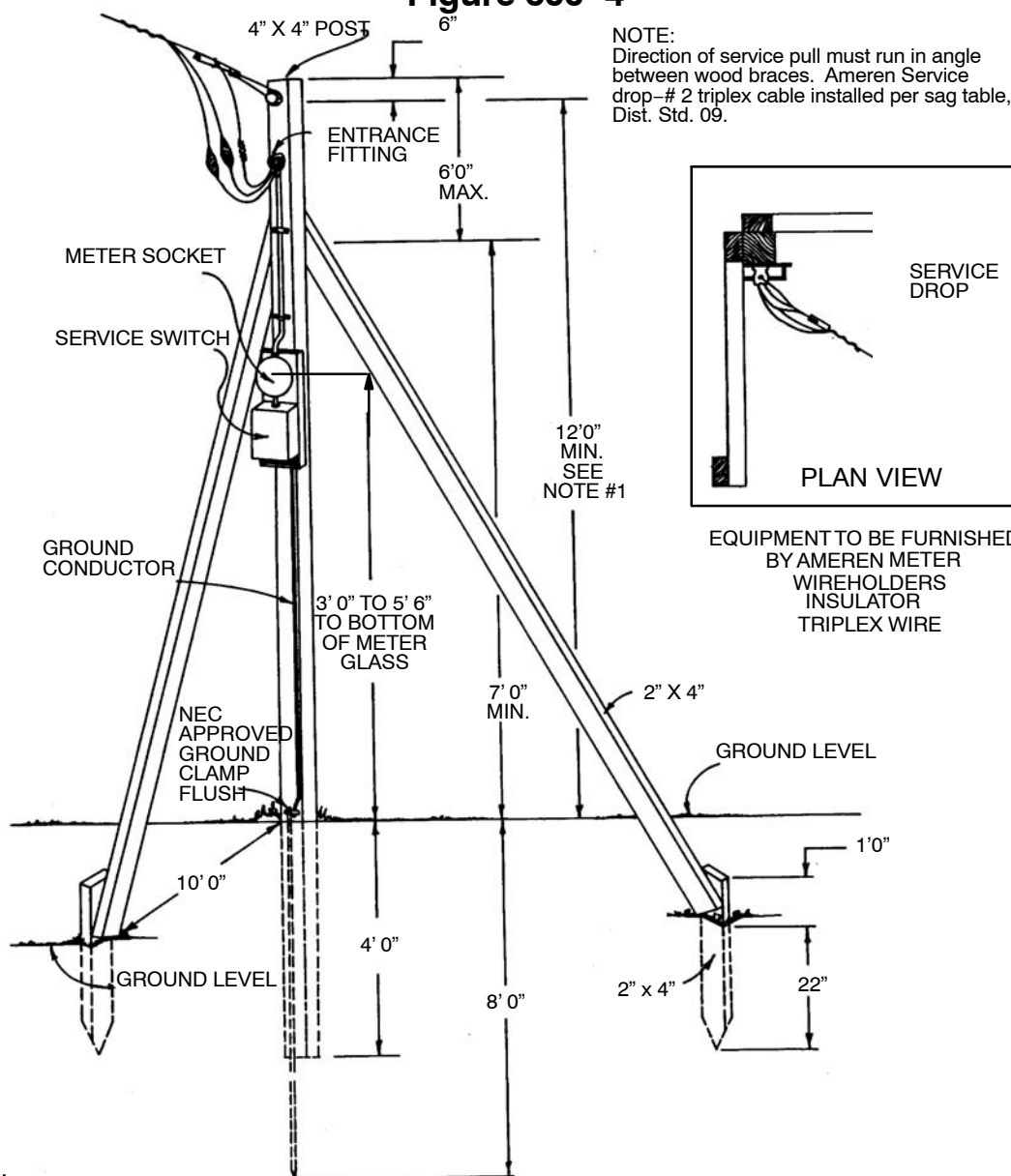


NOTES:

1. Ameren will connect up to two (2) sets of service entrance conductors at a service point. If more than two (2) sets will be required, contact your local Ameren Representative.
2. Service entrance conductors shall extend a minimum of 3 ft from the weather-head or to the service landing point, whichever is greater. In addition, all service entrance conductors must be adequate length to allow the parallel connection of conductors at a single point.
3. Overhead service drops and the connections at each end of the service drop will be owned, installed, and maintained by Ameren.
4. Customer shall install a service drop attachment of adequate strength for the installation of Ameren service. See Figure 600-2.
5. Contact your local Ameren Representative to discuss whether a parallel service will be required. If so, additional service drop attachments will be required.
6. The weather-head, service raceway or conduit, service entrance conductors, grounding electrode system, meter socket, and service entrance equipment will be installed, owned, and maintained by the customer. This installation shall meet the requirements of the latest edition of the National Electrical Code (NEC) or the requirements of the Authority Having Jurisdiction.
7. Refer to Section 200 and Figures 200-1, 200-3, and 600-6 within this Manual for details regarding the location, installation, and placement of customer owned facilities.
8. For maximum residential service drop length, see Figure 600-2. For the maximum lengths of commercial overhead services, contact your local Ameren Representative. Large service sizes, uneven grades, or a combination of these may require reduced service lengths or additional poles to maintain the required ground clearances. Additional charges may apply. Clearance requirements are outlined in Section 800 of this Manual.
9. If the installation is a Current Transformer installation, refer to Section 1001 for additional information.

SERVICES
OVERHEAD TEMPORARY SERVICE POLE
CLEARANCE AND METER POLE
PROVIDED BY CUSTOMER FOR ANCHORAGE OF COMPANY'S
SERVICE DROP AND INSTALLATION OF COMPANY'S METER

Figure 600-4



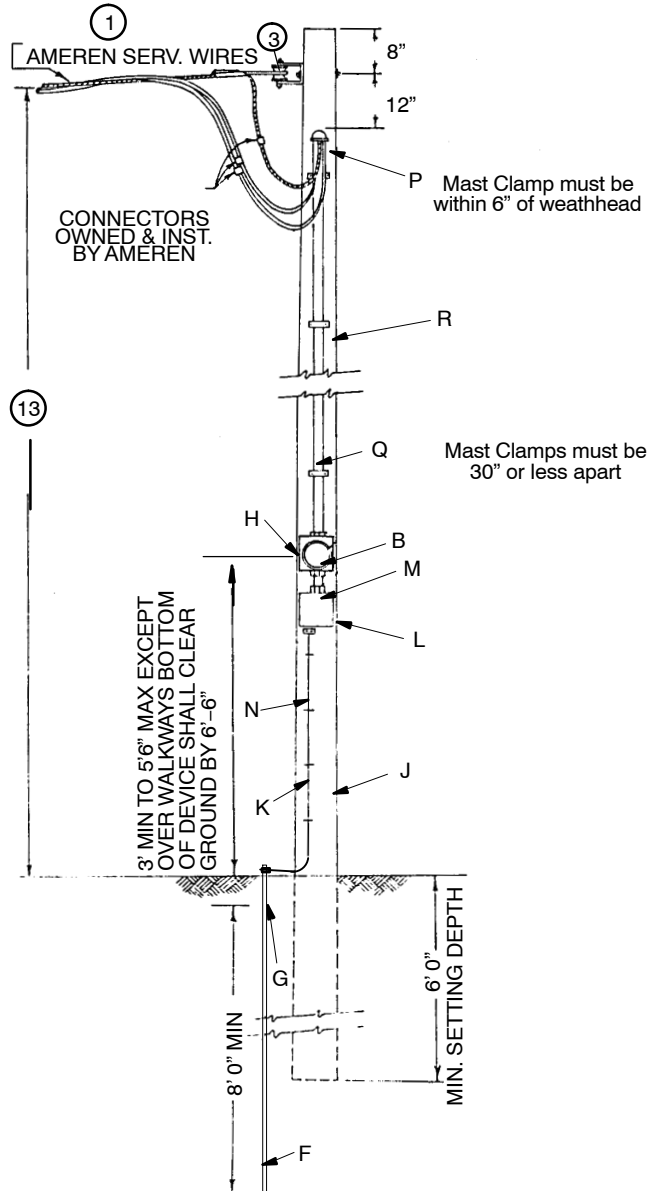
NOTES:

1. See Section 800 for minimum height of wire above ground at point of greatest sag.
2. Where practical, the service to the temporary connection should be installed in a manner suitable for transfer to the permanent location.
3. Temporary pole shall be located between 10 ft and 75 ft away from an Ameren pole.
4. GFCI protection required on all temporary wiring per NEC.
5. Refer to Section 1000 for meter socket requirement.
6. Refer to Section 800 for required clearances.

Section 600
Overhead Services

**METER POLE INSTALLATIONS
CUSTOMER-OWNED SECONDARY METERING
100, 200, or 320 AMP Continuous**

Figure 600-5



See notes and material list on the next page.

Section 600 Overhead Services

NOTES:

1. Service drop conductors, grips and connectors are provided, installed, and owned by Ameren.
2. See Figure 600–2 for maximum length of residential service drop. For all other services contact Ameren for maximum service lengths. Reduced distance or higher attachment point may be required for large service or to maintain minimum clearances.
3. Customer installs service drop attachment of adequate strength for attachment of Ameren’s service drop conductors. See Section 800 for clearance information.
4. Service entrance conductors to be connected to meter socket terminals by Customer. Service entrance conductors to extend a minimum of 36 in. or longer if required by local Authority Having Jurisdiction, outside the service head for connection to service drop.
5. Service raceway and service entrance conductors to be owned, maintained, and installed by Customer.
6. Customer’s installation to meet the requirements of all applicable local codes as well as the NEC.
7. Grounding shall meet the requirements of the latest edition of the National Electrical Code (NEC) or the requirements of the Authority Having Jurisdiction.
8. Insulated conduit bushings are required for raceways terminating in the meter socket.
9. The use of flexible metallic conduit, liquid tight flexible metallic conduit, and liquid tight flexible non-metallic conduit for service entrance raceway is prohibited unless approved by the local Authority Having Jurisdiction.
10. Clearance required between low point of service cable and finished ground grade; refer to Section 800.
11. The use of electrical grade schedule 40 or 80 PVC for service mast if it is not supporting service drop is allowed unless prohibited by the local Authority Having Jurisdiction.
12. Customer to provide and install support for service attachment and meter socket.
13. Refer to Section 800 for required clearances.
14. Guy and anchor installed by customer to be used when required holding any unbalanced conductor load which pole cannot sustain.
15. If customer installs a yard light on this pole, such yard light shall maintain a clearance to Ameren Service wires by not less than 24 in.

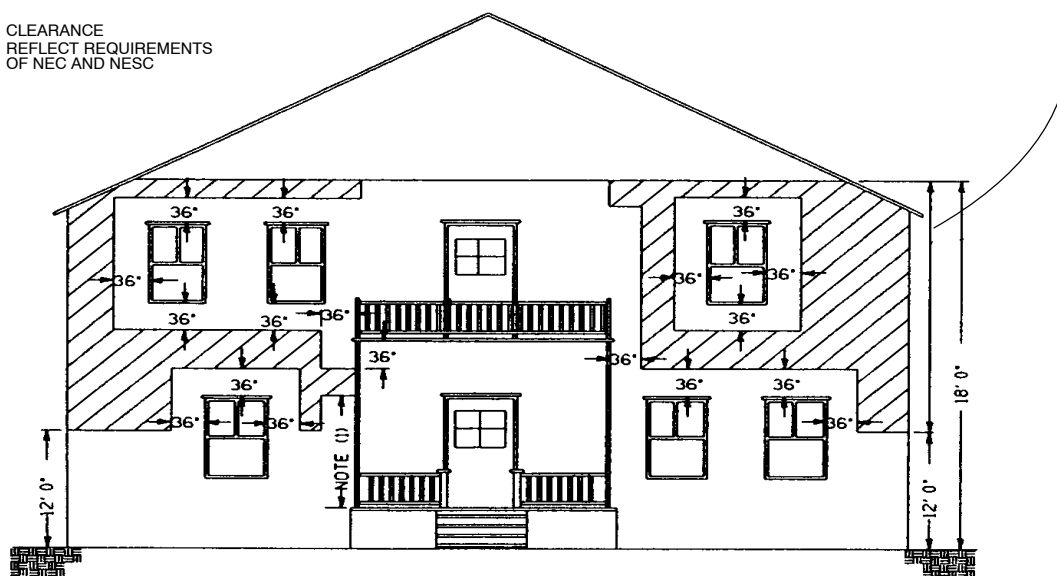
	Description	Req'd
MATERIAL INSTALLED AND OWNED BY AMEREN		
B	Meter	1
MATERIAL INSTALLED AND OWNED BY CUSTOMER		
A	Clevis – Secondary	1
C	Lock nuts	1
D	Insulated Bushings	1
F	Rod – Ground ½ in. x 8 ft	1
G	Clamp – Ground ½ in.	1
H	Meter Socket, Clamp Jaw Lever Bypass	1
J	Pole, 25 ft Class 5 (Minimum) – New	1
K	Staple	As Req'd
L	Disconnect Device Weatherproof	1
M	Nipple	1
N	Ground Wire	As Req'd
P	Entrance Cap	1
Q	Conduit or Cable	As Req'd
R	Strap – Conductor	As Req'd
(14)	Guy and Anchor	1

Section 600
Overhead Services

**OVERHEAD SERVICE SPECIFICATIONS
ATTACHMENT TO BUILDINGS
0 TO 600 VOLTS
Figure 600-6**

NEW ELECTRIC SERVICE ENTRANCE SHALL BE IN SHADED SPACES
NOT LESS THAN 12' NO MORE THAN 18' ABOVE GROUND AND MEET
MINIMUM GROUND CLEARANCE.

CLEARANCE
REFLECT REQUIREMENTS
OF NEC AND NESC



NOTES:

1. The first point of attachment for service wires shall be in the shaded spaces or higher. The minimum height of attachment shall be adjusted so that the lowest point of the service conductor meets the clearances. A service mast may be used if necessary to obtain the minimum clearances. The point of attachment should be approved by Ameren and should not be located as to limit ladder access, i.e. above a deck, hot tub, spa, stairwell, or swimming pool.
2. The customer's service weather-head shall not be located above 18 ft, but it may be necessary to attach services higher than 18 ft to meet the minimum ground clearances.
3. Triplex cable or separate open wire service busses on buildings shall be placed in the shaded spaces shown.
4. Service conductors passing by doors, porches, fire escapes or similar locations, shall have a clearance of not less than 36 in. Service conductors passing by windows shall have a clearance of not less than 36 in.
5. Service conductors shall not be installed beneath openings through which materials may be moved, such as openings in farm and commercial buildings. Overhead wires shall not be run such that they obstruct entrance to these building openings.

Section 600
Overhead Services

**SERVICE SPECIFICATIONS
OVERHEAD SERVICES ATTACHED TO BUILDINGS
For Services Under 600 VOLTS**

Figure 600-7

ACCEPTABLE POINTS OF ATTACHMENT

- A. BUILDING STUDS
- B. MORTAR JOINTS

UNACCEPTABLE POINTS OF ATTACHMENT

- * 1. OUTSIDE TRIM BOARD
- * 2. INSIDE TRIM BOARD (BRICK BUILDINGS)
- * 3. SOFFIT BOARD
- 4. FASCIA BOARD
- 5. FIRE WALLS, PARAPET WALLS FOR CHIMNEYS

* MAY BE ATTACHED TO IF ADEQUATELY REINFORCED.

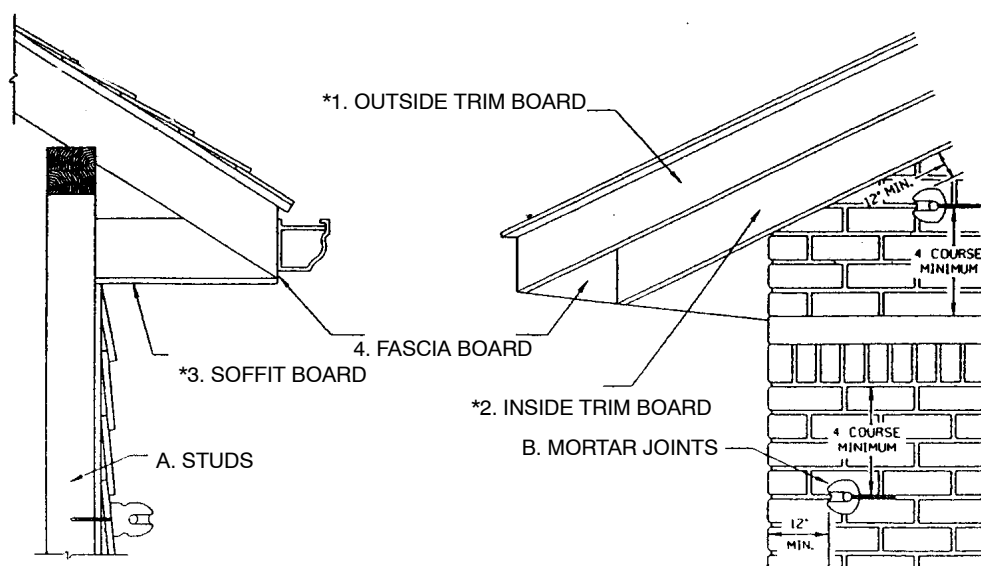


FIGURE 1

FRAME-COMPOSITION SHINGLE
OR BRICK VENEER CONSTRUCTION

FIGURE 2

BRICK OR SOLID MASONRY CONSTRUCTION

Section 700 Underground Services

700.01 GENERAL

1. Customers contemplating underground services should contact the Company as soon as possible so that the necessary arrangements, cost determinations, engineering, estimating, customer requirements and installation of facilities can be completed by the desired date.
2. Customers conduit options and requirements vary, based upon class of customers, (residential vs. non-residential) location of the installation (Missouri. vs. Illinois.) and finished surface area above cables (dirt vs. pavement) Contact Company for specifics.
3. Where the Company installs or has an underground system, only underground services will be available.
4. In an area with an overhead distribution system, customers may request an underground service. Each request for such service will be evaluated on an individual basis. The Company reserves the right to refuse underground service where it does not conform to good engineering practices.
5. Any removal of obstructions or restoration of sod or other landscaping features which become necessary as a result of the installation, maintenance or replacement of service connection cable shall be the customers' responsibility.
6. Developer shall furnish:
 - (1) All easements required for installation, operation and maintenance of Company facilities and clearly staked property corners.
 - (2) Cable routes shall be clear of all obstructions and within 6 in. of final grade.

700.02 COMPANY OWNED RESIDENTIAL SERVICE INSTALLATIONS

A. Direct Buried (Illinois ONLY)

1. The customer will provide and install the meter socket(s) or enclosures and the line-side riser conduit of Schedule 40 or greater, electrical grade PVC. This line conduit shall extend from the metering socket to a minimum of 18 in. below the ground line.
2. The customer provided conduit described in the previous item shall include a PVC male adapter, lock nut, and insulated bushing at the metering socket. If the required expansion coupling includes a male terminal adapter end, only the lock nut and insulated bushing are required. At the below grade end of the conduit, a PVC male adapter and insulated bushing, or PVC coupling, or PVC end bell shall be installed to protect the direct buried cable.
3. Protection from mechanical damage and future access shall be provided and installed by customer for cable under paved surfaces such as public or private driveways, roadways, streets, alleys, sidewalks, patios, etc. by installation of conduit at a depth of 24 in.
4. Direct buried underground service cables are not permitted under a pool, spa, or hot tub or under the area extending 5 feet horizontally from the inside wall of a pool. (Continued on next page)
5. The cable route must be cleared of all obstructions, both above and below grade, and within 6 in. of final grade for Company installations.
6. Customer must mark all customer owned buried facilities on their property prior to Ameren arriving on site to install UG facilities. Failure of customer to mark buried facilities & damage occurs doing installation of company facilities, repairs will be made by the customer at no cost to the Company.
7. Cable shall have a minimal burial depth of 24 in.
8. The maximum service length shall be determined by the Company. It is the customers' responsibility to secure information from the Company pertaining to allowable lengths for service installations.
9. Company will install, own and maintain for one or two residential dwelling units. For three or more residential dwelling units, it is the customer's responsibility to install, own, and maintain service cable.

B. Continuous Conduit (Missouri – REQUIRED, Illinois – OPTIONAL)

1. The customer will provide and install the meter socket(s) or enclosures and line-side riser conduit of Schedule 40 or greater, electrical grade PVC. This conduit shall include a PVC male adapter, lock nut, and insulated bushing at the metering socket. If the required expansion coupling includes a male terminal adapter end, only the lock nut and insulated bushing are required.



Section 700 Underground Services

B. Continuous Conduit (Missouri – REQUIRED, Illinois – OPTIONAL) (Continued)

2. The service riser to the meter socket shall include an expansion coupling that allows for a 8 in fall.
3. Customer installed conduit shall be installed along the shortest route, and the number of bends shall be kept to a minimum. There shall be a maximum of 3–90 degree, 24 in. radius bends for 2–1/2 in. conduit or 3 in. conduit installation.
4. All sections shall be securely fastened together using standard grade cement.
5. Minimum burial depth in trench–able earth is 24 in. In rock or untrenchable soil the depth may be reduced to 12 in. Depths of less than 12 in. are not permitted.
6. If it is not possible to achieve uniformity in the trench bottom it must be over–excavated 4 in. to 6 in. and the bottom refilled with good quality properly compacted bedding material. Approved materials: Sand, limestone screenings, concrete slurry or concrete.
7. Conduit seals (weather–head for secondary voltages or foam sealant for primary voltages) on customer service conduit are the customer’s responsibility.
8. Service conduits extension to an energized pedestal or padmounted transformer shall be terminated as follows:
 - 8.1 In Illinois, terminate 18 in. from the face of the equipment. Coordination with the Company is required to arrange for Company to complete the trenching and installation of customer provided conduit and bend.
 - 8.2 In Missouri, attach conduit to the previously installed flexible conduit marked by the red marker. After removing the cover, plug and conduit marker, join the flexible conduit to the rigid conduit using standard grade cement.
 - 8.3 In Missouri, Customer will install conduit into the secondary side of pad mount transformers and pedestals that do not have previously installed flexible conduit/stub–out. Only approved and licensed electrical contractors are allowed to perform this work. Contact the Ameren Missouri Customer Service Department at **800–552–7583** within the St. Louis Metropolitan area or the appropriate Regional Office to arrange for Ameren Missouri to open the transformer or pedestal and to cover the primary and secondary voltage connection points and conductors for safety purposes. Ameren Missouri will not allow the electrical contractor to install conduit into either a live front transformer (the primary voltage connections are exposed) or aluminum pedestal and will either (A) replace the live front transformer or aluminum pedestal prior to an electrical contractor installing conduit or (B) Company will install a stake 18 in. from the edge of the transformer pad or secondary pedestal for electrical contractor to terminate conduit.
9. For customer –conduit extensions to overhead poles, Company will designate the quadrant of the pole for the customer to stub up the conduit bend. In Illinois, customer will provide a 10 ft section of Schedule 80 electrical grade PVC conduit and the length of Schedule 40 electrical grade PVC conduit required to reach the secondary level of the pole.

In Missouri, this material will be provided by Company. Actual installation of the conduit varies by Ameren area. Contact your local Ameren representative for direction.
10. Customer shall install and secure at each end a polyester pulling tape of 2500 lb capacity for pulling in service conductor.
11. Company will install, own and maintain for one or two residential dwelling units. For three or more residential dwelling units, it is the customer’s responsibility to install, own, and maintain service cable.

700.03 NON–RESIDENTIAL SERVICE INSTALLATIONS

A. General

The developer of non–residential property is required to install the total conduit system within the boundaries of the development project. Construction requirements are stated in “Specification for Developer Installed Commercial Underground Distribution Facilities” which should be secured from appropriate

Section 700 Underground Services

Company Division Operating Center when first considering such development plans.

All proposed customer installed underground facilities and configuration (conduit, manholes, and equipment pads) that contain Company facilities shall be designed by the company prior to installation.

1. Ameren will no longer install non-residential underground services.
2. Customer conduit shall be a minimum of schedule 40, electrical grade PVC, excepting the lowest (minimum of 5 feet of) exposed conduit near the pole, which shall be a minimum of schedule 80 (Exposed sweep must be schedule 80).
3. Secondary voltages, 24 in. minimum burial depth, 24 in. minimum radius bends.
4. Primary voltages, 36 in. minimum burial depth, 36 in. minimum radius bends.

B. Service from a pole

Installation of company Transformers on Customer Property, Customer shall provide sufficient space for transformers, switches, and related equipment adjacent to paved surfaces intended for normal vehicular traffic or parking, for the purpose of installing or changing Company equipment

1. Customer shall furnish, own and maintain all of the materials for the service to the Company's conductors.
2. For a direct buried cable installation, the customer shall install their facilities to the quadrant of the pole designated by the Company.
3. For a continuous conduit, the customer shall extend the facilities to the pole and include a 90 degree conduit bend for the base of the pole at a Company designated location.
4. Customer shall supply sufficient cable to reach the Company's conductor, and in Illinois also furnish all conduits, couplings, adaptors and brackets for attachment to pole.
5. Any Conduits on a pole will require standoff brackets, supplied by Ameren.
6. Installation of facilities on the Company pole must be coordinated with local Company personnel. Company will make final connections.

C. Service from a Padmounted Transformer

1. Customer shall furnish, own and maintain all of the materials for the service to the Company's padmounted transformer and provide sufficient space for transformers, switches, and related equipment adjacent to paved surfaces intended for normal vehicular traffic or parking, for the purpose of installing or changing Company equipment.
2. The customer must provide adequate conductor for connection to the transformer terminals, typically 6 ft above the transformer pad.
3. In Illinois, terminate 18 in. from the face of the equipment. Coordination with the Company is required to arrange for Company to complete the trenching and installation of customer provided conduit and bend.
4. In Missouri, for single phase padmount transformers rated 120/240 volts or three phase pad mount transformers rated 208/120 volts: Customer will install conduit and cable into the secondary voltage side of transformer. Only approved and licensed electrical contractors are allowed to perform this work.
Contact the Ameren Missouri Customer Service Department at 800-552-7583 within the St. Louis Metropolitan area or the appropriate Regional Office to arrange for Ameren Missouri to open the transformer and to cover the primary and secondary voltage connection points and conductors for safety purposes.
Ameren Missouri will not allow the electrical contractor to install conduit into a live front transformer (the primary voltage connections are exposed). Live front transformers will either (A) be replaced by Company prior to an electrical contractor installing conduit or (B) Company will install a stake 18 in. from the edge of the transformer pad for electrical contractor to terminate conduit.
The electrical contractor is required to coordinate with the Company to arrange for Company to complete the trenching and installation of customer provided conduit, bend and cable.

Section 700 Underground Services

5. In Missouri and Illinois for three phase transformers rated 480/277 volts: Company will install a stake 18 in. from the edge of the transformer pad. The electrical contractor is required to coordinate with the Company to arrange for Company to complete the trenching and installation of customer provided conduit, bend and cable.

D. Service from a pedestal

1. Customer shall furnish, own and maintain all of the materials for the service to the Company's pedestal.
2. Customer's direct buried installations shall stop 18 in. from the pedestal and an additional 6 ft of cable shall be left for connection to the pedestal terminations. The Company will complete trenching for direct buried installations.
3. For continuous conduit installations, the conduit shall, with the cooperation of the Company, be extended with a 90 degree conduit bend and protective bushing into the base of the pedestal with adequate additional cable left for connection to the terminals.
4. Company will complete the service connection in all cases.

700.04 TEMPORARY SERVICES

1. When a temporary service is supplied for construction jobs or other approved uses, customer shall pay the cost for installing and removing the temporary lines extension or service connection and any other facilities of a temporary nature.
2. Temporary underground service for construction in underground distributions system areas will be provided to the customer only when the permanent underground distribution system has been installed. Customer requests for temporary service prior to the completion of the permanent underground distribution system shall be negotiated and furnished at the customer's expense.
3. The customer shall provide and install the meter socket or enclosure and service conductors from the supply side of the meter socket to the transformer or power pedestal. Company shall make the connection between the customer's cables and the Company's distribution equipment.
4. The structure supporting the meter installation shall be located within 15' of, but no closer than 5 ft to the Company's designated point of service.

700.05 DRAWINGS

1. **Figure 700-1** SERVICE CABLE AND METER CONNECTIONS SINGLE FAMILY DWELLING RESIDENTIAL (200 AMP SERVICE)
2. **Figure 700-2** SERVICE CABLE AND METER CONNECTIONS SINGLE FAMILY DWELLING RESIDENTIAL (320 AMP CONTINUOUS/400 AMP MAX)
3. **Figure 700-3** EQUIPMENT - CONNECTIONS SERVICE CABLE AND METER CONNECTIONS MULTIPLE FAMILY DWELLING FOR 2 TO 6 METERS
4. **Figure 700-4** TYPICAL VERTICAL GANGED METER STACK UNDERGROUND SERVICE BY AMEREN
5. **Figure 700-5** CONTINUOUS SERVICE CONDUIT INSTALLATION CONNECTION TO PEDESTAL, TRANSFORMER, OR POLE AMEREN SERVICE CABLE (Illinois ONLY)
6. **Figure 700-6** CUSTOMER OWNED AND INSTALLED SEV CONDUIT CONNECTION TO PEDESTAL OR TRANSFORMER (MO RESIDENTIAL SUBDIVISIONS)
7. **Figure 700-7** CUSTOMER OWNED AND INSTALLED SEV CONDUIT - CUSTOMER DRAINAGE AT METER/POLE IF REQUIRED(MO RESIDENTIAL SUBDIVISIONS)
8. **Figure 700-8** CUSTOMER OWNED AND INSTALLED SERVICE CABLE CONNECTION TO PEDESTAL OR TRANSFORMER, OR POLE NON RESIDENTIAL
9. **Figure 700-9** SELF-CONTAINED METER SUPPORT FOR UG METER SERVICE
10. **Figure 700-10** METER SUPPORT FOR CUSTOMER PROVIDED TRANSFORMER RATED METER MOUNTING ENCLOSURE
11. **Figure 700-11** MINIMUM BENDING AND TERMINATING SPACE LOW VOLTAGE SWITCHBOARD, PANELBOARDS, AND PREBUSSED TERMINAL BOXES

Section 700 Underground Services

12. **Figure 700-12** CUSTOMER OWNED LIGHTING (6M) UNMETERED INSTALLATION

13. **Figure 700-13** UG TEMPORARY SERVICE

14. **FIGURE 700-14** METER PEDESTAL INSTALLATION, SINGLE OR DUAL METER

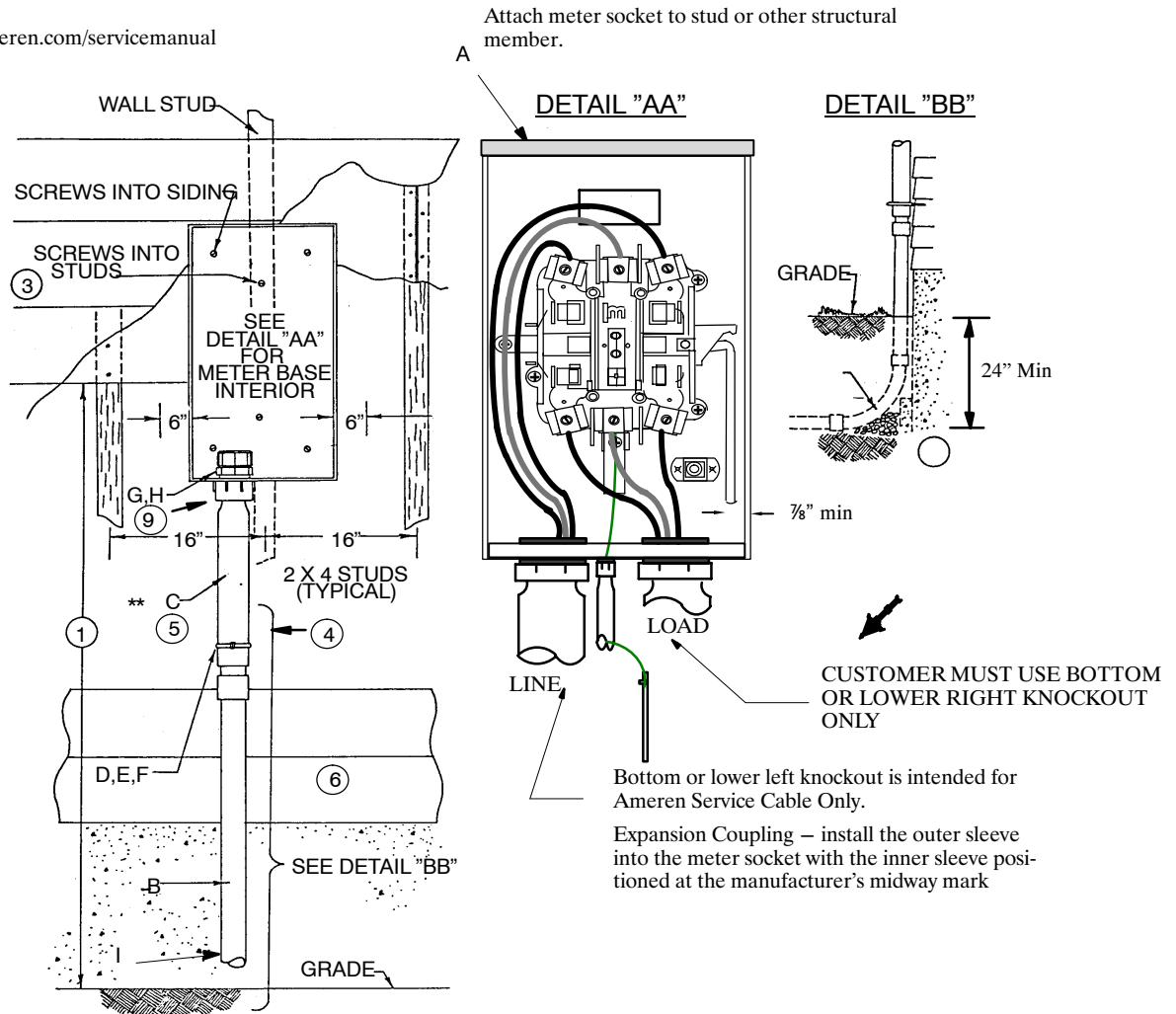
**Section 700
Underground Services**

**SERVICE CABLE AND METER CONNECTIONS
SINGLE FAMILY DWELLING
→ RESIDENTIAL (200 AMP SERVICE)**

Figure 700-1

Refer to Ameren Approved Meter Equipment listing using attached link:

<http://www.ameren.com/servicemanual>



NOTE:

Ameren installed service cable will only enter through the bottom left hand knockout. No customer wiring is permitted on the left hand side of the device where the conduit that would contain Ameren's service cable enters the device. This area must be kept clear to permit installation and potential replacement of Ameren-owned service cable and to eliminate the possibility of premature failures due to cables coming in contact with each other. If improper wiring is performed, service cable will NOT be installed by Ameren.

Section 700 Underground Services

NOTES: (Figure 700-1)

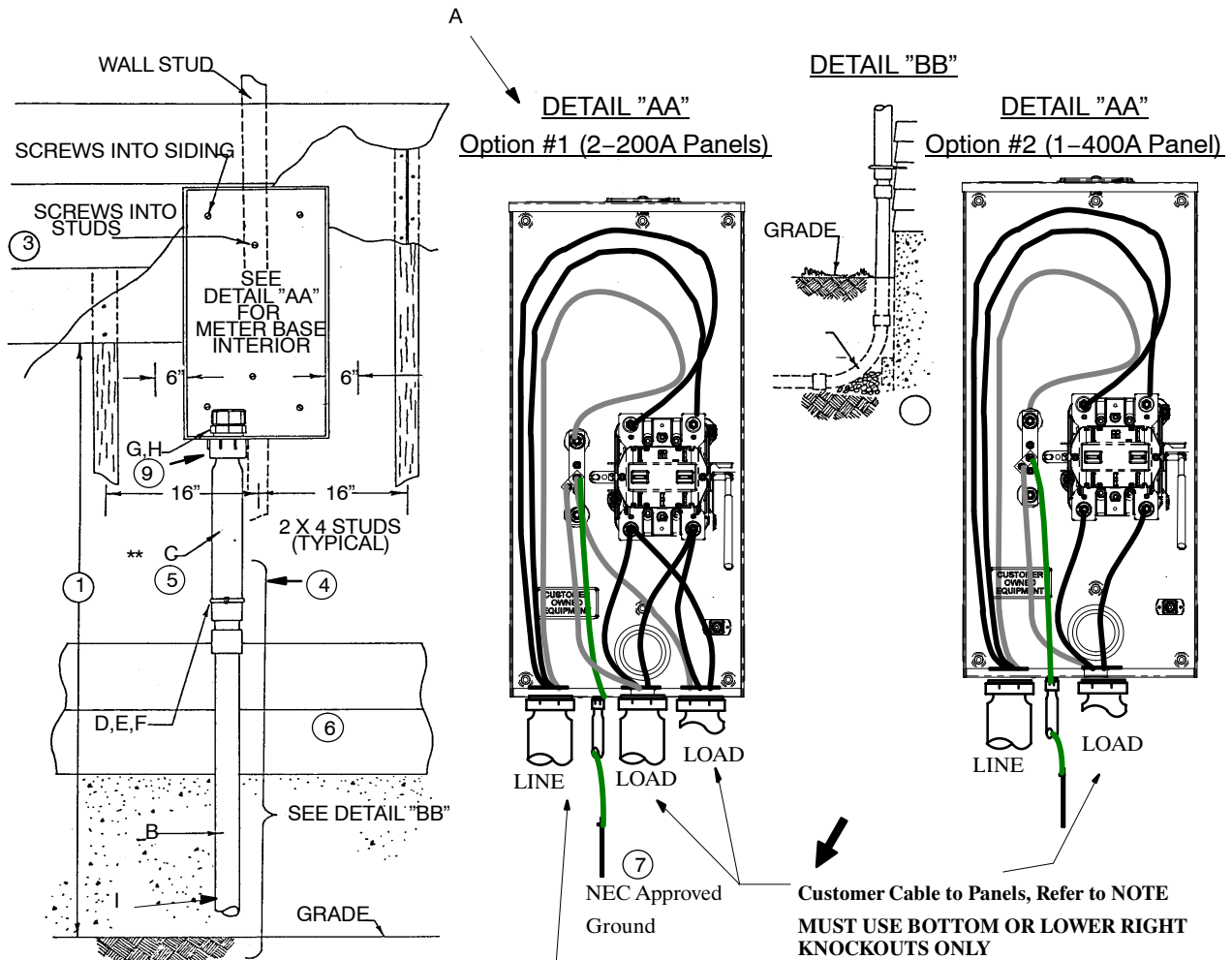
1. See Section 200 of the Service Manual for mounting height, approved locations and requirements for mechanical protection.
2. All materials except the supply cables shall be furnished, installed and connected by customer.
3. The meter socket shall be secured to solid wood, use #14 x 3 in. wood screws or stainless steel screws. In brick, use expansion shields and lag screws. No drywall screws accepted.
4. The conduit hanger shall be securely fastened, preferably by a lag screw into the floor joist. If attached to the foundation, a lead expansion shield shall be used. An alternative to the expansion shield is a stud shot into the foundation.
5. When back filled, expansion coupling "C" shall be installed. The expansion coupling should be installed so the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer's midway mark. The expansion coupling is only required for continuous conduit.
6. The area underneath the bend shall consist of good quality fill material and dirt free of debris. The area shall be compacted around the foundation wall. Acceptable fill materials: Sand, limestone screenings, concrete slurry, concrete.
7. Approved NEC ground required.
8. For services 200 amperes and less, 2-1/2 in. electrical grade Schedule 40 PVC conduit, expansion coupling, bends, and connectors shall be used. For services 201 amperes to 400 amperes, 3 in. Schedule 40 PVC conduit, expansion coupling, bends, and connectors shall be used.
9. Conduit Riser for Ameren service cable shall enter left knockout of meter socket.

SERVICE CABLE AND METER CONNECTIONS SINGLE FAMILY DWELLING RESIDENTIAL Material List for Figure 700-1

Note		MATERIAL FURNISHED AND INSTALLED BY CUSTOMER FOR SERVICE INSTALLED IN CONDUIT
1	A	Meter Socket, Clamp Jaw Lever Bypass, http://www.ameren.com/servicemanual
	B	Conduit, electrical grade Sch 40 PVC or greater, 2-1/2 or 3 in.
5	C	Coupling, Expansion, Sch 40, PVC, 2-1/2 or 3 in., 8 in. fall
	D	Hanger, Conduit
	E	Screw, Lag
	F	Shield, Expansion
	G	Nut, Lock, 2-1/2 or 3 in.
	H	Insulated Bushing, Conduit 2-1/2 or 3 in.
8	I	Bend, Conduit, 90 Deg., 24 in. Radius, electrical grade Sch 40, PVC or greater, 2-1/2 or 3 in., when required.

**Section 700
Underground Services**

**SERVICE CABLE AND METER CONNECTIONS
SINGLE FAMILY DWELLING
➔ RESIDENTIAL (320 AMP CONTINUOUS/400 AMP MAX SERVICE)
Figure 700-2**



Bottom or lower left knockout is intended for Ameren Service Cable Only.

Expansion Coupling – install the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer's midway mark

NOTE:

Ameren installed service cable will only enter through the bottom left hand knockout. No customer wiring is permitted on the left hand side of the device where the conduit that would contain Ameren's service cable enters the device. This area must be kept clear to permit installation and potential replacement of Ameren-owned service cable and to eliminate the possibility of premature failures due to cables coming in contact with each other. If improper wiring is performed, service cable will NOT be installed by Ameren.

Section 700 Underground Services

NOTES: (Figure 700–2)

1. See Section 200 of the Service Manual for mounting height, approved locations and requirements for mechanical protection.
2. All materials except the supply cables shall be furnished, installed and connected by customer.
3. The meter socket shall be secured to solid wood, use #14 x 3 in. wood screws or stainless steel screws. In brick, use expansion shields and lag screws. No drywall screws accepted.
4. The conduit hanger shall be securely fastened, preferably by a lag screw into the floor joist. If attached to the foundation, a lead expansion shield shall be used. An alternative to the expansion shield is a stud shot into the foundation.
5. When back filled, expansion coupling "C" shall be installed. The expansion coupling should be installed so the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer's midway mark. The expansion coupling is only required for continuous conduit.
6. The area underneath the bend shall consist of good quality fill material and dirt free of debris. The area shall be compacted around the foundation wall. Acceptable fill materials: Sand, limestone screenings, concrete slurry, concrete.
7. Approved NEC ground required.
8. For services 200 amperes or less, 2–1/2 in. electrical grade Schedule 40 PVC conduit, expansion coupling, bends, and connectors shall be used. For services 201 amperes to 400 amperes., 3 in. Schedule 40 PVC conduit, expansion coupling, bends, and connectors shall be used.
9. Conduit Riser for Ameren service cable shall enter left knockout of meter socket.

SERVICE CABLE AND METER CONNECTIONS SINGLE FAMILY DWELLING RESIDENTIAL Material List for Figure 700–2

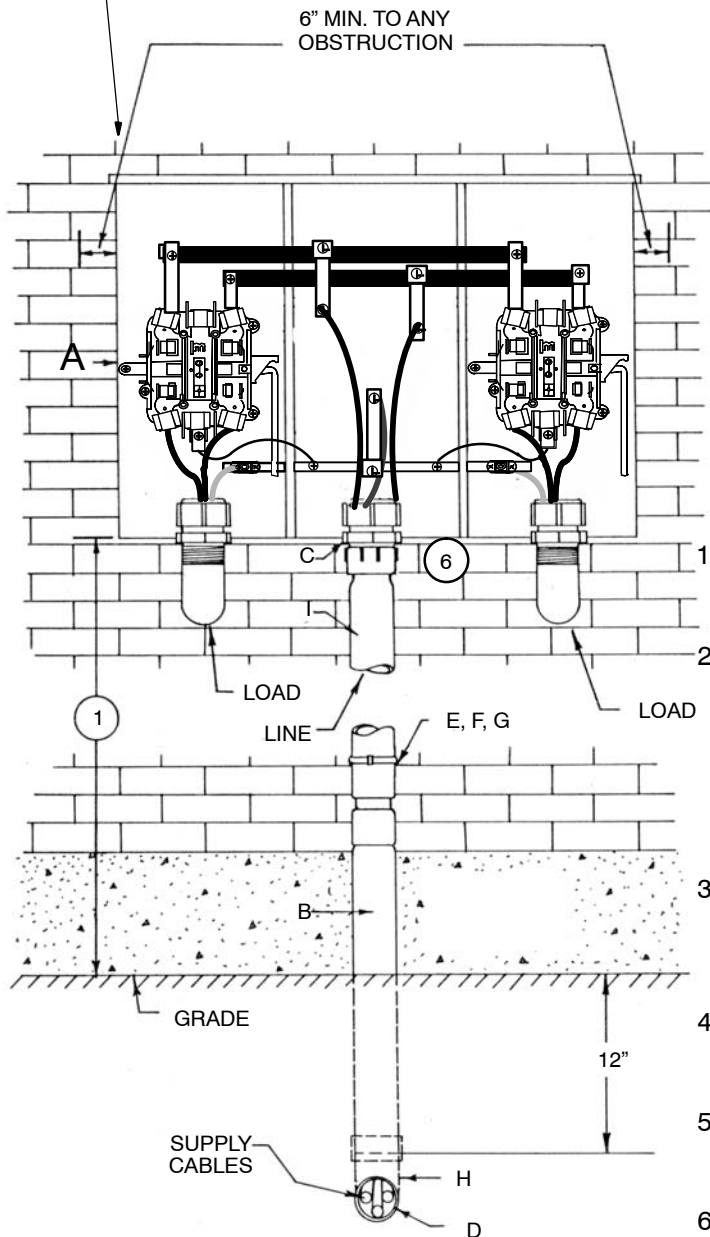
Note		MATERIAL FURNISHED AND INSTALLED BY CUSTOMER FOR SERVICE INSTALLED IN CONDUIT
1	A	Meter Socket, Clamp Jaw Lever Bypass, http://www.ameren.com/servicemanual
	B	Conduit, electrical grade Sch 40 PVC or greater, 2–1/2 or 3 in.
5	C	Coupling, Expansion, Sch 40, PVC, 2–1/2 or 3 in., 8 in. fall
	D	Hanger, Conduit
	E	Screw, Lag
	F	Shield, Expansion
	G	Nut, Lock, 2–1/2 or 3 in.
8	H	Insulated Bushing, Conduit 2–1/2 or 3 in.
	I	Bend, Conduit, 90 Deg., 24 in. Radius, electrical grade Sch 40, PVC or greater, 2–1/2 or 3 in., when required.

**Section 700
Underground Services**

**SERVICE CABLE AND METER CONNECTIONS
MULTIPLE FAMILY DWELLING
FOR 2 TO 6 METERS SINGLE PHASE ONLY**

Figure 700-3

➔ Permanently marked "Premises Labels" required on each meter socket preferably next to Breaker see Section 200.01.A note 7



MATERIAL FURNISHED, INSTALLED, AND OWNED BY CUSTOMER		
④	A	Meter Socket, Clamp Jaw Lever Bypass
	B	Conduit, Sch. 40 or greater, Electrical Grade PVC
	C	Nut, Lock, Cad. Plated, Grd. type
	D	Bushing, Conduit, Insulating
	E	Conduit, Hangar, Galv.
	F	Screw, Lag
⑤	G	Shield, Expansion
⑦	H	Bend, Conduit
	I	Coupling, expansion, Sch. 40, PVC, 8 in. fall

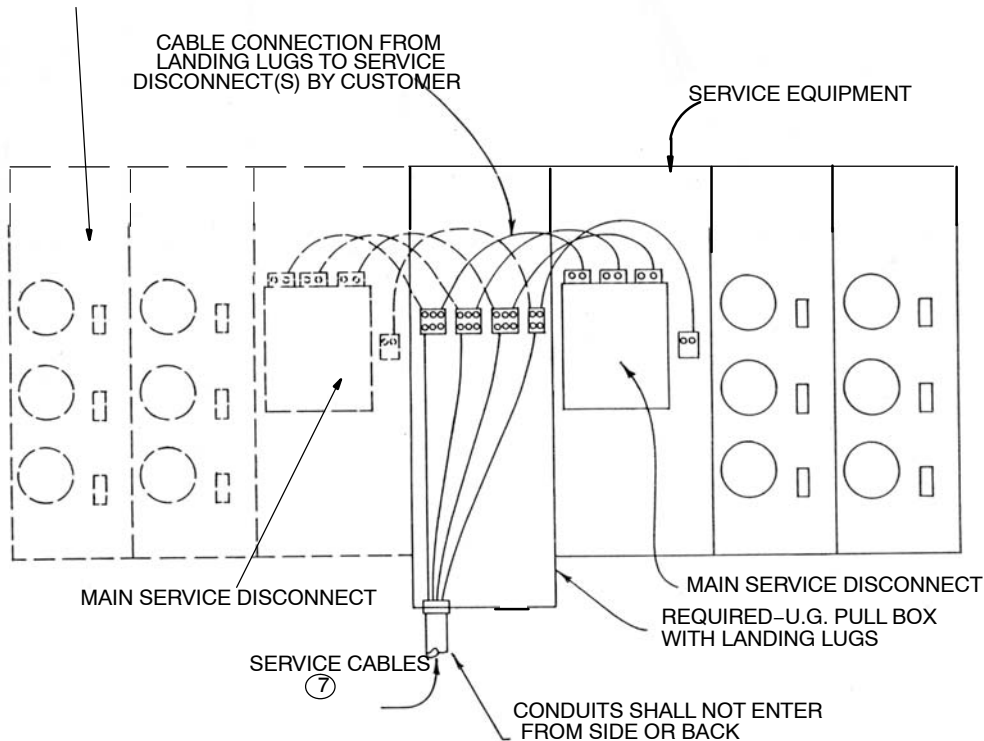
NOTES:

1. See section 200 of Service Manual for mounting height, approved locations, Premises Labels, and requirement to mechanical protection.
2. All materials except supply cables shall be furnished by the customer in Missouri where there are two to six meters, and in Illinois where there are one or two meters. In Illinois where there are three to six meters, the customer shall furnish all materials including service cable meeting the requirements of the latest version of the NEC or the authority having jurisdiction.
3. When concrete sidewalks, driveways, patios, etc. are located within 3 ft of meter location, extend conduit to edge of pavement. In this situation, and with total conduit systems, use expansion coupling.
4. Where authorized by local inspection authorities, rigid conduit may be used, with necessary junction box adapter and bell end substituted for bushings and lock nut.
5. To be installed where the footing provides an obstruction to or possible mechanical damage to service cable entrance in the meter riser. No triple 90°.
6. NEC approved grounding required.
7. Schedule 40 PVC conduit, expansion coupling, bends, and connectors shall be used. When an expansion coupling is required per Note 3, to install the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer's midway mark.

Section 700 Underground Services

TYPICAL VERTICAL GANGED METER STACK UNDERGROUND SERVICE 4, 5 OR 7 TERMINAL METER SOCKET ONE OR TWO MAIN SERVICE DISCONNECT(S) Figure 700-4

➔ Permanently marked "Premises Labels" required on each meter socket preferably next to Breaker see Section 200.01.A note 7



NOTES:

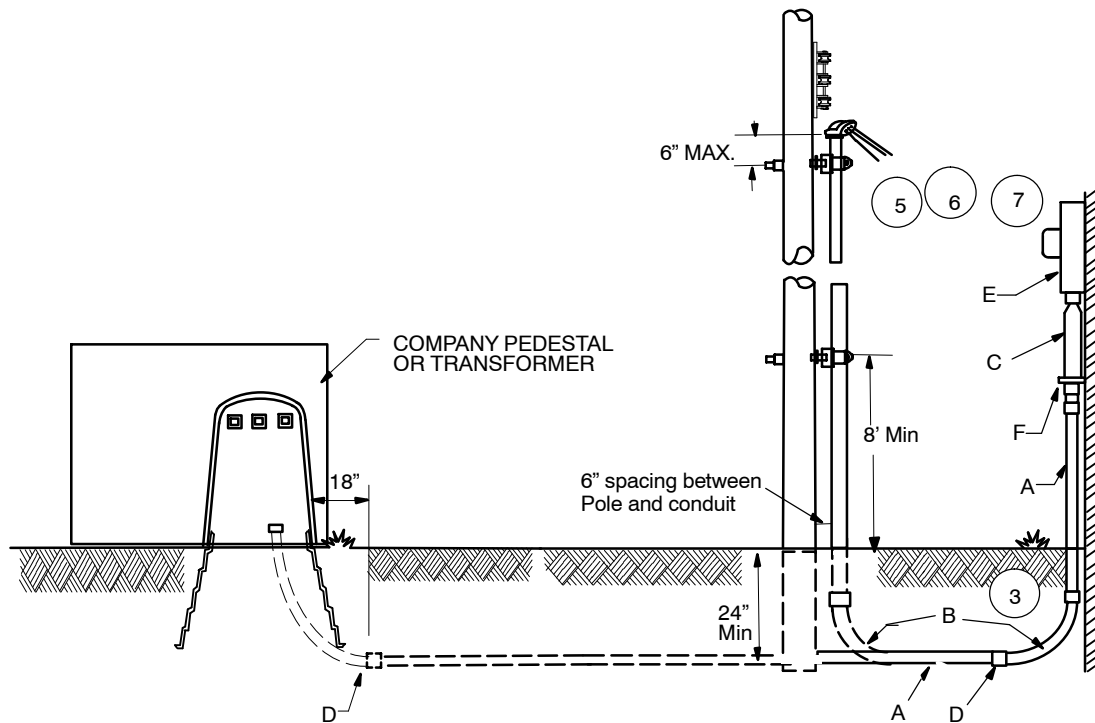
1. See Section 200 of Service Manual for mounting height, approved location, Premises Labels, and requirement for mechanical protection.
2. For Missouri, Residential – Ameren provides service cable, and must review and approve installation for cable pulling and landing; Non-residential – customer provides, install and maintains service cables.
For Illinois, Customer provides, installs and maintains service cables for both residential and Non-residential.
3. When concrete sidewalks, driveways, patios, etc. are located within 3 ft of meter location, extend conduit to edge of pavement. In this situation, and with total conduit systems, use expansion coupling.
4. Where authorized by local inspection authorities, rigid conduit may be used, with necessary junction box adapter and bell end substituted for bushings and lock nut.
5. Sweep elbows may be installed where the footing provides an obstruction to or possible mechanical damage to service cable entrance in the meter riser. No triple 90°.
6. NEC approved ground required.
7. Incoming and outgoing service cables not being in conflict.
8. When an expansion coupling is required, to install the outer sleeve into the meter socket with the inner positioned at the manufacturer's midway mark.
9. Ameren to seal lids on main disconnect panel(s), pull box section, and meter cover to prevent public to access the un-metered section.

**Section 700
Underground Services**

**CONTINUOUS SERVICE CONDUIT INSTALLATION
CONNECTION TO PEDESTAL , TRANSFORMER, OR POLE
AMEREN SERVICE CABLE
(Illinois Residential Customer Only)**

Figure 700-5

Note		Description
	A	Conduit – Electrical Grade Sch. 40 PVC, 2-1/2 in. or 3 in.
	B	Bend–Conduit 2-1/2 in. or 3 in. for 24 in. Min, 90° Radius, Electrical Grade Sch. 40, PVC
9	C	Expansion Coupling–2-1/2 in. or 3 in. (allow 8 in. fall) Electrical Grade Sch. 40, PVC
	D	Coupling–Conduit, 2-1/2 in. or 3 in., Electrical Grade Sch. 40, PVC
	F	Hanger–Conduit
	E	Meter Socket, Clamp Jaw Lever Bypass



See notes on next page

**Section 700
Underground Services**

**CONTINUOUS SERVICE CONDUIT INSTALLATION
CONNECTION TO PEDESTAL, TRANSFORMER, OR POLE
AMEREN SERVICE CABLE (Illinois Only)**

NOTES for Figure 700–5:

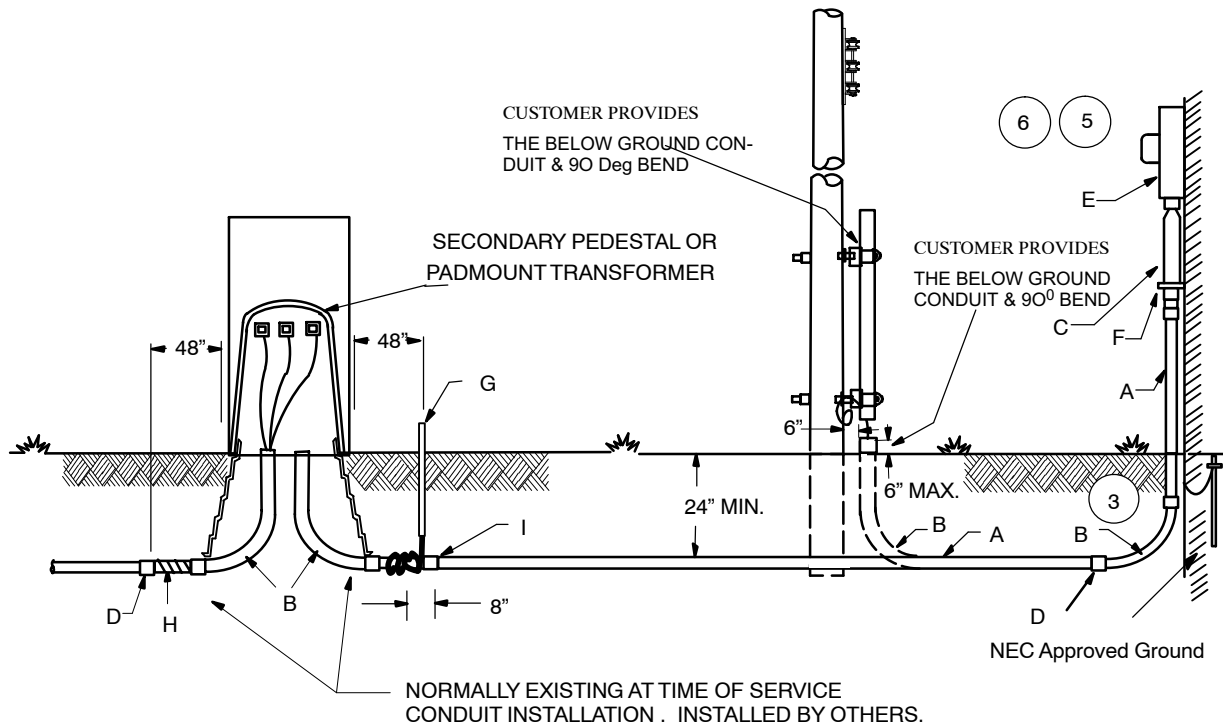
1. Customer installed conduit shall be installed along the shortest route, and the number of bends shall be kept to a minimum. There shall be a maximum of 3–90 degree, 24 in. min radius bends for 2–1/2 in. or 3 in. conduit installations. All sections shall be securely fastened together using standard grade cement. Minimum burial depth in trench–able earth is 24 in. In rock or untrenchable soil, depth may be reduced to 12 in. Depths less than 12 in. are not permitted.
2. The trench bottom shall be undisturbed, firm and uniform for its entire length. If it is impossible to achieve uniformity in the trench bottom it must be over–excavated 4 in. to 6 in. and the bottom refilled with good quality properly compacted bedding material. Approved materials: Sand, limestone screening, concrete slurry or concrete.
- 3. Minimum bend radius is 24 in. min for 2–1/2 in. or 3 in. conduit.
4. Conduit seals on customer service conduit are the customer responsibility and should be installed at the building wall.
5. See Figure 700–1 for required meter socket and riser attachment.
6. See Section 200 for meter socket mounting height.
7. Approved ground as required by local inspection authority or latest version of NEC.
8. If equipment is not in place, the location where it will be installed shall be obtained from company representative before conduit installation. The customer shall seal and mark the conduit end.
9. When an expansion coupling is required, install the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer’s midway mark.
10. For continuous customer conduit systems, the pole riser conduit must have a weather–head supplied by customer.

**Section 700
Underground Services**

**CUSTOMER OWNED AND INSTALLED SERVICE CONDUIT
CONNECTION TO POLE, PEDESTAL OR TRANSFORMER
(MISSOURI RESIDENTIAL SUBDIVISIONS)**

Figure 700-6

Note		Description
	A	Conduit – Electrical Grade Sch. 40 PVC, 2-1/2 or 3 in.
	B	Bend–Conduit 2-1/2 or 3 in., 90° ,24 in. min Radius, Electrical Grade Sch. 40, PVC
11	C	Expansion Coupling, 2-1/2 in. or 3 in. (allow 8 in. fall) Electrical Grade Sch 40 PVC
	D	Coupling–Conduit, 2-1/2 in. or 3 in., Electrical Grade Sch 40, PVC
	E	Meter Socket, Clamp Jaw Lever Bypass
	F	Hanger–Conduit
	G	Market–Buried Conduit, Red, 1" w x 7'4" L
	H	Conduit–2 1/2 in. Plastic Flexible or 3 in. and Corrugated
	I	Plug–Conduit, 2-1/2 in. or 3 in.



See notes on next page

Section 700 Underground Services

CUSTOMER OWNED AND INSTALLED SERVICE CONDUIT CONNECTION TO PEDESTAL OR TRANSFORMER (MISSOURI RESIDENTIAL SUBDIVISIONS)

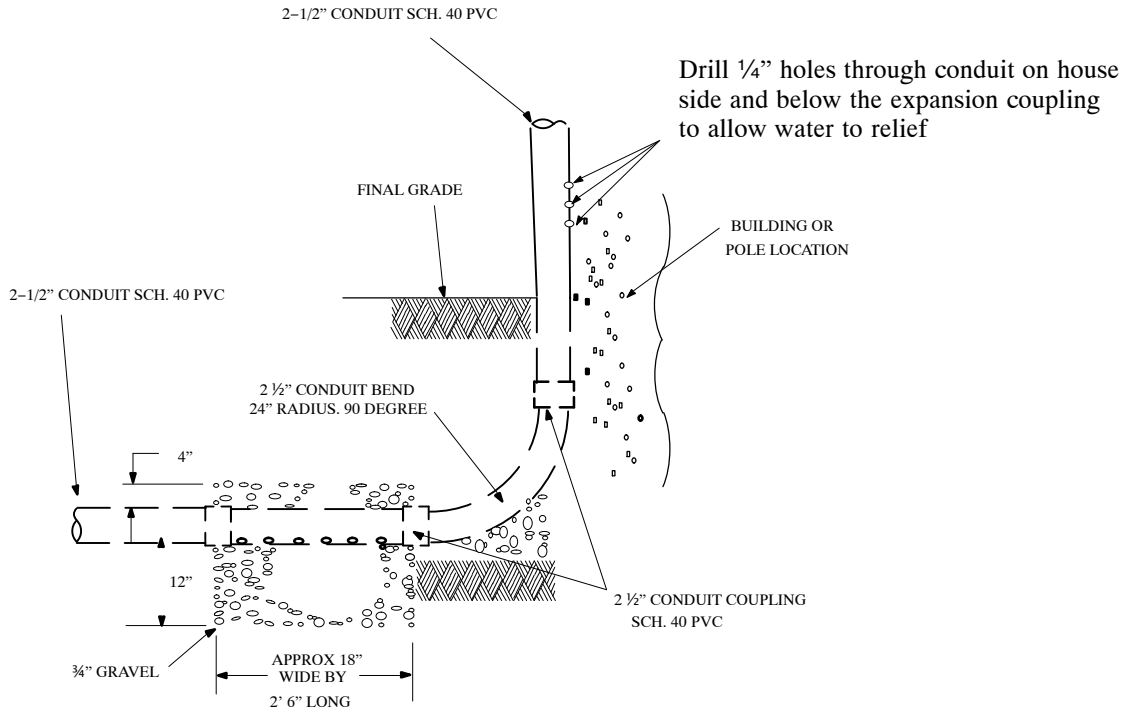
NOTES for Figure 700–6:

1. Customer installed conduit shall be installed along the shortest route and the number of bends shall be kept to a minimum. There shall be a maximum of 3–90 degree, 24 in. min radius bends for any installation. All sections shall be securely fastened together using standard grade cement. Minimum burial depth is 24 in. In rock or untrenchable soil, depth may be reduced to 12 in. Depths less than 12 in. are not permitted.
2. The trench bottom shall be undisturbed, firm and uniform for its entire length. If it is impossible to achieve uniformity in the trench bottom it must be over–excavated 4 to 6 in. and the bottom refilled with good quality properly compacted bedding material. Approved materials: sand, limestone screenings, concrete slurry, concrete.
3. Minimum bend radius is 24 in. min for 2–1/2 or 3 in. conduit.
4. Conduit seals on customer service conduit are the customers responsibility and should be installed at the building wall.
5. See Figure 700–1 for required meter socket and riser attachment.
6. See Section 200 for meter socket mounting height.
7. NEC approved ground required.
8. If equipment is not in place, the location where it will be installed shall be obtained from company representative before conduit installation. The customer shall seal and mark the conduit end.
9. Contractor installed flexible conduit shall point in the direction of the service. The conduit will extend 48” beyond the edge of the pedestal or transformer pad. *End is marked with red tape or similar manner.
10. To attach the conduit to the previously installed flexible conduit, first locate the end of the conduit by digging down by the red marker until the protective PVC cover is located. After removing the cover, plug and conduit marker, join the flexible conduit to the rigid conduit using standard grade cement. In cases where the service conduit and conduit stubbed out of a pedestal or transformer differ in size, the customer will be responsible for making the conduit connection.
11. When an expansion coupling is required, install the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer’s midway mark.
12. For customer conduit extensions to overhead poles, Company will designate the quadrant of the pole for the customer to stub up the conduit bend. Actual installation of the conduit varies by Ameren area. Contact your local Ameren representative for direction. Customer shall install and secure at each end a polyester pulling tape of 2500lb capacity for pulling in service conductor

Section 700
Underground Services

**CUSTOMER OWNED AND INSTALLED SERVICE CONDUIT
CUSTOMER DRAINAGE INSTALLATION AT METER/POLE IF REQUIRED**

Figure 700-7



② CUSTOMER DRAINAGE INSTALLATION
IF REQUIRED AT METER or POLE

DRAINAGE CONDUIT SECTION OF CONDUIT CONTAINING
6 - 1/2" DIA HOLES DRILLED ON 4" CENTERS. REAM INSIDE
OF CONDUIT TO REMOVE SHARP EDGES.

Note:

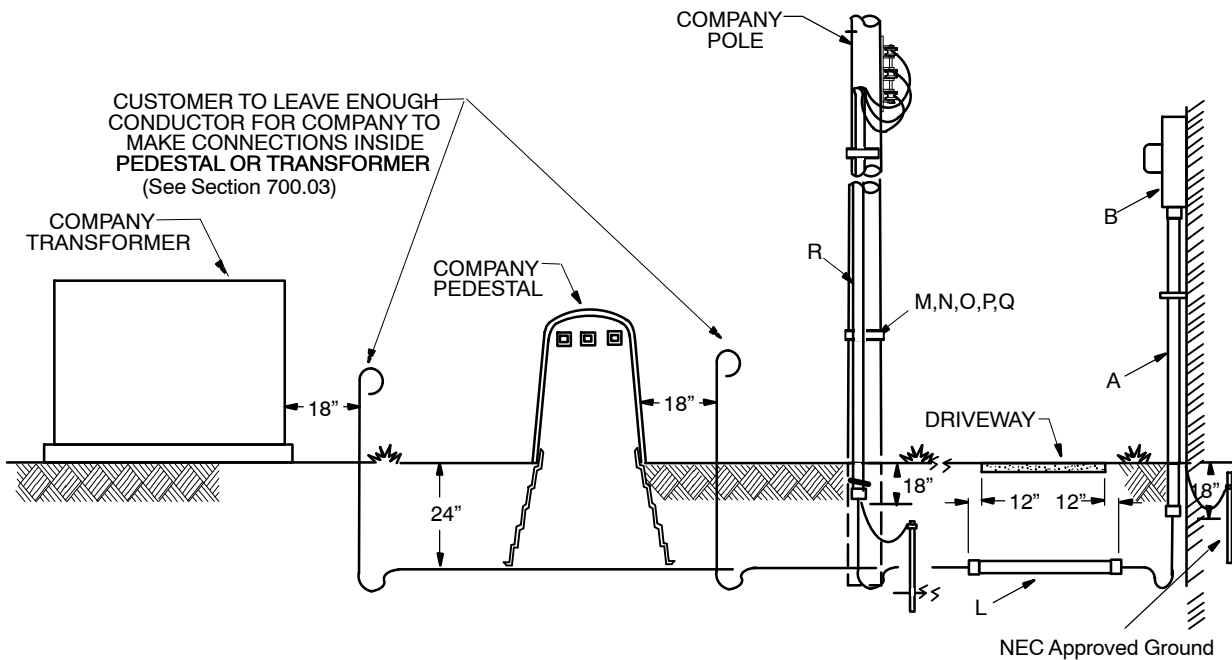
1. Customer Conduit Installation for 2-1/2 in. PVC.
2. 24 in. min radius conduit bends are required.

**Section 700
Underground Services**

**CUSTOMER OWNED AND INSTALLED SERVICE CABLE
CONNECTION TO PEDESTAL, TRANSFORMER, OR POLE
UNDERGROUND DIRECT BURIAL**

**Figure 700-8
NON-RESIDENTIAL**

	Description
A	Conduit – Electrical Grade Sch. 40 PVC, 2-1/2 or 3 in.
B	Meter Socket – Clamp Jaw Lever Bypass
L	Conduit – Electrical Grade Sch. 40 PVC, 2-1/2 or 3 in.
M	Bracket – Standoff, 1/2 in.
N	Strap – Conduit, 2 1/2 or 3 in.
O	Bolt – Arming Double, 5/8 in. x 18 in.
P	Jam Nut – 5/8 in.
Q	Washer – Curved, 3/4 in.
R	Conduit – Electrical Grade Sch. 80 PVC, 2 1/2 or 3 in.



See notes on next page.

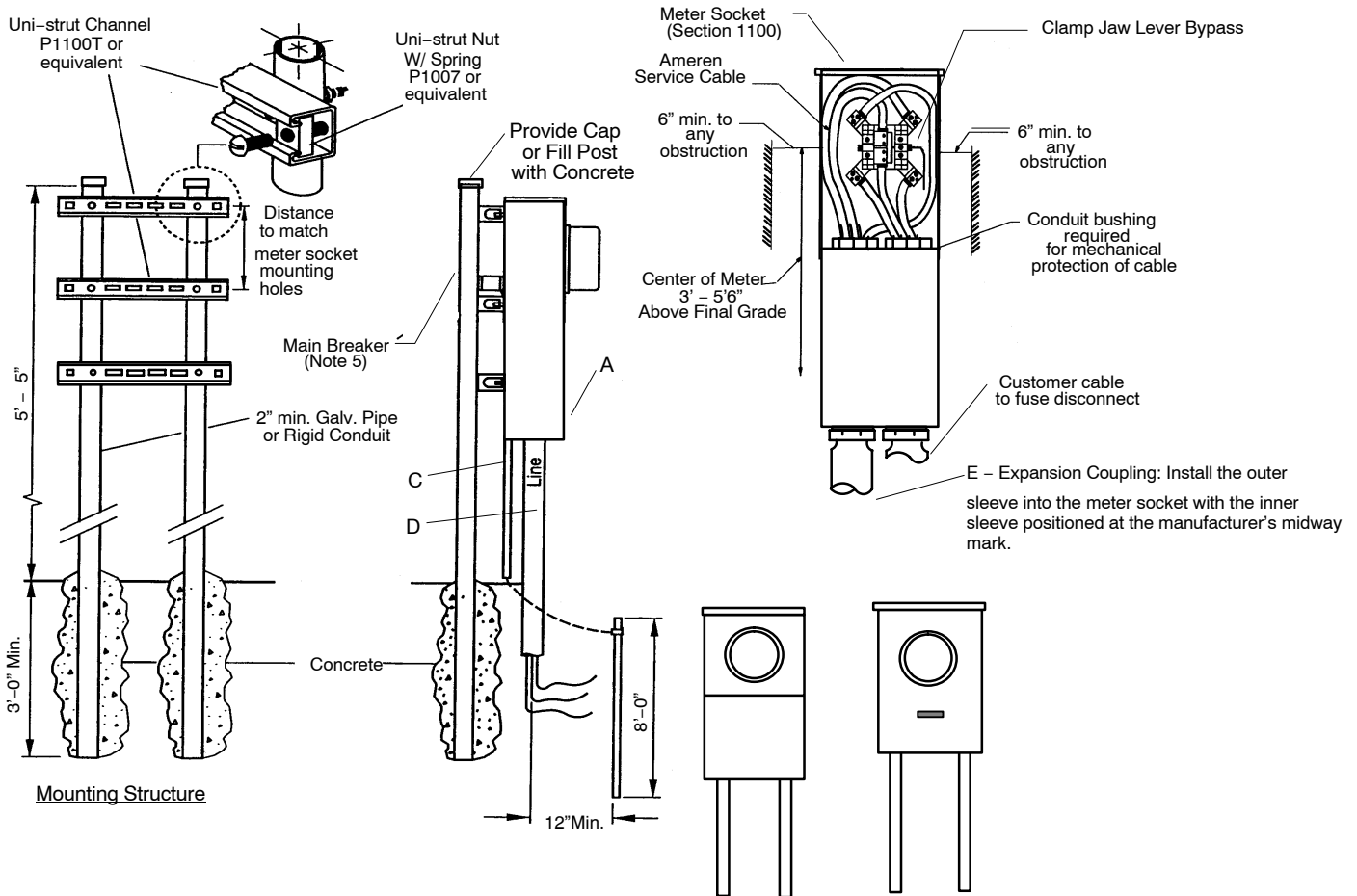
Section 700 Underground Services

NOTES for Figure 700–8:

1. Customer installed conduit shall be installed along the shortest route, and the number of bends shall be kept to a minimum. There shall be a maximum of 3–90 degree, 24 in. min radius bends for 2–1/2 or 3 in. conduit installation. All sections shall be securely fastened together using standard grade cement. Minimum burial depth 24 in. In rock or untrenchable soil, depth may be reduced to 12 in. Depths less than 12 in. are not permitted.
2. The trench bottom shall be undisturbed, firm and uniform for its entire length. If it is impossible to achieve uniformity in the trench bottom it must be over–excavated 4 to 6 in. and the bottom refilled with good quality properly compacted bedding material. Approved materials: Sand, limestone screening, concrete slurry or concrete.
3. Minimum bend radius is 24 in. min for 2–1/2 or 3 in. conduit.
4. Conduit seals on customer service conduit are the customers responsibility and should be accomplished at the building wall.
5. See Figure 700–1A for required meter socket and riser attachment.
6. See Section 200 for meter socket mounting height.
7. Approved ground as required by local inspection authority or latest version of NEC.
8. If equipment is not in place, the location where it will be installed shall be obtained from company representative before conduit installation.
9. Riser conduit at side of home/pole should be buried 18” minimum depth.

Section 700 Underground Services

METER MOUNTING SUPPORT FOR UG METER SERVICE – Meter Socket, Meter/Breaker Combo or Instrument Rated Meter Socket Figure 700–9



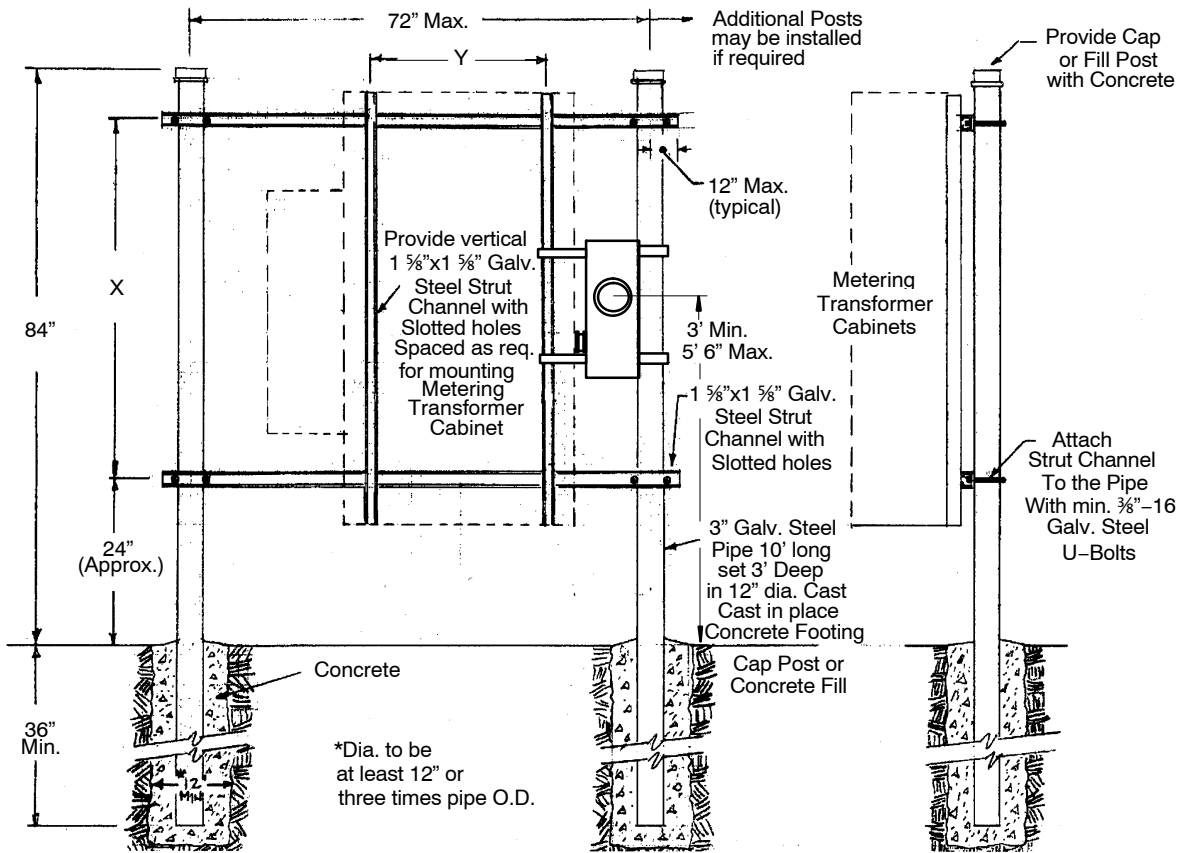
Notes		Description
5, 6	A	Meter Socket, Clamp Jaw Lever Bypass
	C	½ in. PVC Conduit
	D	Conduit—Electrical Grade Sch 40 PVC or Sch 80 PVC if subject to physical damage
8	E	Expansion Coupling, Sch 40 PVC, 8 in. fall

NOTES:

1. The installation of all entrance equipment, conductors and conduit shall conform to local codes or the latest NEC. Requirements.
2. All material shall be furnished and installed by customer.
3. NEC approved ground required.
4. Different arrangements of the service equipment (fuse/breaker box) may be used side-by-side or below meter.
5. Refer to Section 1100 for meter sockets or combo units requirement.
6. Instrument rated meter sockets **In MO:** stock #40 04 246–8 Terminal and stock #40 04 245 – 13 Terminal; **In IL:** stock #40 54 378 – 8 Terminal and stock #40 54 353 – 13 Terminal
7. Refer to Section 200 for meter mounting height.
8. When an expansion coupling is required, it should be installed so that the outer sleeve into the meter socket with the inner sleeve positioned at the manufacturer's midway mark.

**Section 700
Underground Services**

**METER SUPPORT FOR CUSTOMER PROVIDED TRANSFORMER
RATED METER MOUNTING SOCKETS – STEEL POST
Figure 700-10**



1P/3P 3W Services		3P/4W Services		Services
X	Y	X	Y	
24"	12"	24"	20"	400-800A
40"	24"	40"	32"	1200-2000A
54"	32"	54"	40"	2500-3000A

NOTES:

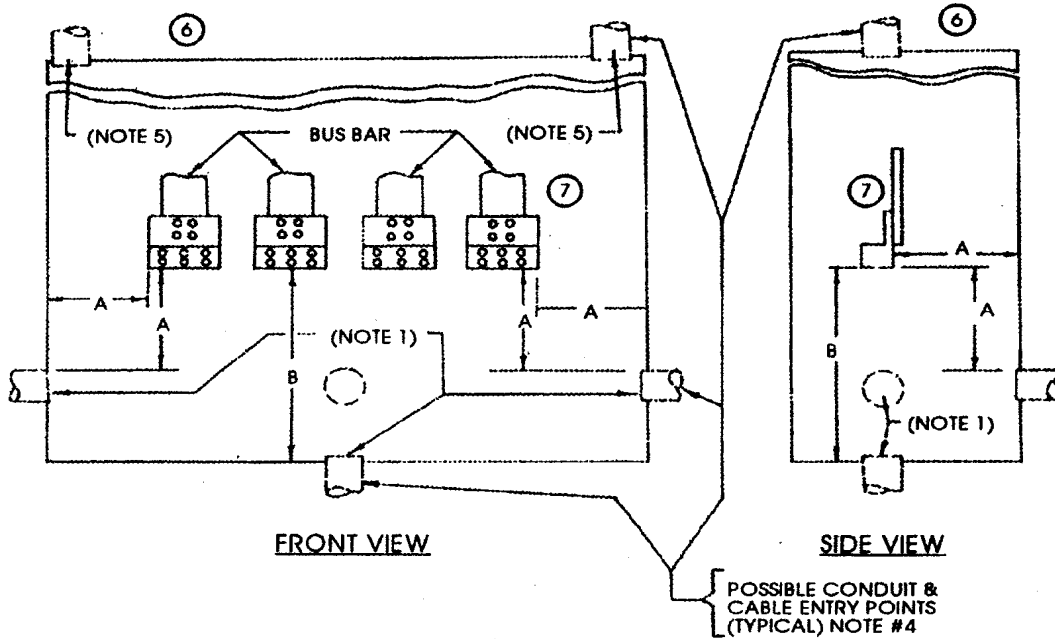
1. Provide protective barrier as needed, see Figure 200-2.
2. Support is customer owned and maintained and furnished and installed by the customer or contractor.
3. Locate only on customer property.
4. Grounding electrode system is per NEC.
5. Refer to Section 1100 for meter mounting sockets requirement.
6. Refer to Section 1100 for using pad mounted CT enclosure as alternative option.
7. As an alternative to building this CT/PT support structure, a pad mount CT/PT meter socket could be used. See 1100 for approved enclosures.

Section 700
Underground Services

**MINIMUM WIRE BENDING AND TERMINATING SPACE
LOW VOLTAGE SWITCHBOARD, PANELBOARDS
AND PREBUSSED TERMINAL BOXES**

Figure 700-11

WHERE AMEREN INSTALLS AND/OR MAINTAINS THE SUPPLY CABLE



NORMAL BENDING RADIUS

3-500 X 1-4/0 CU NW - 8" (NOTE 3) NETWORK AREA

Notes:

1. When the conduits enter a surface that is cut by a flat plane containing the lugs, then the conduits must be centered on the lugs. If they are not additional, wire bending space may be required. In addition, the area directly above or below the ducts must be free of all obstructions. All conduit shall terminate with an approved bushing or adapter to protect the cable from abrasion.
2. The dimensions for bending radii see DCS 59 40 00 11.
3. In the network area, the Underground Department shall be consulted for cable limiter lug space requirements
4. The maximum length of conduit between transformer and panelboard shall not exceed 250 feet and contain no more than 2-36 in. radius, 90° bends. Additional bends and/lengths require the written approval of the Supervising Engineer before construction is started. A maximum of four (4) 90° bends (equivalent of 360°) may be permitted but may require restrained bends or pull box to keep pulling tensions within acceptable limits. Connection of underground service laterals to the line side lugs of a main service disconnect is not permitted under any circumstances.
5. If the incoming cables must traverse the height of the switchboard or panel-board and a separate sealed wireway or trough is not provided, then the "A" dimension must be doubled to allow proper bending radius to the nearest connection, and the contractor must provide an internal sealable wire-way.
6. For service ampacity up to and including 1200 amperes maximum, the pre-bussed terminal box shall have an inside surface area of at least 16 sq. Ft. with a 12 in. minimum depth and provide wire bending radii see DCS 59 40 00 11.
7. Main lugs should be sized to accommodate number and size of cable specified by Ameren. (incoming lugs shall accommodate 500 KCMIL, outgoing lugs shall accommodate 4/0).

Section 700
Underground Services

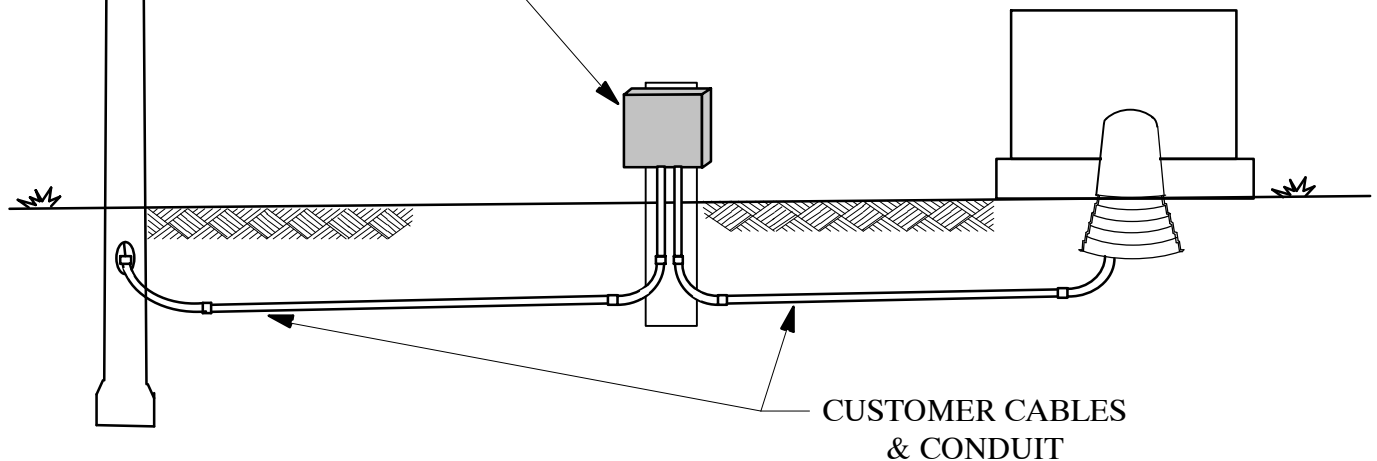
FOR MISSOURI ONLY
CUSTOMER OWNED LIGHTING (6M)
UNMETERED INSTALLATION

Figure 700-12

CUSTOMER OWNED
LIGHT STANDARD

1. CUSTOMER OWNED NEMA WEATHERTIGHT ENCLOSURE.
2. DISCONNECTING MEANS BREAKER OR FUSED DISCONNECT LOCATION APPROVED BY AMEREN.
3. NO GREATER THAN 5 FT FROM AMEREN SOURCE AND NOT HINDER TRANSFORMER DOOR OPENING & OPERATING.

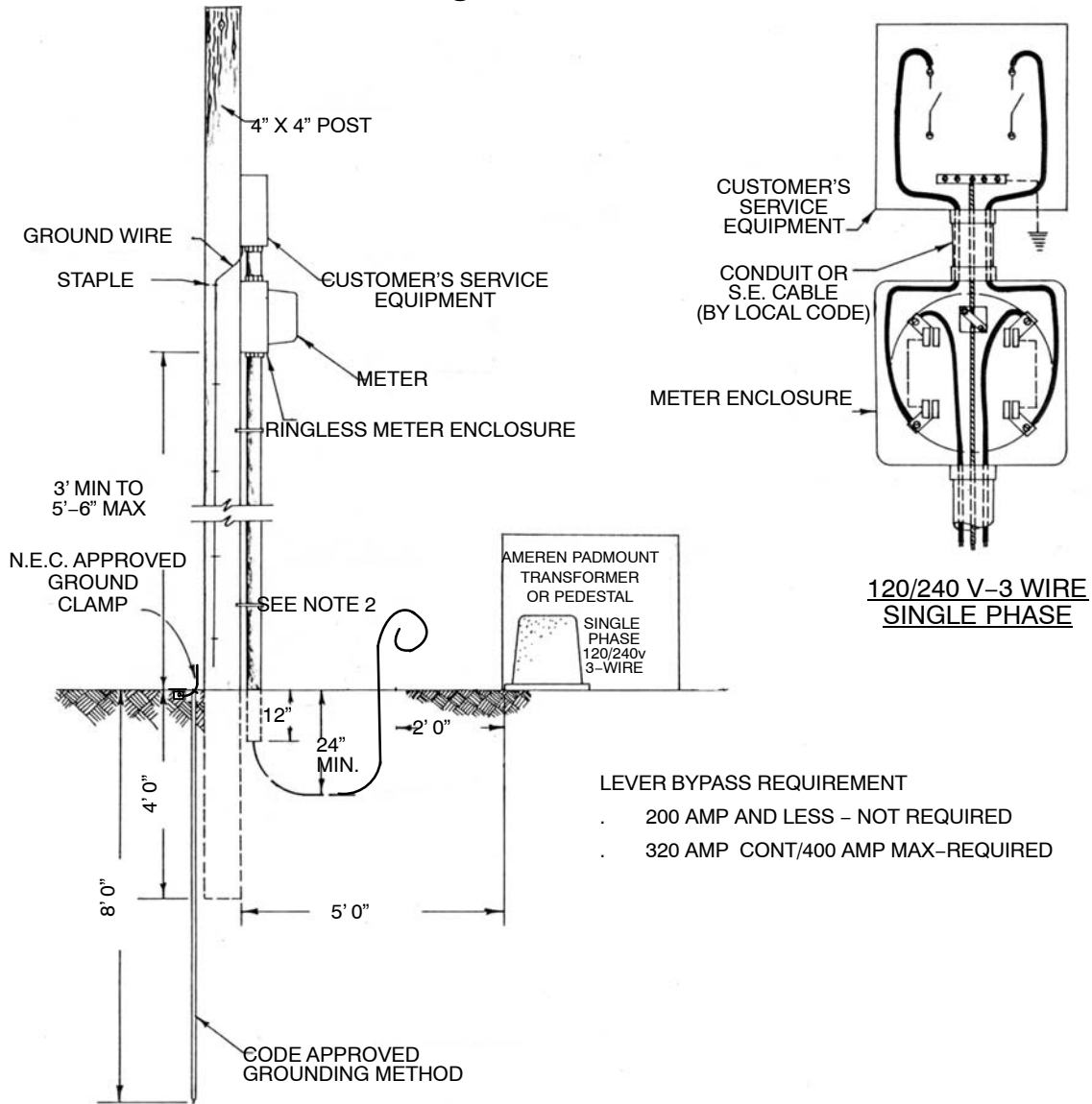
AMEREN
PADMOUNT TRANSFORMER
OR PEDESTAL



CUSTOMER TO INSTALL UG CABLE OR CONDUIT AND CABLE
INTO AMEREN TRANSFORMER OR PEDESTAL.
AMEREN TO CONNECT WITH PLUG FUSE.

Section 700
Underground Services

UNDERGROUND LINE INSTALLATION
TEMPORARY UNDERGROUND SERVICE
Figure 700-13



NOTES:

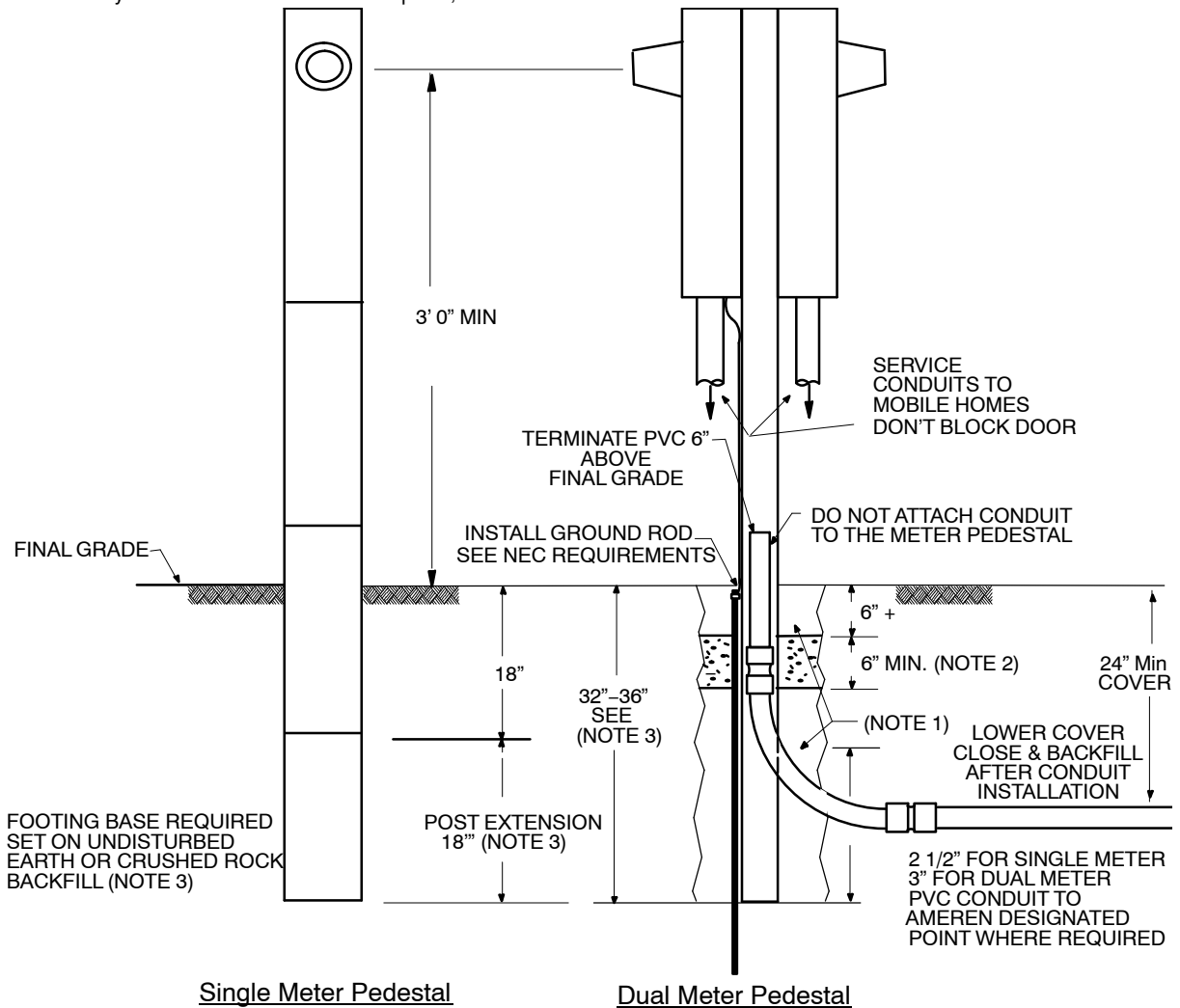
1. Customer's service equipment may be mounted below meter socket but meter socket must be mounted at 3 ft min. to 5 ft 6 in. max. above grade. See N.E.C. for G.F.C.I. Protection.
2. Customer to install 3 wire direct burial cable from meter base to this point & leave sufficient (8ft.) length for Ameren to install pedestal or transformer.
3. Meter, pedestal or padmounted transformer are provided by Ameren. All other material to be furnished and installed by customer.
4. Refer to Section 1000 for meter socket requirement.

Section 700 Underground Services

METER PEDESTAL INSTALLATION SINGLE OR DUAL METER Figure 700-14

EQUIPMENT NOTES:

- (a) All materials shall be furnished and installed by customer.
- (b) Pedestals shall be labeled for service equipment by U.L. and approved by Ameren.
- (c) Install ground rod for each service per NEC requirements.
- (d) Install weather proof disconnect on each service
- (e) Permanently marked "Premises Labels" required, see Section 200.01.A note 7.



NOTES:

1. Backfill with tamped crushed rock screening including entire conduit elbow.
2. Place concrete collar 6 in. thick, min., 6 in. below grade to firm earth as shown.
3. 32 in. to 36 in. pedestal embedment required. Order post extension and footing base with meter post as shown.
4. Owner shall be responsible to see that pedestal is firmly embedded in ground, and plumb to within 1" in 12" vertical.
5. Conduit shown shall be installed with a minimum of 30" of cover to the 24" radius bend into channel. Direct buried cable can be installed with 24" of cover.
6. Service conduit should not block supply cable access door.

Section 800 Clearances

CLEARANCES - POINTS OF ATTACHMENTS & METERS ABOVE GROUND SERVICES OVER GROUND AND ROOFS

(REFERENCE DISTRIBUTION CONSTRUCTION STANDARDS 09 00 03 01)

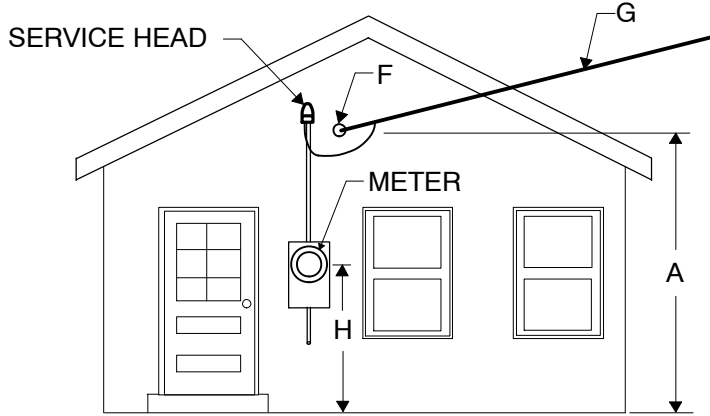
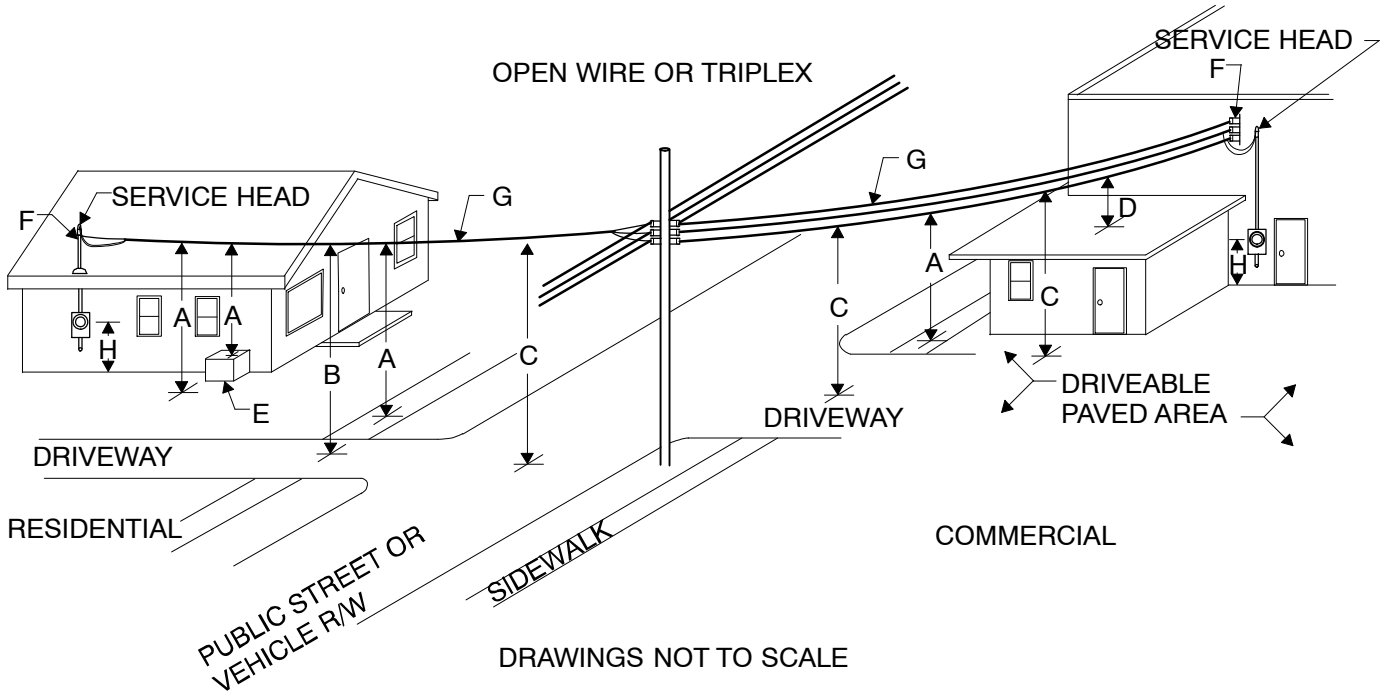


FIG. 1
USUAL INSTALLATION
DRAWINGS NOT TO SCALE



DRAWINGS NOT TO SCALE

FIG. 2

See notes on next page.

Section 800 Clearances

MINIMUM REQUIRED CLEARANCES AND NOTES:

Over Ground (per latest NESC 232)

- A. 12 ft. (triplex) or 12.5 ft. (open wire) over spaces and ways subject to pedestrian or restricted traffic only (no vehicles over 8 ft. high).

EXCEPTION: Where height of a residential building does not allow these clearances, clearance may be reduced to 10 ft. at the drip loop or service drop for triplex cable limited to 150 volts to ground or 10.5 ft. for open wire limited to 300 volts to ground.

- B. 16 ft. (triplex) or 16.5 ft. (open wire) over driveways, parking lots and alleys.

EXCEPTION: Where height of a residential building does not allow these clearances, clearance may be reduced to 12 ft. for triplex service limited to 150 volts to ground or 12.5 ft. for open wire limited to 300 volts to ground.

- C. 16 ft. (triplex) or 16.5 ft. (open wire) over roads, streets, alleys, non-residential driveways, parking lots and other areas subject to truck traffic.

EXCEPTION: Services over state and federal commercial highways shall be no less than 18 ft. Services over Illinois limited access highways shall be no less than 20 ft.

Over Roofs (includes Parking Garages) (per 2007 NESC 234C)

- D. Clearances from highest point in roof shall be not less than:

1. 3.5 ft. (triplex) or 10.5 ft. (open wire) over roofs not accessible to pedestrians (see note J).
2. 11 ft. (triplex) or 11.5 ft. (open wire) over roofs accessible to pedestrians.
3. 11 ft. (triplex) or 11.5 ft. (open wire) over roofs accessible to vehicles but not truck traffic.
4. 16 ft. (triplex) or 16.5 ft. (open wire) over roofs accessible to truck traffic.

EXCEPTIONS:

1. For services attached to a building (including drip loops) and where voltage between conductors does not exceed 300 volts on a non-accessible roof, a reduction in clearance over the roof is permitted as follows:
 - a. 3 feet
 - b. 18 inches within 6 feet of and terminated at a through the roof raceway or approved support located not more than 4 feet from the edge of roof.

NOTES:

- E. Any equipment housing including air conditioning, platform or projection which a person might stand on.
- F. Service mast or bracket attachment or upright of adequate size and height to support services required.
- G. Normally triplex conductors, but may also be separate conductors as shown for commercial services.
- H. Meter height is 3'-0" to 5'-6" except 6'-6" over walkways less than 3' wide.
- J. A roof is considered accessible to pedestrians if there is a means of access through a doorway, ramp, stairway, or permanently mounted ladder.

Clearances of Services over Swimming Areas

Although it is possible to have services over swimming areas, this practice is discouraged. It is necessary that the maximum conductor sag under various operating and environmental conditions be determined. Contact your local Ameren representative for assistance.

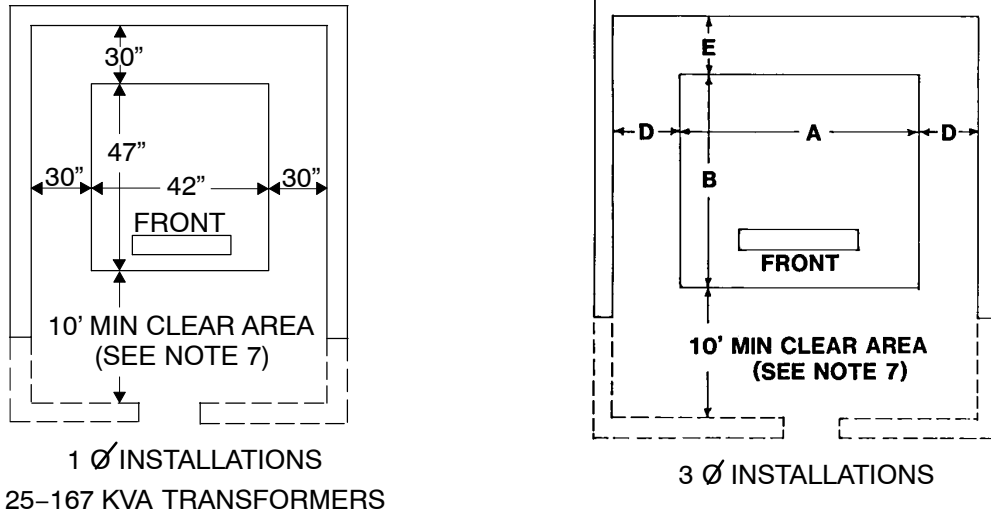


Section 800 Clearances

CUSTOMER INSTALLED PAD INSTALLATIONS REQUIRED
CLEARANCES FOR PADMOUNTED TRANSFORMERS AND SWITCHGEAR FOR 15 KV

(REFERENCE DISTRIBUTION CONSTRUCTION STANDARDS 59 81 51 11)

Figure 800-2



Dimensions for 1Ø pads pertain to all Ameren Companies.

For 3Ø installations, dimensions A and B pertain to dimensions of Ameren Missouri equipment pads. Pad specifications for Ameren Illinois vary.

The critical dimensions for all padmounted equipment are the distances from the left, right, rear, and front of pads, not the equipment installed on the pad. These dimensions shall be maintained in all installations.

Verify pad dimensions with your local contacts.

3Ø INSTALLATIONS	A	B	D	E
75 Thru 300 kVA Radial Feed Transformers	72"	65"	30"	35"
500 & 750 kVA Radial Feed Transformers	72"	65"	45"	43"
75 Thru 1000 kVA Loop Feed Transformers	84"	72"	45"	44"
1000 Thru 2500 kVA Radial Feed Transformers	84"	72"	45"	56"
Switchgear (Live Front)	69"	63"	48"	120"
Switchgear (Dead Front)	76"	74"	48"	120"

NOTES:

1. If pad mount is enclosed on all 4 sides, 10' minimum clearance from the front of transformer to inside of wall must be maintained for hot stick operations.
2. If a 4 sided enclosure is used, an opening or doorway shall be provided. If a lock is required provisions shall be made to provide, Ameren personnel access.
3. If a 4 sided enclosure is used, a minimum of 10 square feet of venting space in the form of 50% effective louvers or 5 square feet of opening shall be provided located along the bottom of each wall. If a 3 sided wall is used, wall venting space is desirable, but not required.
4. Location must be accessible for installing or replacing transformer with crane.
5. Developer to provide plastic conduit of size specified by Ameren to a point designated by Ameren outside the wall 36" to 42" below final grade.
6. The 10' distance between the front of the pad and the wall may be reduced to 48" if an opening or gate is provided. The opening or gate should be centered on the front of the pad and should provide for a minimum opening of 3-1/2' for 1Ø and 9-1/2' for the 3Ø installation. A 10' clear area in front of the pad must still be available with the opening or when the gate is open for hot stick operations.

Section 800 Clearances

7. To provide for transformer replacement, enclosed area is to be free of overhangs or overhead obstructions. Wall height not to exceed 8' unless the above mentioned gate or opening is provided or an easily removable wall is used.
8. Should upgrading be required, the dimensions as shown provide adequate ventilation and space for 1 size larger transformer.
9. Walls shown in drawing, but clearances are required for any obstruction, i.e. switchgear, dumpsters, portable storage buildings etc.
10. The final grade area around the pad mounted transformer (and pad mounted switchgear) shall be level, except for a gradual slope, at 1/8 inch rise per one foot of run. The front and side clearance areas shall be graded so that water runs away from the equipment pad; water shall not be allowed to pool in the clearance areas around the equipment pad.
11. Where protective barriers are required, refer to Ameren Distribution Construction Standard 59 81 51 10*.

Section 900 Service Utilization

900.01 GENERAL

Electric service must be used in a way that does not interfere with Ameren's service to other customers or damage the Company's service lines or equipment. Should such interference occur, the Company will consult with the customer to determine what corrective measures should be taken to eliminate the problem. It may become necessary for the customer to make wiring changes or install approved controlling devices at their expense.

Where practical, the Company upon request, will furnish in accordance with the provisions for furnishing "Excess Facilities", a separate transformer or other facilities to reduce or eliminate such interference. The Company, however, does not by installing such facilities waive its right, where detrimental conditions from such equipment still exist, to require the customer to install corrective equipment. Unless corrected, the Company will discontinue all service to the Customer.

900.02 CUSTOMER APPARATUS

Neither by review nor the rendering of emergency repairs or advisory service does the Company give any warranty, expressed or implied, as to the adequacy, safety or other characteristics of any equipment, wires, appliances or device owned or maintained by Customer.

900.03 FLUCTUATING LOADS

It is the customer's responsibility to notify the Company before installing any equipment that may cause voltage or frequency fluctuations on the company's Distribution System. Welders, x-ray equipment, motors connected to variable load machinery, and other equipment having fluctuating load characteristics may require special facilities for satisfactory service. The customer shall, prior to completing plans to use such equipment, furnish the Company complete information as to the manufacturer, type, size, voltage, amperage, power factor, harmonic content and other data regarding the equipment's performance under conditions of maximum output, and shall also supply such other information pertaining to the equipment as the Company will require to enable it to determine if adequate service for the equipment is available at the desired location.

In cases of high motor starting current, customer loads resulting in harmonic distortions or significant loads with wide and/or frequent fluctuations, etc., customer shall install on customer side of Company meter, all corrective equipment necessary to enable Company to maintain the integrity of its electric distribution system. For Customers not voluntarily complying with this requirement, Company, where practical, may install corrective equipment on its side of the meter and charge Customer a lump sum amount for the current cost of such equipment and the cost of any subsequent additions to or replacement of such equipment, whenever said future installations occur.

Failure of Customer to install such corrective equipment or to pay for that installed by Company currently, or in the future, shall be grounds for the disconnection of electric service.

900.04 LOAD BALANCE

Customers should balance the load between the ungrounded conductors on single phase services as closely as possible. An unbalanced load may cause overheating of one conductor or flickering lights on the more heavily loaded circuit when appliance motors start.

Customers receiving three phase service are required to maintain a balanced load between the ungrounded service conductors. Load imbalance may cause the customer's equipment to operate in an unsatisfactory manner, blow fuses or cause other protective devices to interrupt electric supply on the unbalanced circuit. Three phase load imbalance may also cause a disturbance to the Company's supply of electric service to nearby customers.

When an imbalance occurs, the Company may assist customers to determine the cause of the problem and may recommend corrective measures.



Section 900 Service Utilization

900.05 POWER FACTOR

Power factor is defined by the appropriate Company rates. The Company's Customer Service Representative will furnish customers with appropriate information upon request.

Customer may install corrective equipment necessary to meet this requirement on customer's side of Company meter. Such equipment shall be controlled and maintained by Customer in order to avoid a leading power factor at any time, and to avoid high voltage conditions during periods of light load. To monitor this power factor requirement, the Company will install appropriate metering equipment for the monthly billing of a kilovar reactive charge as applicable.

For all customers receiving service under other rate schedules, not voluntarily complying with this power factor requirement, the Company may, where practical, install corrective equipment on its side of the meter and charge customer a lump sum amount for the current cost of such equipment and the cost of any subsequent additions to or replacement of such equipment whenever said future installations occur. Failure of Customer to install such corrective equipment or to pay for that installed by the Company currently, or in the future, may be grounds for the disconnection of electric service.

900.06 CAPACITORS

Use of capacitors may become necessary for a customer to achieve acceptable power factor correction. In every case where the customer elects to install capacitors, the Company must be consulted prior to purchase or installation. Improper size, type, installation, or operation of capacitors can have a serious adverse affect on the Company's service to other customers. It may also pose a danger to personnel working on the Company's distribution lines. When a customer installs capacitors on their electrical facilities to improve the power factor of their installation, the customer may provide, at the request of the Company, in order to avoid abnormal voltages or damage to the Company's facilities, a means of automatically disconnecting any or all of the capacitors when the equipment causing the low power factor is not operating.

900.07 PROTECTIVE EQUIPMENT

Customers are advised to install protective equipment in accordance with the latest edition of the National Electrical Code or other pertinent sources of information for all types of equipment such as, but not limited to, motors, computers, or any other type of voltage sensitive electronic equipment. Adequate protection should be provided for the following conditions:

- A. Overload;
- B. Loss of voltage;
- C. High or low voltage;
- D. Loss of phase (single phase on polyphase motors);
- E. Re-establishment of normal service after any of the above;
- F. Phase reversal;
- G. Motors that cannot be subject to full voltage on starting;
- H. Harmonics or wave form irregularities.

The lack of adequate protection may result in needless damage to equipment and the expense of delay and repair. The Company will not be responsible for loss or damage to customer-owned equipment where such loss or damage is caused by the absence or failure of recommended protective devices.

900.08 MOTORS AND APPARATUS

General

Customer is invited to consult Company before purchase, installation, or wiring of motors or other apparatus to determine the kind of service that will be supplied and the manner in which such equipment should be connected and operated.

All motors, apparatus and appliances shall have such characteristics which enable the Company to maintain a satisfactory standard of service to Customer being served and all other customers in the immediate area.



Section 900

Service Utilization

The Company reserves the right to define the type of standard service to be supplied and should be consulted before equipment is purchased or ordered. The electrical characteristics of motors greater than 7 1/2 H.P. or where the aggregate load of smaller motors is more than 20 H.P. require consideration and evaluation by Ameren.

900.09 PROTECTION AGAINST ABNORMAL CONDITIONS

All motors and special apparatus should be equipped with suitable undervoltage time delay tripping devices to protect against sustained undervoltage or service interruption and to prevent automatic disconnection of equipment upon momentary voltage disturbance.

Three phase motors should be equipped with suitable protective devices to prevent single phase operation, improper direction of rotation and excessive heating due to overcurrents or voltage unbalance.

Company will not be responsible in any way for damage to Customer equipment due to failure of Customer to provide adequate protection.

Customer may need to install power quality equipment between the main service disconnect and their equipment to mitigate any equipment damage and maintain electric supply to critical loads. The power quality equipment may be generators, uninterruptible power supplies (UPS), surge suppressors or other devices. These devices will not be provided by Ameren.

Section 1000

Customer Furnished Self-Contained Meter Mounting Sockets Requirements

1000.01 INTRODUCTION

Customer shall furnish, install and maintain meter mounting equipment which meets Ameren requirements stated herein. This applies to self-contained electric watt-hour meter mounting equipment for both individual and multi-meter installations. The watt-hour meters will be furnished, installed and maintained by Ameren.

Ameren will maintain a list of approved manufacturer's meter devices catalog numbers. Ameren will assist the manufacturer in meeting these requirements by reviewing and commenting on designs and/or manufactured samples of meter devices. Only meter devices included in this list will be acceptable without prior approval from Ameren.

The current list is included in Section 1100, separately from the manual. To get the latest catalog number information for the devices, please use the website at:

[Http://www.ameren.com/servicemanual](http://www.ameren.com/servicemanual)

Failure by Customer/Contractor to comply with the requirements stated herein may lead to a delay of service until requirements are met. Other sections of the Electric Service Manual pertain to mounting location, mounting heights, and other service requirements and give specific installation instructions.

1000.02 GENERAL REQUIREMENTS

1. Equipment must be certified by an approved independent testing laboratory using the appropriate UL standard for the certification. At present Ameren recognizes UL and ETL as approved testing laboratories for equipment installed on the Ameren system. Meter sockets shall meet standards contained in the latest revision of UL414, ANSI C12, and ANSI C12.7.
2. Devices shall be labeled as to ampacity services, maximum voltage, manufacturer's name, and manufacturer's catalog number. All meter sockets and applicable bypasses shall be rated to carry 100% of ampacity continuously.
3. The meter socket shall be of a power coated finish over galvanized steel or aluminum construction, rated NEMA type 3R or better. Fabrication with fiberglass or non-metallic material is prohibited.
4. All meter sockets shall be ringless.
5. All covers shall be equipped with no more than one securely fastened hasp for padlocking by Ameren. Covers that secure more than one meter, (trough), shall be individually sealable.
6. Meter sockets must have lugs to accommodate the No. 6 grounding electrode conductor and bonding jumper size per NEC. This may be two individual lugs, or one NEC/approved lug rated for two conductors. Lugs shall be rated for both aluminum and copper conductors.
7. The lugs for meter socket 320 amperes continuous/400 amperes max rated and below will be sized to accommodate conductors as outlined below. Stud type connectors shall be tinned and suitable for either aluminum or copper conductors.
8. Meter sockets for up to and including 200 amperes service shall be equipped with lay-in lugs. The lugs shall be suitable for a range of conductors from No.6 to 350 kcmil. Not more than one conductor shall be installed per lay-in lug.
9. Meter sockets 320 amperes continuous/400 amperes max rated shall be equipped with the mechanical pressure stud connectors. Customer will supply the appropriate size of lugs for the job specific conductors.
10. Trough type meter sockets with direct upward connection of UG cables can be submitted to Ameren for approval provided they allow for the cables to be trained in a manner that would prevent ground settling and frost heaving from placing undue stresses on meter socket connections. The left hand bottom knockout shall be reserved for the incoming service cables. A minimum knockout on the bottom of meter sockets shall be 2 ½ in. on UG 200 amperes services and 3 in. on 320 amperes services.
11. Grounded delta 3 phase sockets require high leg/wild leg to be placed in the right position at the meter socket and this conductor will be marked orange in color. The high leg (also referred to as the wild



Section 1000 Customer Furnished Self-Contained Meter Mounting Sockets Requirements

leg) will terminate in the middle position on the customer main disconnect, except in panel boards, switchgear arrangement ahead of and beyond metering compartments.

12. Neutral conductor should be marked with white or gray at weatherhead, meter socket and main disconnect or other designation from manufacture of cable.
13. The 5th terminal on clamp jaw lever bypass sockets shall be located as shown in Figure 1000.
14. The meter socket must be grounded.
15. Locking clamp jaw lever type bypass meter sockets shall be provided with a clear polycarbonate safety shield over the socket interior.
16. All Meter mounting equipment shall be surface mounted.
17. Ameren, by testing or approving equipment, gives no warranty, expressed or implied, as to the adequacy, safety or other characteristics of any equipment, wiring or device and assumes no responsibility with respect thereto.
18. All unused openings in the socket shall be closed with plugs and secured tightly from the inside.
19. Minimum Dimension Requirement For Self-Contained Meter Sockets, UG Services.

UG Service Self Contained Meter Socket without Load-Side Breaker				
Panel	Maximum Service Ampacity	120/208/240/480V 1PH, 3PH, 3W & 120/208/277/480V, 3PH, 4W (200 Amp Max)		
		Min Dimension (WxHxD)	Min Spacing From Center Meter Block to Top of Socket	Bypass
200 AMP	200	13"x19"x4.875"	9"	Lever
120/240V 1PH 3W & 240V 3PH 3W (320 AMP Max)				
320 AMP	400	15"x31.69"x4.85"	17.56"	Lever
120/208V 3PH 4W (320 AMP Max)				
320 AMP	400	17.75"x38.75"x6.5"	19.375"	Lever
UG Service Self Contained Meter Sockets with Load-Side Breaker Combinations				
120/240V 1PH 3W & 240V 3PH 3W (320 AMP Max)				
200 AMP	200	14.13"x34.5"x4.5"	10"	Lever
320 AMP	400	15"x42.44"x4.875" (Vertical)	17.53"	Lever
320 AMP	400	29.5"x35"x6" (Horizontal)	17.79"	Lever
120/208/240V 3PH 4W (200 AMP Max)				
200 AMP	200	17.37"X34"X5.75"	10.75"	Lever

1000.03 METER BYPASS REQUIREMENTS

1. Clamp jaw lever bypass self-contained meter sockets are required in the following individual meter situations:
 - A. Residential single phase (320 amperes continuous/400 amperes max)
 - B. Non-residential single phase (320 amperes continuous/400 amperes max)
 - C. All three phase services (320 amperes continuous/400 amperes max) and less
 - D. All self-contained single phase 480 volts services
 - E. All temporary services greater than 200 amperes



Section 1000

Customer Furnished Self-Contained Meter Mounting Sockets Requirements

2. Clamp jaw lever bypass meter Socket is required for all multi-meter sockets for residential and non-residential services with or without a main disconnect. A slide type bypass is not permitted.
3. For a single-phase 100 or 200 amperes construction temporary service, a clamp jaw or horn bypass is not required in the meter socket unless that meter socket is to be re-used for the permanent service.

The clamp jaw bypass meter socket shall be heavy duty, lever operated, clamp jaw with jaw tension release design with plastic protective shield similar to the Milbank (HD-5 or HD-7) or Siemens/Talon (HQ-5 or HQ-7) bypass mechanisms. The bypass action of all lever type bypass mechanisms shall be visible. This includes the ability to visibly see the opening and closing of the bypass mechanism contacts, as well as the clamping action of the meter socket jaws. Bypass mechanisms not meeting this requirement shall be rejected. Clamp jaw lever bypass mechanisms not previously used on the Ameren system shall be presented to the Standards Engineering Department for review.

1000.04 MULTI-METER REQUIREMENTS

1. Multi-meter socket situation shall conform to the same bypass criteria in 1000.03 above.
2. Customer designed, combination multi-meter equipment with fused or circuit breaker type disconnects may be acceptable subject to Company approval of meter sockets, location, electrical one line, cable landing space, security provisions, etc., before fabrication is started. All unapproved equipment must be approved before ordering of said equipment to avoid costly delays.
3. Multi-meter equipment requires the line side terminal compartment to have a seal-able and lock-able cover separate from meter covers.
4. Up to and including six meters may be supplied at a single point of delivery without a main means of disconnect ahead of metering.

1000.05 LOAD CENTERS

Where customer disconnects and/or fuses are combined with meter equipment, the cover for the meter and the cover for customer access to the switch/fuse and load side wiring shall be separated such that Company's meter and line side service compartments may be secured and sealed separately from customer side. On such combination units, internal barriers shall be permanently installed to prevent access to meters, equipment, and un-metered wiring via the customer compartments. Labels should be adhered to the outside of lids (covers) on meter/main combos stating "**Main Service Disconnect**".

1000.06 METER SOCKET MAINTENANCE

It is the responsibility of Customer/Building Owner to maintain, repair and replace the meter mounting (socket) equipment in order to keep such equipment in a safe, secure and useable condition. When such equipment is subject to vandalism or damage, it is the responsibility of Customer/Building Owner to remedy the situation by protective measures or by changing location.

Ameren will perform emergency repair in an attempt to maintain or restore service and to protect the public safety. In the event that the hazard posed by the equipment is critical to safe operation, immediate disconnection of service may be necessary until corrections are made by the Customer/Building Owner. Ameren will notify Customer/Building Owner and the inspection Authority when an unsafe meter socket and/or service equipment problem is found.

Ameren will allow a reasonable time, normally not to exceed 30 days, for the repair or replacement of meter socket equipment, subject to the hazard involved.

Ameren emphasizes the need for the responsible building owner to minimize safety hazards to all concerned by maintaining service installations which include service riser, meter socket, CT/PT enclosure, service main disconnect, and switchgear in a safe and good working order.

Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

1000.07 DRAWINGS

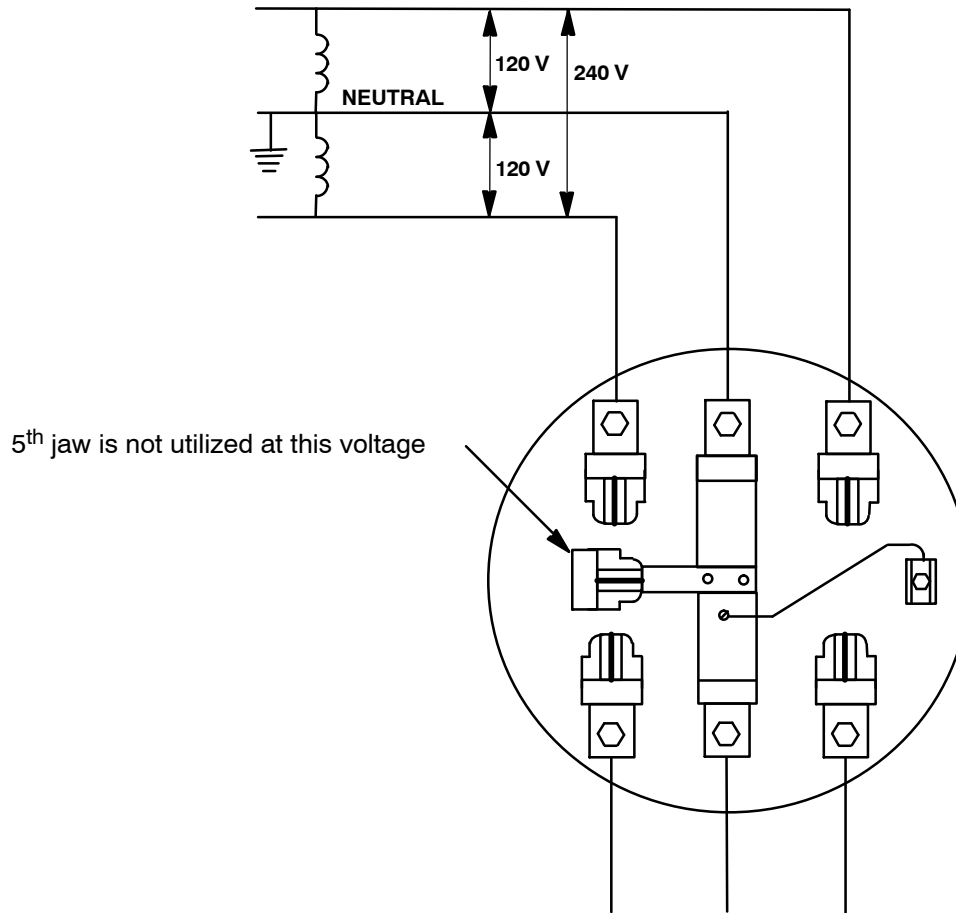
1. **Figure 1000–1** Meter Socket Connections – 3–WIRE, 120V/240 VOLTS, 1–PH, SELF–CONTAINED (LIMITED TO 320 AMPERES CONTINUOUS/400AMPERES MAX)
2. **Figure 1000–2** Meter Socket Connections – 3–WIRE, 240/480 VOLTS, 1–PH, SELF–CONTAINED (LIMITED TO 200 AMPERES)
3. **Figure 1000–3** Meter Socket Connections – 3–WIRE, 120/208 VOLTS, 1–PH, SELF–CONTAINED (LIMITED TO 200 AMPERES)
4. **Figure 1000–4** Meter Socket Connections – 4–WIRE, 120/208 VOLTS, 3–PH, SELF–CONTAINED (LIMITED TO 320 AMPERES)
5. **Figure 1000–5** Meter Socket Connections – 4–WIRE, 277/480 VOLTS, 3–PH, SELF–CONTAINED (LIMITED TO 200 AMPERES WITH EXCEPTION 200.02.B.1d)
6. **Figure 1000–6** Meter Socket Connections – 3–WIRE, 480 VOLTS, 3–PH, SELF–CONTAINED CORNER GROUNDED (LIMITED TO 200 AMPERES WITH EXCEPTION 200.02.B.1d)
7. **Figure 1000–7** Meter Socket Connections – 3–WIRE, 240 VOLTS, 3–PH, SELF–CONTAINED CORNER GROUNDED (LIMITED TO 320 AMPERES)
8. **Figure 1000–8** Meter Socket Connections – 4–WIRE, 240 VOLTS, 3–PH, SELF–CONTAINED UN–GROUNDED (LIMITED TO 320 AMPERES CONTINUOUS/400 AMPERES MAX)–NON–STANDARD
9. **Figure 1000–9** Meter Socket Connections – 4–WIRE, 120/240 VOLTS, GROUNDED DELTA, 3–PH, SELF–CONTAINED (LIMITED TO 320 AMPERES CONTINUOUS/400 AMPERES MAX)
10. **Figure 1000–10** Meter Socket connections – 3–WIRE, 120/240 VOLTS, 1–PH, SELF–CONTAINED (LIMITED TO 200 AMPERES) – TEMPORARY SERVICES ONLY
11. **Figure 1000–11** Metering Requirements

Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

**3-WIRE, 120/240 VOLTS, 1-PHASE SELF-CONTAINED
(LIMITED TO 320 AMPERES CONTINUOUS/400 AMPERES MAX)**

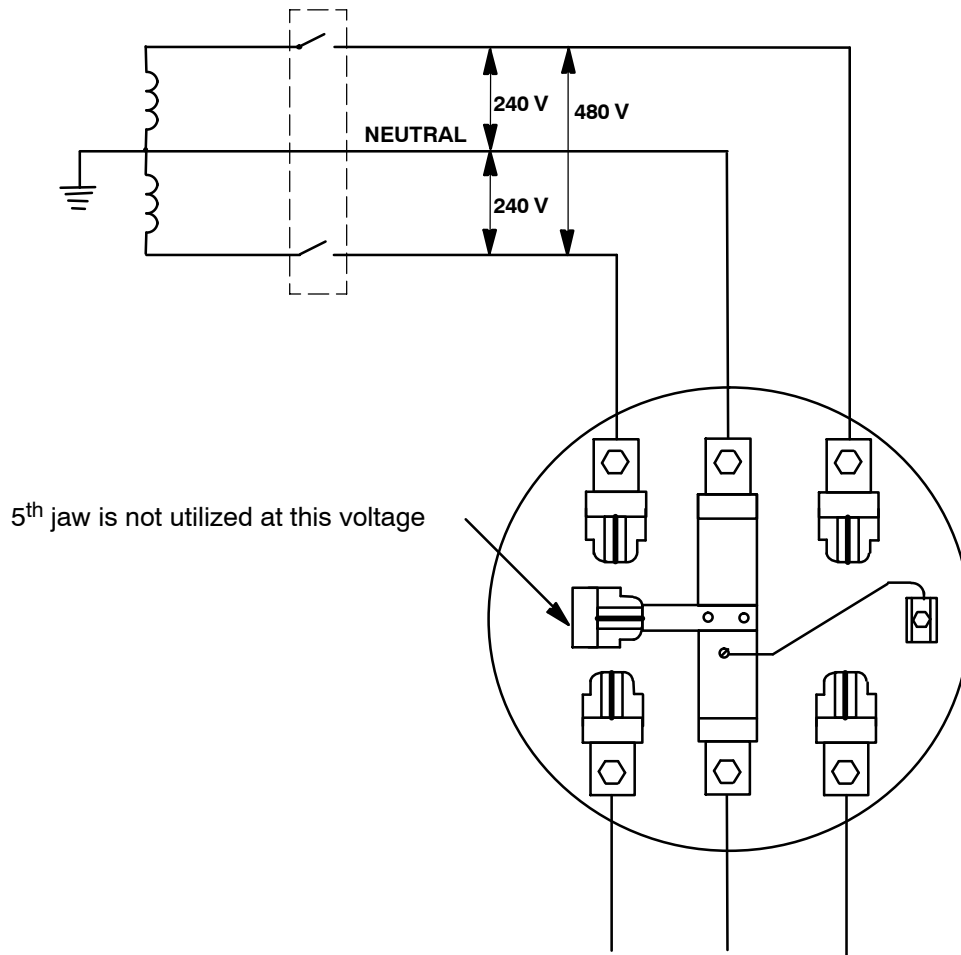
Figure 1000-1



Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**
3-WIRE, 240/480 VOLTS, 1-PHASE SELF-CONTAINED
(LIMITED TO 200 AMPERES)

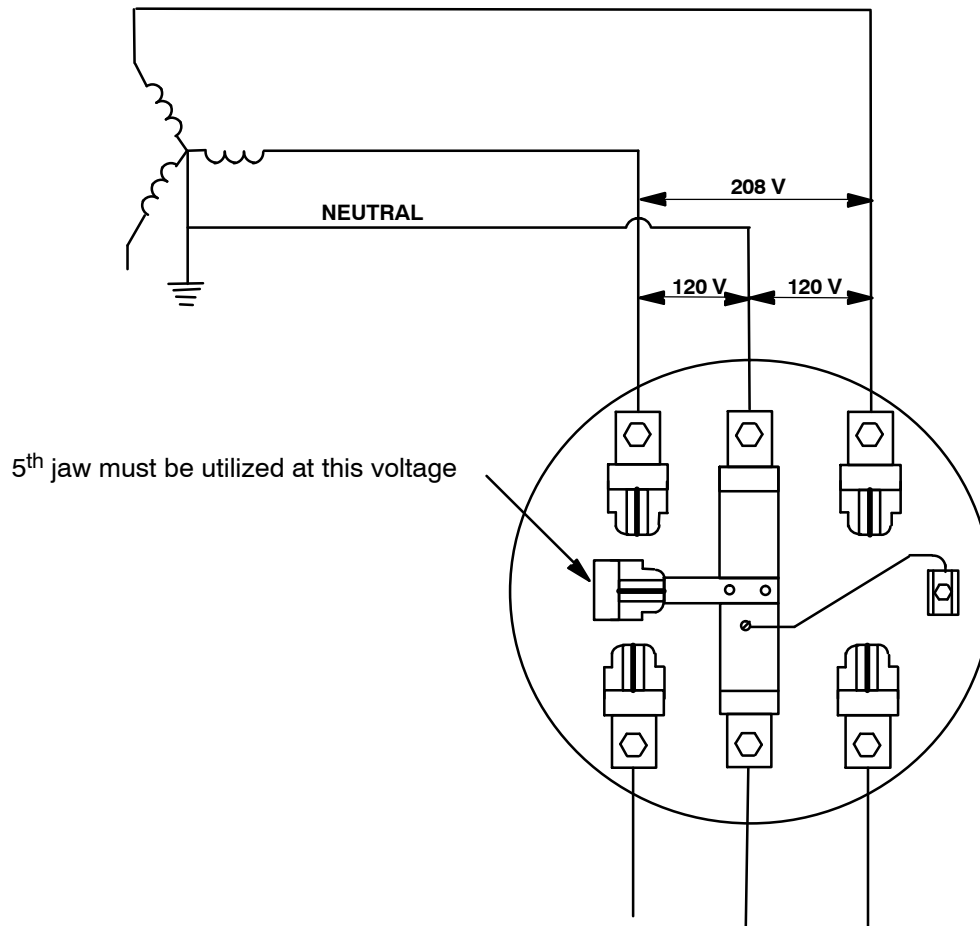
Figure 1000-2



Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**
3-WIRE, 120/208 VOLTS, 1-PHASE SELF-CONTAINED
(LIMITED TO 200 AMPERES)

Figure 1000-3



Note:

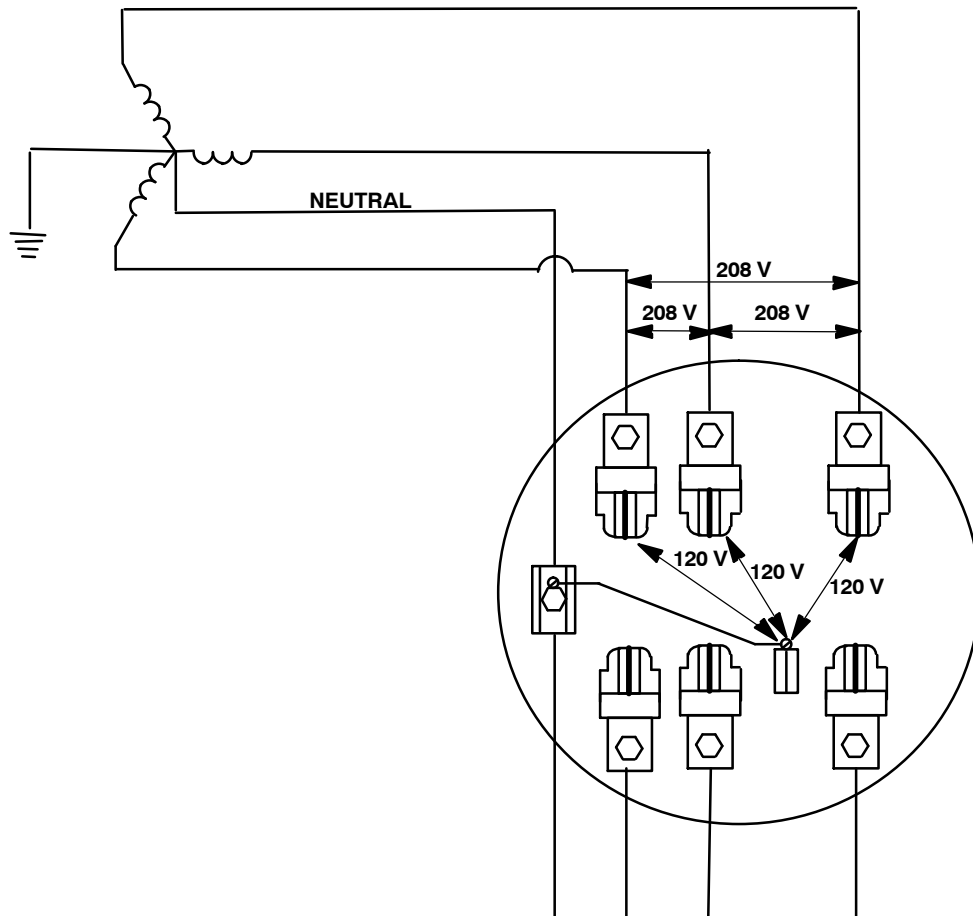
1. 5th lug located in 9 o'clock position.

Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

**4-WIRE, 208Y/120 VOLTS GROUND WYE, 3-PHASE SELF-CONTAINED
(LIMITED TO 320 AMPERES CONTINUOUS/400 AMPERES MAX)**

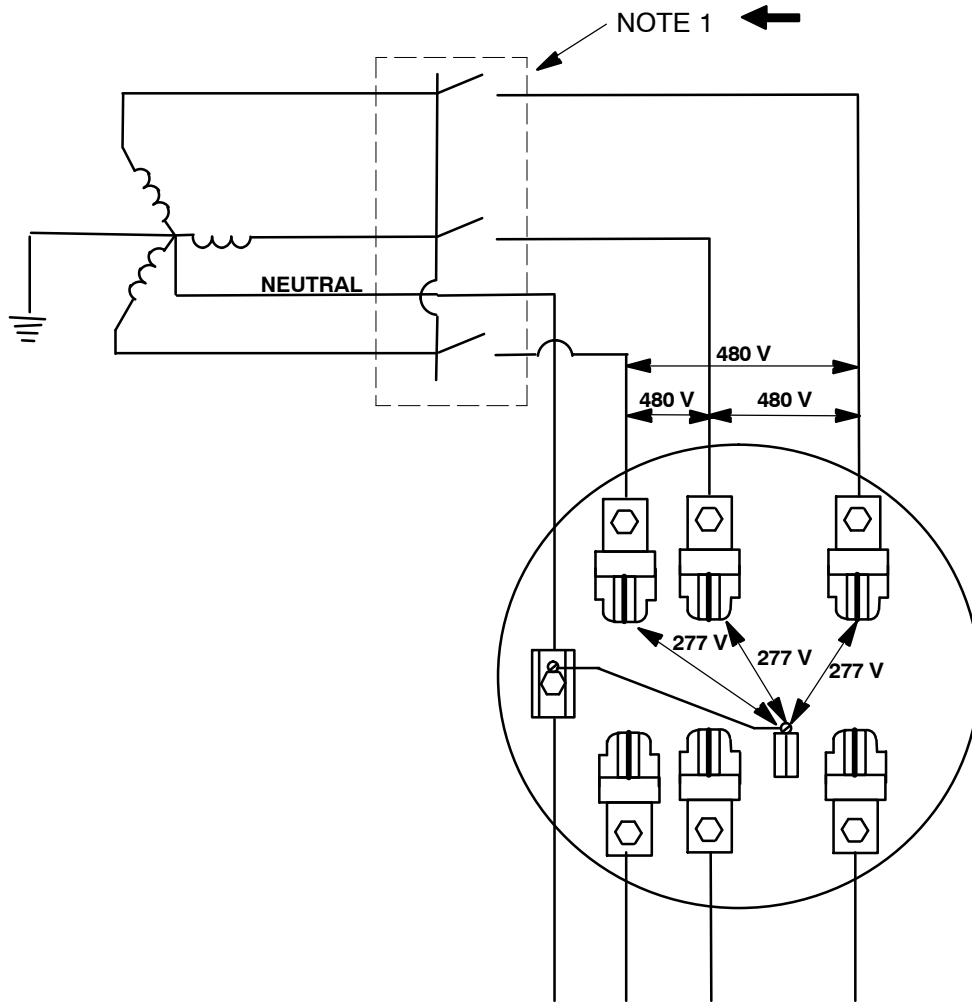
Figure 1000-4



Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**
4-WIRE, 480Y/277 VOLTS, GROUNDED WYE, 3-PHASE SELF-CONTAINED
(LIMITED TO 200 AMPERES) with exception, refer to 200.02.B.1d

Figure 1000-5



NOTE:

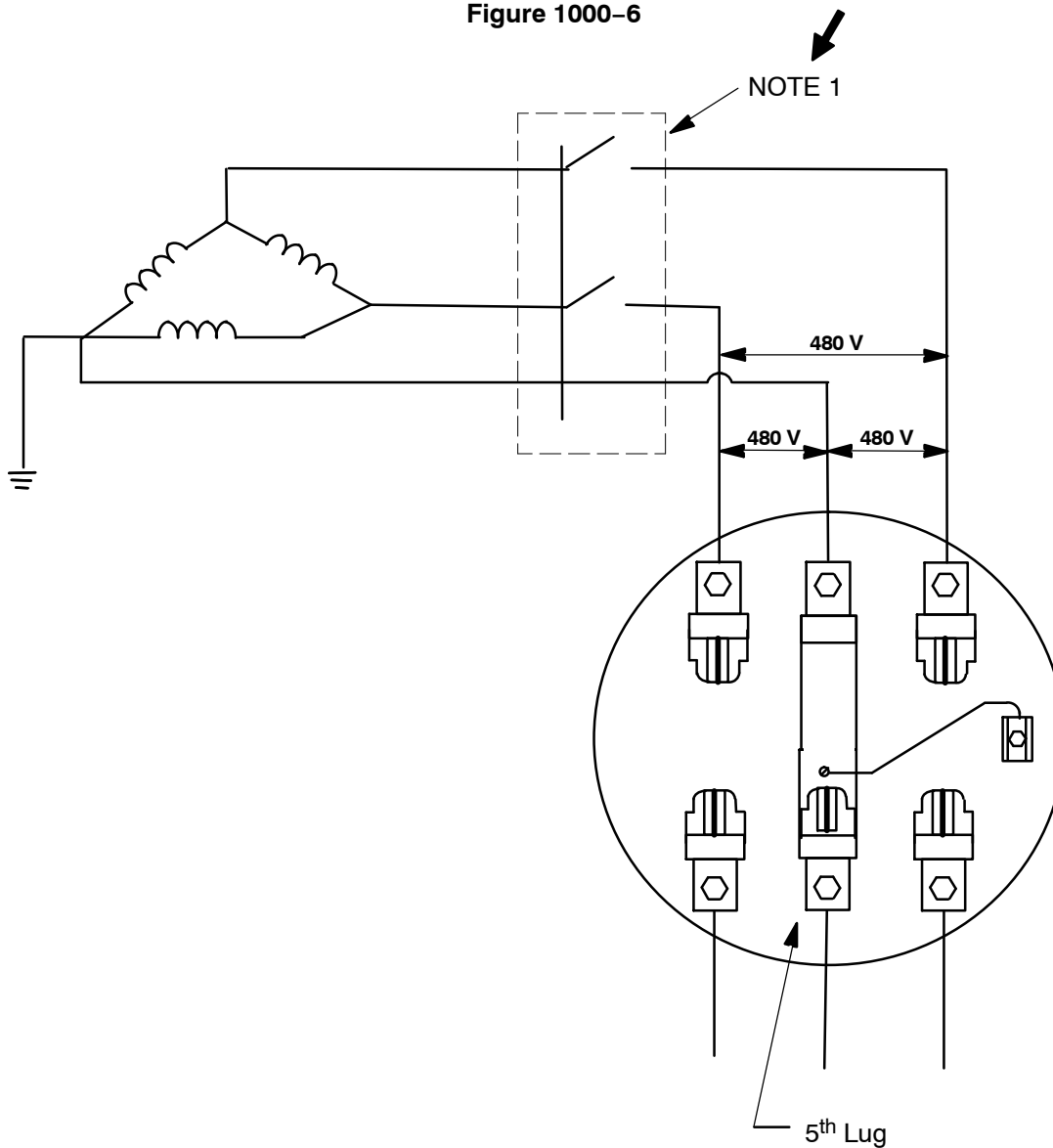
1. Knife blade switch or molded case circuit breaker without over current protection fulfilling cold sequence meter disconnect requirement on source side of meter socket, list of approved devices provided in section 1100.

Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

**3-WIRE, 480 VOLTS, 3-PHASE SELF-CONTAINED (Corner Grounded)
(LIMITED TO 200 AMPERES) with exception, refer to 200.02.B.1d**

Figure 1000-6



NOTE:

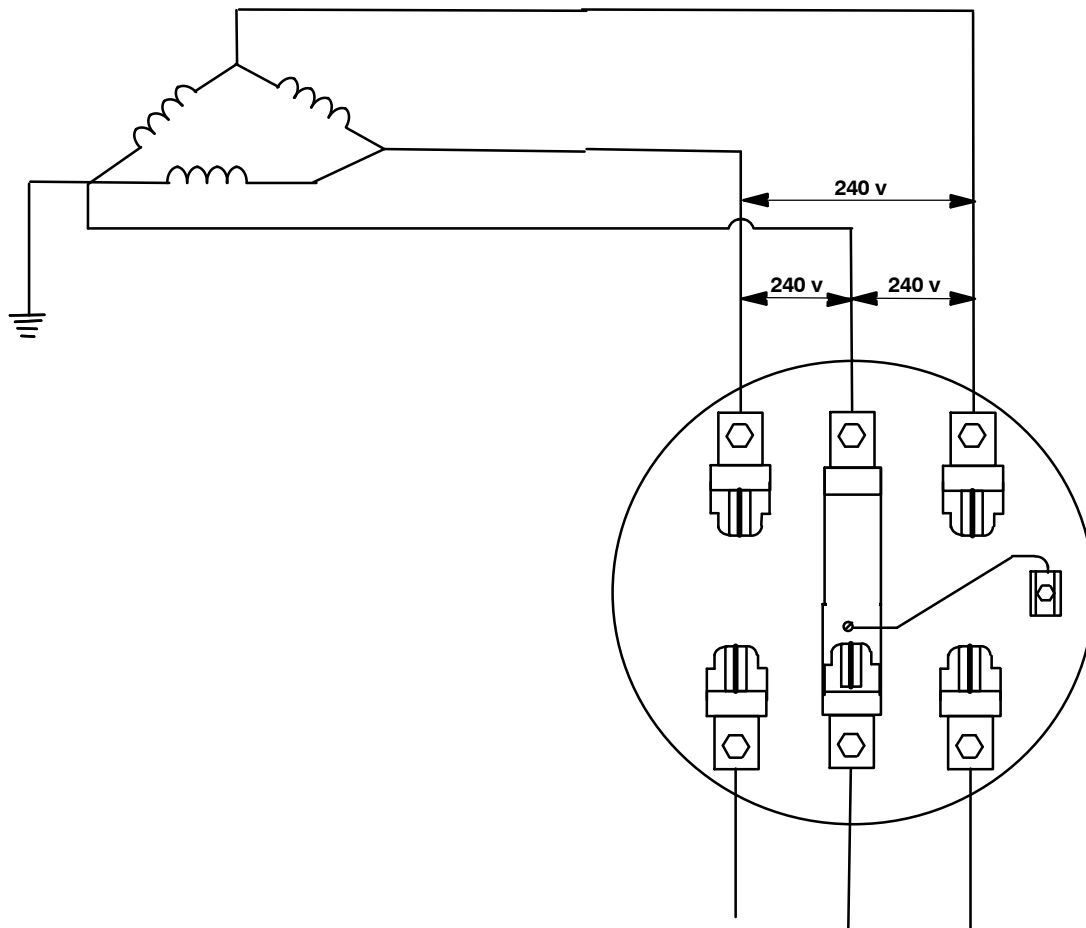
1. Knife blade switch or molded case circuit breaker without over current protection fulfilling cold sequence meter disconnect requirement on source side of meter socket, list of approved devices provided in section 1100.
2. 5th lug located in 6 o'clock position.
3. Grounded phase in the center position of meter socket

Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

**3-WIRE, 240 VOLTS, 3-PHASE SELF-CONTAINED (Corner Grounded)
(LIMITED TO 320 AMPERES Continuous/400 AMPERES Max)**

Figure 1000-7



NOTE:

1. Grounded phase in the center position of meter socket

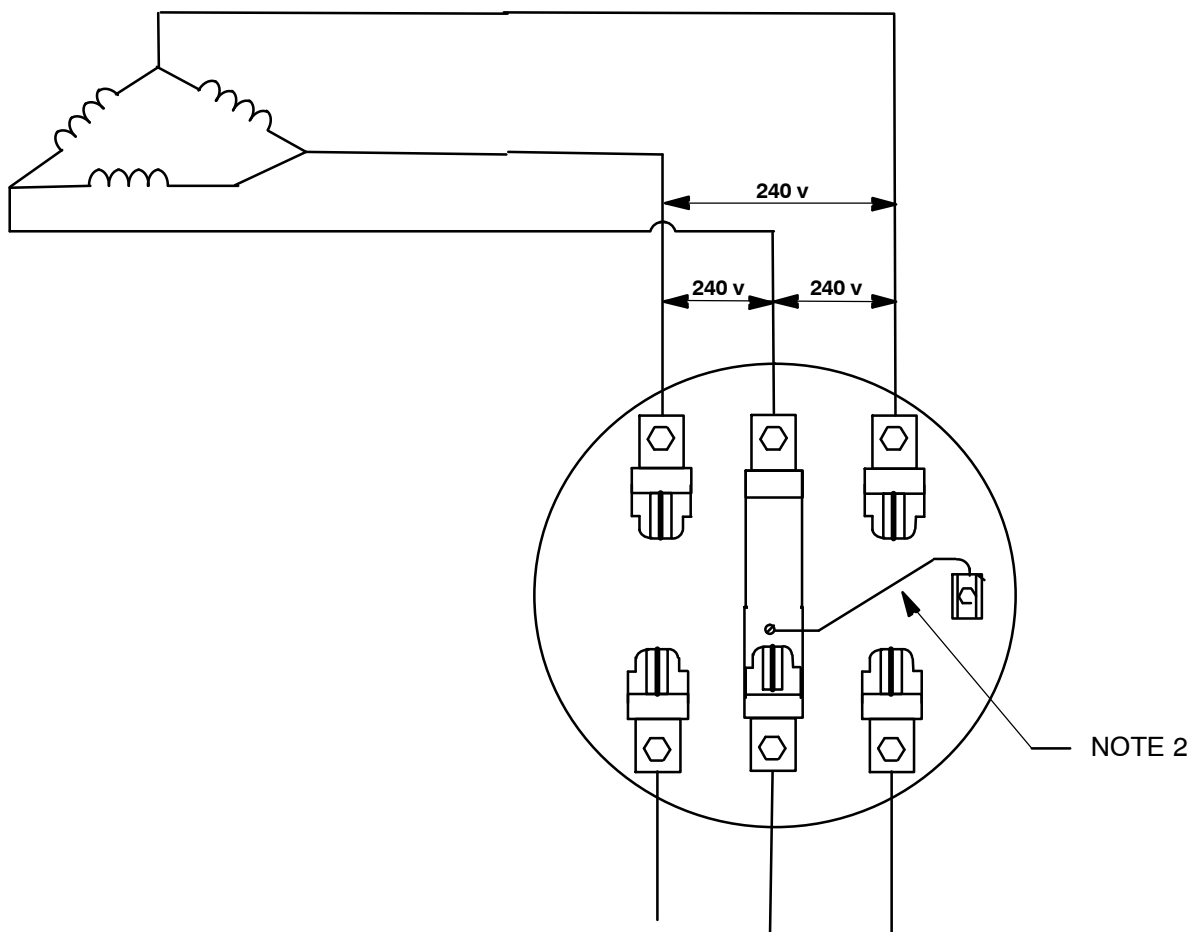
Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

Non-Standard (NOTE 3)

➔ **3-WIRE, 240 VOLTS, 3-PHASE SELF-CONTAINED (Un-Grounded)
(LIMITED TO 320 AMPERES Continuous/400 AMPERES Max)**

Figure 1000-8



NOTE:

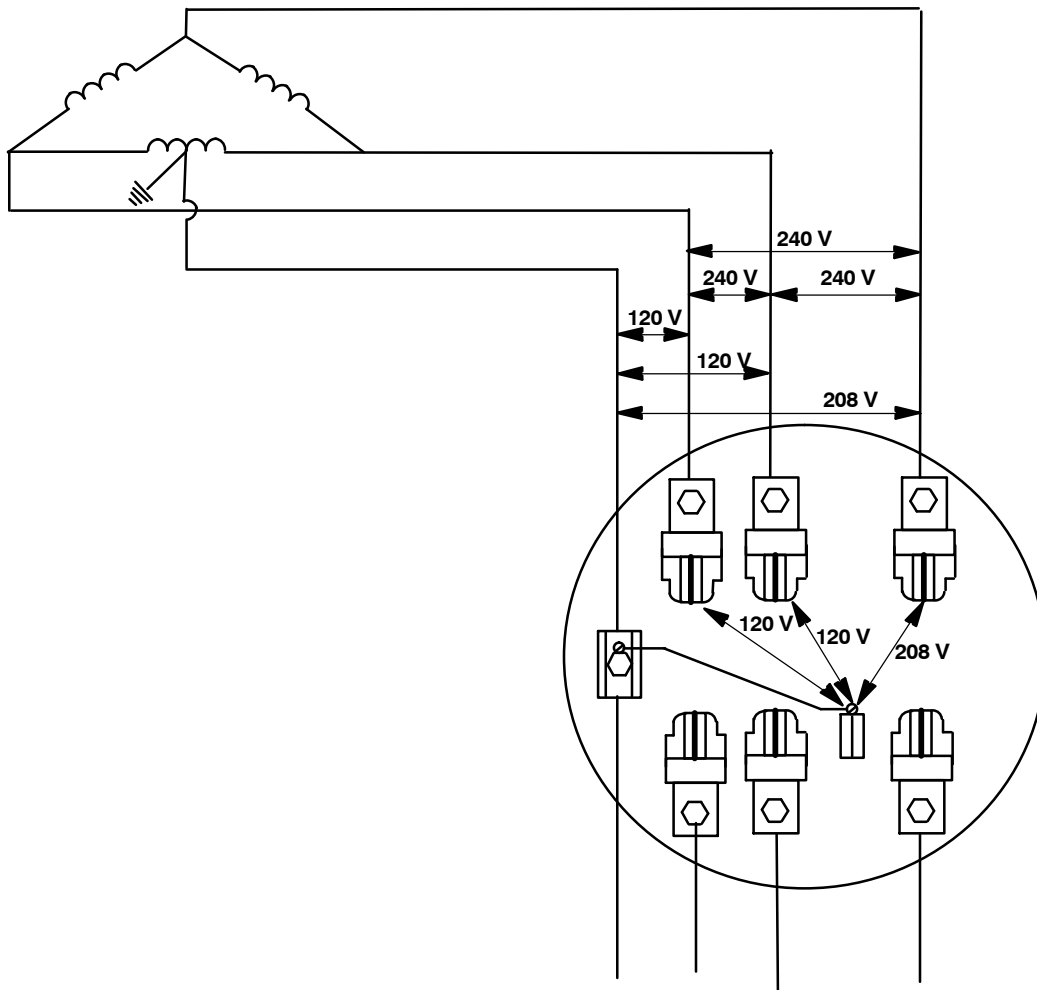
1. Meter socket must be labeled – 3PH, 3-Wire un-grounded supply
2. Bonding strap must be removed
3. MUST BE APPROVED BY AMEREN

Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

**4-WIRE, 120/240 VOLTS, GROUNDED DELTA, 3-PHASE SELF-CONTAINED
(LIMITED TO 320 AMPERES CONTINUOUS/400 AMPERES MAX)**

Figure 1000-9



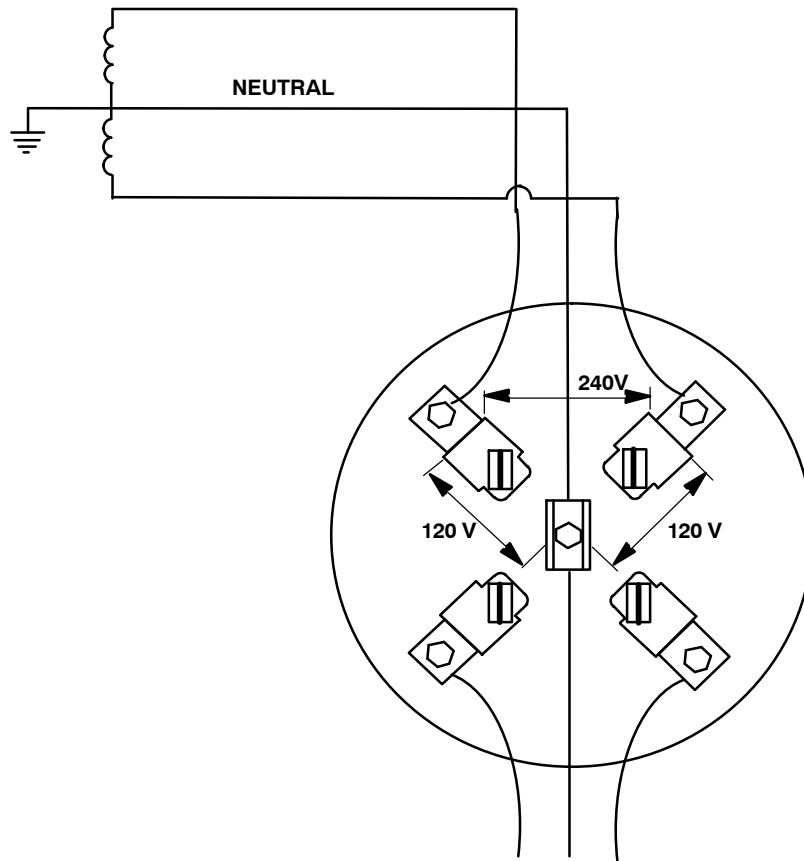
Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

**METER SOCKET CONNECTIONS
AND VOLTAGES**

FOR TEMPORARY SERVICES ONLY

**3-WIRE, 120/240 VOLTS, 1-PHASE SELF-CONTAINED
(LIMITED TO 200 AMPERES)**

Figure 1000-10



Section 1000
Customer Furnished Self-Contained
Meter Mounting Sockets Requirements

METERING REQUIREMENTS
Figure 1000-11

		VOLTAGE					
		120/208V 1PH 3W (200 AMP. Max.)	120/240V 1PH 3W (800 Amp. Max.)	120/208V 3PH 4W (3000 Amp. Max.)	240V 3PH 4W (600 Amp. Max.)	277/480V 3PH 4W (201-3000 Amp.) 480V 3PHS 3W (201-600 Amp.)	480V 1PH 3W (200 Amp. Max.) & 3PH 3W & 4W (200 Amp. Max) (Excpt. 200.02.B)
PANEL SIZE	100-200 AMPS	SELF CONTAINED CLAMP JAW LEVER BYPASS METER SOCKET (Exception in Section 1000.03.3)					SELF CONTAINED CLAMP JAW LEVER BYPASS METER SOCKET & LINE SIDE BREAKER OR FUSED DISCONNECT
	201-400 AMPS	SELF CONTAINED CLAMP JAW LEVER BYPASS METER SOCKET					CT/ PT METERING BAR TYPE*
	401-1200 AMPS	N/A	SELF CONTAINED CLAMP JAW LEVER BYPASS METER SOCKET				CT/ PT METERING BAR TYPE
	1201-3000 AMPS	N/A	CT METERING LARGE WINDOW TYPE				CT/ PT METERING LARGE WINDOW TYPE

NOTE: * Exception, refer to 200.02.B

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

1001.01 SERVICES

General Requirements

- a) All service equipment must be installed and grounded per latest edition of the NEC or local inspection authority. See Section 500.
- b) For 240/480 volts, 480/277 volts, and 480 volts services above 200 amperes, metering current transformers (CT) and potential transformers (PT) will be required. (With exception, see 200.02.B.1d)
- c) Customer shall provide the proper CT/PT enclosure as specified below.
- d) Ameren will provide the wire harness, meter socket, the CT and PT for Missouri.
- e) Single phase and three phase installations 400 amperes continuous and greater will require CT.

1001.02 REQUIREMENTS FOR STAND ALONE THE SIDE WALL/PAD MOUNTED CT/PT ENCLOSURES (UP TO 3000 AMPS)

General Requirements

- a) Ameren will provide an approved list of CT/PT's enclosures, refer to www.ameren.com/service-manual.
- b) Metering transformers will not be allowed in pad mounted transformer enclosures on any new or upgraded service.
- c) CT/PT enclosures must be mounted outside. Only Ameren approved bussed enclosures will be allowed.
- d) Provisions for terminating line and load conductors must be provided.
- e) Customer is responsible for installing Ameren provided CT and PT.
- f) Equipment must be certified by an approved independent testing laboratory using the appropriate UL standard for the certification. At present, Ameren recognizes UL and ETL as approved testing laboratories for equipment installed on the Ameren system.
- g) Enclosure must be hinged, sealable, pad lockable.
- h) CT/PT's enclosures shall normally be installed along the side of the meter sockets
 - Enclosures shall be installed so that any work to be performed by Ameren personnel can be done from final grade level without the aid of a ladder.
 - Where this is impractical, contact the Electric Meter Department for direction.
- i) CT and PT are required on all 277/480 volts and 480 volts service larger than 200 amperes, with exception, see 200.02.B.1d.
- j) All 120, 208 and 240 volts services 400 amperes continuous and larger will require CT.
- k) Bar type CT will be used for 277/480 volts and 480 volts services from 201 to 1200 amperes and for 120/240 volts, 120/208 volts and 240 volts from 401 to 1200 amperes. Large window CT will be used for 1201 to 3000 amperes services. See Section 400.03 for maximum service sizes for non-standard service voltages such as 240 and 480 volts 3-wire.
- l) 480 volts installations shall contain an Ameren approved side mounted potential transformer enclosure, with 1 in. close nipple. If longer than 6 in., make 1-1/2 in. continuous metallic rigid or PVC Sch 40 or greater conduit.
- m) Potential transformer enclosure must be metal (removable) mounting brackets for installing PT.
- n) Potential tap holes (#10-32 or 1/4" - 20) shall be located on the bus closest to the front on the line side of the CT for each phase. Each hole shall be drilled and tapped through the entire bus, with lugs sized to accommodate a #10 wire, for each phase and neutral bus. Potential tap holes are not required for the individual phase for services from 201 thru 1200 amp; Potential tap holes are required for the neutral in all cases.
- o) Conduit between the CT's enclosure and meter socket shall be 1-1/2 in. metallic rigid with bonding bushing, or schedule 40 (or greater) electric grade PVC. If schedule 40 (or greater) electric

Section 1001 Current Transformer Installations For Services Under 600 VOLTS

grade PVC pipe is used, a bonding jumper no smaller than #10 copper should be provided between the meter socket and enclosure. For Missouri installations the bonding jumper is provided in the 11 conductor cable.

- p) Meter bundle (harness) CT wire must not route through PT compartment.
- q) All service equipment, including CT's enclosure must be grounded and bonded per latest edition of the NEC or local inspection authority, see Section 500 for Ameren grounding requirement.
- r) CT's enclosure must be mounted from 3 ft–0 in. min to 5 ft–6 in. max above finished grade to the center of the CT's enclosure.
- s) CT's enclosure to be mounted on a flat even surface such that the enclosure door should open and close properly. When mounted on an uneven surface, such as brick or architectural stone, uni-strut mounting of the enclosure is required. In any case, if CT's enclosure doors do not open or close properly, Ameren may require installation of uni-strut or some other equivalent mounting structure to correct the problem.
- t) Dimension requirement for Ameren approved CT/PT enclosures

A CT's enclosures – wall mounted requirement:

Ampacity Rating 1PH and 3PH Applications	Minimum Dimensions for Bottom Entry/Bottom Exit or Top Entry/Top Exit with Side Gutter (1)(2) W" x D" x H"	Min Dimension for Bottom Entry/Bottom Exit or Top Entry/Top Exit w/o Side Gutter W" x D" x H"(3)	Minimum Dimensions for Top Entry/Bottom Exit or Bottom Entry/ Top Exit (3) W" x D" x H"
400A	24" x 11" x 48"	24" x 14" x 48"	24" x 10" x 48"
600A – 800A	36" x 11" x 48"	36" x 14" x 48"	24" x 10" x 48"
1200A	36" x 14" x 64" (Must add 24"W x 15"D x 64"H Side Gutter)(1)(2)	46" x 14" x 54"	36" x 14" x 54"
1600A	40" x 14" x 64" (Must add 24"W x 15"D x 64"H Side Gutter)(1)(2)	50" x 14" x 64"	36" x 14" x 60"
2000A	40" x 14" x 64" (Must add 30"W x 15"D x 64"H Side Gutter)(1)(2)	50" x 14" x 64"	40" x 14" x 64"
2500A – 3000A	44" x 20" x 78" (Must add 44"W x 21"D x 78"H Side Gutter)(1)(2)	50" x 20" x 72"	42" x 20" x 72"

Note: For Bottom Entry/Bottom Exit or Top Entry/Top Exit

1. Ameren approved CT's enclosure will require a designated wireway or side gutter, on the left or right side of the CT rack to accommodate bottom line entry to the top of the CT rack or bottom load exit from the top of the CT rack or to accommodate top line entry to the bottom of the CT rack or top load exit from the bottom of the CT rack.
2. Installations CT's enclosures that require side gutters:
Side gutters are required for training conductors on services greater than 800 amperes where the service conductors enter and exit the CT section from the same elevation. Such as line side conductors entering CT section from bottom and load side conductors exiting bottom portion of cabinet either through the side, back, or bottom plate. Side gutters would also apply for both line and load conductors entering and exiting at the top of the CT's enclosure.

When using the side gutter, either the line side or load side conduits (but not both) should

**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

land on this side gutter compartment to help train the conductors and to free up space inside the CT's enclosure section.

3. Installations CT's enclosures that would not require the side gutter:
 - 1.) Line side conductors entering bottom of CT's enclosure. CT dots pointed down. Load side conductors leaving top portion of CT section. This would include exiting through the upper back.
 - 2.) Line side conductors entering top section of CT's enclosure. CT dots pointed up. Load side conductors leaving bottom portion of CT enclosure. This would include exiting through the lower back.

B. CT's enclosures – pad mounted requirement

Ampacity Rating 1PH and 3PH Applications	Minimum Dimensions for Pad Mounted CT's Enclosure W" x D" x H" Two Sided Compartment	Minimum Dimensions for Pad Mounted CT's Enclosure W" x D" x H" One Sided Compartment
400A	24" x 16" x 56"	24" x 13.5" x 58"
600A – 800A	24" x 16" x 56"	36" x 13.5" x 58"
1200A	40" x 30" x 74"	45" x 13.5" x 64"
1600A	40" x 30" x 74"	54" x 14" x 66"
2000A	40" x 30" x 74"	54" x 14" x 66"
2500A – 3000A	56" x 42" x 88"	50" x 20" x 72"
2000A – 2500A	67" x 24" x 75"	50" x 20" x 72"

C PT's enclosure requirement

1. PT's enclosure must be at least 12 in. W x 36 in. H x 8 in. D with ¾ in. Metal (removable) mounting brackets for installing PT.

1001.03 Switchboards (Secondary, below 600 volts)

General requirements for CT/PT's compartments in switchboards (Up to 3000 amperes)

- a) Metering transformers will not be allowed in pad mounted transformer enclosures on any new or upgraded service.
- b) Customer owned switchboards will contain dedicated compartment(s) for the purpose of housing Ameren provided current and voltage transformers. PT's compartments are only required for 277/480 volts and 480 volts services, **Refer to section 200 for location requirement.** (Refer to 1001.03.t – minimum dimension requirement for CT/PT's compartments).
- c) These compartments must be dedicated to Ameren equipment. Front hinged doors shall be provided with padlocking and sealing provisions for securing by Ameren.
- d) CT and PT must be readily accessible from the front of the switchboards for ease of installation and removal.
- e) Bussing for all phases, neutral and ground should be included in this section.
- f) CT and PT compartments must be hinged and pad lockable. Separate doors must be provided for the CT and PT compartments.
- g) No obstructions or bus that might restrict free and easy access to the CT and PT is allowed in front (hinged door side) of the CT or PT.
- h) Customer equipment shall not be located within or accessible through this dedicated compartment.

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

- i) CT and PT compartment must be separated and have barrier from other customer compartments to restrict access.
- j) Metered and un-metered conductors shall be separated by insulated barriers.
- k) Ameren meter – main switch hot sequence requirements must be followed.
- l) Potential tap holes (#10–32 or 1/4” – 20) shall be located on the line side of the bus closest to the front, drilled and tapped through the entire bus, with lugs sized to accommodate a #10 wire, for each phase and neutral bus.
- m) Outdoor located CT/PT switchboards sections shall be weather and rain resistant (NEMA Type 3R).
- n) All switchboards must be UL listed, and meet minimum UL requirements for steel and aluminum structures.
- o) Bottom of CT/PT section shall be no lower than 24 in. for U/G fed switchboards or 18 in. for O/H fed switchboards. May be reduced to 12 in. for overhead fed switchboards with a PT section.
- p) Top of CT/PT section shall be no higher than 78 in.
- q) All service equipment must be grounded and bonded per latest edition of the NEC or local inspection authority, see Section 500 for Ameren grounding requirement.
- r) Refer to Section 1001 for Ameren approved switchboard manufacturer drawings for CT and PT sections for 600 volts and below switchboards. Switchboards built per one of these approved drawings do not require Ameren approval prior to manufacture or installation. Switchboards not meeting one of these drawings must be approved by the Ameren Metering Department prior to manufacture.
- s) Refer to Section 400.04 for maximum service sizes for non-standard service voltages such as 240 and 480 volts 3-wire.
- t) Dimension Requirement for CT and PT in switchboards
 1. CT compartment dimensions and requirements (401 thru 3000 amperes 120 volts, 240 volts and 201–3000 amperes 277 volts, 480 volts)
 - a) Minimum dimensions 35 in. W x 22 in. H x 12 in. D
 - b) Provision for mounting bar type current transformers for 277/480 volts or 480 volts services from 201–1200 amperes, 120/240 volts, 120/208 volts and 240 volts services from 401–1200 amperes using a main breaker or a main fuse must be provided.
 - c) Provisions for mounting large window current instrument transformers (5 ¾ in. window diameter) using non conductive supports for services from 1201 to 3000 amperes must be provided. An insulated shelf or insulated angle bracket must be provided for mounting window type CT.
 - d) Removable bus section must be provided in order to route the bus through the window type CT. No cable is allowed through the CT, bus only is allowed.
 2. PT compartment for 277/480 and 480 volts services
 - a) Minimum dimensions 35 in. W x 8 in. H x 8 in. D
 - b) An 8 in. bracket, or shelf extending the full width of the PT compartment for mounting the PT, shall be provided.
 - c) Bracket or shelf should be strong enough to safely support up to 3 PT.
 - d) The PT compartment must be located directly above or below the CT compartment. An insulated barrier between the CT and PT sections must be provided. Provisions for routing wire between the 2 compartments must be provided.

1001.04 METER SOCKETS

1. Only Ameren approved pre-wired meter sockets, including color coded test switches, will be utilized on new installations.
 - a) Meter sockets will be provided by Ameren for installations in **Missouri** territories. Combination Meter Sockets with cold sequence meter disconnect switch to be provided by Customer.

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

- d) Customer or contractor must provide an Ameren Missouri job number in order to pick up the equipment. Material will not be issued without a valid job number.

1001.07 DELIVERY OF COMPANY FURNISHED METER ITEMS (AMEREN ILLINOIS)

Company furnished CT and PT will be delivered by Ameren Meter Department to the site. Communication for this metering equipment should be done well in advance of need of installation date.

Phone: 800-755-5000

1001.08 SWITCHBOARD'S DRAWINGS

Contact the local Ameren office to determine if drawings are required, or if approval is needed.

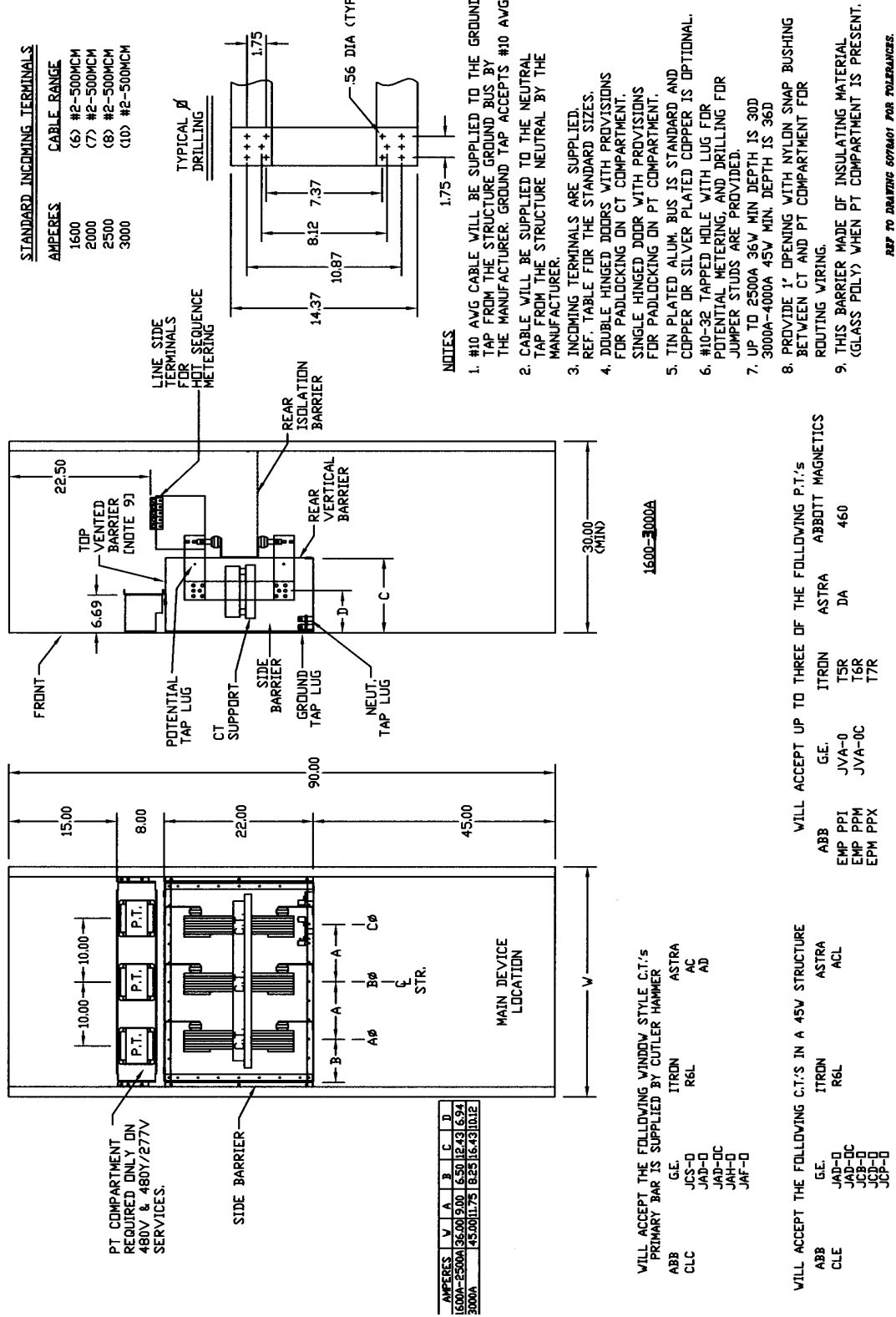
1. Current Transformer Installations – Eaton/Cutler-Hammer 3000 amp max
 - Figure 1001-2A** 1201-3000 amperes OH Feed w/o main
 - Figure 1001-2B** 200-1200 amperes OH Feed w/o main
 - Figure 1001-2C** 1201-3000 amperes UG Feed w/o main
 - Figure 1001-2D** 200-1200 amperes UG Feed w/o main
2. Current Transformer Installations – Siemens 3000 amperes max
 - Figure 1001-3A**
3. Current Transformer Installations – GE 3000 amperes max
 - Figure 1001-4A** 201-1200 amperes with Bar Type CT Compartment (switchboard)
 - Figure 1001-4B** 1201-3000 amperes with Window Type CT Compartment (switchboard)
 - Figure 1001-4C** 1201-3000 amperes with Window Type CT Compartment (switchgear)
4. Current Transformer Installations – Square D 201-1200 amperes
 - Figure 1001-5A**
 - Figure 1001-5B**
 - Figure 1001-5C**
5. Current Transformer Installations – Square D 1201-3000 amperes
 - Figure 1001-5D**
 - Figure 1001-5E**
 - Figure 1001-5F**
6. Current Transformer Installations – American Midwest Power 201-3000 amperes
 - Figure 1001-6A**

1001.09 CT/PT ENCLOSURE INSTALLATION DRAWINGS

1. **Figure 1001-7** 120/240 volts, 1-phase, 3-wire, 401-800 amperes and 240 volts, 3-phase, 3-wire, 401-1200 amperes installations
2. **Figure 1001-8** 480 volts, 3-phase, 3-wire, 201-600 amperes installations
3. **Figure 1001-9** 120/208 volts 3-phase, 4-wire 401-1200 amperes installations
4. **Figure 1001-10** 120/208 volts, 3-phase, 4-wire, 1201-3000 amperes installations
5. **Figure 1001-11** 277/480 volts, 3-phase, 4-wire, 201-1200 amperes installations
6. **Figure 1001-12** 277/480 volts, 3-phase, 4-wire, 1201-3000 amperes installations
7. **Figure 1001-13** CT Enclosure - Side Gutter

Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard – Eaton/Cutler Hammer CT/PT Compartment 1201–3000 Amperes OH Feed W/O Main Figure 1001–2A



AMPERES	CABLE RANGE
1600	(6) #2-500MCM
2000	(7) #2-500MCM
2500	(8) #2-500MCM
3000	(10) #2-500MCM

NOTES

- #10 AWG CABLE WILL BE SUPPLIED TO THE GROUND TAP FROM THE STRUCTURE GROUND BUS BY THE MANUFACTURER. GROUND TAP ACCEPTS #10 AWG. CABLE WILL BE SUPPLIED TO THE NEUTRAL TAP FROM THE STRUCTURE NEUTRAL BY THE MANUFACTURER.
- INCOMING TERMINALS ARE SUPPLIED. REF. TABLE FOR THE STANDARD SIZES.
- DOUBLE HINGED DOORS WITH PROVISIONS FOR PADLOCKING ON CT COMPARTMENT.
- SINGLE HINGED DOOR WITH PROVISIONS FOR PADLOCKING ON PT COMPARTMENT.
- TIN PLATED ALUM. BUS IS STANDARD AND COPPER DR SILVER PLATED COPPER IS OPTIONAL.
- #10-32 TAPPED HOLE WITH LUG FOR POTENTIAL METERING AND DRILLING FOR JUMPER STUDS ARE PROVIDED.
- UP TO 2500A 36V MIN DEPTH IS 30D 3000A-4000A 45V MIN. DEPTH IS 36D
- PROVIDE 1" OPENING WITH NYLON SNAP BUSHING BETWEEN CT AND PT COMPARTMENT FOR ROUTING WIRING.
- THIS BARRIER MADE OF INSULATING MATERIAL (GLASS POLY) WHEN PT COMPARTMENT IS PRESENT.

REF TO DRAWING 6078A01 FOR TOLERANCES.

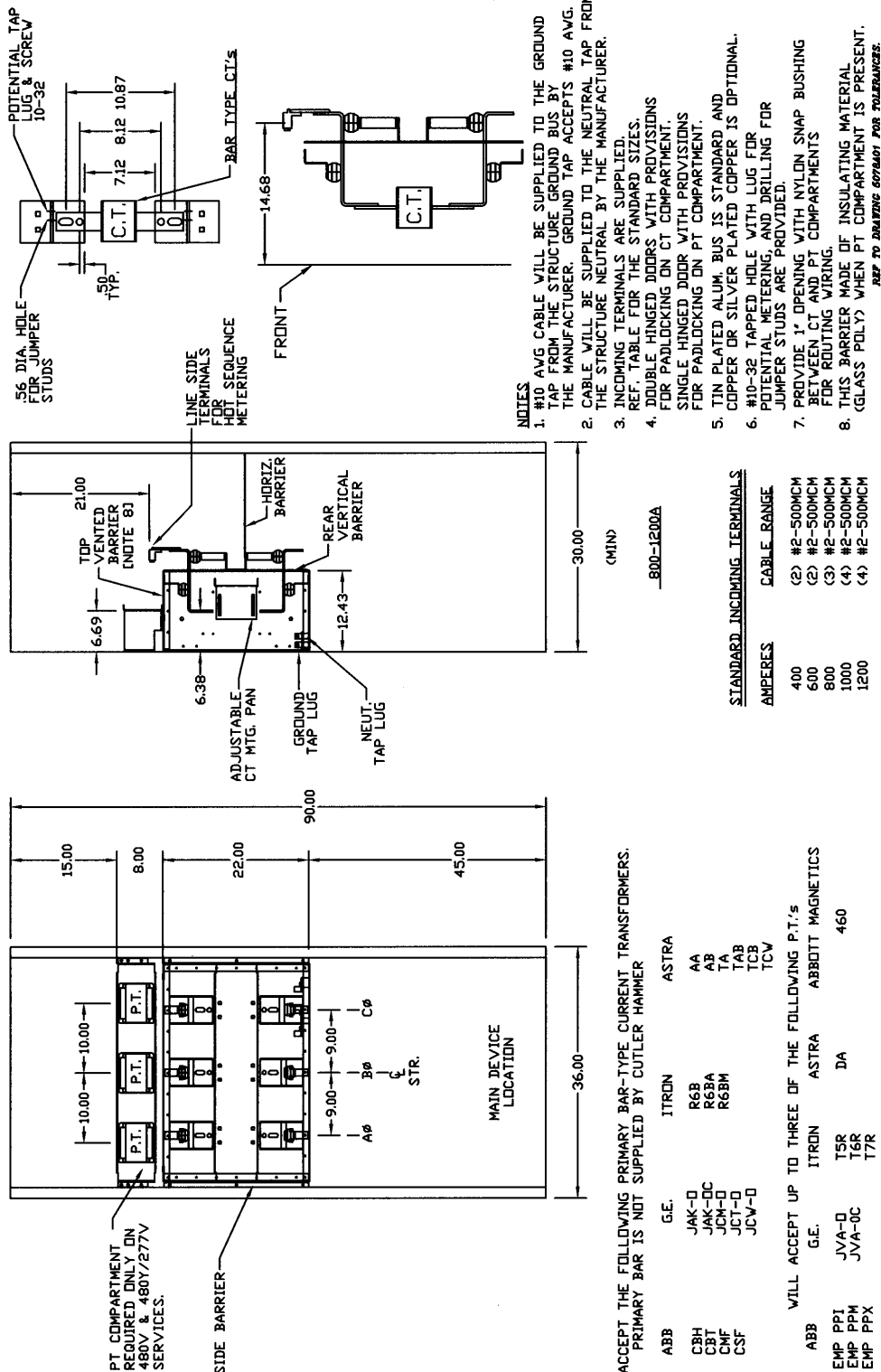
1600-3000A

- WILL ACCEPT THE FOLLOWING WINDOW STYLE C.T.'s
PRIMARY BAR IS SUPPLIED BY CUTLER HAMMER
- | | | | | | | | | | | | |
|-----|-----|------|-------|-------|-------|-------|-------|-----|-------|----|----|
| ABB | CLC | G.E. | JCS-D | JAD-D | JAH-D | JAF-D | ITRON | R6L | ASTRA | AC | AD |
|-----|-----|------|-------|-------|-------|-------|-------|-----|-------|----|----|
- WILL ACCEPT UP TO THREE OF THE FOLLOWING P.T.'s
- | | | | | | | | | | | | | | |
|-----|---------|---------|---------|------|-------|--------|-------|-----|-----|-----|-------|----|-----|
| ABB | EMF PPI | EMF PPM | EMF PPX | G.E. | JVA-0 | JVA-0C | ITRON | T5R | T6R | T7R | ASTRA | DA | 460 |
|-----|---------|---------|---------|------|-------|--------|-------|-----|-----|-----|-------|----|-----|
- WILL ACCEPT THE FOLLOWING C.T.'S IN A 45V STRUCTURE
- | | | | | | | | | | | | |
|-----|-----|------|-------|--------|-------|--------|-------|-------|-----|-------|-----|
| ABB | CLE | G.E. | JAD-D | JAD-DC | JCB-D | JCB-DC | JCP-D | ITRON | R6L | ASTRA | ACL |
|-----|-----|------|-------|--------|-------|--------|-------|-------|-----|-------|-----|



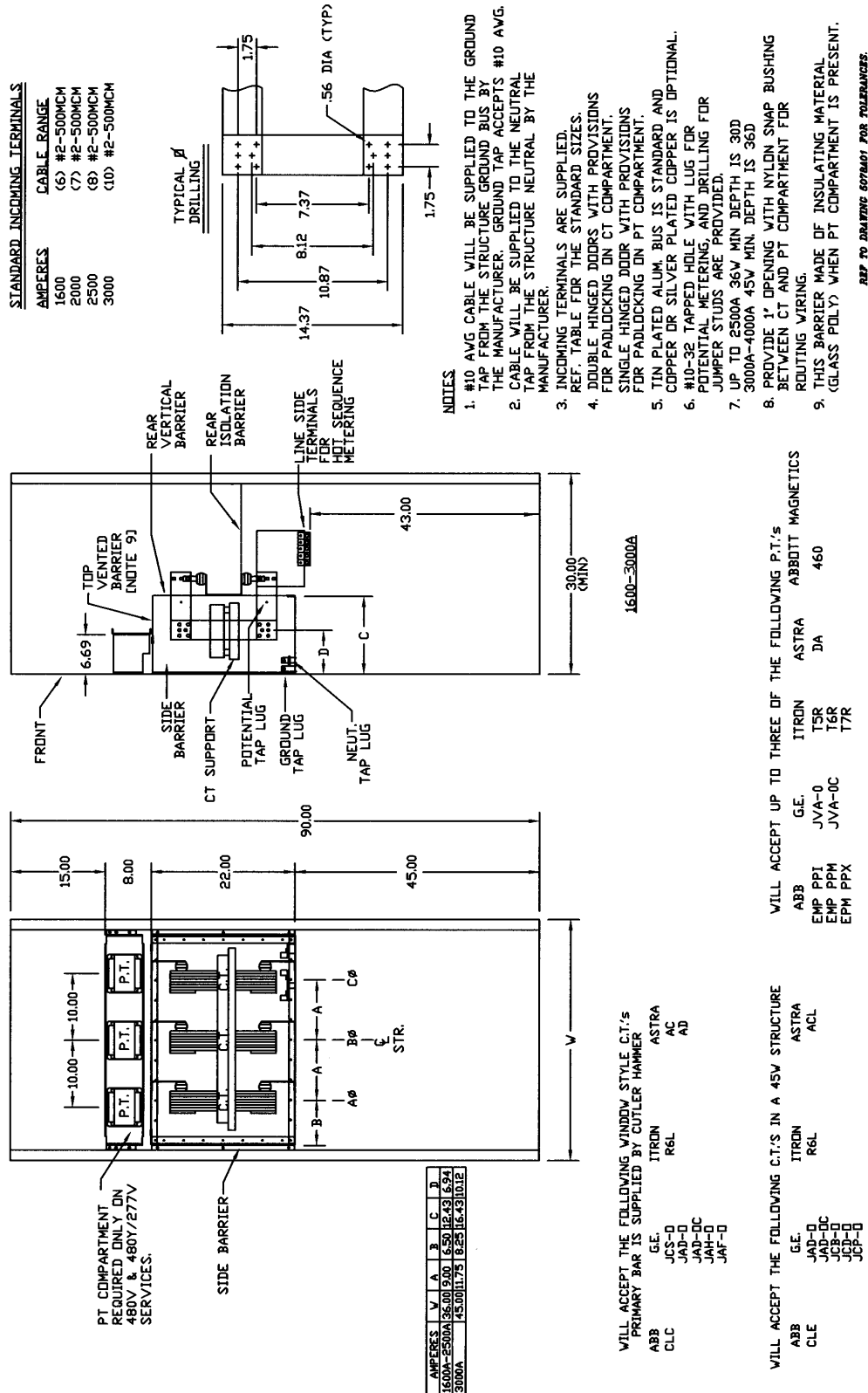
Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard – Eaton/Cutler Hammer CT/PT Compartment 200–1200 Amperes OH Feed W/O Main Figure 1001-2B



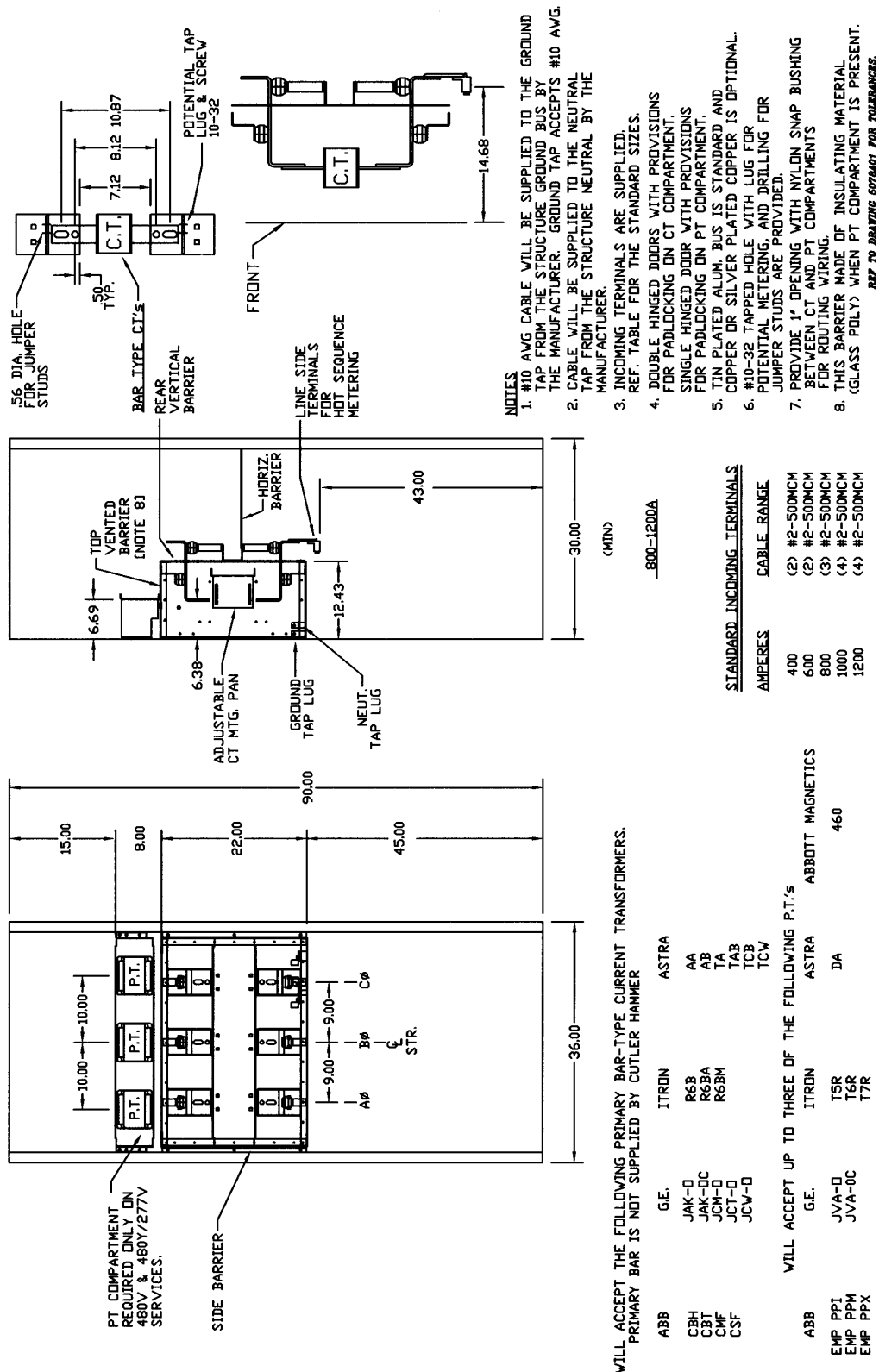
Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard – Eaton/Cutler Hammer CT/PT Compartment 1201–3000 Amperes UG Feed W/O Main Figure 1001-2C



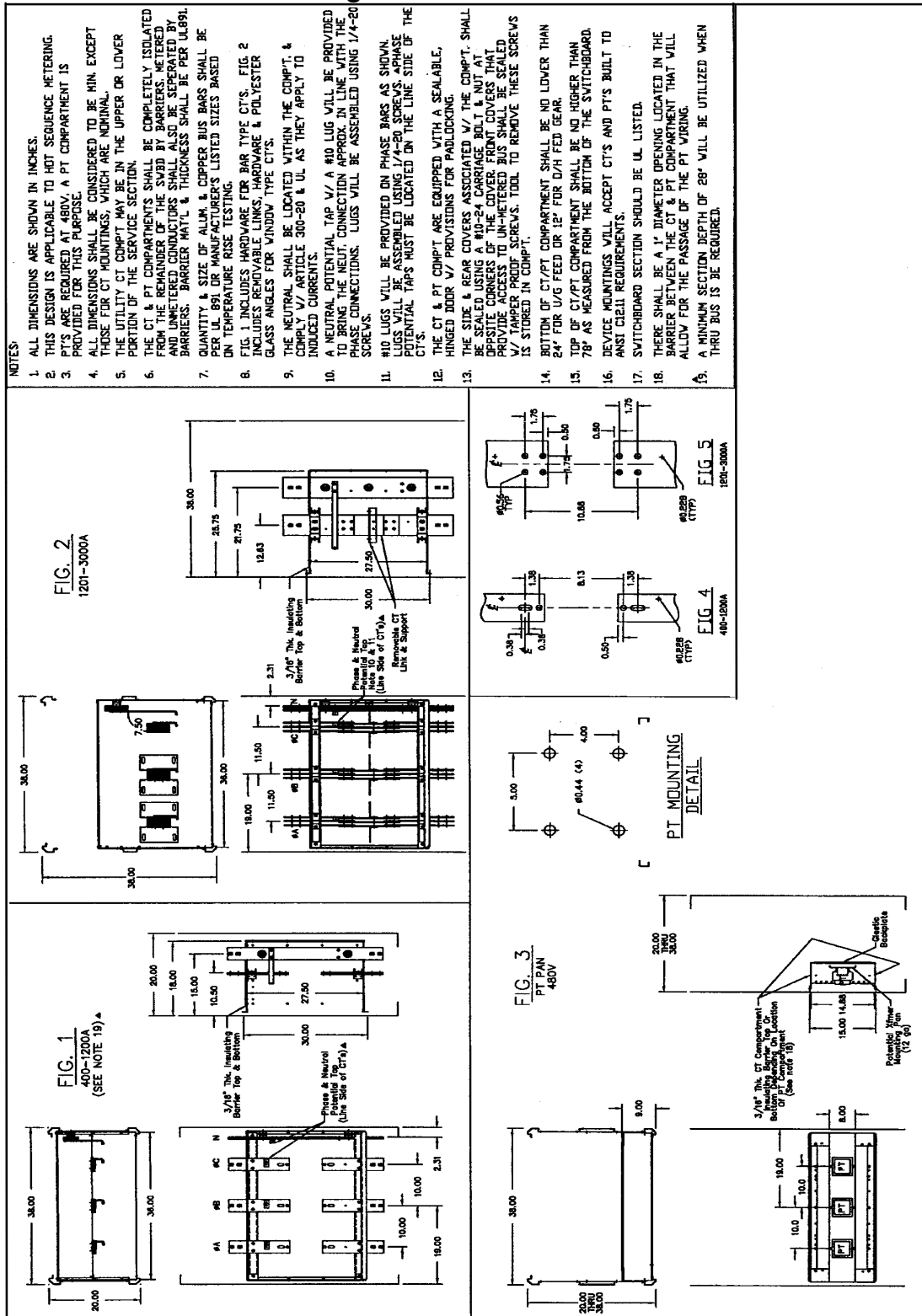
Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard – Eaton/Cutler Hammer CT/PT Compartment 200–1200 Amperes UG Feed W/O Main Figure 1001–2D



Section 1001 Current Transformer Installations For Services Under 600 VOLTS

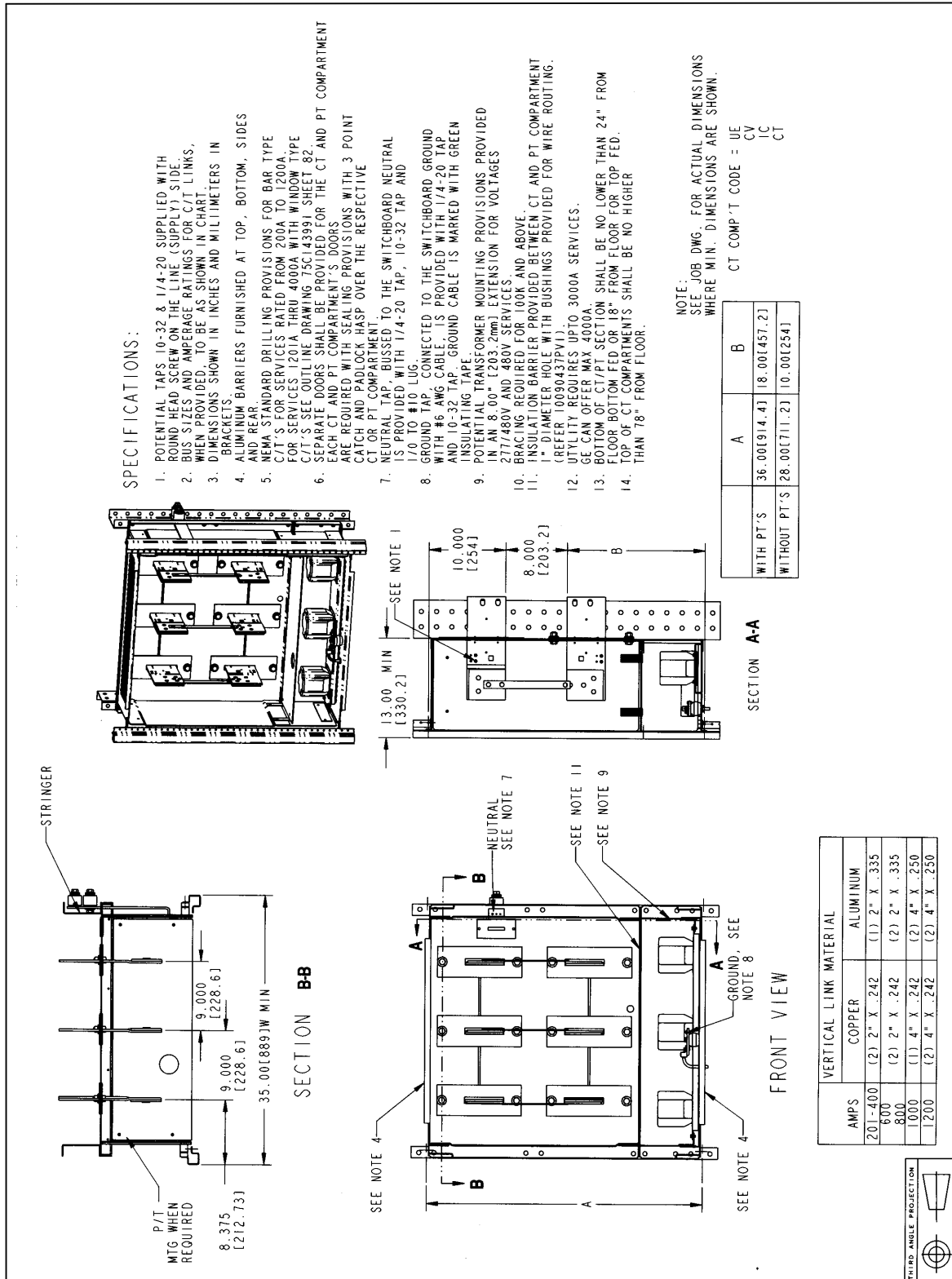
Ameren Approved Switchboard – Siemens CT/PT Compartment 3000 Amperes Max. Figure 1001-3A



Drawing No. IS-8500-21

Section 1001 Current Transformer Installations For Services Under 600 VOLTS

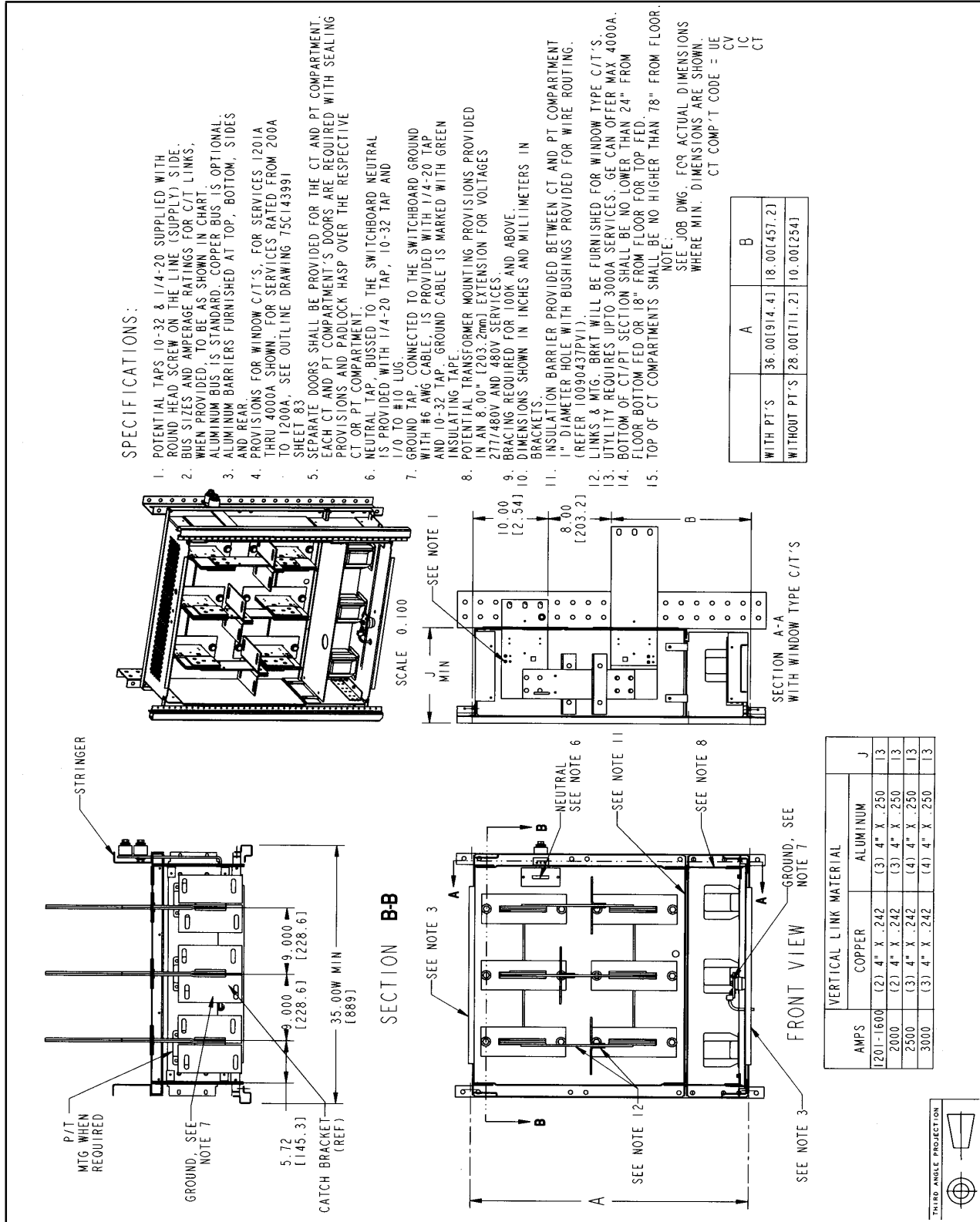
Ameren Approved Switchboard – GE CT/PT Compartment 201–1200 Amperes with Bar Type CT Compartment (Switchboard) Figure 1001–4A



Drawing No. 75C1433991

Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard – GE CT/PT Compartment 1201–3000 Amperes with Window Type CT Compartment (Switchboard) Figure 1001–4B



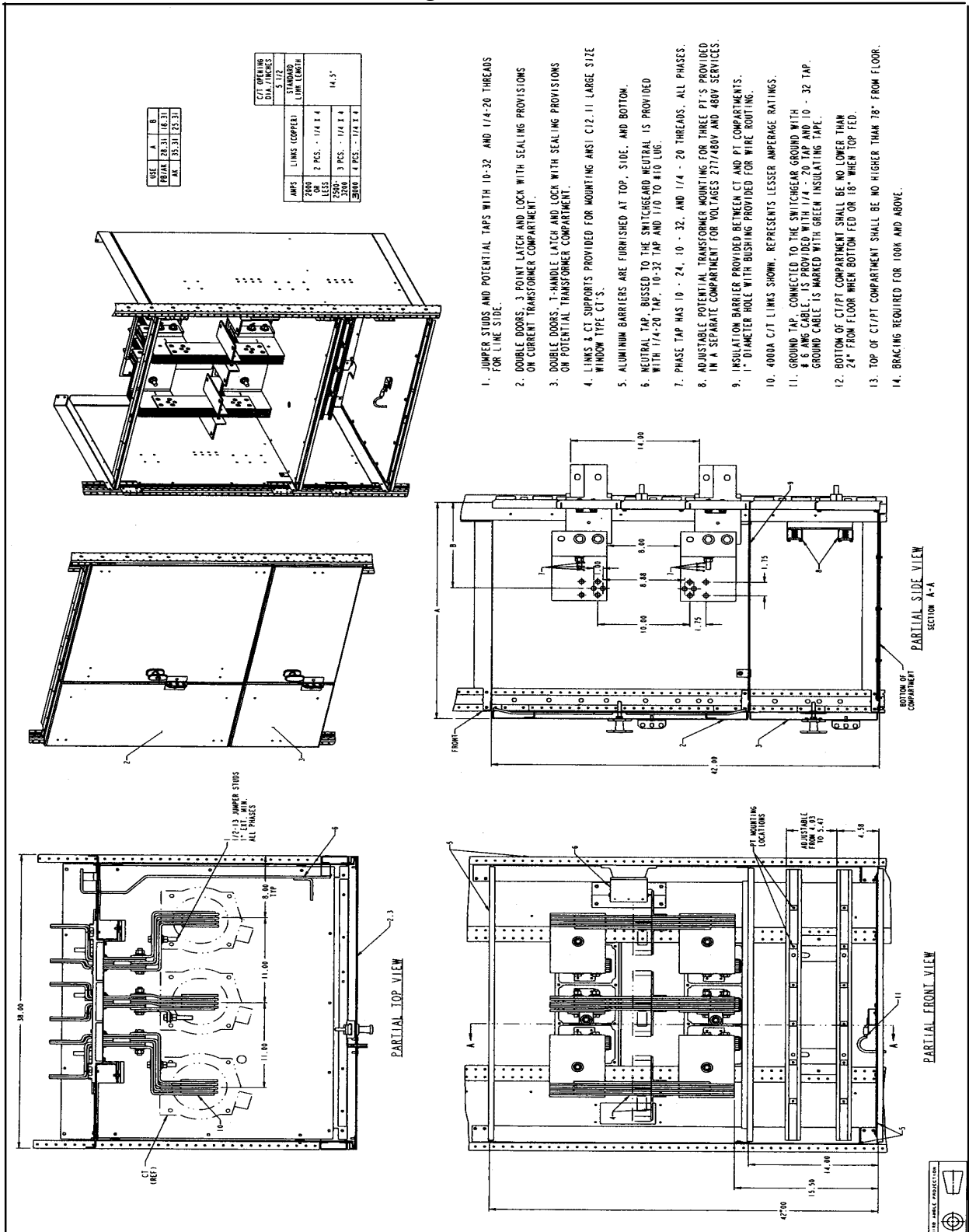
	A	B
WITH PT'S	36.00(914.4)	18.00(457.2)
WITHOUT PT'S	28.00(711.2)	10.00(254)

Drawing No. 75C1433991



Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard – GE CT/PT Compartment 1201–3000 Amperes with Window Type CT Compartment (Switchboard) Figure 1001-4C



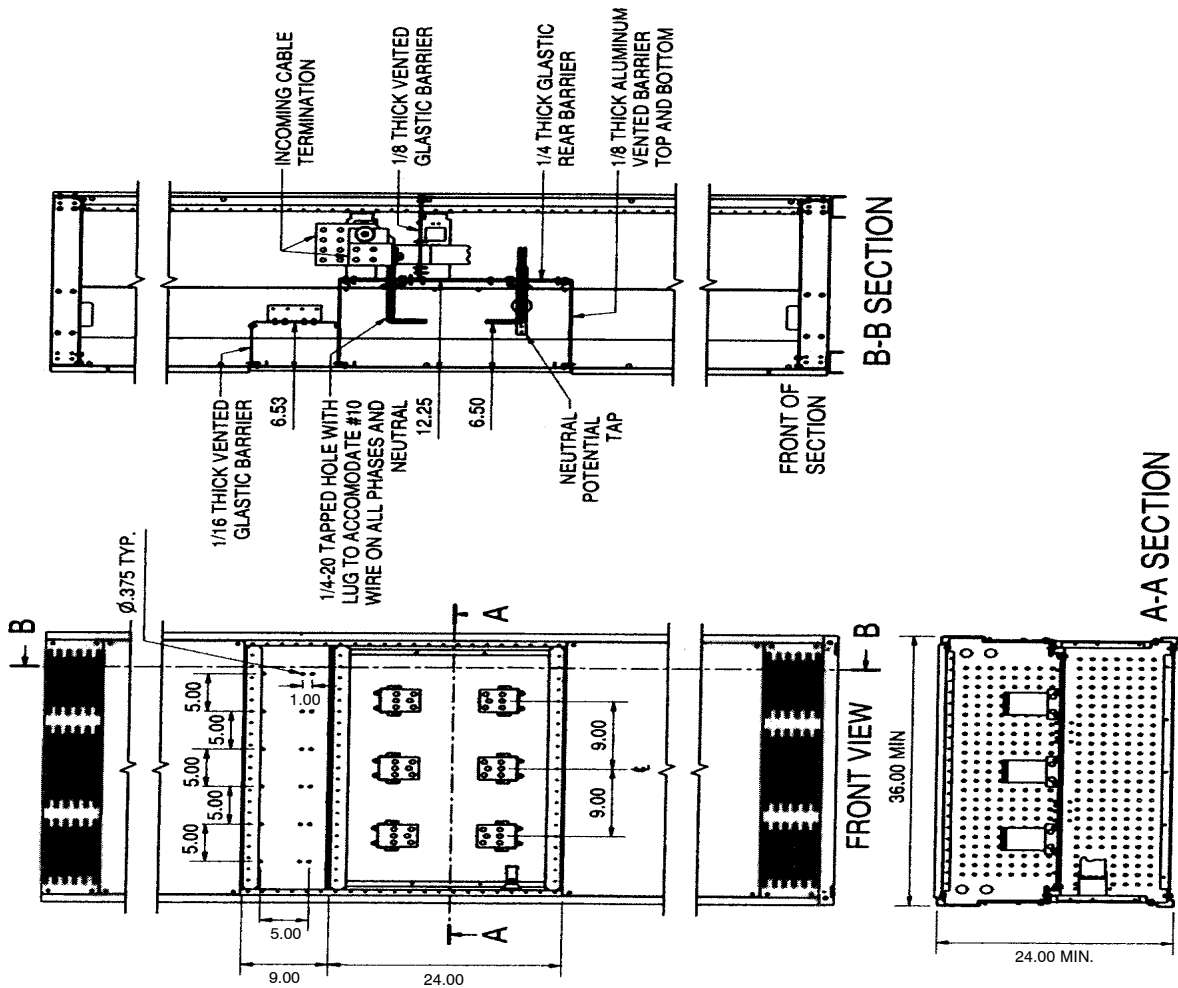
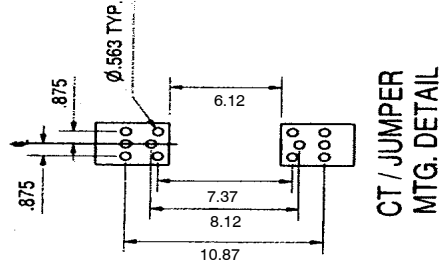
Drawing No. 0213D36454

Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchgear – Square D CT/PT Compartment 201–1200 Amperes Figure 1001–5A

NOTES:

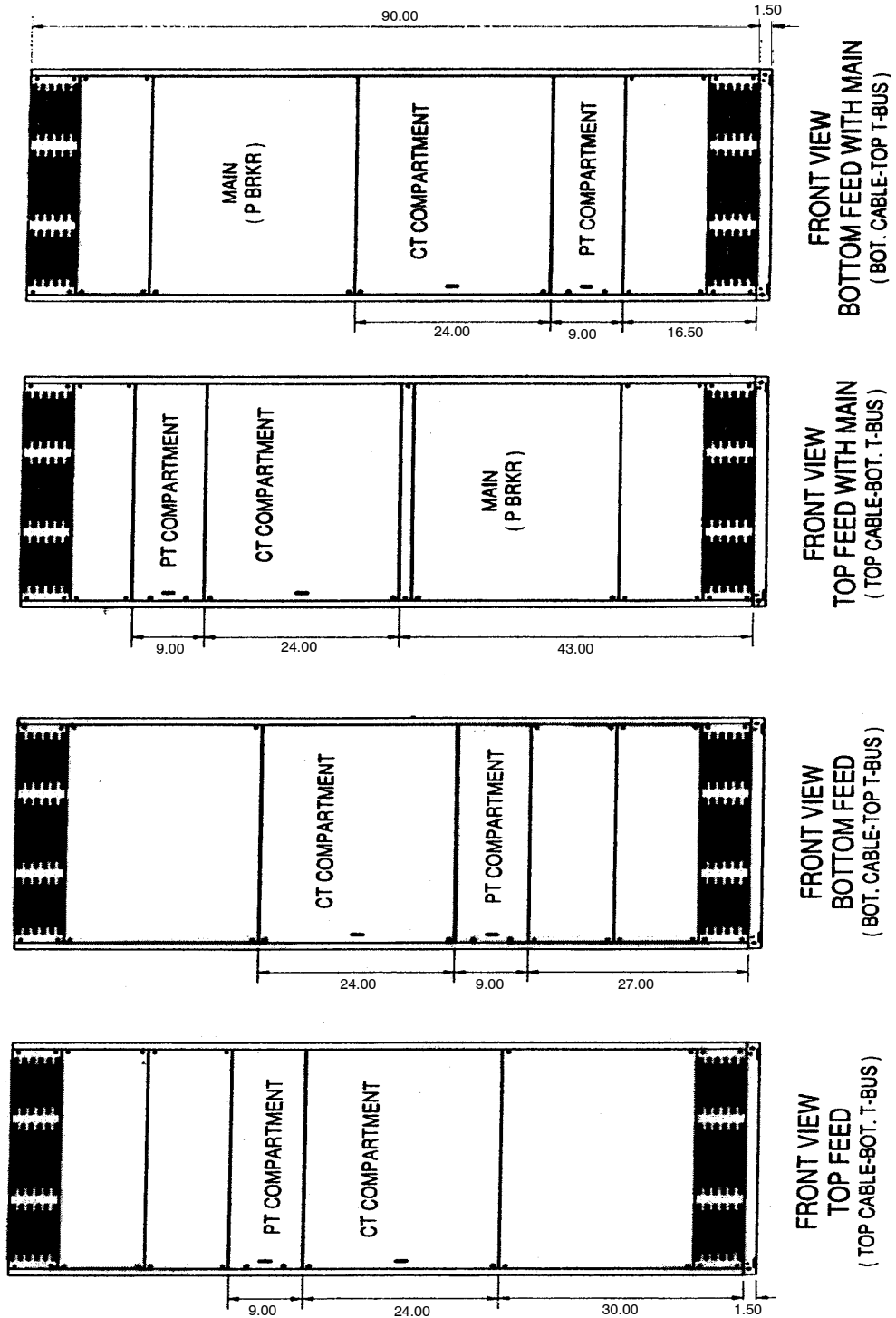
1. FRONT OF 36" WIDE CT AND PT COMPARTMENTS ARE ENCLOSED BY A SINGLE DOOR OR DOUBLE DOORS FOR 42" WIDE COMPARTMENTS. DOORS ARE TO BE HINGED ON THE SIDE AND EQUIPPED WITH A SEALING HASP FOR A PADLOCK TYPE SEAL.
2. CT AND PT COMPARTMENTS ARE FULLY BARRIERED.
3. TOP FEED CT AND PT COMPARTMENTS SHOWN. INVERT FOR BOTTOM FEED.
4. THIS SERVICE SECTION IS FOR USE ON:
 120 / 208 V 3 PH, 4W
 277 / 480 V 3 PH, 4W - PT COMPT RECD
 240 V Δ 3 PH, 3W
 480 V Δ 3 PH, 3W - PT COMPT RECD
 PT COMPARTMENT REQUIRED ONLY FOR 277/480V AND 480V SERVICE. PT COMPARTMENT MUST BE LOCATED DIRECTLY ABOVE OR BELOW THE CT COMPARTMENT.
5. PROVIDE TWO 1" MIN DIAMETER HOLES FOR ROUTING METER WIRING BETWEEN CT AND PT COMPARTMENTS.
6. PROVIDE GROUND LUG IN CT COMPARTMENT TO ACCEPT CUSTOMER #10 COPPER GROUND WIRE. LUG TO BE CONNECTED BY SQUARE D TO THE SWITCHBOARD GROUND.



Drawing No. 09EE2400POH00

**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

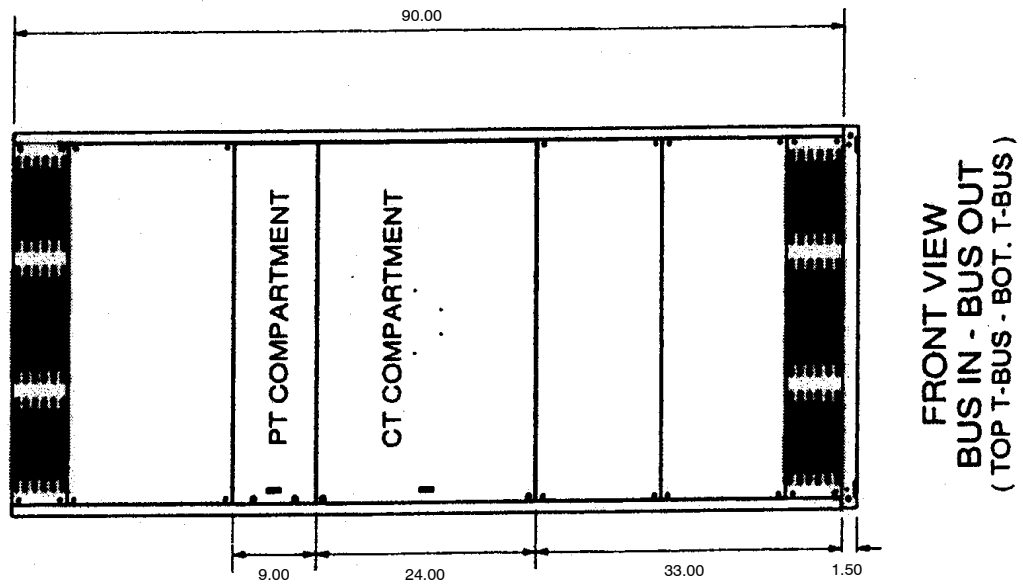
**Ameren Approved Switchboard – Square D CT/PT Compartment
201–1200 Amperes
Figure 1001–5B**



Drawing No. 09EE2400POH00

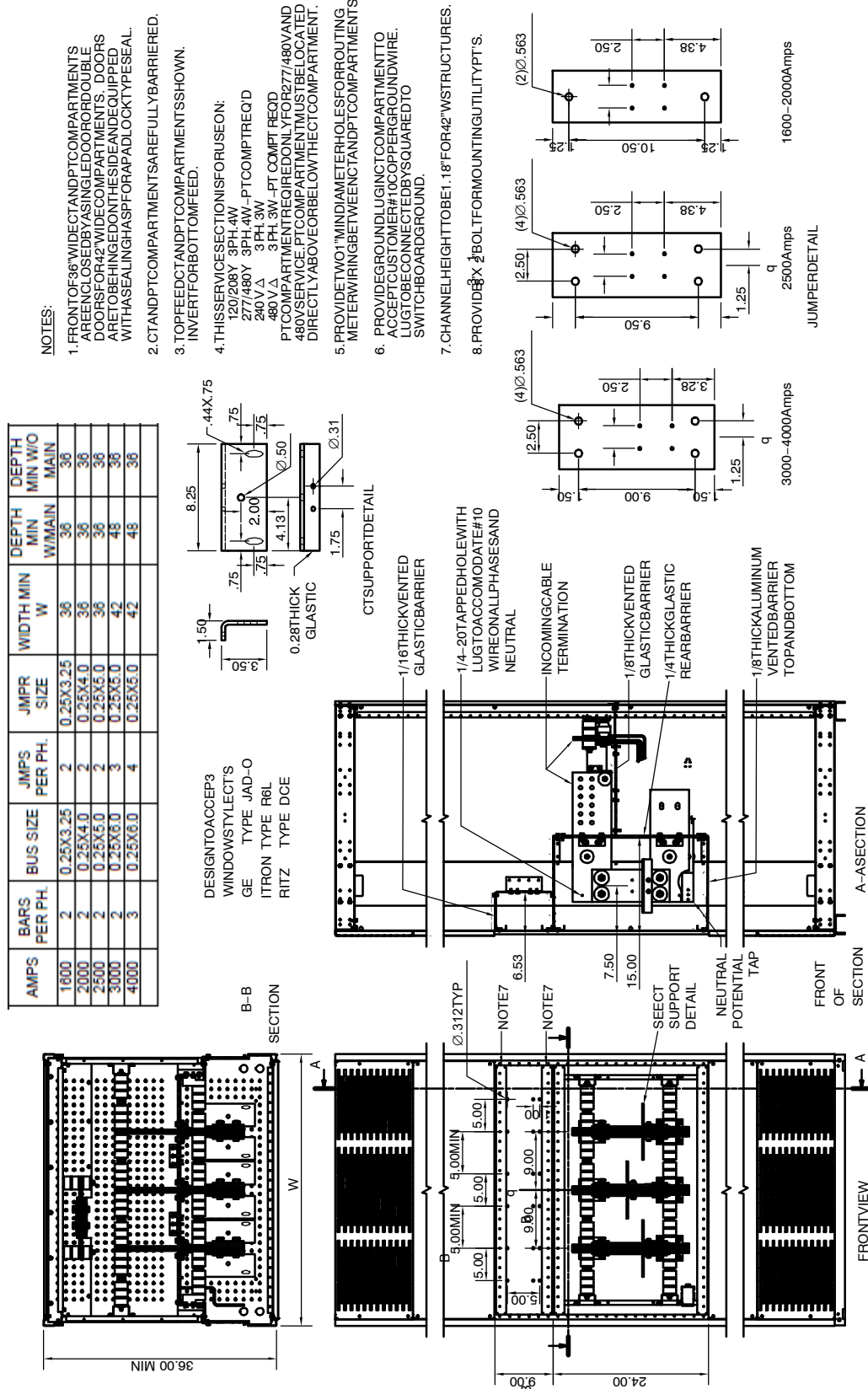
Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

Ameren Approved Switchboard – Square D CT/PT Compartment
1201–3000 Amperes
Figure 1001–5C



Section 1001 Current Transformer Installations For Services Under 600 VOLTS

Ameren Approved Switchboard - Square D CT/PT Compartment 1201-3000 Amperes Figure 1001-5D

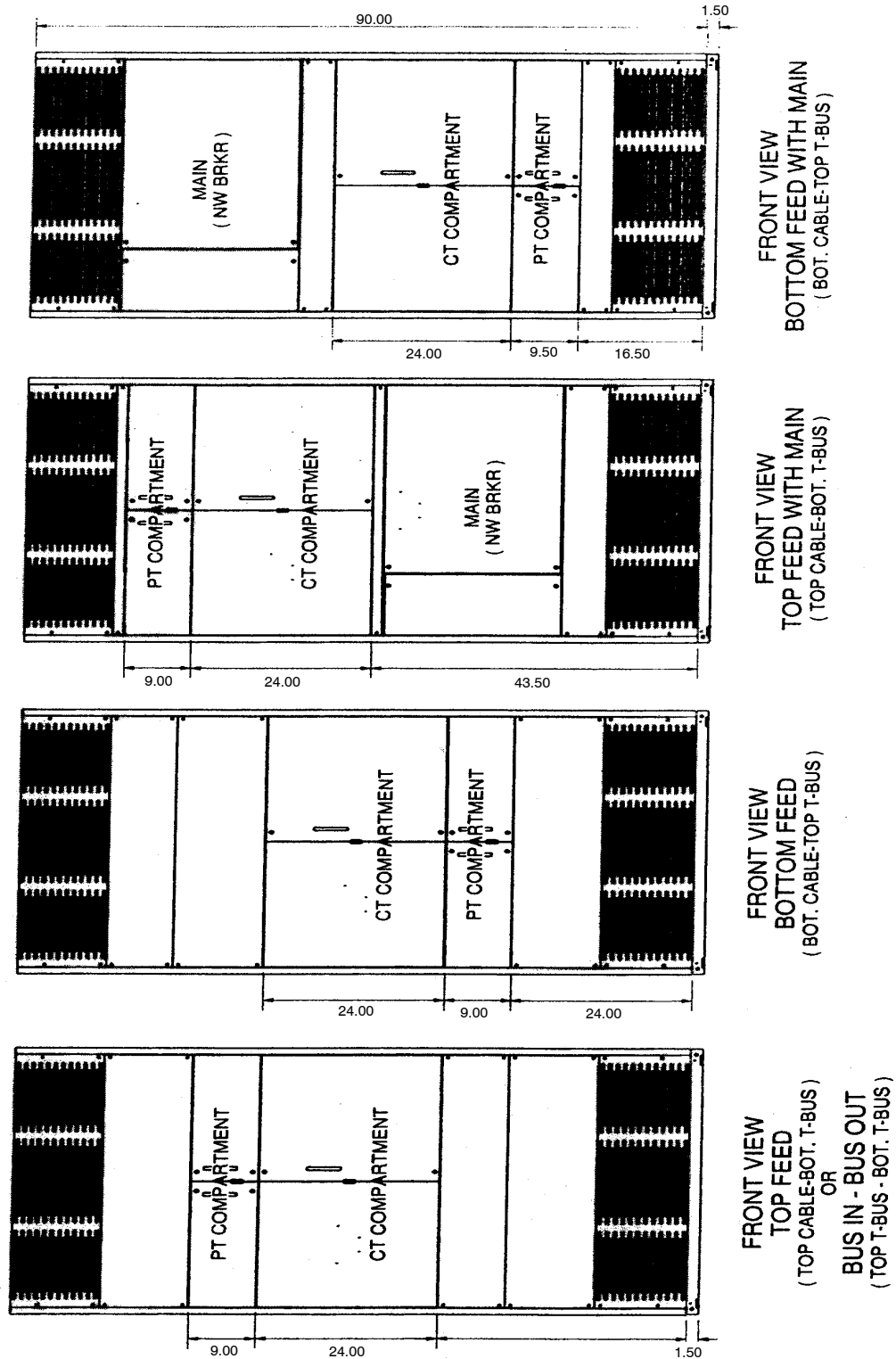


NOTES:

1. FRONT OF 36" WIDE CT AND PT COMPARTMENTS ARE ENCLOSED BY A SLIDING DOOR OR DOUBLE DOORS FOR 42" WIDE COMPARTMENTS. DOORS ARE TO BE HUNG ON THE INSIDE AND EQUIPPED WITH A SEALING HASP FOR A PAD LOCK TYPE SEAL.
2. CT AND PT COMPARTMENT ARE FULLY BARRIERED.
3. TOP FEED CT AND PT COMPARTMENT IS SHOWN. INVERT FOR BOTTOM FEED.
4. THIS SERVICE SECTION IS FOR USE ON:
120/208Y 3PH, 4W
277/480Y 3PH, 4W, 1-PT COMP TREQ ID
480V Δ 3PH, 3W, 1-PT COMP TREQ ID
PT COMPARTMENT REQUIRED FOR 977/1480V AND 480V SERVICE. CT COMPARTMENT MUST BE LOCATED DIRECTLY ABOVE OR BELOW THE CT COMPARTMENT.
5. PROVIDE TWO "W" WINDOW METERS HOLES FOR ROUTING METER WIRING BETWEEN CT AND PT COMPARTMENTS.
6. PROVIDE GROUND LUG IN CT COMPARTMENT TO ACCEPT CUSTOMER #10 COPPER GROUND WIRE. LUG TO BE CONNECTED BY SQUARE D TO SWITCHBOARD GROUND.
7. CHANNEL HEIGHT TO BE 1.18" FOR 42" W STRUCTURES.
8. PROVIDE 3/8" BOLT FOR MOUNTING UTILITY TPTS.

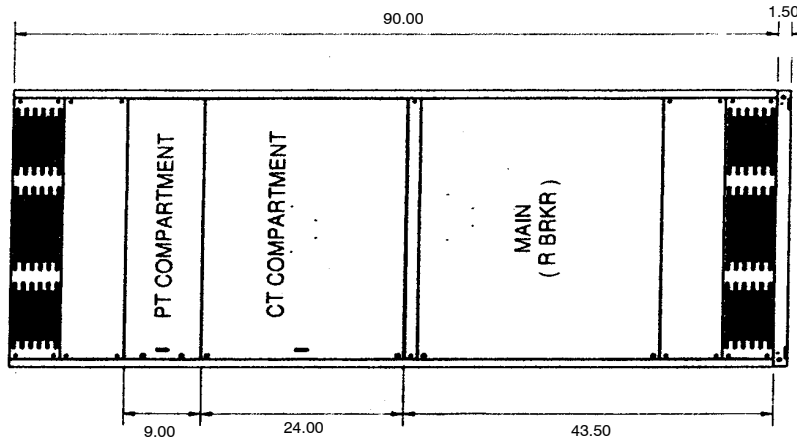
**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

**Ameren Approved Switchboard – Square D CT/PT Compartment
1201–3000 Amperes
Figure 1001–5E**

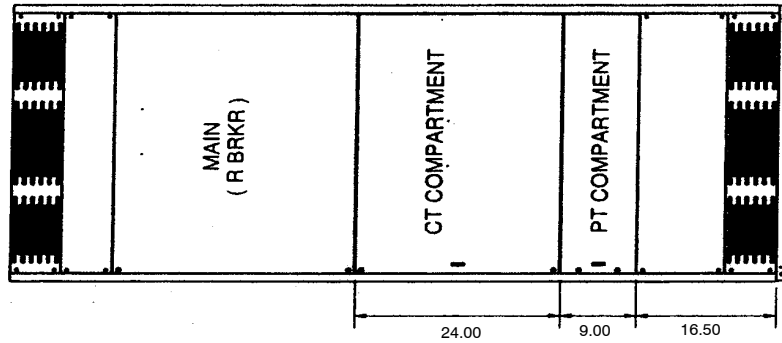


**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

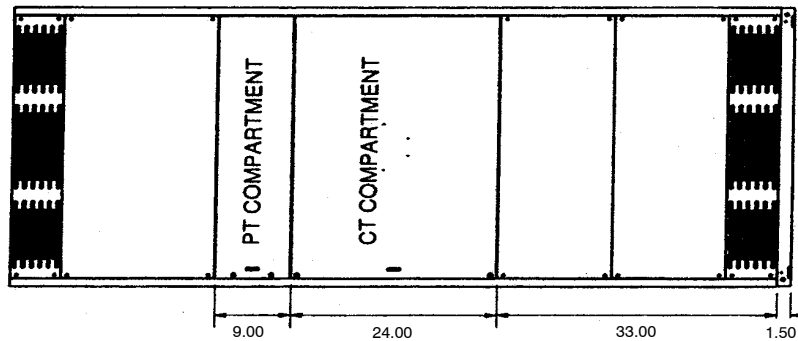
**Ameren Approved Switchboard – Square D CT/PT Compartment
1201–3000 Amperes
Figure 1001–5F**



**FRONT VIEW
TOP FEED WITH MAIN
(TOP CABLE-BOT. T-BUS)**



**FRONT VIEW
BOTTOM FEED WITH MAIN
(BOT. CABLE-TOP T-BUS)**

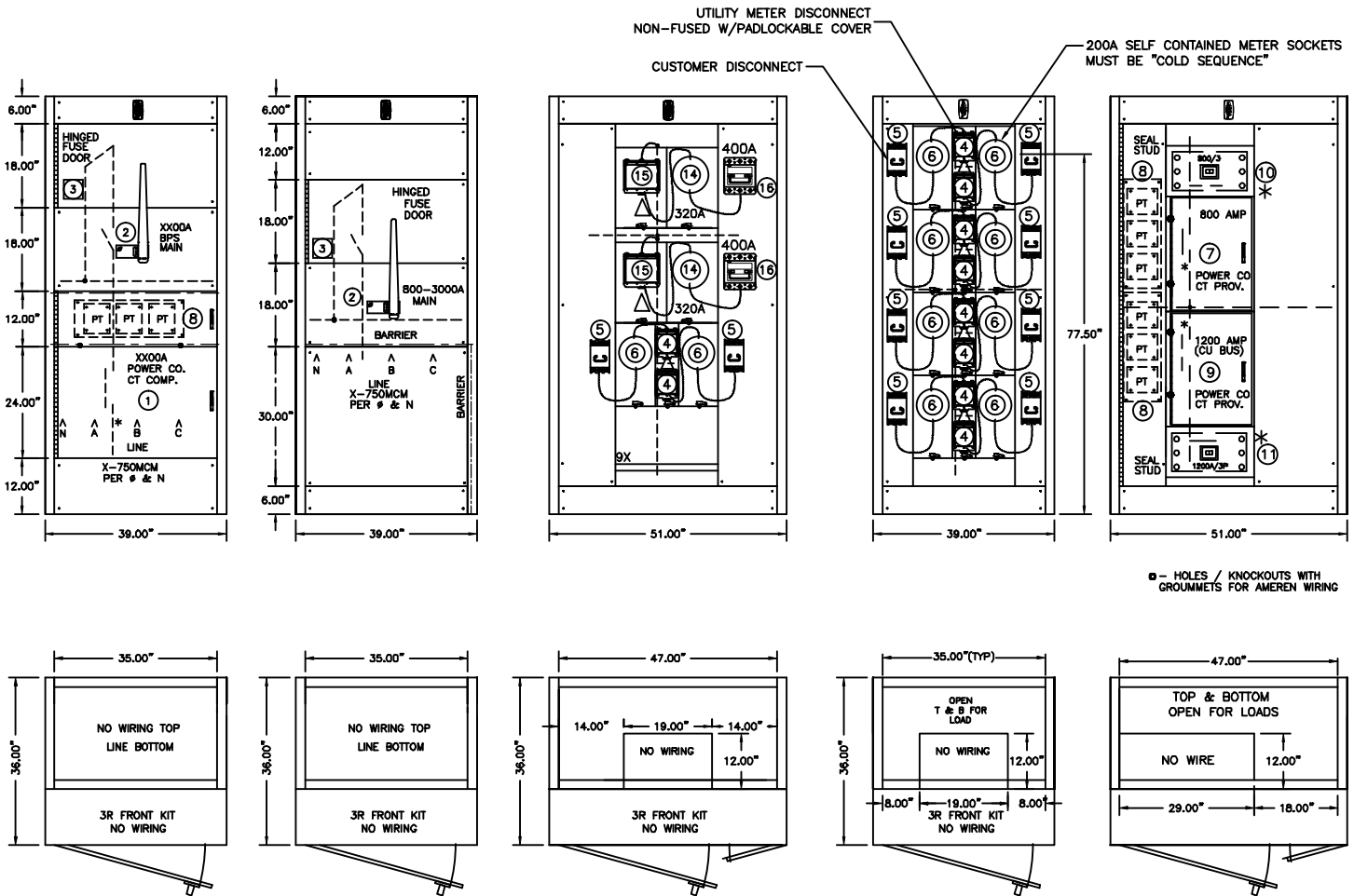


**FRONT VIEW
BUS IN - BUS OUT
(TOP T-BUS - BOT. T-BUS)**

Section 1001 Current Transformer Installations For Services Under 600 VOLTS

➔ Ameren Approved Switchboard – American Midwest Power CT/PT Compartment 201–3000 Amperes Figure 1001–6A

FRONT VIEW SHOWN W/ 3R DOORS REMOVED (NO DOORS & VENTED W/NEMA 1)



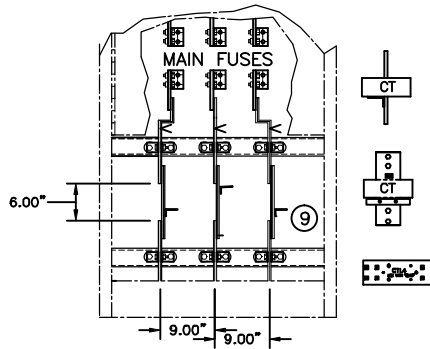
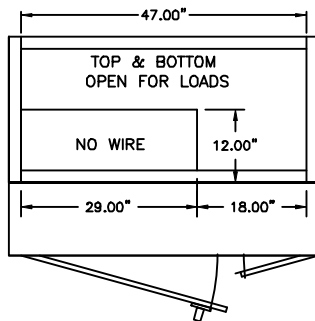
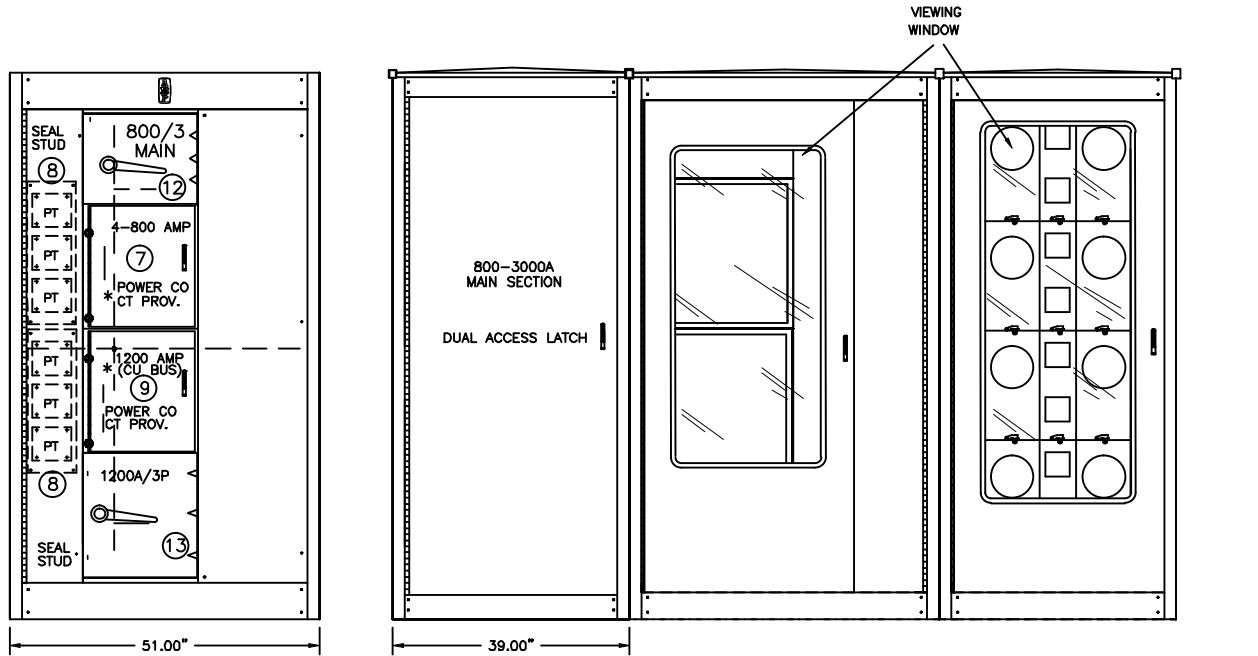
- * NOTES:
- LUG INCLUDED FOR ALL THREE PHASES AND NEUTRAL ON SOURCE SIDE OF CT'S FOR #12 GA WIRE LEADS FROM PT'S
 - ALL CT AND PT COVERS MUST BE HINGED

Continued on next page

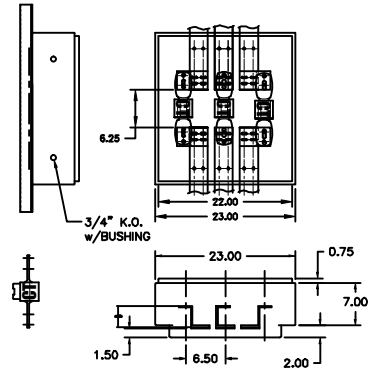
Section 1001 Current Transformer Installations For Services Under 600 VOLTS

➔ Ameren Approved Switchboard – American Midwest Power CT/PT Compartment 201–3000 Amperes Figure 1001–6A (Continued)

FRONT VIEW SHOWN W/ 3R DOORS



SW BRD CT COMPARTMENT (1201A+)
SHOWING STAGGERED CT MOUNTING BRACKETS

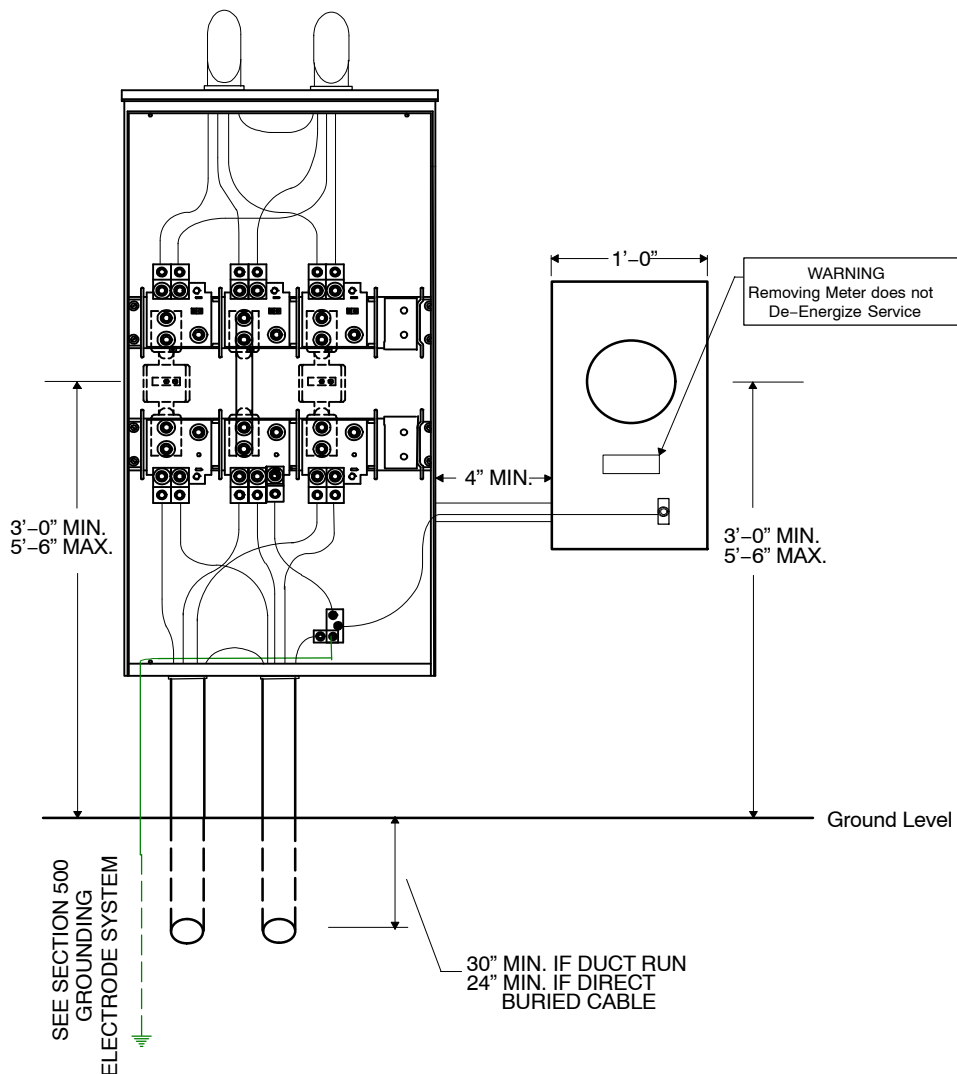


CTK DETAIL
4-1200A

- * NOTES:
LUG INCLUDED FOR ALL THREE PHASES AND NEUTRAL ON SOURCE SIDE OF CT'S FOR #12 GA WIRE LEADS FROM PT'S
ALL CT AND PT COVERS MUST BE HINGED

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

240 Volts, 3-Phase, 3-Wire, 401 – 600 Amperes Corner Grounded
Figure 1001-7

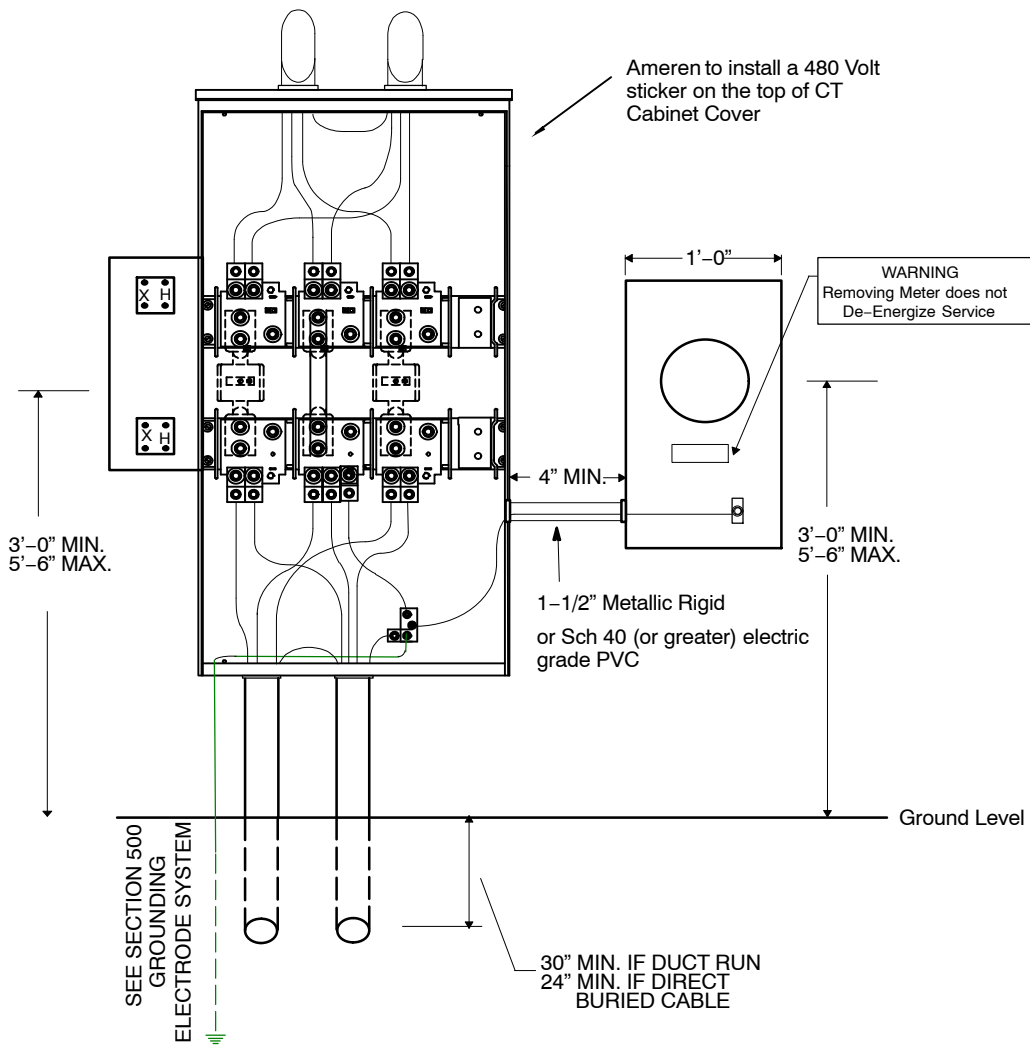


NOTES:

1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3 ft minimum to 5 ft 6 in. maximum
3. Inside CT installations require prior approval by Ameren

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

480 Volts, 3-Phase, 3-Wire Corner Grounded
201 – 600 Amperes
Figure 1001-8

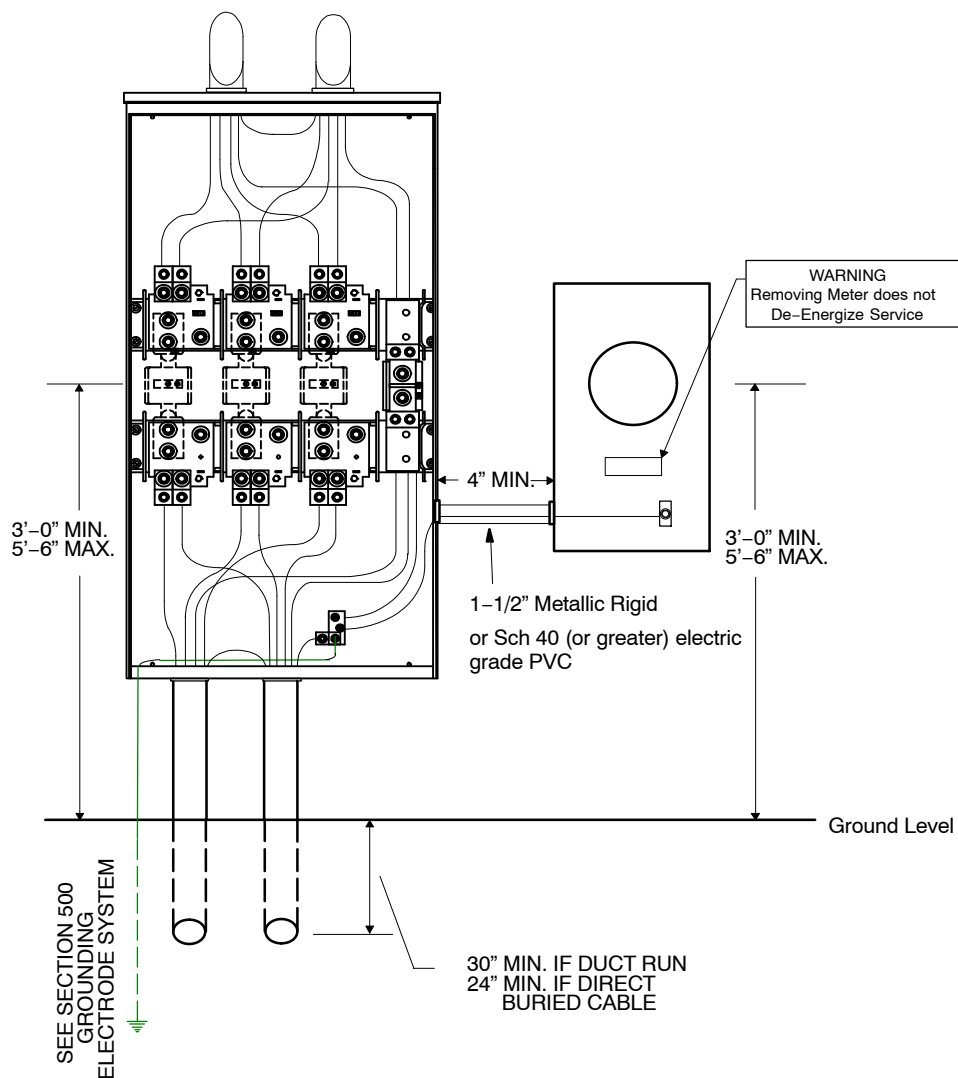


NOTE:

1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3'0" minimum to 5'6" maximum
3. Inside CT installations require prior approval by Ameren

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

120/208 Volts, 3-Phase, 4-Wire,
401 – 1200 Amperes
Figure 1001-9

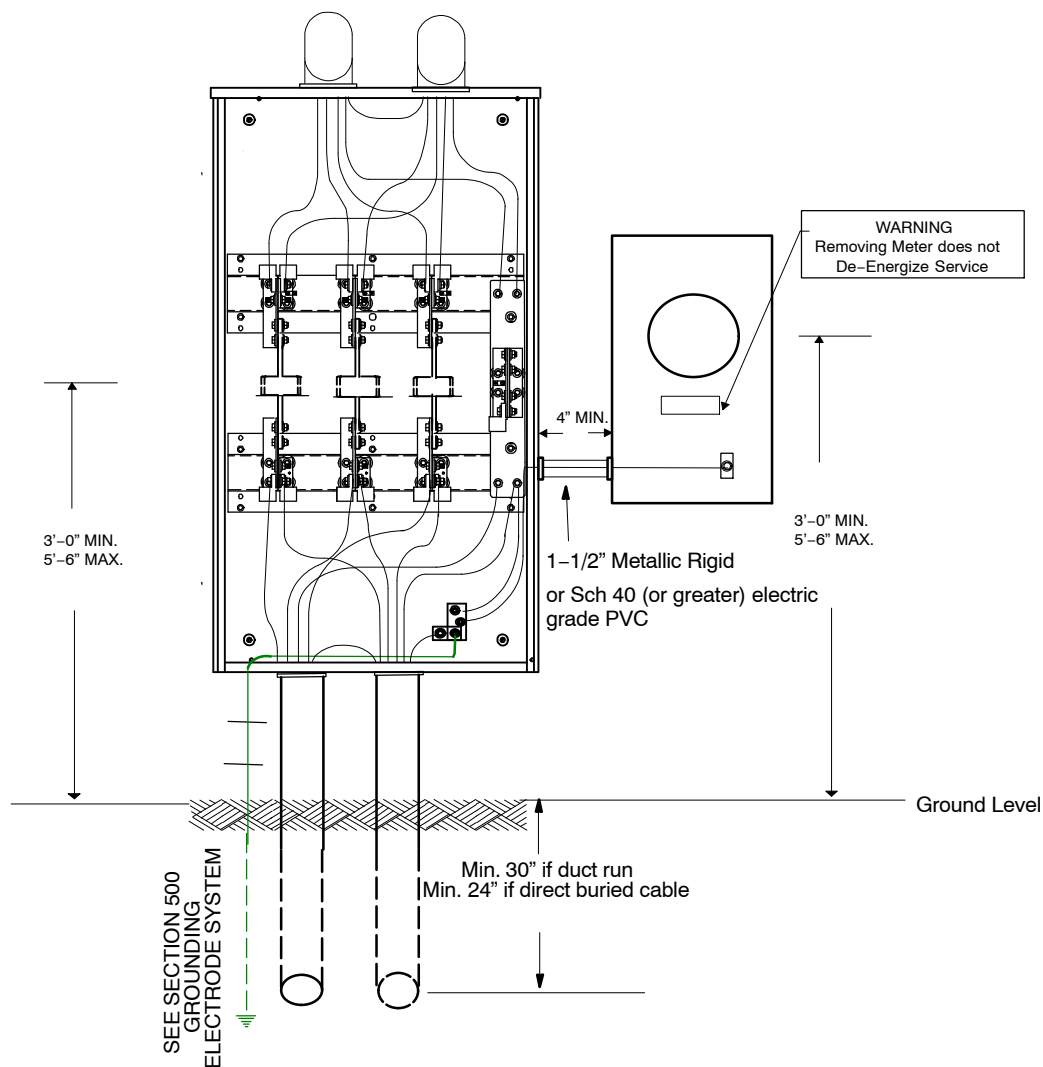


NOTE:

1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3 ft minimum to 5 ft 6 in. maximum
3. Inside CT installations require prior approval by Ameren

**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

**120/208 Volts, 3-Phase, 4-Wire,
1201 - 3000 Amperes
Figure 1001-10**



NOTE:

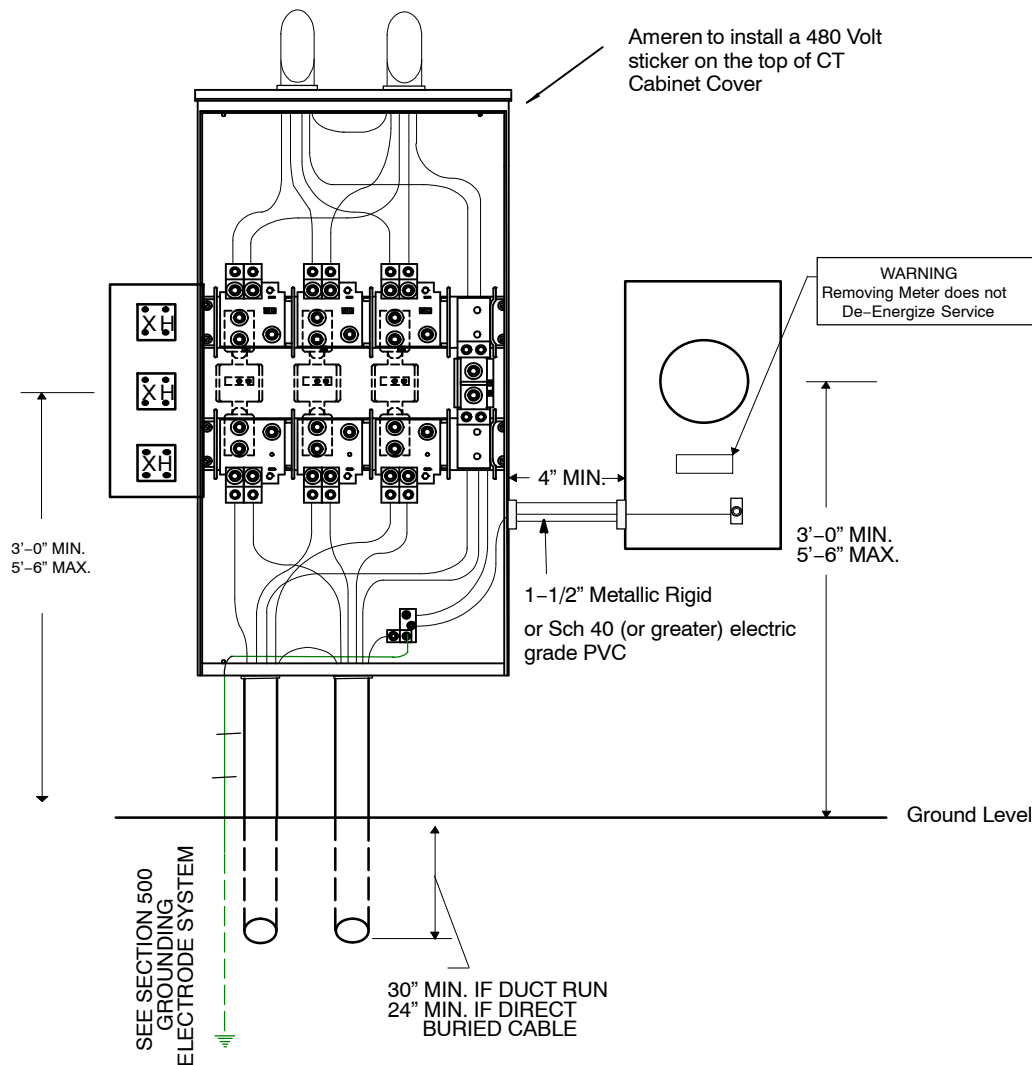
1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3 ft minimum to 5 ft 6 in. maximum
3. Inside CT installations require prior approval by Ameren

Section 1001
Current Transformer Installations
For Services Under 600 VOLTS

277/480 Volts, 3-Phase, 4-Wire

201 – 1200 Amperes

Figure 1001-11

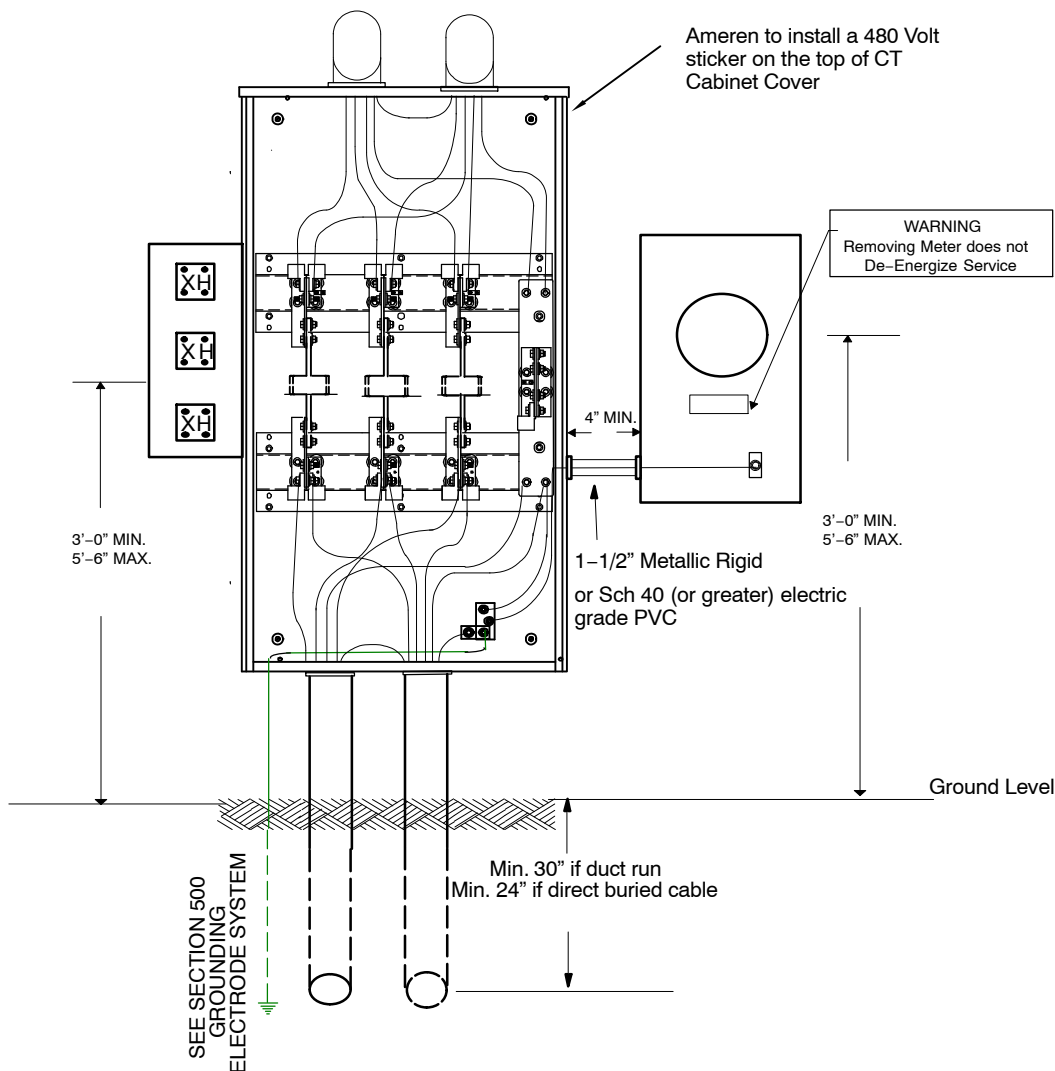


NOTES:

1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3 ft minimum to 5 ft 6 in. maximum
3. Inside CT installations require prior approval by Ameren

**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

**277/480 Volts, 3-Phase, 4-Wire
1201 - 3000 Amperes
Figure 1001-12**

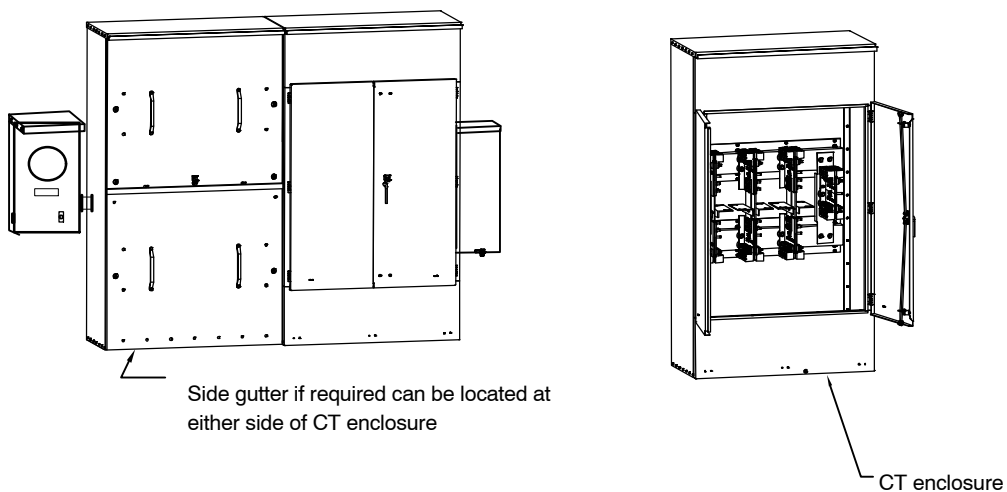
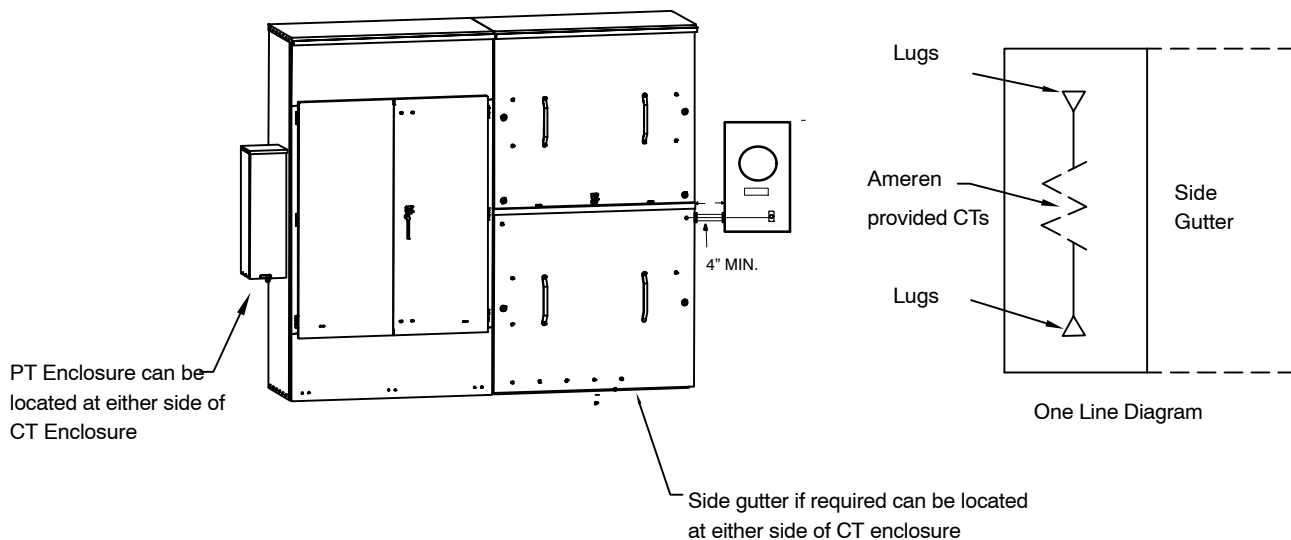


NOTE:

1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3 ft minimum to 5 ft 6 in. maximum.
3. Inside CT installations require prior approval by Ameren.

**Section 1001
Current Transformer Installations
For Services Under 600 VOLTS**

**CT Enclosure – Side Gutter
Figure 1001-13**



NOTE:

1. Refer to Section 1001.04 for detailed meter socket requirements. Refer to Section 200.02 for installation requirement
2. Instrument Transformers shall be located 3 ft minimum to 5 ft 6 in. maximum.
3. Inside CT installations require prior approval by Ameren.

Section 1100

Ameren Approved Metering Devices List

A list of approved customer provided manufacturer's meter sockets (or enclosures) catalog number in Section 1100 has been removed and posted separately from the Manual due to constant changes. To get the latest catalog number information for the meter sockets (or enclosures), please use the website as indicated below.

www.ameren.com/servicemanual

As updates are made available, we will advise you by email. You will then be able to access these updates through the Ameren website.



Section 1200

Customer Owned Standby Generation Installation

1200.01

Ameren is committed to both the safety of the public and its employees and to the reliable operation of its distribution system. Installations involving customer-owned and operated generating equipment create the potential for serious personal injury as well as damage to the Customer's or Company's equipment.

Ameren Illinois does not require the submittal of plans for an emergency standby generator with an open transition transfer. For emergency standby generators with a closed transition of 0.1 seconds, these will be allowed except for the secondary network systems in Illinois. Secondary network systems are currently installed in downtown Peoria, Bloomington and Decatur, and all proposed closed transition generators will need to be reviewed and studied before any are interconnected with Ameren's system.

1200.02

Installation plans for ALL permanently installed customer-owned generating equipment or permanently installed transfer switches, whether for backup or continuous duty, shall be submitted to Ameren for review and approval in Ameren Missouri. Ameren Illinois requires a review of all generators that will be operated in parallel, or any emergency/standby generator that is paralleled with Ameren's system for more than 0.1 second. If the generator does not operate in parallel with Ameren, or if the closed transition is less than 0.1 seconds, there is no requirement to notify Ameren of this installation. An exception to this policy for the secondary network systems in Peoria, Decatur, and Bloomington do not allow any closed transition generators of any type.

The company reserves the right to inspect customer installed generation and associated equipment even though it is behind the service disconnecting means.

1200.03

Ameren's installation requirements and application form(s) may be obtained from a local Ameren engineering representative, or at the link below, or by calling the Ameren Customer Contact Center (866-992-6619 in MO or 800-755-5000 in IL).

Illinois, <http://www.ameren.com/servicemanual>

Missouri, <http://www.ameren.com/servicemanual>

1200.04

The following information is only a summary of Ameren's requirements for BACKUP GENERATION that operates with either an open transition or a closed transition of less than 100 milliseconds in duration. The complete requirements and application must be secured as noted above.

1200.05 GENERAL REQUIREMENTS

1. Main service disconnect that is padlockable in the open position if the Ameren service being backed up is less than 600 volts. For Ameren Illinois, self-contained meter socket is sufficient as a visible open point.
2. Single "visible open" disconnect device per generating unit if the Ameren service being backed up is greater than 600 volts – refer to Ameren's full requirements for details on satisfying this requirement
3. Transfer equipment (manual or automatic) to prevent inadvertent continuous interconnection of sources
4. Signage permanently installed at the revenue meter indicating (1) the presence of generation and (2) the availability of either a padlockable main service disconnect or a "visible open" disconnect for isolation
5. Signage permanently installed at the padlockable main disconnect or "visible open" disconnect for purposes of identification

1200.06 REQUIREMENTS FOR OPEN TRANSITION



Section 1200 Customer Owned Standby Generation Installation

- 1.1 Integral transfer switch with mechanical interlocking provisions.
 - 1.2 Kirk key interlocked solid blade switches or circuit breakers.
 - 1.3 Electrically interlocked circuit breakers with backup protection via hard-wired breaker auxiliary contacts.
2. Automatic transfer schemes shall include the following:
- 2.1 Voltage-sensing capability to detect the loss and recovery of the Ameren source
 - 2.2 Open transition manual "bypass" (i.e. auto disable) is highly recommended, though not required

1200.07 REQUIREMENTS FOR CLOSED TRANSITION

1. Any of the following methods can be used:
 - 1.1. Integral automatic transfer switch set
 - 1.2 Two or more solid blade disconnects or circuit breakers
2. Transfer times of less than 100 milliseconds in duration
3. Synchronizing capability to safely tie the sources together
4. Transfer failure scheme for opening one of the sources when closed transition exceeds a maximum two (2.0) second time delay
5. Undervoltage protection to prevent a closed transition transfer when the Ameren source is not present
6. Open transition manual "bypass" (i.e. auto disable) is highly recommended, though not required

1200.08 REQUIREMENTS FOR PROGRAMMABLE LOGIC CONTROLLERS (PLC)

1. Independent hard-wired backup control scheme to prevent extended paralleling
2. Enabled when transfer scheme is in "automatic" and disabled when transfer scheme is in "manual"
3. Automatic transfer disabled if any of the switches or circuit breakers being controlled is tripped manually
4. Shall not lose power as a direct result of automatic transfer switching operations

Section 1300 Network and Heavy Underground Systems

FOR AMEREN MISSOURI ONLY (1300.01 – 1300.04)

1300.01 GENERAL

The Underground Operating Center service territory secondary distribution voltage is 208Y/120 volts, three-phase, four-wire. For engineering reasons, Company may offer 480Y/277 volts, three-phase, four-wire service where the loads warrants this voltage; however, 480Y/277 volts secondary metered service can only be provided by padmount transformation or customer indoor substation transformers, both located on customer property. Large loads, at Company option, may be supplied directly from 13.8 kV radial feeders.

Choice of voltage and type of system offered depends on location and size of load. Customer should consult Company to determine the voltage and method of supply that will be available, prior to beginning customer engineering or purchasing equipment.

1300.02 CUSTOMER INDOOR SUBSTATIONS

Relative to customer requests for secondary metered service, where outdoor space is not available, when required by municipal ordinance, or required by other section 1300 subsections, secondary metered service shall be provided from a customer indoor substation, or indoor sub. The Company will provide customer requirements and specifications for the indoor sub and will install, own, and maintain primary switches, primary fuses, primary equipment enclosures and cables, and transformers.

The customer shall provide the indoor sub space and building elements in accordance with company specifications and requirements. Customer responsible building elements include, but are not limited to, the physical two room space, all doors, oil retention system, grounding system, lighting and receptacles, equipment stands, access pits, grates and ladders.

The customer shall contact the appropriate Company Division operating center a minimum of nine months prior the desired in-service date. A minimum of nine months is required to allow for company/customer engineering, equipment purchase, and construction.

Although predominantly in downtown St. Louis, indoor subs can be built within any building that is within the Company's service territory, if approved by the Company. Where space is available and meets Company requirements, pad mount equipment (switchgear and transformer) is the preferred delivery method.

1300.03 216Y/125V NETWORK SERVICE

Customers planning to take 216Y/125 volts network service from the downtown grid can take service by one of three service connection means: 1) Company network cables terminated at a customer provided network tap box (see tap box spec dwg 1300-1A); 2) Company network cables terminated at a customer owned commercial grade 600 volts (or less) switchboard (see service manual drawing 1300-2A); or 3) Company network cables terminated at a self-contained meter enclosure. If the network service connection involves multiple commercial metered services at the same building, the Customer shall provide a network tap box, as specified in this manual. New customer connections to the network distribution system, whether a completely new service or an additional service(s) to an existing network tap box, shall be reviewed and approved by the Company's Underground Department prior to the start of any construction.

Figure 1300-1A Network Tap-Box Specification Drawing
Figure 1300-1B Network Tap-Box Side Compartment Spec Dwg
Figure 1300-2A Network High-Rise Service EQ Configuration
Figure 1300-2B Pad Mount Transformer High-Rise Service EQ Configuration



Section 1300 Network and Heavy Underground Systems

FOR AMEREN MISSOURI ONLY (1300.01 – 1300.04)

Due to the possibility of customer 216Y/125 volts distribution being exposed to high fault currents available when connected to the Company's downtown St. Louis 216Y/125 volts network distribution system, the Company and the City of St. Louis Authority Having Jurisdiction require a main switch and current limiting over-current

protective device (OCPD) to be installed for all customer service entrance equipment, immediately following the supply side termination lugs. The City of St. Louis is enforcing NEC Article 110.10 in requiring an appropriate OCPD for customer equipment, for all customer service connections to the downtown network distribution system. Service connections to the downtown NW distribution system, under NEC Article 230.71, Maximum Number of Disconnects, or the "6 Switch Rule," shall NOT be allowed.

At the Company's discretion, Customers requesting secondary network service may qualify to be connected to the downtown St. Louis 216Y/125 volts network distribution system if the proposed new or upgraded service connection meets the following and other applicable requirements within this service manual:

- The proposed new network service connection is within the Underground District network service area, as defined in II.J of Ameren Missouri's Rules and Regulations – bounded by 22nd Street, Cole Street, Spruce Street, and the Mississippi River
- The proposed network service hits the building (or combination of buildings) or structure at only one location, with the Company provided network service cables terminated as noted in the tap box section above
- Service or services distribution panels aggregate size at 216Y/125 volts equals 1,200 amperes or less (this means that if not upgraded to the radial distribution system, the customer's network service will be restricted to 1200 amperes at 216Y/125 volts, in perpetuity); if a customer appears to qualify for network service based on the aggregate panel size, but also appears to have room for load growth, said new service may still not qualify for network service
- Services greater than 1,200 amperes (aggregate) shall be supplied from the 13.8 kV radial system by means of a pad mount transformer or customer indoor substation (see section 1300.02)

Relative to new 480Y/277 volts customer requested services, Ameren will not construct any new spot networks (480Y/277 volts or 216Y/125 volts); for customer's seeking 480Y/277 volts secondary metered service within the network service area, secondary service shall be supplied from the 13.8 kV radial system by means of a pad mount transformer or customer indoor substation.

At the Company's discretion, alternatives to the Ameren preferred method of service may be considered; however, additional Customer costs may be incurred under the special facility rules.

1300.03A Network Distributed Resources Interconnect Requests – Any customer requesting to connect Distributed Resources (DR) – i.e. solar voltaic, batteries, or motor generators – for the purposes to of net-metering (not emergency or standby generation) – to either the low voltage grid network (216Y/125 volts) or a spot network (480Y/277 volts), shall comply with the Company's net metering network requirements as a condition of service, in addition to the standard requirements for service, as stated in the Company tariffs filed with the MOPSC. Underground Engineering will provide network service, net-metering requirements upon request.

1300.04 COMMERCIAL/RESIDENTIAL HIGH-RISE MULTI-METER INSTALLATIONS

Relative to multi-story high rise residential projects and customer provided distribution equipment for metering on multiple floors – up to and including every floor – Ameren will approve such a customer distribution equipment configuration if the following requirements are met:

- The customer provided distribution system configuration meets Service Manual figure 1300–2A/2B
- Bus duct riser distribution voltage can be either 480Y/277 volts 3-phase 4-wire or 208Y/120 volts 3-phase 4-wire (a combination of the two voltage configurations for the residential services shall not be allowed)

Section 1300 Network and Heavy Underground Systems

FOR AMEREN MISSOURI ONLY (1300.01 – 1300.04)

- Secondary metering voltages shall be 480 volts – 120/240 volts 1–phase 3–wire or 480 volts – 120/208 volts 2–phase 3–wire, at the point of metering
- Secondary metering may be located on every floor
- Secondary metering voltages shall be balanced so that the 3–phase loads are balanced (i.e. for either 120/240 volts 1–phase 3–wire or 120/208V 2–phase 3–wire, rotate AØ–BØ, BØ–CØ, CØ–AØ, and so on)
- All customer provided distribution equipment shall be new, meet local electrical codes, and UL Listed for their intended use
- All distribution equipment on the metering floors shall be modular bus plug–in design, except only for the cable connections between the high and low side transformer connections
- Transformers on the metering floors shall be dry type transformers and shall meet the energy efficiency requirements of the DOE Energy Policy Act of 2005; refer to Federal Register 10CFR Part 431, date 4–18–13
- Transformers on the metering floors shall be sized in accordance with the local codes and shall have a minimum reserve capacity of 25%, over and above any code required excess capacity
- The metering spaces shall be sized to allow for future removal and replacement of the floor dry type transformer, and the metering space doorway shall be large enough to allow the transformer to be removed from the meter space, without removing the door from its hinges
- Floor metering space dry type transformers' size and weight shall be such that they can be moved up and down the building using a standard passenger elevator system
- The customer shall provide one spare dry type transformer for each size that will be connected to the distribution equipment; the spare transformers shall be stored within the first meter room space and include labels to identify the transformer(s) as spare units
- The building distribution riser shall be a secondary bus duct riser – cable secondary risers shall not be allowed – and of sufficient ampacity (copper or AL conductors) to meet the local code requirements and the requirements of this section of the Service Manual
- The bus duct riser shall be designed such that the connection points for the bus duct are accessible only at the metering floors and shall accept bus plug–in devices to tap power to the metering floor
- The bus duct tap point on the metering floor shall include a disconnect so that the metering equipment on that floor can be de–energized and locked out, without having to de–energize the entire bus duct riser (and all other upstream and downstream customers)
- The bus duct shall be sized to meet all local code requirements and ANSI/IEEE C84.1, Voltage Range A, at the point of utilization
- The customer shall be responsible to mitigate voltage flicker due to motor starting and/or other intermittent loads on the secondary side of the step–down dry–type transformer. The voltage flicker shall be less than the noticeable curve defined in ANSI/IEEE 141. The customer may be required to provide documentation indicating how this requirement is met
- Ameren shall reserve the right to review all proposed customer distribution equipment, to include, but not be limited to equipment sizes, configuration, disconnects, transformers, and metering equipment, prior to the customer releasing the equipment for fabrication, relative to compliance with Company service rules
- All proposed metering equipment shall comply will all Company metering requirements, as given in the current edition of the Ameren Missouri Electric Service Manual, and the requirements of this section, for the purpose of metering multi–residential high rise structures
- All equipment within the metering spaces on the floors shall be identified with permanent phenolic labels to indicate the equipment ID and voltage, phase, and wire count; residential meters shall include phenolic labels identifying the apartment or condominium number
- The customer shall provide a detailed one–line diagram showing all proposed meter room equipment and their connection configuration and equipment ampacity sizes; this can be shown on the building one–line or riser diagram
- All equipment within the metering room shall include provision for metering seals or locks and side panels shall include tamper proof screws to prevent access
- The dry–type transformer/metering room shall not be used as a janitorial or storage closet

Section 1300 Network and Heavy Underground Systems

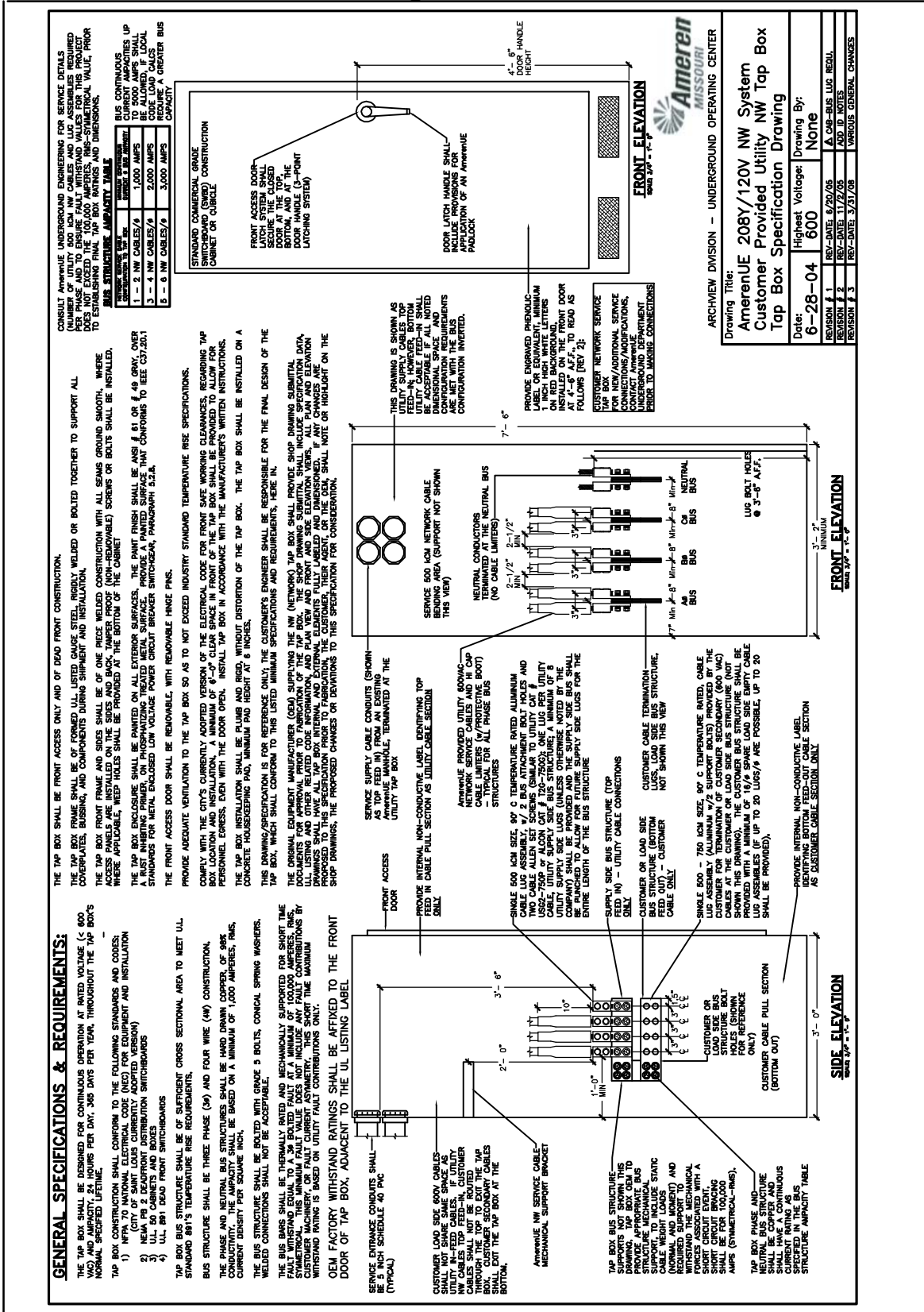
FOR AMEREN MISSOURI ONLY (1300.01 – 1300.04)

All customer metering equipment (bus duct riser, modular meter center equipment, and mains) and the customer metering equipment configuration shall be reviewed by the company prior to the customer purchasing and installing such equipment.

This section applies to high rise developments outside the downtown St. Louis service area, where secondary service is provided by means of a pad mount transformer or customer indoor substation. In these cases, Figure 1300–2B would apply for either a pad mount or customer indoor sub installation transformer (the shown pad mount in Figure 1300–2B would be substituted with an indoor substation transformer—all other requirements remain the same).

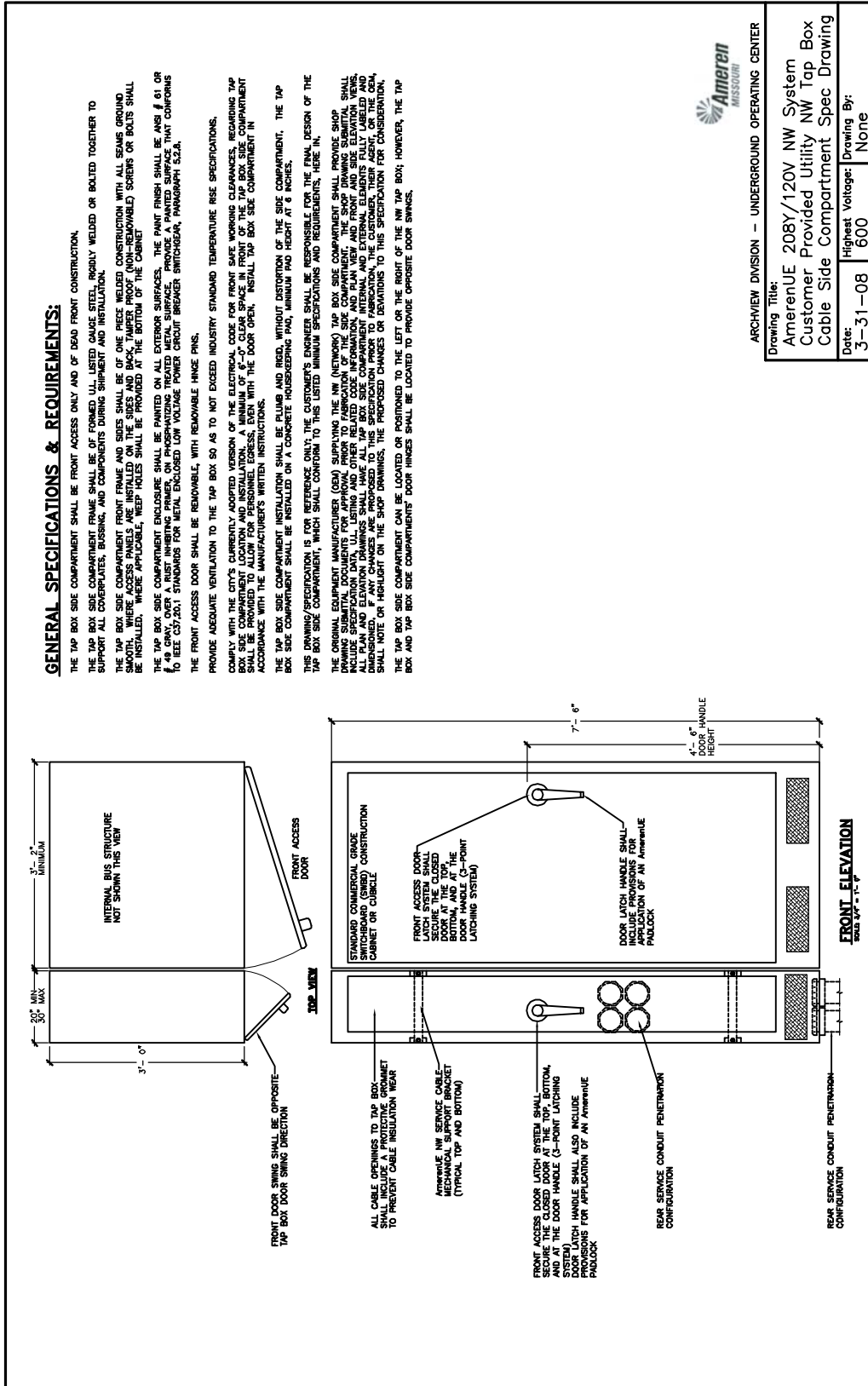
Section 1300 Network and Heavy Underground Systems

Network Tap-Box Specification Drawing Figure 1300-1A



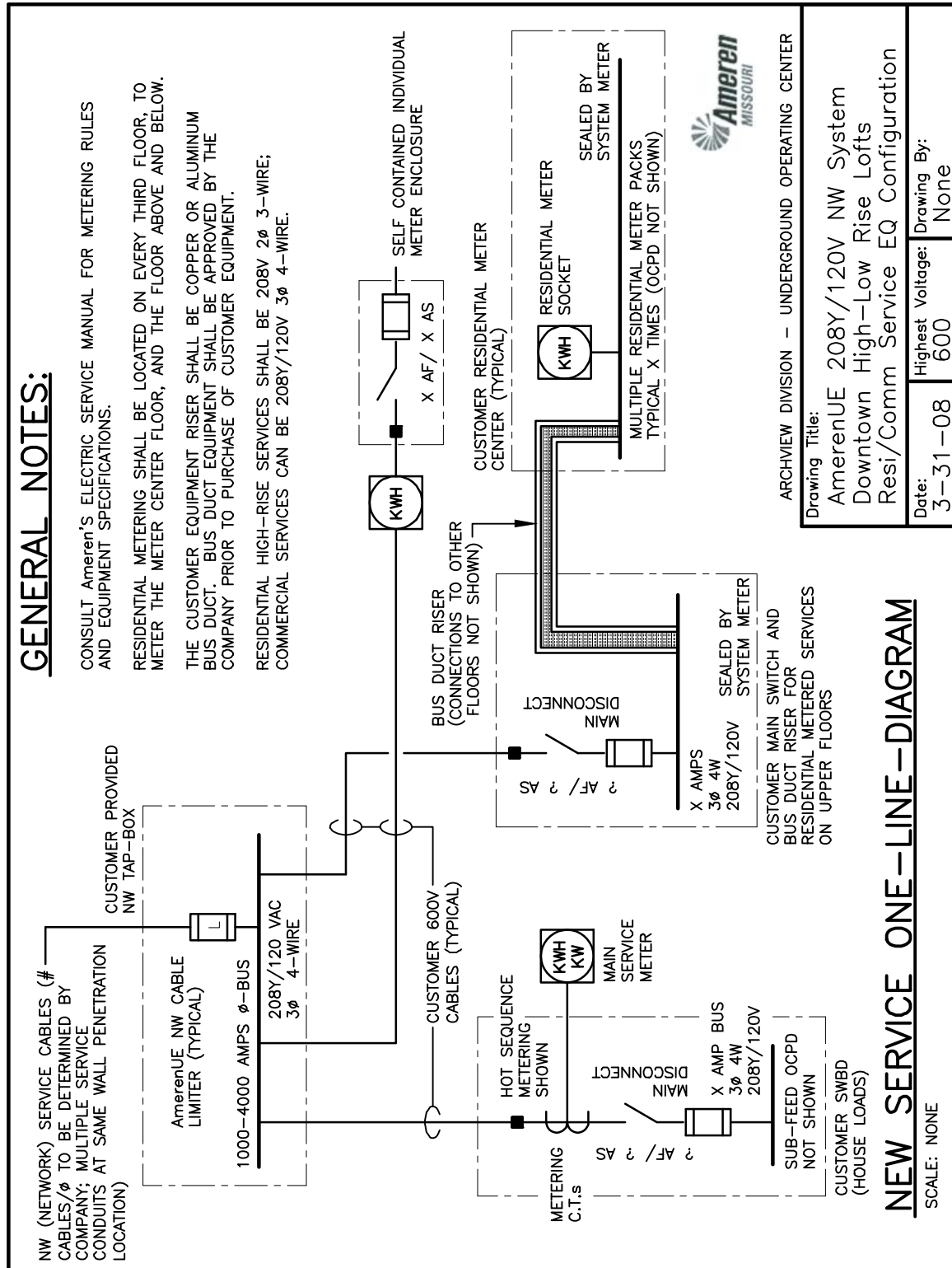
Section 1300 Network and Heavy Underground Systems

Network Tap-Box Specification Drawing Figure 1300-1B

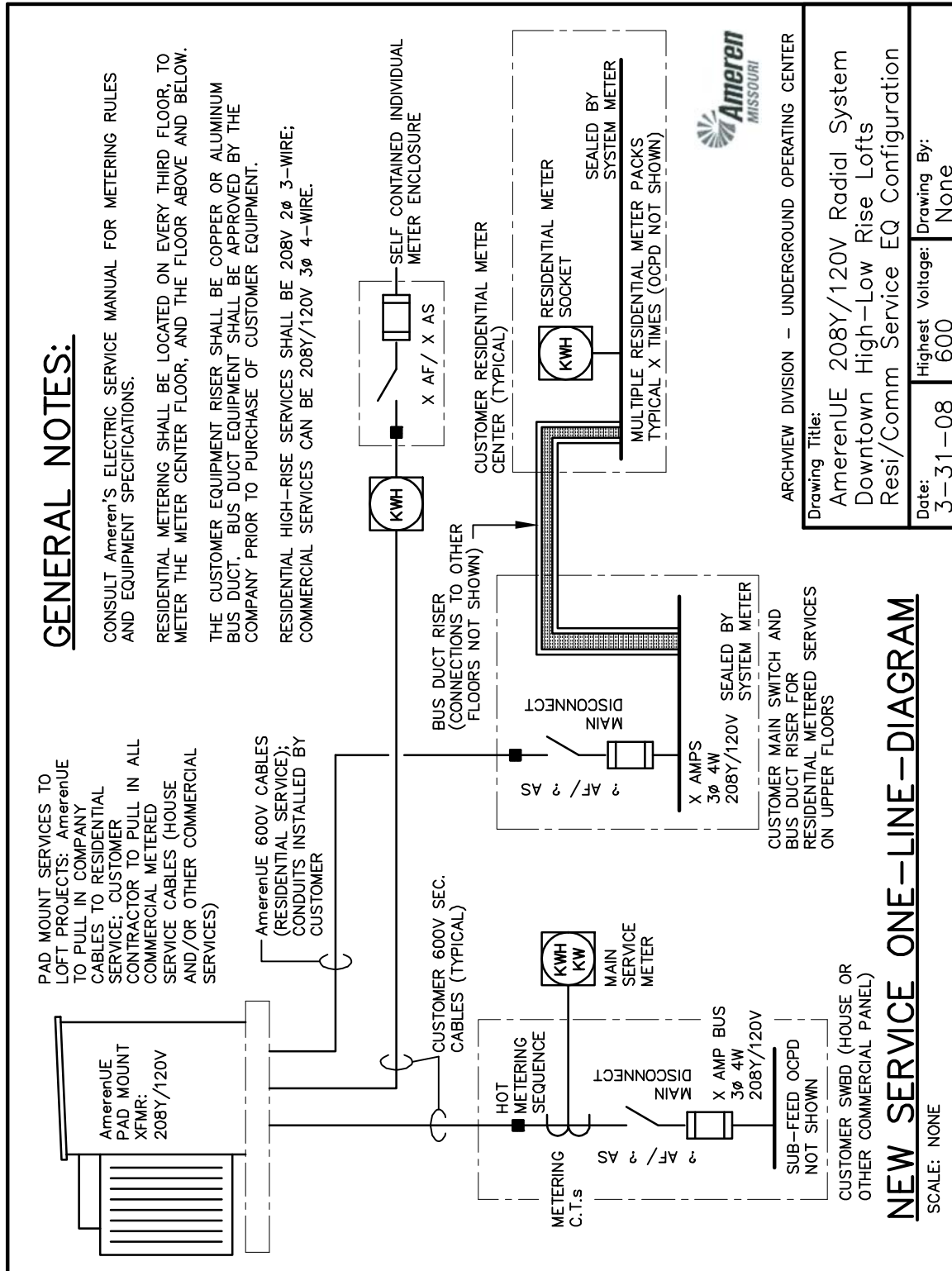


Section 1300
Network and Heavy Underground Systems

Network High-Rise Service EQ Configuration
Figure 1300-2A



**Pad Mount Transformer High-Rise Service EQ Configuration
Figure 1300-2B**



Section 1300 Network and Heavy Underground Systems

FOR AMEREN ILLINOIS COMPANY (AIC) ONLY (1300.05 A - C)

1300.05 NETWORK AND HEAVY UNDERGROUND AREAS

In the downtown areas of Bloomington, Champaign, Decatur, Galesburg, Normal, Ottawa, and Peoria, there are designated areas where the only voltage available is 120/208 volts, or 277/480 volts. In the areas that are only 120/208 volts, the Company may offer 480Y/277V, three-phase, four-wire service where the loads warrants this voltage; however, 480Y/277V secondary metered service can only be provided by padmount transformation, located on customer property. Choice of voltage and type of system offered depends on location and size of load.

Customer should consult Company to determine the voltage and method of supply that will be available, prior to beginning customer engineering or purchasing equipment.

In certain areas of Peoria, only 277/480 volts is available, and the customer will be required to accept that voltage.

If Ameren Illinois expects there will be multiple services installed from a manhole or transformer vault, strong consideration should be given to installing a Three Phase Multiple Secondary Service Termination Cabinet as featured in Ameren's Distribution Construction Standards 52 10 01 00.

A. CUSTOMER INDOOR METERING

Where outdoor space is not available, or other valid reasons when agreed to by the Company, secondary indoor metered service will be allowed upon review by the Company's Engineering and Metering Departments. The Company will provide customer requirements and specifications for the indoor metering and location, and must have unrestricted access to the metering location. All space must meet the NEC and NESC clearance requirements and Company specifications. The customer shall contact the appropriate Company Division operating center a minimum of nine months prior the desired in-service date. A minimum of nine months is required to allow for company/customer engineering, equipment purchase, and construction.

Although the heavy underground and network areas are identified above in Ameren Illinois, indoor metering and any requirements as set forth in this section of Ameren's Service guide can be built within any building that is within the Company's service territory, if approved by the Company. Where space is available and meets Company requirements, pad mount equipment (switchgear and transformer) is the preferred delivery method in these commercial and network underground areas.

Section 1300
Network and Heavy Underground Systems

FOR AMEREN ILLINOIS COMPANY (AIC) ONLY

B. 208/120V OR 277/480 VOLTS NETWORK SERVICE (BLOOMING TON, DECATUR AND PEORIA ONLY)

Customers planning to take 208Y/120 volts network service from the downtown grid can take service by one of three service connection means:

- 1) Company network cables terminated at a customer provided network tap box
- 2) Company network cables terminated at a customer owned commercial grade 600 volts (or less) switchboard (see service manual drawing 1300-2A); or
- 3) Company network cables terminated at a self-contained meter enclosure.

If the network service connection involves multiple commercial metered services at the same building, the Customer shall provide a network tap box, as specified in this manual. New customer connections to the network distribution system, whether a completely new service or an additional service(s) to an existing network tap box, shall be reviewed and approved by the Company's Engineering Department prior to the start of any construction.

Due to the possibility of customer 208 volts distribution being exposed to high fault currents available when connected to the Company's downtown network distribution system, the Company and the Authority Having Jurisdiction (AHJ) requires the main switch and current limiting overcurrent protective device (OCPD) to adequate for the available fault current in these installations. This main switch and over current protection will be required to meet NEC Article 110.10 for all customer service connections to the downtown network distribution systems. Only after review by Ameren's local operating center engineering and meter departments will NEC Article 230.71, or the '6 handle rule' will be accepted. In multiple meter locations for residential units in these network systems, the customer will be required to balance their total building load across all three phases.

C. COMMERCIAL/RESIDENTIAL HIGH-RISER MULTI-METER INSTALLATIONS

Multi-story structure (over 3 floors) residential metering centers shall be located on every 3rd floor to allow metering of the meter center floor and the floor above and below. Should building geometry prevent metering from every 3rd floor, the Customer should contact the Company to receive a variance for alternate meter center locations.

Multi-story residential lofts, with Customer provided meter equipment on every third floor, the customer provided vertical riser can be either buss duct or vertical risers made with any cable system. The installations will need to meet the NEC, and be acceptable to the Authority Having Jurisdiction. If the customer wishes to install horizontal distribution 600 volts cable and conduit between the bus duct riser and the modular meter center, within the floor meter center room, this is acceptable if the cable termination boxes at the bus duct riser and the modular meter center are equipped by the original equipment manufacturer with provision for application of a minimum

Section 1300
Network and Heavy Underground Systems

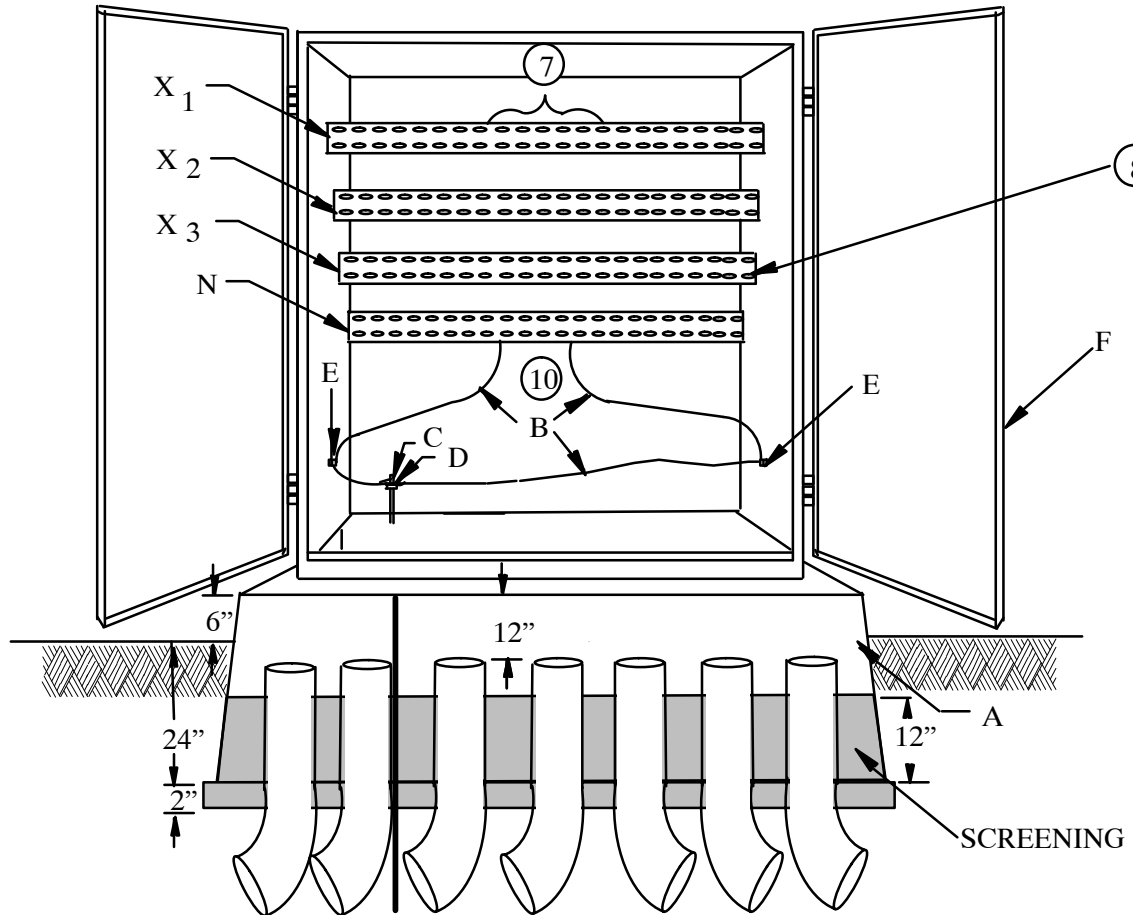
of two (2) Company metering seals to the front access panels. The side, top, and bottom panels, if not seamless construction, shall be equipped with tamper proof seals. The bus duct riser and the residential modular metering center shall be located in the same room or space, within close proximity to each other (see service manual drawing for guidelines on preferred high-rise loft service configuration).

All customer metering equipment (bus duct riser, modular meter center equipment, and mains) and the customer metering equipment configuration shall be approved by the company prior to the customer purchasing and installing such equipment.

Section 1300
Network and Heavy Underground Systems

FOR AMEREN ILLINOIS COMPANY (AIC) ONLY

When the cabinet is to be used, Refer to Distribution Construction standards 52 10 01 00 dated 03/14/07



NOTES:

An initial depth of 26" shall be excavated and all loose soil shall be removed or tamped. The length + width of the hole shall be sized to allow a minimum of 6" of clearance on all sides.

Add 2" of screening, compact, and set box pad.

Final depth should be adjusted to provide 6" of exposed ground pad at final grade.

Provide 12" of space between the top of the box pad and the end of the conduits.

Stabilize the box pad and conduits by placing 12" of crushed stone screening inside the box pad and tamp in place.

Back fill with loose material, DO NOT back fill next to the ground sleeve pad with chinks of material or rocks. Pack loose back fill by floor tamping and do not tamp excessively close to the ground sleeve pad sides. NOTE: Hydraulic tamping is not recommended.

Center positions of each bus are reserved for Ameren feed cables.

Bus has lay-in style connectors. Clean the contact surfaces of connectors and cables then coat them with inhibitor.

Secure the enclosure to the pad.

Be sure that the enclosure is grounded by attaching ground wires to the ground rod and to the neutral bus.

Section 1300
Network and Heavy Underground Systems

FOR AMEREN ILLINOIS COMPANY (AIC) ONLY

		Std. / Stk. No.	Description	.52 10 01 00	
→	A	12 06 196	Pad – Fiberglass 49" x 24" x 30"		1
	B	18 52 025	Wire – Copper, #2 Solid, Soft Drawn		12
	C	23 63 027	Rod – Ground, 5/8" x 8'		1
	D	17 52 032	Clamp – Ground Rod, 5/8" #8 – 1/0		1
	E	69 58 121	Connector – Ground		2
	F	54 07 236	Enclosure – Padmount, 3 Ph Secondary		1

Section 1400
Customer-Generator Systems in Parallel with the
Ameren Missouri Distribution System with Capacity of 10kW or Less

Ameren Missouri
Customer-Generator System

1400.01 Ameren is committed to both the safety of the public and its employees and to the reliable operation of its distribution system. Installations involving customer-owned and operated generating equipment create the potential for serious personal injury as well as damage to the Customer's or Company's equipment.

1400.02 All Customer-Generator installations such as photovoltaic (PV), wind, or other system shall adhere to UL 1741, IEEE 1547, and any applicable requirements of the National Electrical Safety Code, the National Electric Code, Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories(UL), local electric codes, applicable NEMA codes, OSHA, and Company's Electric Service Rules as set forth in published tariffs.

1400.03 Customer-Generator system must be capable of automatically disconnecting from the company system. During an outage on the utility system, an interconnected PV, wind, or other system can back-feed an Ameren utility line, creating a hazardous condition. To prevent this, Customer-Generator system must either automatically disconnect from or cease to energize the appropriate Ameren utility company electric lines when a loss of the utility company's supply occurs. Customer-Generator system must be installed in accordance with current IEEE standards and be UL-listed.

1400.04 Non-island inverters are required.

1400.05 For Customer-Generator systems greater than 10kW output, Customer must submit operating and instruction manuals for the specific model of equipment being installed to Ameren for review prior to connection of the equipment.

1400.06 Customer's system must include a manual visible break AC disconnect switch and this switch must be electrically located between the inverter and the customer's distribution equipment which is accessible to Ameren utility company staff and lockable with Ameren utility company locks. The manual disconnect switch should be marked by the customer with an Ameren provided label: "Alternative Generator AC Disconnect Switch". This allows utility company crews to disconnect the customer-generator PV or wind generator system from the utility company system for maintenance, reliability and safety concerns. The disconnect switch should be mounted within sight of the meter but in no case greater than 10' from the meter. If it is not practical to locate the disconnect switch within 10', the customer should contact Ameren for approval to mount the disconnect switch at a mutually agreeable location. In this case the customer is required to place a permanent sign (engraved on hard plastic and screwed in place, use of a label marker, or glued on strips is not acceptable). This sign should be mounted on the meter enclosure where easily visible.

1400.07 Customer-Generator system must include appropriate wiring and meter mounting devices if the customer wants to sell or receive credit for excess electricity from the customer-generator system back to the appropriate Ameren utility company system. Also, sales of electricity are regulated by various state and federal agencies. It is strongly recommended that the customer discuss the details of the project with Ameren personnel at the earliest possible time and investigate all state and federal agency requirements before proceeding. If the customer decides to proceed with a Customer-Generator project: In Missouri, call **314.554.2649** or email lcosgrove@ameren.com

1400.08 GENERAL REQUIREMENTS

1. Customer-Generator system shall be installed according to the manufacturer's instructions.
2. Customer-Generator is responsible for protecting their generator's equipment in such a manner that faults or other disturbances on the Company's system or on Customer Generator's system do not cause damage to their equipment.

Section 1400
Customer-Generator Systems in Parallel with the
Ameren Missouri Distribution System with Capacity of 10kW or Less

3. Customer-Generator shall furnish information to Company regarding their proposed generation equipment and protective devices prior to parallel operation. Company will check the adequacy of this proposed equipment and its compatibility with protective devices on the Company's system and will either approve as submitted or specify additional equipment which will be required in order to begin parallel operation with the Company's system.
4. A manual visible break AC disconnect switch must be provided which is under the exclusive jurisdictional control of the Company's distribution control office. This manual switch must have the capability to be locked out of service by Company-authorized personnel.
5. For PV interconnections made between the customer's main disconnect and Ameren's meter a fused disconnect must be mounted within 4' of the connection but still within 10' and in sight of the meter. The connection cannot be made in the Ameren meter base for 200 amp services, the connection must be made external to the meter base. For 400 amp services connection in the meter base is allowed if the addition of PV system will not cause there to be more than 2 lugs per leg or phase, if that cannot be achieved then the connection must be made external to the meter base. Connections inside a CT or CT/PT enclosure are allowed but must be reviewed and approved by Ameren prior to installation to verify that additional lugs for the PV system will not cause a safety or clearance problem in the enclosure.

1400. 09 METERING

1. Parallel generating facilities connected to Company's system are divided into two groups: 1) "Two-way power flow" and 2) "One-way power flow."
2. "Two-way Power Flow" would apply to customer's facilities whose load is sufficiently variable or smaller than its generating capacity so that excess Customer-Generated power could flow into the company's system.

For two-way power flow, the revenue metering for two-way power flow installations shall include a bi-directional meter (commonly referred to as the "net meter") The meter will be capable of measuring kWh in both directions; one register indicating kWh to the customer from Ameren and a second register indicating kWh from the customer to Ameren.

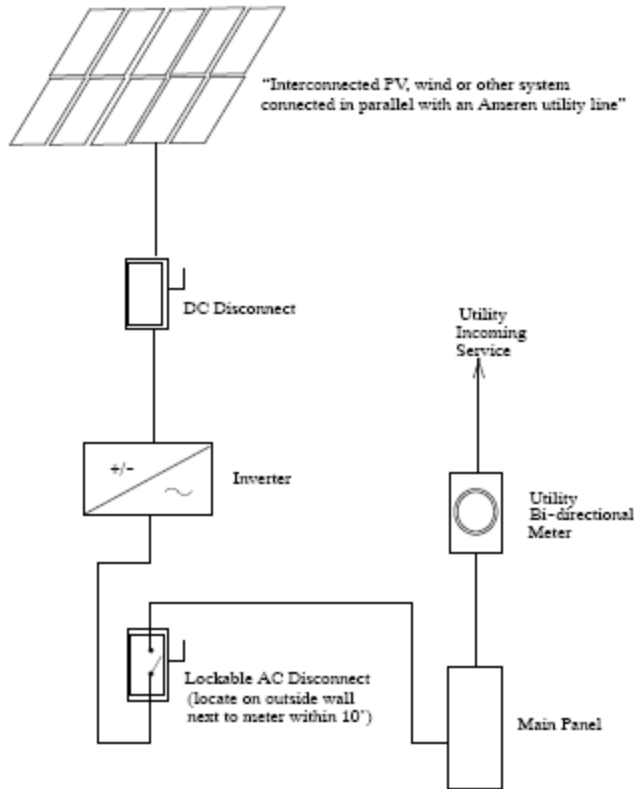
3. "One-way Power Flow" would apply to Customer's facilities whose load is significantly larger than their generating capacity so that no Customer-generated power would flow into the Company's system except under fault conditions.

For one-way power flow, the inter-tie circuit breaker will be tripped by equipment capable of detecting the reverse power flow condition toward the Company's system. This type installation requires a single revenue meter installation with detente to prevent operation of the meter in the reverse direction.

Section 1400
Customer-Generator Systems in Parallel with the
Ameren Missouri Distribution System with Capacity of 10kW or Less

4. The meter enclosure shall be an approved Ameren meter enclosure.

Sample of Placement of Customer Equipment



Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

1500.01 Distributed Energy Resources(DER) system that operates in parallel with Ameren supply such as photovoltaic, wind, or other system is committed to both the safety of the public and its employees and to the reliable operation of its distribution system. Installations involving customer-owned and operated generating equipment create the potential for serious personal injury as well as damage to the Customer's or Company's equipment.

1500.02 All Customer Distributed Energy Resource (DER) installations such as photovoltaic (PV), wind, or other system shall adhere to UL 1741, IEEE 1547, with the allowance of smart capabilities extended by IEEE 1547a and any applicable requirements of the National Electrical Safety Code, the National Electric Code, Institute of Electrical and Electronics Engineers (IEEE), Underwriters Laboratories(UL), local electric codes, applicable NEMA codes, OSHA, AHJ, and Company's Electric Service Rules as set forth in published tariffs.

1500.03 Customer DER system must be capable of automatically disconnecting from the company system. During an outage on the utility system, an interconnected PV, wind, or other system can back-feed an Ameren Illinois Electric Distribution line, creating a hazardous condition. To prevent this, Customer DER system must either automatically disconnect from or cease to energize the appropriate Ameren Illinois Electric Distribution lines when a loss of the utility company's supply occurs. Customer DER system must be installed in accordance with current IEEE standards and be UL-listed.

1500.04 Non-island inverters are required.

1500.05 For Customer DER systems greater than 25kW output, Customer must submit operating and instruction manuals for the specific model of equipment being installed to Ameren Illinois for review prior to connection of the Distributed Generation equipment

1500.06 Customer's system must include a **manual visible break AC disconnect switch** and this switch must be electrically located between the inverter and the customer's distribution equipment which is accessible to Ameren Illinois staff and lockable with Ameren Illinois locks.

The manual disconnect switch should be marked by the customer "Alternative Generator AC Disconnect Switch". This allows utility company crews to disconnect the customer DER PV or wind generator system from the utility company system for maintenance, reliability and safety concerns. The disconnect switch should be mounted within sight of the meter but NOT greater than 10' from the meter. If it is not practical, the customer should contact Ameren Illinois for approval to mount the disconnect switch at a mutually agreeable location. In this case the customer is required to place a permanent sign (engraved on hard plastic and screwed in place, use of a label marker, or glued on strips is not acceptable). This sign should be mounted on the meter enclosure where easily visible.

1500.07 Customer DER system must include appropriate wiring and meter mounting devices if the customer wants to sell or receive credit for excess electricity from the customer-generator system back to the appropriate Ameren Illinois electric distribution system. Also, sales of electricity are regulated by various state and federal agencies. It is strongly recommended that the

Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

customer discuss the details of the project with Ameren Illinois personnel at the earliest possible time and investigate all state and federal agency requirements before proceeding.

If the customer decides to proceed with a Customer DER project:

In Illinois, call (217) 535-5073 or email renewablesillinois@ameren.com

1500.08 GENERAL REQUIREMENTS

1. Customer DER system shall be installed according to the manufacturer's instructions.
2. Customer DER is responsible for protecting their generator's equipment in such a manner that faults or other disturbances on the Ameren Illinois electric distribution system or on Customer DER system do not cause damage to their equipment.
3. Customer DER shall furnish information to Ameren Illinois regarding their proposed generation equipment and protective devices prior to parallel operation. Company will check the adequacy of this proposed equipment and its compatibility with protective devices on the Company's system and will either approve as submitted or specify additional equipment which will be required in order to begin parallel operation with the Company's system.
4. **A manual visible break AC disconnect switch** must be provided that is under the exclusive jurisdictional control of the Ameren Illinois Net Metering Coordinator or other Ameren Illinois representative. This visible break disconnect switch must be accessible to Ameren Illinois authorized personnel and physically located next to the electric meter between output of the inverter and the Ameren Illinois electric distribution system. Some exceptions may apply - consult with your Ameren representative. Typically the disconnect switch will be located between the inverter and a circuit breaker or fuse located in the main distribution panel. The disconnect switch must have the capability to be locked out of service by Ameren Illinois authorized personnel.
The disconnect switch must be rated for outdoor use.
The disconnect switch must have a visibly open gap between the switch contacts, knife-blade type. Circuit breakers are NOT suitable for this purpose. The disconnect switch must be able to be locked in the open position.
5. For PV interconnections made between the customer's main disconnect and Ameren's meter a fused disconnect must be mounted within 4' of the connection but still within 10' and in sight of the meter. The connection cannot be made in the Ameren Illinois meter base for 200 amp services, the connection must be made external to the meter base. For 400 amp services connection in the meter base is allowed if the addition of PV system will not cause there to be more than 2 lugs per leg or phase. If this cannot be achieved, then the connection must be made external to the meter base. Connections inside a CT or CT/PT enclosure are allowed but must be reviewed and approved by Ameren Illinois prior to installation to ensure that additional lugs for the PV system will not cause a safety or clearance problem in the metering enclosure.

1500.09 DISTRIBUTION RESOURCES INTERCONNECT REQUIREMENT

Any customer requesting to connect Distribution Energy Resource (DER) – i.e. solar voltaic, batteries, or motor generators – for the purposes to of net-metering (not emergency or stand-by generation) shall comply with the following requirements as a condition of service, in addition to the standard requirements for service, as stated in the Distributed Generation Rule, 83IL Admin Code, Part 466. All service metering voltages will meet the standard voltages stated in Section 400 of the Service Guide.

The customer will comply with all Ameren Illinois Company general requirements for DER distributed generation interconnect that are in the applicable Illinois Administrative Code,



Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

Ameren's Standards and Qualifications for Electric Service and the Ameren Electric Service Manual.

The proposed DER installation connected to Ameren Illinois shall meet the requirements mentioned in Table 1.

Table 1: Summary of Inverter Standards/Guidelines

References	Description
IEEE 1547-2003 & IEEE 1547a	SMART Inverters connected to the Utilities systems shall be rated as IEEE 1547 compliant with the allowance of smart capabilities extended by IEEE 1547a, and when applicable shall comply with the upcoming IEEE 1547 full revision (approx. in 2020)
UL 1741	SMART inverters connected to the Utilities systems shall be rated as UL 1741 safety compliant
UL 1741 SA	SMART Inverters connected to the Utilities systems shall pass UL 1741 SA ¹ as Grid Support Utility Interactive Inverter
California Rule 21	SMART Inverters connected to the Utilities systems shall be compliant with California Rule 21 Phase 1 functions (Section Hh. of the Rule 21)

Interconnection Applications

Customers or certified installers will still need to apply for interconnection. Ameren Illinois's Interconnection application forms can be found at

[Distributed Generation](https://www.ameren.com/illinois/electric-choice/distributed-generation) (<https://www.ameren.com/illinois/electric-choice/distributed-generation>)

Continued on next page



Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

Distribution Energy Resource (DER) Interconnection Applications

Level	Description	Application Fee
1	Lab-certified interconnection equipment with an aggregate electric nameplate capacity less than or equal to 25 kVA.	\$50
2	Lab-certified interconnection equipment with an aggregate electric nameplate capacity greater than 25kVA and less than or equal to 2 MVA. Lab certified is defined in 466.30	\$100 plus \$1.00 per kVA
3	Distributed generation facility does not export power. Nameplate capacity rating is less than or equal to 50kVA if connecting to area network or less than or equal to 10 MVA if connecting to a radial distribution feeder.	\$500 plus \$2.00 per kVA
4	Nameplate capacity rating is less than or equal to 10 MVA and the distributed generation facility does not qualify for a Level 1, Level 2 or Level 3 review or, the distributed generation facility has been reviewed but not approved under a Level 1, Level 2 or Level 3 review.	\$1000 plus \$2.00 per kVA

For a complete list of criteria, please refer to 83 Ill. Adm. Part 466, Electric Interconnection of Distributed Generation Facilities.

For DER interconnections that the Ameren Illinois planning analysis require system upgrades on Level 2 and 4, metering interval data will be required for at least one year, or if the customer is new, detailed operating load information will be required to be provided. An operating one-line will need to be submitted by the customer to allow Ameren Illinois do perform our analysis.

For DER interconnections to the secondary network systems in Ameren Illinois territories, that are located in Bloomington, Decatur and Peoria, the capacity of the generation can't exceed 25% of the minimum demand of the customer. If Ameren Illinois does not have demand information for this customer available for the last 12 months, the customer will be responsible for Ameren's cost to install the meter, and monitor the demand for a 12 month period.

Access to Premises

Ameren Illinois may enter Customer's premises without prior notice (a) to inspect at all reasonable hours Customer's DR and protective devices and read or test any meter for the Facility and (b) to disconnect, at any time, without notice, the Facility if, in Ameren Illinois's sole opinion, a hazardous condition exists and that immediate action is necessary to protect persons, or Ameren Illinois's facilities, or property of others from damage or interference caused by (1) Customer's Facility, or (2) Customer's failure to comply with the requirements of this Agreement; and (c) monthly to read the bidirectional digital meter for billing purposes. Self-reads and reads from adjacent properties are not permitted.

1500.10 METERING

1. Parallel generating facilities connected to Company's system are divided into two groups:
 - 1) "Two-way power flow" 2) "One-way power flow."

- 1) "Two-way Power Flow" would apply to customer's facilities whose load is sufficiently variable or smaller than its generating capacity so that excess Customer-Generated power could flow into the company's system.



Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

For two-way power flow, the revenue metering for two-way power flow installations shall include a bi-directional meter (commonly referred to as the "net meter") The meter will be capable of measuring kWh in both directions; one register indicating kWh to the customer from Ameren Illinois and a second register indicating kWh from the customer to Ameren Illinois.

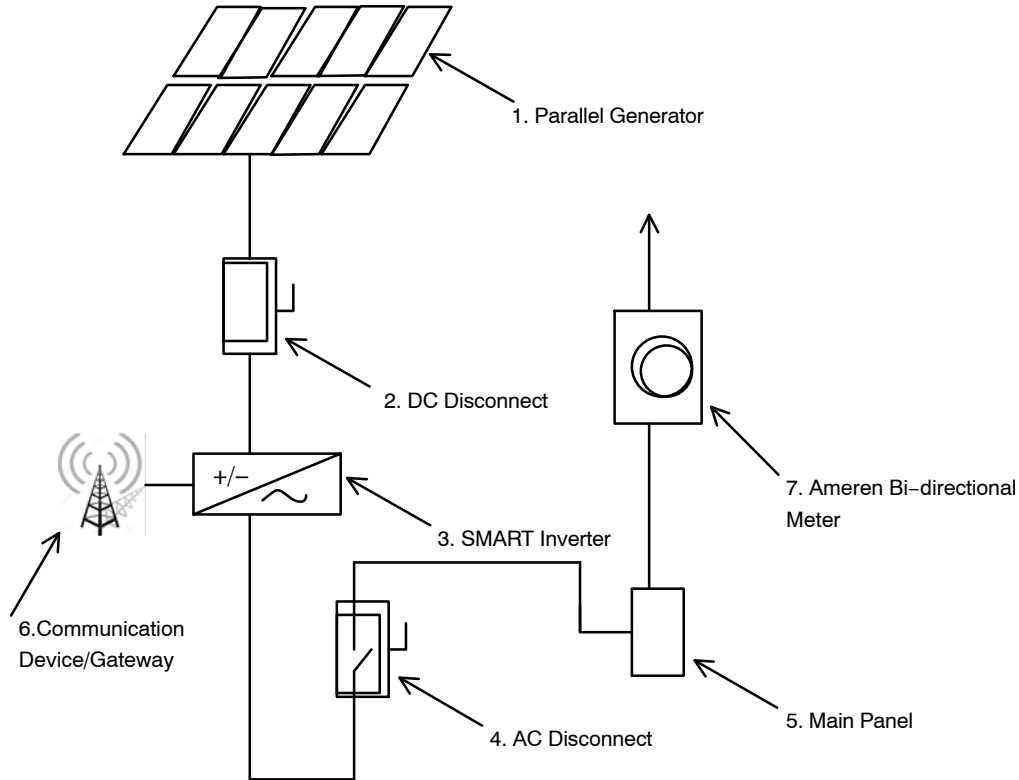
- 2) "One-way Power Flow" would apply to Customer's facilities whose load is significantly larger than their generating capacity so that no Customer-generated power would flow into the Company's system except under fault conditions.

For one-way power flow, the inter-tie circuit breaker will be tripped by equipment capable of detecting the reverse power flow condition toward the Ameren Illinois system. This type installation requires a single revenue meter installation with detente to prevent operation of the meter in the reverse direction.

2. The meter enclosure shall be an approved Ameren meter enclosure, Refer to Ameren Approved Meter Mounting Devices List. <https://www.ameren.com/service-manual>

Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

3. One-line diagram - Smart Inverter Connection



Customer Furnishes, Installs, Maintains:

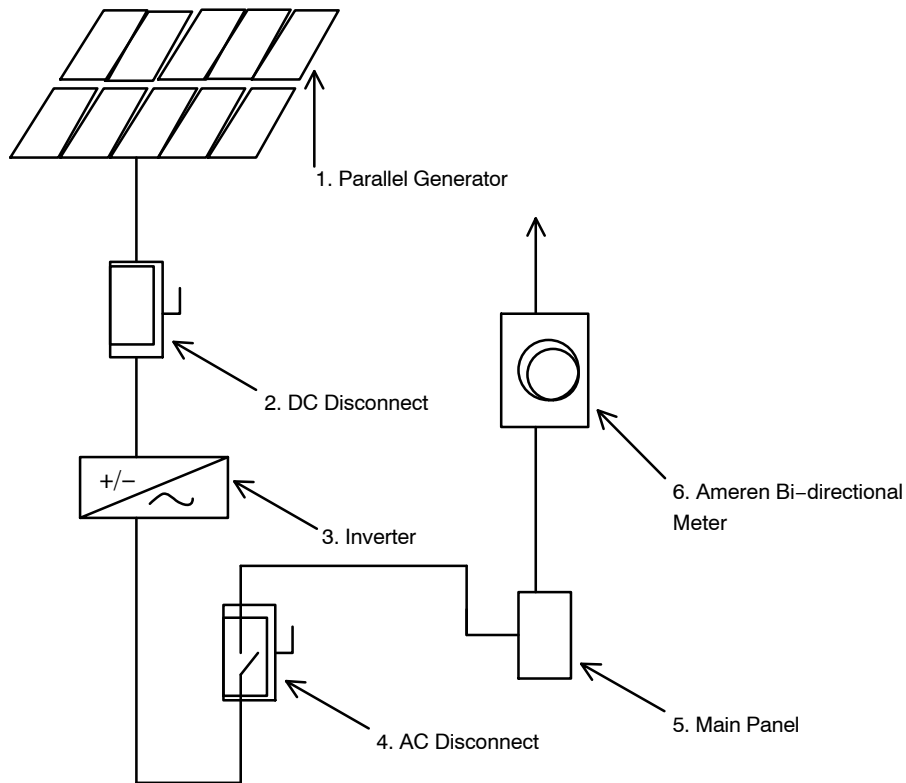
1. Interconnected PV, wind or other system connected in parallel with Ameren
2. DC Disconnect switch for generator (NOTE: (1) Some Inverters may integrate switch with inverter, which eliminates the need to install additional equipment.
(2) Ameren Illinois does not require at DC disconnect)
3. Inverter Shall be labelled as IEEE 1547/UL 1741 **SA** listed
4. Lockable AC Disconnect (Located on outside wall, next to meter, within 10 feet)
5. Main Panel

Ameren Illinois Furnishes, Maintains & Controls:

1. Communication Device and/or Gateway
2. Utility Bi-directional Meter. However, customer installs & own meter base/socket

Section 1500
Customer Distributed Energy Resources (DER) in Parallel with the
Ameren Illinois Company Distribution System

4. One Line Diagram – Customer without Smart Inverter



Customer Furnishes, Installs, Maintains:

1. Interconnected PV, wind or other system connected in parallel with Ameren Illinois
2. DC Disconnect switch for generator (NOTE: (1) Some Inverters may integrate switch with inverter, which eliminates the need to install additional equipment. (2) Ameren Illinois does not require a DC disconnect)
3. Inverter Shall be labelled as IEEE 1547/UL 1741 listed
4. Lockable AC Disconnect (Located on outside wall, next to meter, within 10 feet)
5. Main Panel

Ameren Illinois Furnishes, Maintains & Controls

1. Utility Bi-directional Meter. However, customer installs & own meter base/socket

Electric Service Manual Changes Dated 12/2017

Section	Sub-Section	Modification	Description
Section 100			
		Added	Permanent ladders or stairways shall be provided by the customer, approved by OSHA, and meet the latest NEC, at no cost to Ameren,.....
Section 150			
		Added	Meter disconnect
Section 200			
	200.01.A.2a)	Modified	3 feet radius horizontal of a gas meter and regulator installation.
	200.01.A.2d)	Added	Location must also satisfy....
	200.01.A.3.7	Removed	"paint" and add "Engraved plate" in the last sentence. "Such marking shall be made with metal letters, engraved plates, or other permanent methods.
	200.01.B	Added	All requests for inside metering including CT and PT locaitons must be approved and evaluated by Ameren on a case by case basis.
	200.01.B.1.e	Added	"If meter is locked and a key is not readily accessible from the customer, we will require a lockbox to be placed near the access door."
	200.01.B.1.g	Added	If indoor metering approval is given, conduit of 1-1/2" will be ran from meter socket to an Hoffman 6"X6" box (part#AHE6X6X4 or comparable), minimum mounting of 7' in height, in an outdoor location.
	200.02.A.7	Revised	All fasteners and straps must be of adequate size and material to rigidly secure the equipment to the structure.
	200.02.A.6	Removed	where a meter board is installed outdoors....
	200.02.A.14	Added	The neutral conductors shall....
	200.02.A.15	Added	Grounded delta 3 phase sockets require.....
	200.02.B.1.a)	Revised	Meter disconnect (safety switch) located in the line side of the meter for cold sequence metering....
	200.02.B.1.d)	Added	For service greater than 200 amp, a CT/PT enclosure is a standards installation.
	200.02.B.2.b)	Modified	Enclosures for 320 amp continuous/400 amp max are required in this application.
	200.02.B.2.c)	Modified	one 400 amp breaker or two 200 amp breakers with 80% rating
	Figure 200-4	Added	Meter location on side of house
Section 300			
	300.01.8.B	Added	The service equipment shall contain no more than six operative switch positions and all shall be grouped together per NEC requirements.
	300.03	Added	Unauthorized Aftermarket Equipment
Section 400			
	400.02.2	Revised	Three Phase's requirement
Section 500			
	500.01	Revised	Clarification
	500.02	Changed	Inter-System Bonding
	500.03	Changed	Clarification grounding methods requirement
	500.04	Revised	Drawings
			Figure 500-1 Inter-System Bonding
			Figure 500-2 1Ø and 3Ø Self-Contained Metering Less Than 480 Volts, Option 1 Interior Main Disconnect
			Figure 500-3 1Ø and 3Ø Self-Contained Metering Less Than 480 Volts, Option 2 Exterior Main Disconnect
			Figure 500-4 1Ø and 3Ø Cold Sequence Metering 480 Volts (Meter Disconnect/Meter Socket in Separate Enclosures) Option 1 – Interior Main Disconnect
			Figure 500-5 1Ø and 3Ø Cold Sequence Metering 480 Volts (Meter Disconnect/Meter Socket in Separate Enclosures) Option 2 – Exterior Main Disconnect
			Figure 500-6 1Ø and 3Ø, Cold Sequence Metering 480 Volts (Meter Disconnect/Meter Socket Combination) Option 1 – Interior Main Disconnect
			Figure 500-7 1Ø and 3Ø, Cold Sequence Metering 480 Volts (Meter Disconnect/Meter Socket Combination) Option 2 – Exterior Main Disconnect
			Figure 500-8 1Ø and 3Ø, Instrument Transformer Metering (Separate Enclosures) Option 1 – Interior Main Disconnect
			Figure 500-9 1Ø and 3Ø, Instrument Transformer Metering Option 2 – Exterior Main Disconnect
			Figure 500-10 1Ø and 3Ø, Instrument Transformer Metering Option 3 – CT or CT/PT Mounted in Switchgear
Section 600			
	600.02	Added	Failure to maintain safe and substantial support for Ameren facilities may lead to termination of service until the condition is corrected
	600.03	Added	Failure to maintain safe and substantial support for Ameren facilities may lead to termination of service until the condition is corrected
	600.04	Added	Temporary electric service installations do not require a lever bypass for 200 amp and less.
	600.05	Added	Conductor Marking
	Figure 600-1	Added	Note 9 and Note 10
	Figure 600-2	Revised	320 A to 400A
Section 700			
	700.02.A.6	Revised	Customer must mark....
	700.02.A.9	Revised	to add "For three or more residential dwelling units,..."
	700.02.B.8.3	Added	New
	700.02.B.9	Added	New
	700.02.11	Added	New
	700.03.C.3	Added	New
	700.03.C.4	Added	New
	700.03.C.5	Added	New
	Figure 700-1	Revised	to 200 amp service
	Figure 700-2	Added	320 amp Continuous/400 amp Max Service Installations.
	Figure 700-3	Revised	Add "Permanently marked "Premises Labels" required on each meter socket, preferably next to breaker"
	Figure 700-4	Revised	Add "Preferably next to Breaker" after "Permanently marked "Premises
	Figure 700-5	Revised	Change the radius to 24"
	Figure 700-6	Revised	Change the radius to 24"
Section 800			
	Figure 2	Removed	(Refer to DCS 09 00 03 01)

Electric Service Manual Changes Dated 12/2017

Section	Sub-Section	Modification	Description
Section 1000			
	1000.02.7	Revised	Meter socket 320 amp continuous/400 amp max...
	1000.02.9	Revised	Meter socket 320 amp continuous/400 amp max...
	1000.02.11	Added	"Grounded Delta 3 phase sockets require High leg/wild leg to be placed in the right position at the meter socket."
	1000.02.12	Revised	Neutral Conductor should be marked with white or gray at weatherhead.....
	1000.03.1.C	Revised	Meer socket 320 amp continuous/400 amp max
	1000.03.1.E	Revised	All temporary services greater than 200
	1000.06	Revised	Ameren emphasizes the need for the responsible building owner to minimize safety hazards.....
	1000.07	Renumbered	Drawings
	Figure 1000-1	Renumbered	Meter Socket Connections - 3W, 120V/240V, 1-PH, SELF-CONTAINED (LIMITED TO 320A CONTINUOUS/400A MAX)
	Figure 1000-2	Renumbered	Meter Socket Connections - 3W, 240/480V, 1-PH, SELF-CONTAINED (LIMITED TO 200A)
	Figure 1000-3	Renumbered	Meter Socket Connections - 3W, 120/208V, 1-PH, SELF-CONTAINED (LIMITED TO 200A)
	Figure 1000-4	Renumbered	Meter Socket Connections - 4W, 120/208V, 3-PH, SELF-CONTAINED (LIMITED TO 320A)
	Figure 1000-5	Renumbered	Meter Socket Connections - 4W, 277/480V, 3-PH, SELF-CONTAINED (LIMITED TO 200A WITH EXCEPTION 200.02.1i)
	Figure 1000-6	Renumbered	Meter Socket Connections - 3W, 480 volt, 3-PH, SELF-CONTAINED CORNER GROUNDED (LIMITED TO 200A WITH EXCEPTION 200.02.1i)
	Figure 1000-7	Renumbered	Meter Socket Connections - 3W, 240 volt, 3-PH, SELF-CONTAINED CORNER GROUNDED (LIMITED TO 320A)
	Figure 1000-8	Renumbered	Meter Socket Connections - 4W, 240 Volt, 3-PH, SELF-CONTAINED UN-GROUNDED (LIMITED TO 320A CONTINUOUS/400A MAX)-NON-STANDARD
	Figure 1000-9	Renumbered	Meter Socket Connections - 4W, 120/240V, GROUNDED DELTA, 3-PH, SELF-CONTAINED (LIMITED TO 320A CONTINUOUS/400A MAX)
	Figure 1000-10	Renumbered	Meter Socket connections - 3W, 120/240V, 1-PH, SELF-CONTAINED (LIMITED TO 200A) – TEMPORARY SERVICES ONLY
	Figure 1000-11	Renumbered	Metering Requirements
Section 1001			
	1001.01.b	Revised	For 240/480V, 480/277V, and 480V Service above 200 amps....
	1001.02.h	Revised	CT/PT enclosures shall normally be installed along....
	1001.02.i	Added	with exception, see 200.02.B.1.d
	1001.02.j	Revised	400 amps continuous and larger....
	1001.02.l	Added	to end of sentence "if longer than 6", make 1-1/2" continuous"
	1001.02.m	Removed	"at least 8"Wx27.5"Hx8"D with 3/4" treated plywood back panel
	1001.02.o	Revised	If schule 40 (or greater)electric grade PVC pipe is used.....
	1001.02.p	Added	"Meter bundle (harness)" before sentence.
	1001.02.t	Added	Dimension requirement for Ameren approved CT/PT enclosures
		Added A	CT enclosures - wall mounted requirement
		Added B	CT enclosures - pad mounted requirement
		Added C	PT enclosure requirement
	1001.03.b	Added	"Refer to section 200 for the location requirement.
	1001.04.5	Changed	from 1" to 1-1/2"
	1001.07	Added	Delivery of Company Furnished Meter items (Ameren Illinois)
	1001.08		Switchboard's drawing
	Figure 1001-6A	Added	Amerenian Midwest Power CT/PT Compartment
	1001-09	Renumbered	Figure 1001- 7, 8, 9, 10, 11, 12, and 13
			1) Remove 78" max and 12" Min and add language "Instrument Transformers shall be located 3'0" minimum to 5'6" maximum
			2) Revise the drawings to have the nipple between the meter can and CT cabinet to be placed correctly. The nipple should be located on the bottom of the meter can and not centered. Consider allowing 1-1/2" sweep elbow from bottom of meter can to the CT cabinet instead.
		Change	3) Add note" Inside installations required prior approval by Ameren Illinois" to the Figure 1001-7, 8, 9, 10, 11, 12.
	Figure 1001-13	New	CT Enclosure If Side Gutter is Required
Section 1200			
	1200.05.1	Add	For Ameren Illinois, self-contained meter socket is sufficient as a visible open point
Section 1300			
	1300.03		Add "Customers requested secondary network service....."
	1300.03A		Policy for NW DR Interconnect Requests
Section 1500			