

Specifications for Residential Underground Electric Service Installation

This brochure addresses most typical residential underground service installations. Variances for the following specifications must be approved in advance by Ameren Missouri. If you have any questions, please contact your Ameren Missouri Representative, at the number listed on the back of this brochure, or call 1-866-992-6619 or visit us at

BuildWithAmeren.com



CALL 1-800-344-7483 (DIG-RITE) BEFORE DIGGING

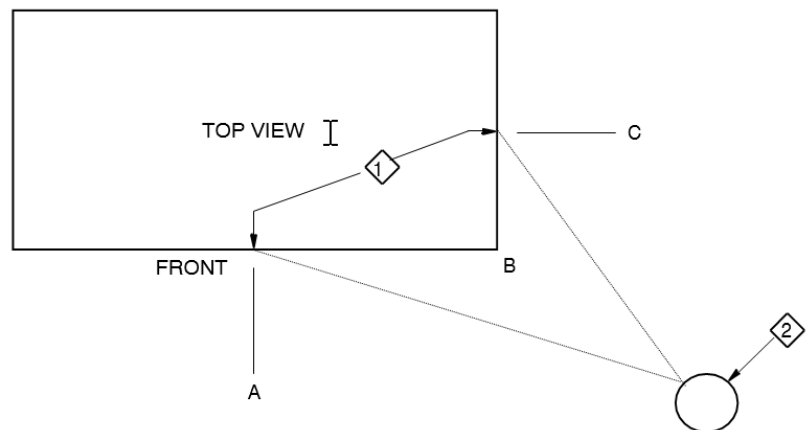
To ensure your new underground electric service is installed in a safe, reliability and timely manner, the following specifications must be met. Failure to meet any of the requirements may cause a delay in receiving service and / or require the relocation of facilities.

Please check with your local inspection authority for any additional requirements before installation.

Location for Point of Delivery on Buildings (ASM Figure 200-3B)

CONSTRUCTION NOTE(s): (ASM Section 200 and Figure 200-3B)

1. In Missouri, an approved location for the point of delivery to a customer's premises will normally be within 10' of nearest corner front or side of the home if proper clearance can be maintained to the service connection on the front or side of the home where possible.
2. 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 **ASM Figure 600-6** and **ASM Section 200.01**.
3. In Ameren Missouri, distribution point from Ameren System may be overhead or underground.
4. Applicable charges are governed by State tariffs. Contact your local Ameren Representative for an explanation of charges that may apply.
5. For continuous conduit installations, the customer will provide and install the meter socket(s) or enclosure(s) and line-side riser conduit(s) of Schedule 80 electrical grade PVC. The conduit(s) include a PVC male adapter, lock nut, and insulated bushing at the meter socket(s). If the required expansion coupling includes a male insulated meter (or PVC) adapter end, only the lock nut and insulated metal (or PVC) bushing are required. The bottom lower left knockout of the meter socket is intended for Ameren's underground supply service conductors. All conduit section shall be securely fastened together using standard grade cement. Refer to **ASM Figure 700-9** for customer owned and installed service conduit drainage at meter or pole if required. Customer installed conduit shall be installed along the shortest route, and the number of bends (sweeps) shall be kept to a minimum. There shall be a maximum of 3 – 90°, 36 in. radius bends (sweeps) for 2-1/2 in. conduit or 3 in. conduit installations. 24 in. radius bends (sweeps) are permitted where rock or foundation problems exist.



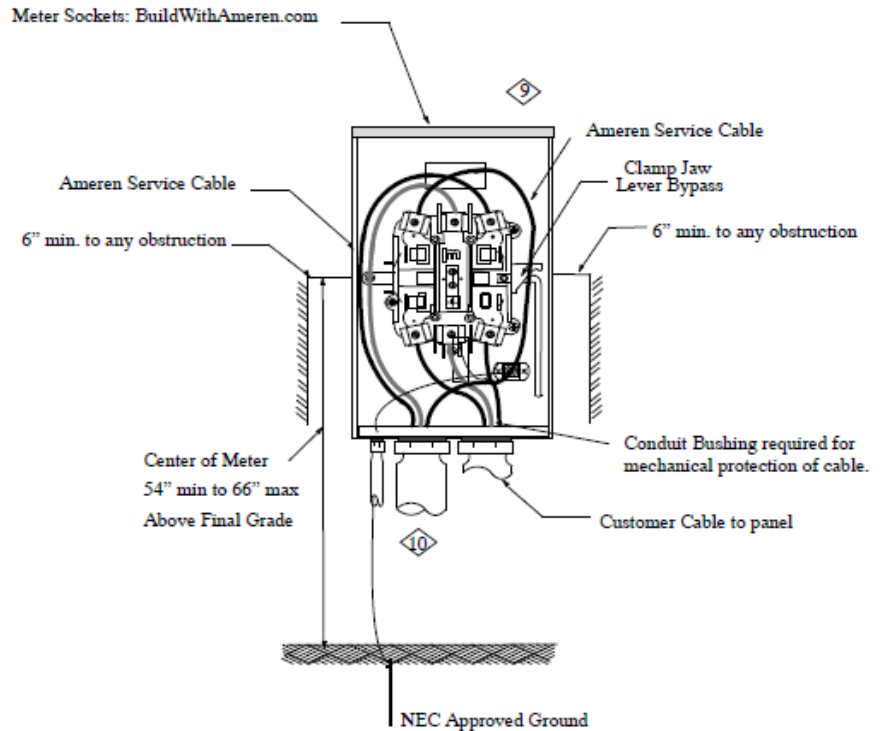
CONSTRUCTION NOTE(s): (ASM Section 200 and Figure 200-3B)

6. In Missouri, Company owns, installs, and maintains the residential service conductors if the customer installs a complete conduit system. Customer has option to not install a conduit system, but in this case, they must own / install / maintain the service conductors. If the customer wants to install the service installation at a location farther than allowed by Ameren, this option is allowed if the customer installs, owns and maintains the service conductor for either direct buried or conduit system installation

Meter Location (ASM Section 200.01)

CONSTRUCTION NOTE(s): (ASM Section 200.01):

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, a 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 area as specified by Ameren as defined in Section 100 in Ameren Service Manual.
 - 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' radius of a gas regulator relief vent associated with a gas meter set as shown in **ASM Figure 200-4** (with noted exceptions). For more details refer to the National Fuel Gas code.
 - b) 6' 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 **ASM Section 200.01.3** and illustrated in **ASM Figure 200-4**.
3. Clear working spaces shall not be used for storage.
 - a) A minimum of 42" 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" above, below, and to each side of the metering equipment.

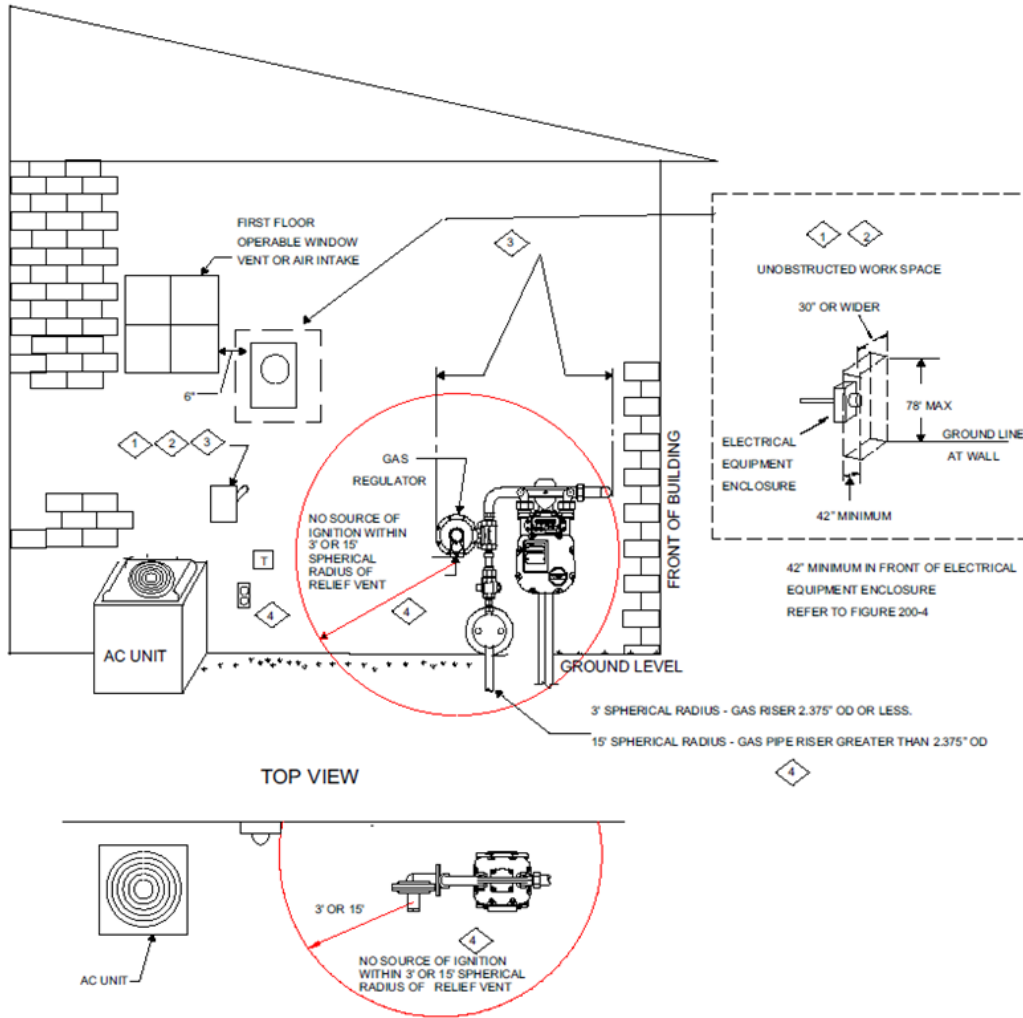


CONSTRUCTION NOTE(s) (ASM Section 200.01):

4. Metering equipment shall not be mounted on portable trailers, buildings, mobile home or manufactured (modular) homes, 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 78".
7. At locations where more than one meter is installed on any structure, 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 with permanent adhesive. Any marking with stickers or sharpie will not be allowed.
8. The meter socket shall be secured to solid wood and use #14 x 3 in. wood screws or stainless-steel screws. In brick, use expansion shields and lag screws. No drywall screws accepted.
10. An expansion coupling is only required for a continuous conduit system, where bend (sweeps) is buried below the meter socket, and where the riser conduit emerges from grade through a concrete slab that does not have an oversized hole (e.g., concrete not adhered to riser). The expansion coupling should be installed with the outer sleeve fitted into the meter socket with the inner sleeve positioned at the manufacturer's midway mark.
11. If meter is subject to mechanical damage, vehicular traffic, or presents hazard to the public, the customer / contractor shall install protective barrier.
12. Ground slope at wall shall not exceed 4" in 12" in any direction.
13. Meters shall be mounted outdoors unless special permission has been granted for indoor mounting by Ameren.
14. Center of the meter glass shall be at a height of 54 in. to 66 in. above grade.
Exceptions:
 - A. When a meter base is over walkways less than 36 in. wide or in areas where flooding occurs, the center of the meter glass can be 78 in. above walking surface.
 - B. For Missouri Only, underground fed residential service installations that are mounted on the side of a single-family dwelling unit are allowed to be at 36 in. to the center of the meter glass.
 - C. When a service installation consists of a meter pedestal, the center of the meter glass must be 36 in. or greater.



ELECTRICAL AND GAS EQUIPMENT LOCATED ON SIDE OF HOUSE OR COMMERCIAL BUILDING (ASM Figure 200-4)



CONSTRUCTION NOTE(S) (ASM Figure 200-4):

1. Depth of working space in front of energized electrical equipment shall not be less than 42" NEC 110.26 A (1).
2. Width of working space in front of energized electrical equipment shall be the width of the equipment or 30", whichever is greater and shall permit the opening 90 degree opening of equipment doors or hinged panels NEC 110.26 A (2).
3. Height of Working Space shall extend from the grade, floor, or platform to a minimum of 78" NEC 110.26 A (3). Further clarification: No electrical equipment such as but not limited to metering equipment, disconnects, and solar inverters shall be located above or below fixed objects such as but not limited to gas meters, air conditioners, and standby generators.
4. No source of ignition from electrical equipment such as but not limited to metering equipment, disconnects, receptacles, and solar inverters shall be located within a 3 ft. spherical distance from the Gas Relief Vent on Gas Pipe Risers with 2.375" OD or less as measured on bare pipe. For Gas Pipe Risers with greater than 2.375" OD as measured on bare pipe, the required spherical distance is 15 ft. Refer to **National Fuel Gas Code 5.14**, Ameren Gas O & M Plan, and American Gas Association Catalog # XL1001.

GROUNDING (ASM 500.01)

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, CT enclosure, meter disconnect, 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 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 of personal safety associated with an ungrounded service. Customers who receive an ungrounded service from the Company **MUST INSTALL** ground-fault detection sensing equipment on the load side of the main overcurrent protective device(s) (e.g., Erickson ground-fault detection equipment). When supplying an ungrounded service result in an additional cost to the Company, this may be passed on to the customer.

For electric service installations where galvanized steel RMC, aluminum RMC, or galvanized steel EMT is used on the supply side of the main service 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 bushings on both ends of this metallic conduit to prevent causing a high impedance path or inductive choke.

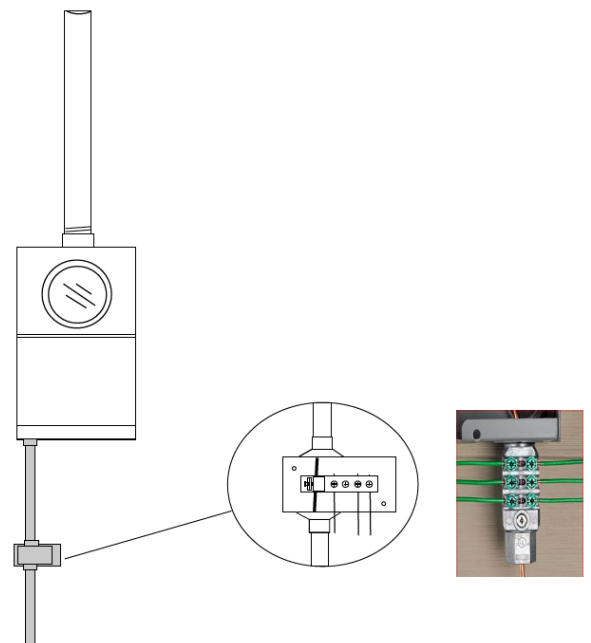
Inter-system bonding

(ASM Figure 500-1)

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

TYPICAL INTER-SYSTEM BONDING
FIGURE 500-1



GROUNDING METHODS (ASM Section 500.03)

These notes relate to the drawings found in the Grounding ASM Section 500.

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 NEC and the requirements of the Authority Having Jurisdiction for the area the work is taking place.
3. Ameren requires, on most installations, 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.
 - This electrode may act either as the sole or supplemental 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 disconnect, 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 use of the grounded circuit conductor for equipment grounding.
 - Where the customer has a main service disconnect 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 main service 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 conductor(s) is terminated inside the switchgear. The outdoor meter socket is grounded only by the equipment ground provided in the 11-conductor meter cable (Missouri).
5. Exceptions to the grounding methods found in **ASM Section 500** must be approved by Ameren Engineering prior to construction.

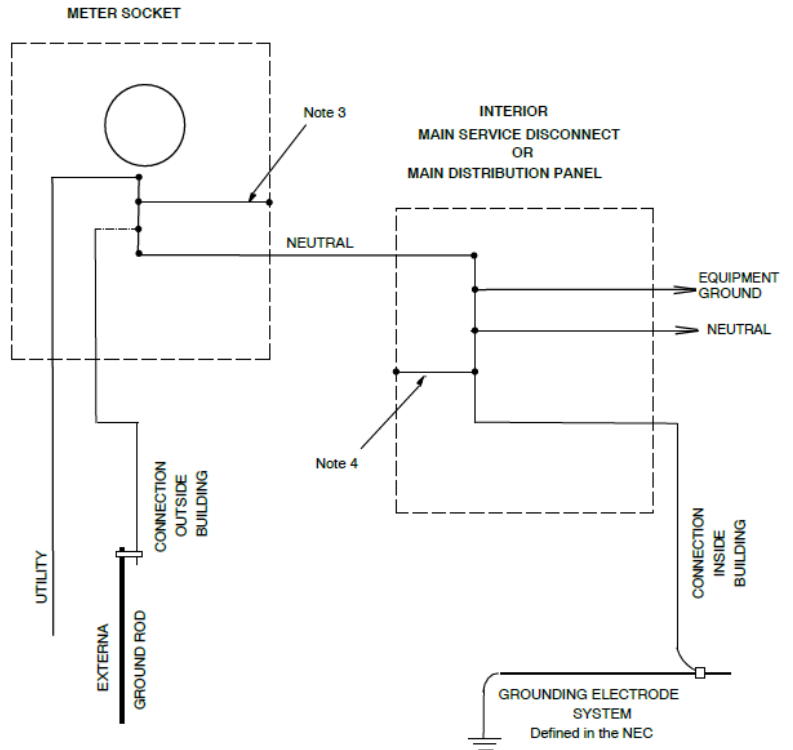


SINGLE-PHASE AND 3-PHASE SELF-CONTAINED METERING LESS THAN 480 VOLTS (ASM Figure 500-2 & Figure 500-3)

CONSTRUCTION NOTE(S): (ASM Figure 500-2)

1. Refer to **ASM 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.

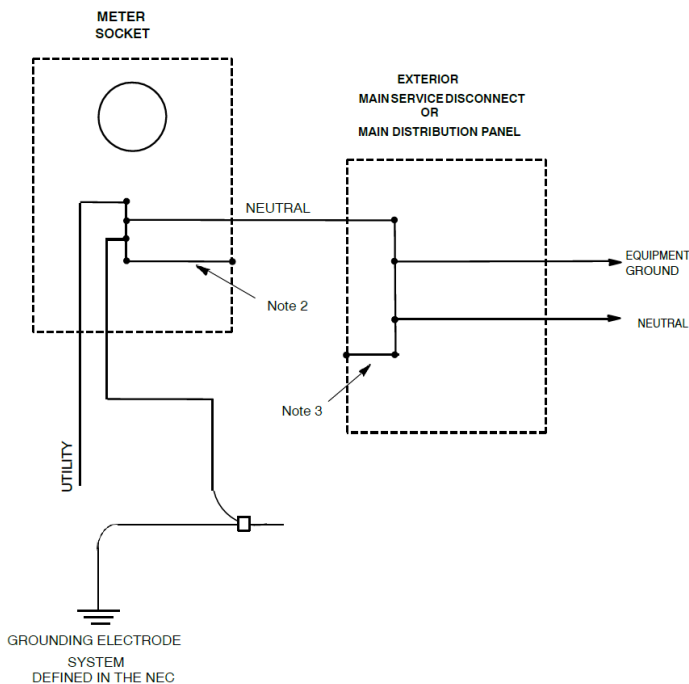
1Ø AND 3Ø SELF-CONTAINED METERING LESS THAN 480 VOLTS Option 1 - Interior Main Service Disconnect Figure 500-2



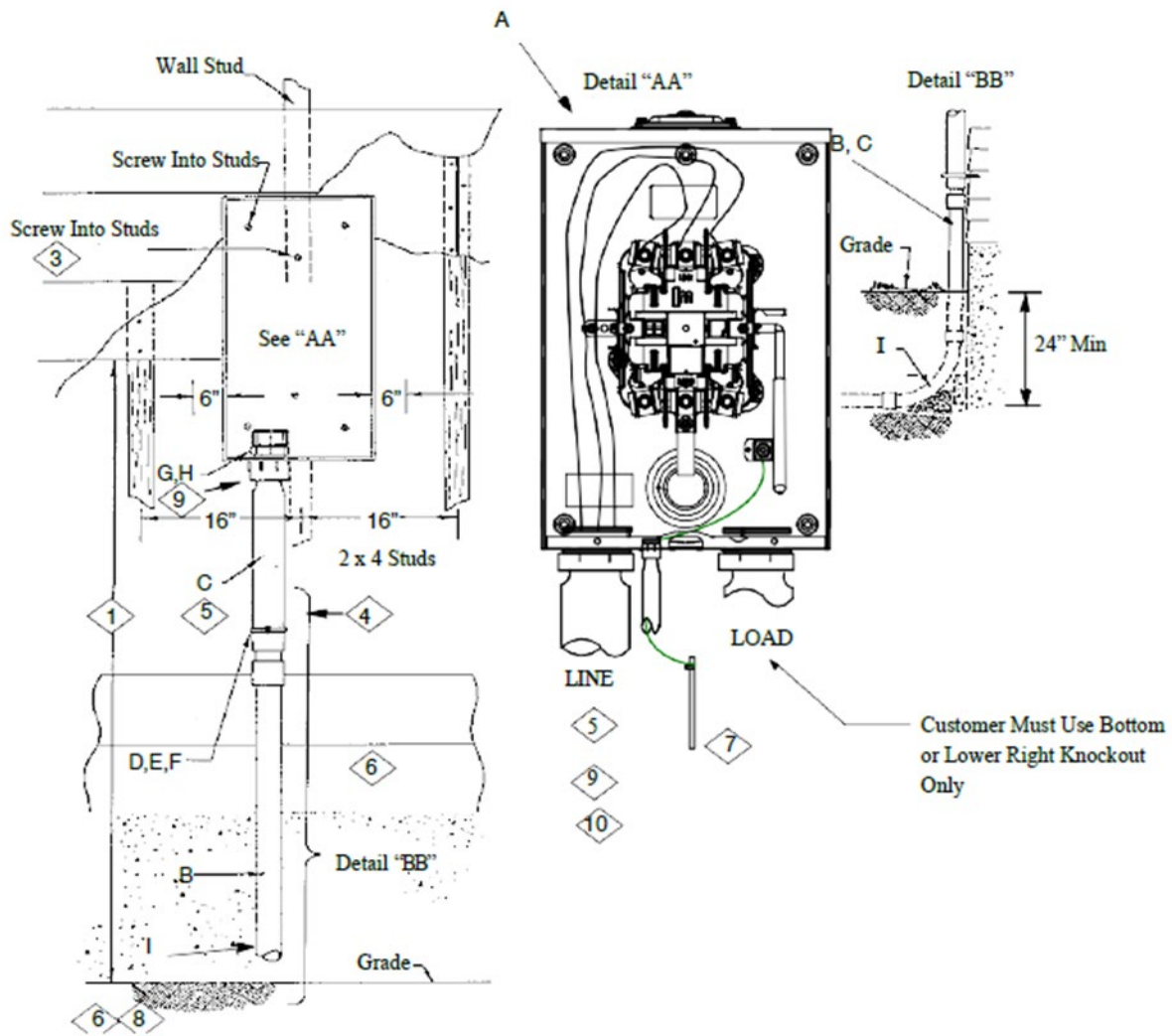
1Ø AND 3Ø SELF-CONTAINED METERING LESS THAN 480 VOLTS OPTION 2 - EXTERIOR MAIN SERVICE DISCONNECT Figure 500-3

CONSTRUCTION NOTE(S): (ASM Figure 500-3)

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



SINGLE SERVICE INSTALLATION RESIDENTIAL / NON-RESIDENTIAL (SINGLE PHASE 200 AMP) (ASM Figure 700-1)



NOTE	ITEM	DESCRIPTION - Material List for Figure 700-1
1	A	Meter Socket, Clamp Jaw Lever Bypass. Refer to BuildWithAmeren.com
	B	Conduit, Electrical Grade Sch 80 PVC, 2-1/2 in.
5	C	Coupling, Expansion, Sch 40, PVC, 2-1/2 in. with 12 in. fall
	D	Hanger, Conduit
	E	Screw, Lag
	F	Shield, Expansion
	G	Nut, Lock, 2-1/2 in.
	H	Insulated (or PVC) Bushing, Conduit 2-1/2 in.
8	I	Bend (Sweep), Conduit, 90 Deg., 36in. Radius, electrical grade Sch 80, PVC, 2-1/2in when required. 24in radius bends are permitted where rock or foundation problems exist.

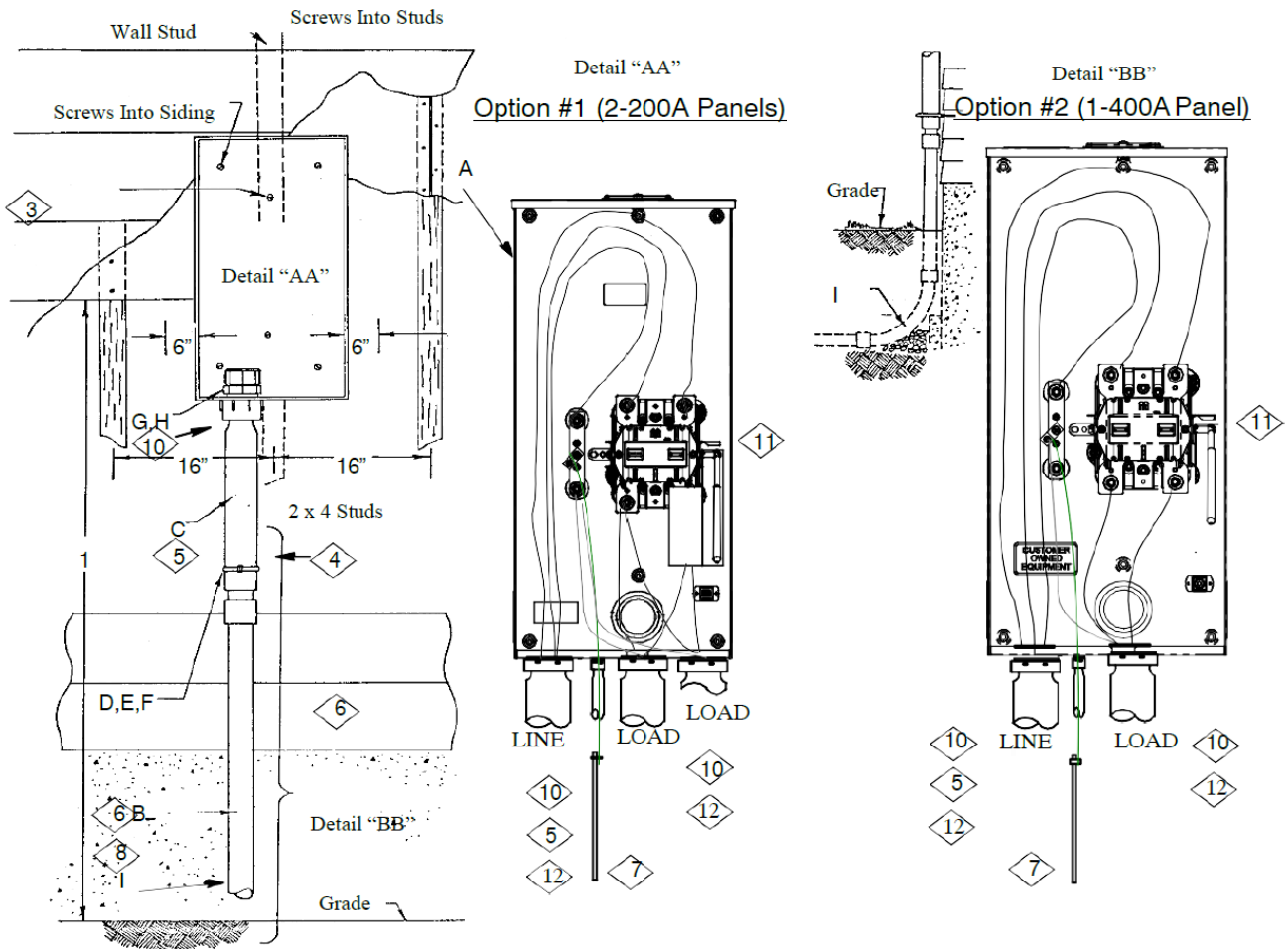


CONSTRUCTION NOTE(S): (ASM Figure 700-1)

1. See **ASM Section 200** of Service Manual for mounting height, approved locations, and requirements for mechanical protection.
2. All materials except the supply conductors shall be furnished, installed, and connected by customer.
3. The meter socket shall be secured to solid wood and 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. An expansion coupling is only required for a continuous conduit system, where bend (sweeps) is buried below the meter socket, and where the riser conduit emerges from grade through a concrete slab that does not have an oversized hole (e.g., concrete not adhered to riser). The expansion coupling should be installed with the outer sleeve fitted into the meter socket with the inner sleeve positioned at the manufacturer's midway mark.
6. The area underneath the bend (sweep) 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, or concrete slurry, concrete.
7. Approved NEC bonding/grounding required.
8. For services 200 amperes and less, 2-1/2 in. electrical grade PVC conduit, expansion coupling, bends (sweeps), and connectors shall be used. Minimum bend (sweep) radius of 36 in. is required, but a 24 in. radius bend (sweep) is permitted where rock or foundation problems exist.
9. Ameren installed supply service conductor and Customer owned supply service conductor will only enter through the bottom left-hand knockout. No load side meter wiring is permitted on the left-hand side of the enclosure where the conduit that would contain Ameren's/Customer's supply service conductor enters the enclosure. The area must be kept clear to permit installation and potential replacement of supply service conductor and to eliminate the possibility of premature failure due to conductors coming in contact with each other. If improper wiring is performed, the supply service conductor will NOT be installed by Ameren.
10. Customer owned and installed service conduit drainage at meter or pole if required, refer to **ASM Figure 700-9**.



SINGLE SERVICE INSTALLATION RESIDENTIAL / NON-RESIDENTIAL SINGLE PHASE 320 AMP CONTINUOUS / 400 AMP MAX (ASM Figure 700-2)



NOTE	ITEM	DESCRIPTION - Material List for Figure 700-2
1	A	Meter Socket, Clamp Jaw Lever Bypass Refer to BuildWithAmeren.com
	B	Conduit, Electrical Grade Sch 80 PVC, 3 in.
5	C	Coupling, Expansion, Sch 40, PVC, 3 in., 8 in. fall
	D	Hanger, Conduit
	E	Screw, Lag
	F	Shield, Expansion
	G	Nut, Lock, 3 in.
	H	Insulated (or PVC) Bushing, Conduit 3 in.
8	I	Bend, Conduit, 90 Deg., 36in. Radius, Electrical Grade Sch 80, PVC, 3 in.

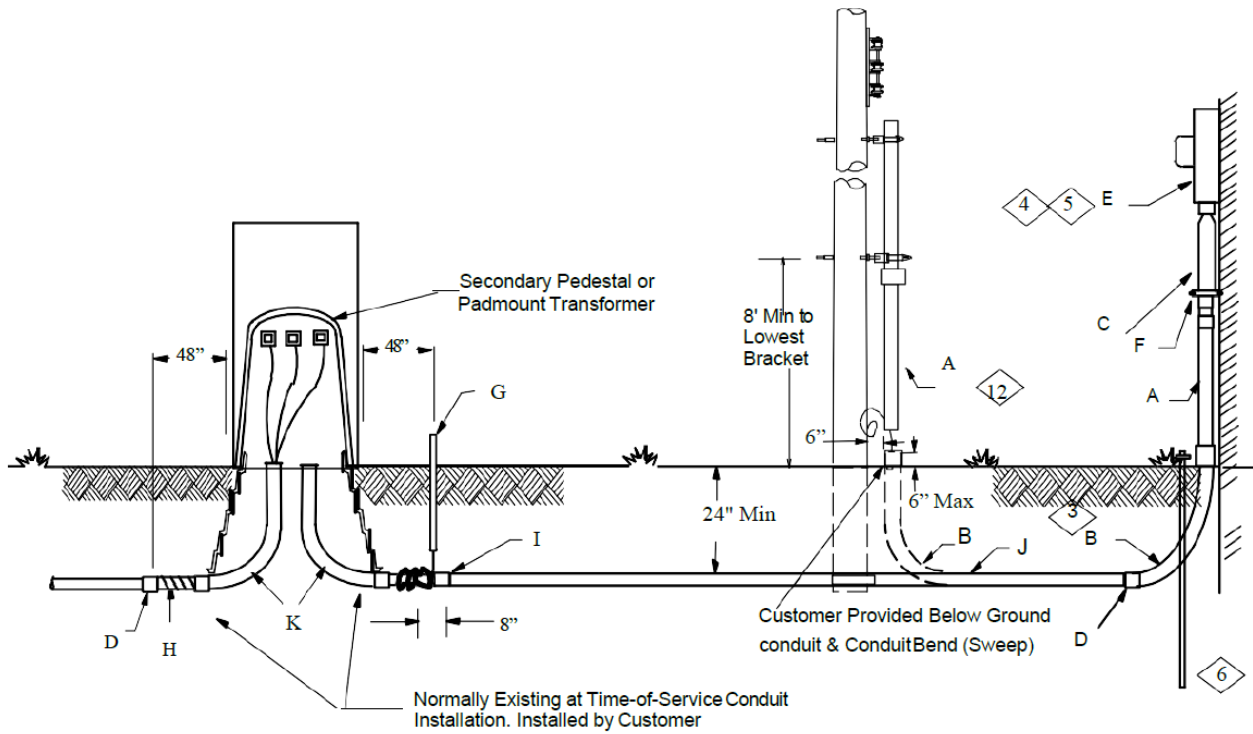


CONSTRUCTION NOTE(S): (ASM Figure 700-2):

1. See ASM Section 200 of Service Manual for mounting height, approved locations, and requirements for mechanical protection.
2. All materials except the supply conductors 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. An expansion coupling is only required for a continuous conduit system, where bend (sweeps) is buried below the meter socket, and where the riser conduit emerges from grade through a concrete slab that does not have an oversized hole (e.g., concrete not adhered to riser). The expansion coupling should be installed with the outer sleeve fitted into the meter socket with the inner sleeve positioned at the manufacturer's midway mark.
6. The area underneath the bend (sweep) 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, or concrete.
7. Approved bonding/grounding as required by local inspection authority or latest version of NEC. Refer to **ASM Section 500**.
8. For services 201 amperes to 320 amperes continuous/400 amperes max, 3 in. electrical grade PVC conduit, expansion coupling, bends (sweeps), and connectors shall be used. Minimum radius bend (sweep) is 36 in., EXCEPT where rock or foundation limit the installation to 24 in. Radius bends (sweeps).
9. All conduits on a pole will require standoff brackets, supplied by Ameren.
10. The supply side service conductors coming from Ameren facilities will only enter through the bottom left-hand knockout. No load side conductors of the meter wiring are permitted on the left-hand side of the socket where the supply conduit enters the meter socket. The area must be kept clear to permit installation and potential replacement of supply conductor and to eliminate the possibility of premature failure due to conductors coming in contact with each other. If improper wiring is performed, the service installation will NOT be energized.
11. Not more than one conductor per lug barrel unless the lug is designed and UL or ETL approved for more than one conductor.
12. Customer owned and installed service conduit drainage at meter or pole if required, refer to **ASM Figure 700-9**.



CUSTOMER OWNED AND INSTALLED SERVICE CONDUIT: RESIDENTIAL SUBDIVISION - MISSOURI ONLY (ASM Figure 700-6)



NOTE	ITEM	DESCRIPTION - Material List for Figure 700-6
12	A	Conduit - Electrical Grade Sch. 80 PVC, 2-1/2 or 3 in.
3	B	Bend (sweep) - Conduit 2-1/2 or 3 in., 90 Deg, 36 in. min Radius, Electrical Grade Sch. 80, PVC
10	C	Expansion Coupling, 2-1/2 in. or 3 in. (allow 8 in. fall) Electrical Grade Sch 40 PVC
1	D	Coupling-Conduit, 2-1/2 in. or 3 in., Electrical Grade Sch 40, PVC
	E	Meter Socket, Clamp Jaw Lever Bypass. Refer to BuildWithAmeren.com
	F	Hanger-Conduit
	G	Marker-Buried Conduit, Red, 1 in w x 7 ft - 4 in L
	H	Conduit Plastic Flexible, Corrugated, 2-1/2 in. or 3 in.
	I	Plug-Conduit, 2-1/2 in. or 3 in.
1	J	Conduit - Electrical Grade Sch. 40 PVC or greater, 2-1/2 or 3 in.
	K	Bend (sweep) - conduit 2-1/2 or 3 in., 90 Deg, 36 in. Min Radius, Electrical Grade Sch 40, PVC

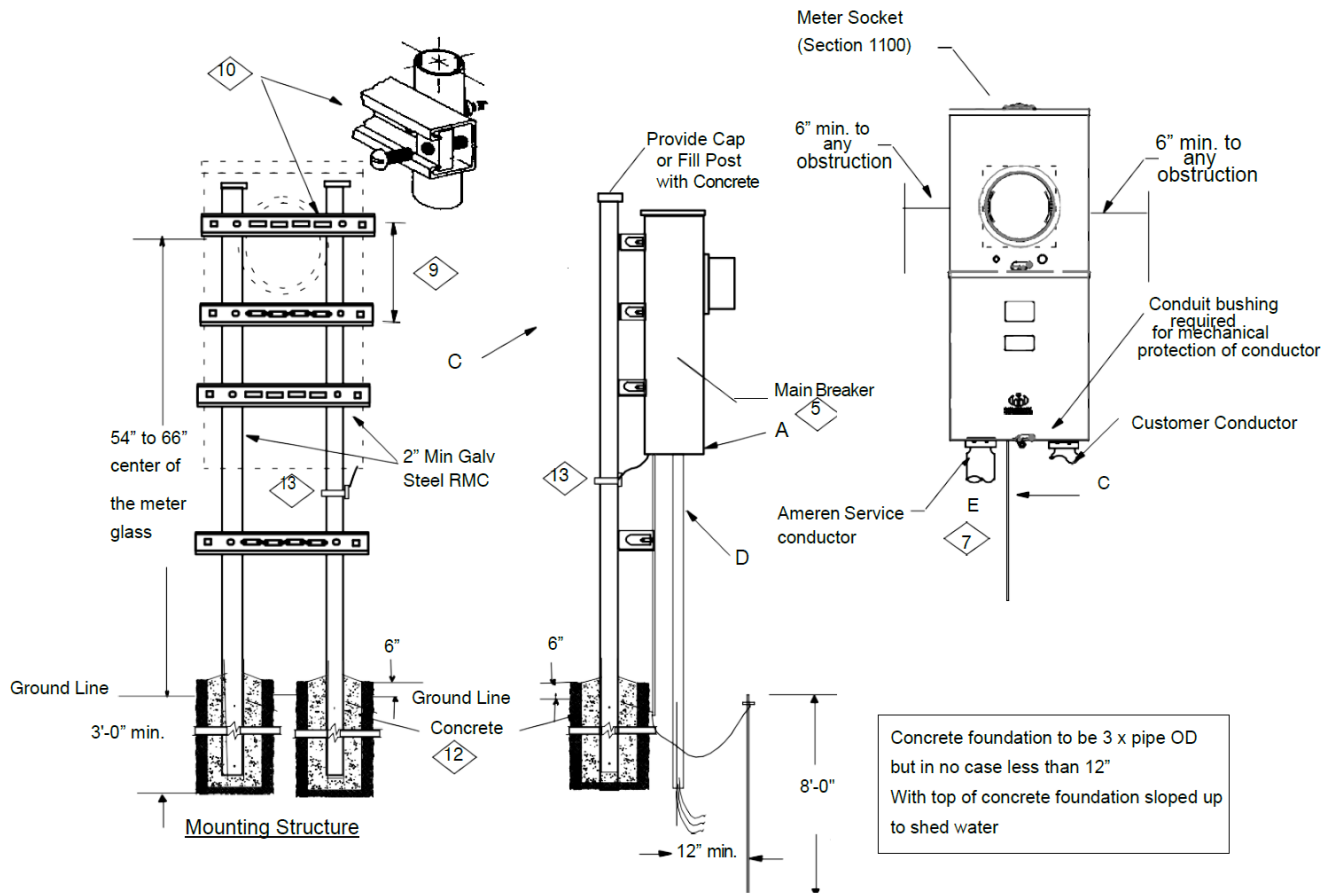


CONSTRUCTION NOTE(S): (ASM Figure 700-6)

1. Customer installed conduit shall be installed along the shortest route and the number of bends (sweeps) shall be kept to a minimum. There shall be a maximum of 3 – 90^o, 36 in. min radius bends (sweeps) for any installation. All sections shall be securely fastened together using standard grade cement, EXCEPT where rock or foundations limit the installation to 24 in. radius bends (sweeps). For untrenchable soil, depth may be reduced to 12 in, and depths less than 12 in. are not permitted. For services 200 amperes or less, 2-1/2 in. electrical grade PVC conduit, expansion coupling, bends (sweeps), and connectors shall be used. For 201 amperes to 320 amperes continuous/400 amperes max, 3 in. electrical grade PVC conduit, expansion coupling, bends (sweeps), and connectors shall be used. Minimum bend radius is 36 in. for 2-1/2 or 3 in. Conduit, EXCEPT where rock or foundations limit the installation to 24 in. radius bends (sweeps).
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, or concrete.
3. Conduit seals on customer service conduit are the customer's responsibility and should be installed at the building wall.
4. See **ASM Figure 700-1** for required meter socket and riser attachment.
5. See **Section 200** for meter socket mounting height.
6. Approved bonding/grounding as required by local inspection authority or latest version of NEC. Refer to **ASM Section 500**.
7. If Ameren pole, pedestal, or transformer 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 nearest the proposed Ameren equipment.
8. Contractor installed flexible conduit shall point in the direction of the service. The conduit will extend 48 in. beyond the edge of the pedestal or transformer pad. *End is marked with red tape or similar manner.
9. 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.
10. An expansion coupling is only required for a continuous conduit system, where bend (sweeps) is buried below the meter socket, and where the riser conduit emerges from grade through a concrete slab that does not have an oversized hole (e.g., concrete not adhered to riser). The expansion coupling should be installed with the outer sleeve fitted into the meter socket with the inner sleeve positioned at the manufacturer's midway mark.
11. For customer conduit extensions to overhead poles, Company will designate the quadrant of the pole for the customer to stub up the conduit bend (sweep). Actual installation of the conduit varies by Ameren area. Contact your local Ameren representative for direction.
12. Ameren provides and installs the conduit riser up the pole, and the first 10 ft of conduit on the pole must be schedule 80, and remainder up pole can be schedule 40.
13. Customer owned and installed service conduit drainage at meter or pole if required, refer to **ASM Figure 700-9**.
14. Customer shall provide, install, and secure at each end a polyester pulling tape of 2500 lb. capacity when access inside Ameren equipment is not needed. Pulling tape must be extended a minimum of 10 ft beyond each end of the conduit system. Ameren personnel will be responsible for providing and installing the pulling tape when access inside Ameren equipment is required to complete installation.



CUSTOMER PROVIDED METER STRUCTURE FOR SINGLE POSITION SELF-CONTAINED METER / MAIN DISCONNECT(S) (ASM Figure 700-10)



NOTE	ITEM	DESCRIPTION - Material List for Figure 700-10
5	A	Meter Socket, Clamp Jaw Lever Bypass. Refer to BuildWithAmeren.com
	C	½ in. PVC Conduit
	D	Conduit-Electrical Grade Sch 80 PVC
7	E	Expansion Coupling, Sch 40 PVC, 8 in. fall



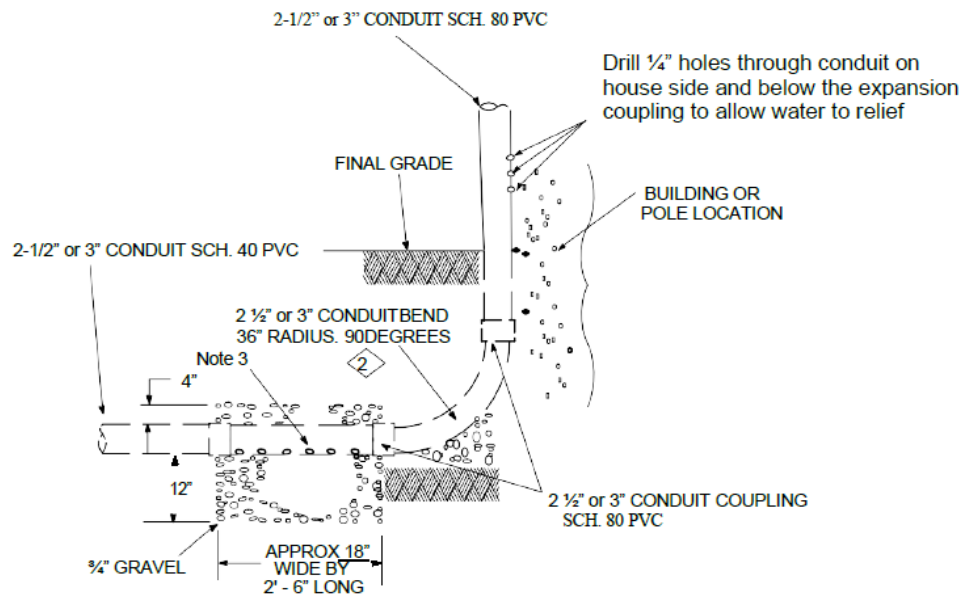
CONSTRUCTION NOTE(S): (ASM Figure 700-10)

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. Approved bonding/grounding as required by local inspection authority or latest version of NEC. Refer to **ASM Section 500**.
4. Different arrangements of the service equipment (fuse/breaker box) may be used side-by-side or below meter socket.
5. Refer to **ASM Section 1100** for meter sockets or combo unit's requirement.
6. Refer to **ASM Section 200** for meter socket mounting height.
7. An expansion coupling is only required for a continuous conduit system, where bend (sweeps) is buried below the meter socket, and where the riser conduit emerges from grade through a concrete slab that does not have an oversized hole (e.g., concrete not adhered to riser).
8. Wooden, stand-alone support structures are not allowed.
9. Space Unistrut channel to match meter socket mounting holes. The meter must maintain 36 in. min to 66 in. max height from the ground line.
10. Provide Unistrut, P1100T, 1-5/8 in. x 1 in., 14 gage, deep slotted channel required to mount metering transformer enclosure.
11. This structure is to be used only for locations that have a self-contained meter socket and main disconnect or where only an instrument rated meter socket is mounted beside a switchboard. For all other locations, refer to **ASM Figure 700-11** for construction of a heavier structure.
12. Foam or loose gravel backfill is not allowed.
13. Extend bonding jumper from meter socket / meter-main combo to the nearest vertical support pipe.

CUSTOMER OWNED AND INSTALLED SERVICE CONDUIT DRAINAGE (ASM Figure 700-9)

CONSTRUCTION NOTE(S): (FIGURE 700-9)

1. Customer Conduit Installation.
2. 36 in. min radius conduit bends (sweeps) are required unless rock or foundation prevents this size bend (sweep); then 24 in. bend (sweep) is acceptable.
3. Drainage conduit section of conduit containing 6 - 1/2 in. diameter holes drilled on 4 in. centers. Ream inside of conduit to remove sharp edges.



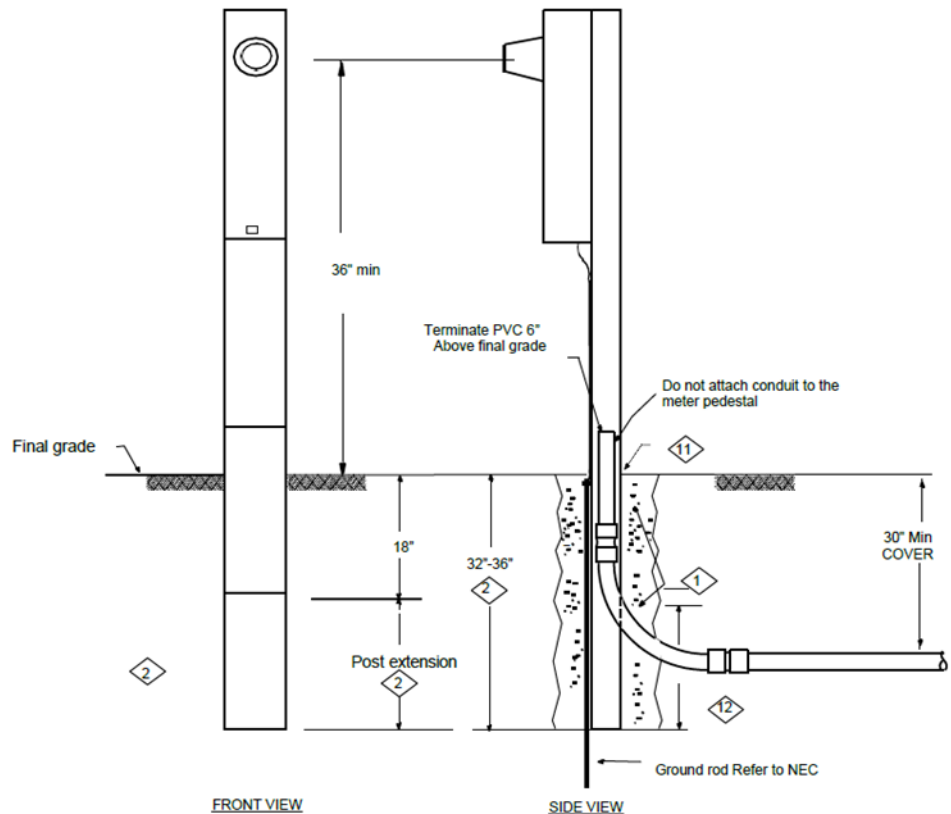
CUSTOMER DRAINAGE INSTALLATION
IF REQUIRED AT METER or POLE



METER / MAIN PEDESTAL INSTALLATION - SINGLE METER

(ASM Figure 700-15)

Meter/Main Pedestal Installation - Single Meter
Figure 700-15



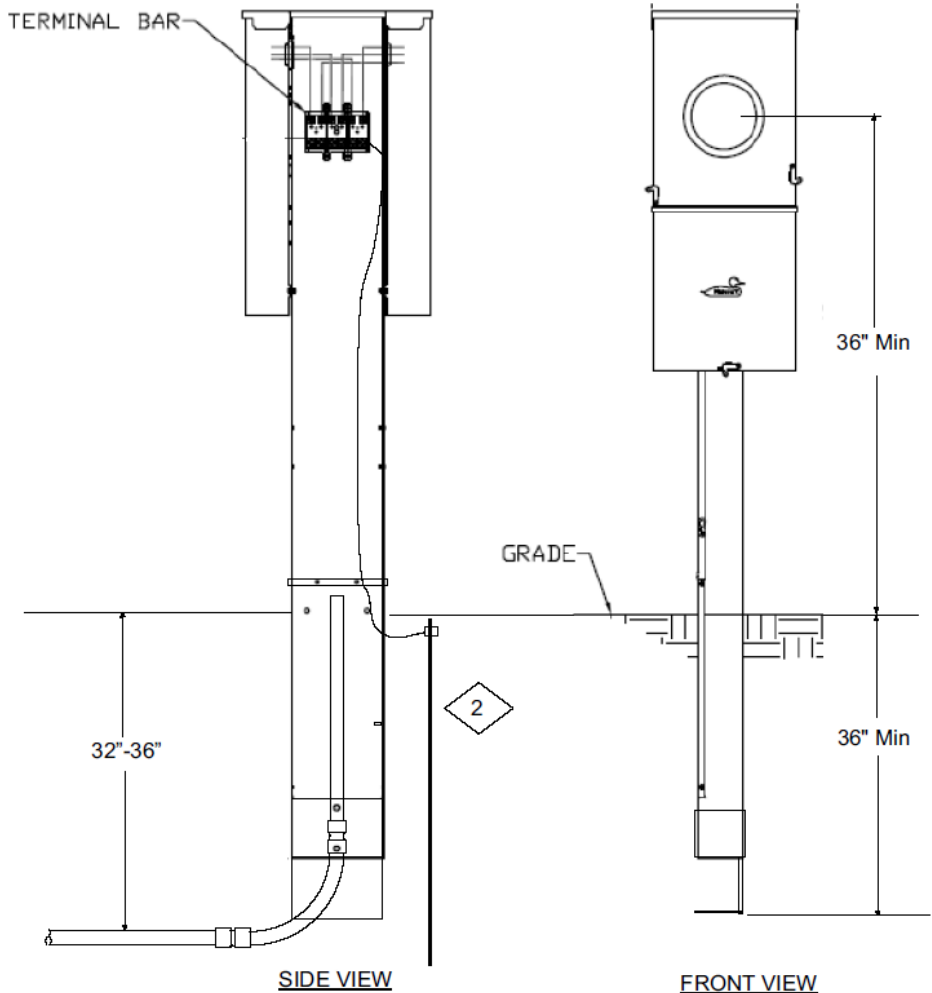
CONSTRUCTION NOTE(S): (FIGURE 700-15)

1. Backfill with tamped crushed rock including entire conduit elbow. Foam backfill is not allowed.
2. 32 in. to 36 in. pedestal embedment required. Post extension/base stabilizer foot must be installed as shown on undisturbed earth or crushed rock backfill.
3. Customer shall be responsible to make sure that pedestal is firmly embedded in ground, and plumb to within 1" in 12" vertical.
4. Conduit shown shall be installed with a minimum of 30" of cover to allow for the 24" radius bend into pedestal channel. Direct buried conductor can be installed with 24" of cover.
5. Supply service conduit nor any other obstruction should block supply service conductor access door.
6. All material shall be furnished and installed by customer.
7. Pedestals shall be labeled for service equipment by UL or Intertek Testing Service (ETL) and approved by Ameren.
8. Approved bonding/grounding as required by local inspection authority or latest version of NEC. Refer to **ASM Section 500**.
9. Meter pedestal must include main service disconnect.
10. Do not block removable access lid for supply conductors in located on rear of pedestal.
11. After conduit installed, install lower cover on pedestal and backfill.
12. Minimum 2-1/2" electrical grade PVC to Ameren designated point when continuous conduit system installed.

METER / MAIN PEDESTAL INSTALLATION - DOUBLE METERS (ASM Figure 700-16)

CONSTRUCTION NOTE(S): (FIGURE 700-16)

1. Backfill with tamped, crushed rock including entire conduit elbow. Foam backfill is not allowed.
2. 32 in. to 36 in. pedestal embedment required. Post extension/base stabilizer foot must be installed as shown.
3. Customer shall be responsible to make sure that pedestal is firmly embedded in ground, and plumb to within 1 in. in 12 in. vertical.
4. Conduit shown shall be installed with a minimum of 30 in. of cover to allow for the 24 in. radius bend into pedestal channel. Direct buried conductor can be installed with 24 in. of cover.
5. No obstructions shall block the removable service conductor supply side access cover door.
6. All material shall be furnished and installed by customer
7. Pedestals shall be labeled for service equipment by UL or Intertek Testing Service (ETL) and approved by Ameren.
8. Approved bonding/grounding as required by local inspection authority or latest version of NEC. Refer to **ASM Section 500**.
9. Meter pedestal must include main service disconnect.
10. Permanently marked "Premises Labels" required. Refer to **ASM Section 200.01, Note 7**.
11. Customer conduit exiting the disconnect **MUST NOT** block access to the utility supply termination lid cover.
12. After conduit installed, install lower cover on pedestal and backfill.
13. Minimum 2-1/2" electrical grade PVC to Ameren designated point when continuous conduit system installed.



MATERIALS TO BE FURNISHED & INSTALLED BY CUSTOMER

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

To obtain the latest catalog numbers for the Ameren Approved Metering Equipment List, please visit the website at BuildWithAmeren.com.

Failure by Customer / Contractor to comply with the requirements stated herein may lead to a delay in Ameren providing the requested service until metering equipment requirements are met. Other **ASM sections** pertain to mounting location, mounting heights, and other service requirements and give specific installation instructions. Depending upon your location, you may also need to obtain approval from your local AHJ.

IF CONDUIT SYSTEM

1. The customer will provide and install the meter socket(s) or enclosure(s) and line-side riser conduit(s) of Schedule 80 electrical grade PVC. This conduit(s) shall include a PVC male adapter, lock nut, and insulated bushing at the meter socket(s). If the required expansion coupling includes a male insulated metal (or PVC) adapter end, only the lock nut and insulated metal (or PVC) bushing are required. The bottom lower left knockout of the meter socket is intended for Ameren's underground supply service conductors. All conduit sections shall be securely fastened together using standard grade cement. Refer to **ASM Figure 700-9** for customer owned and installed service conduit drainage at meter or pole if required.
2. The service riser conduit to the meter socket shall include an expansion coupling that allows for 12 in. fall for 2-1/2 in. conduit and 8 in. fall for 3 in. conduit.
3. Customer installed conduit shall be installed along the shortest route, and the number of bends (sweeps) shall be kept to a minimum. There shall be a maximum of 3 – 90°, 36 in. radius bends (sweeps) for 2-1/2 in. conduit or 3 in. conduit installations. 24 in. radius bends (sweeps) are permitted where rock or foundation problems exist.
4. All sections shall be securely fastened together using standard grade cement.
5. Minimum burial depth in trenchable earth is 24 in. In rock or untrenchable soil, this depth may be reduced to 12 in. if service conductor is installed in Schedule 80 PVC conduit or encased in concrete. 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. Service conduits to an energized pedestal or padmount transformer shall be terminated as follows:
 - 7.2 In Missouri, attach conduit to the previously installed flexible conduit marked by the red marker with 48 in. beyond the edge of the pedestal and / or transformer pad. After removing the cover, plug and conduit marker, join the flexible conduit to the rigid conduit using standard grade cement.
 - 7.3 In Missouri, Customer will install conduit into the secondary side of padmount transformers and secondary pedestals that do not have previously installed flexible conduit/stub-out.
 - A. 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 to open the transformer or pedestal and to cover the primary and secondary voltage connection points and conductors for safety purposes.



- B. 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:
- 1) Replace the live front transformer or aluminum pedestal prior to an electrical contractor installing conduit or
 - 2) Electrical contractor to terminate conduit 18 in. from the edge of transformer pad. Contact Ameren Missouri for coordination.
8. For customer installed conduit extensions to overhead poles, Company will designate the quadrant of the pole for the customer to stub up the conduit bend. Customer must provide and install bell end couplings for cut primary and secondary conduits.
- 8.2 In Missouri, Ameren provides and installs riser conduit up pole and associated conduit riser brackets. Customer will provide schedule 80 bend (sweep) at base of pole for complete conduit system. Customer shall terminate conduit bend (sweep) 6 in. from the Ameren designated quadrant of the pole.
9. Customer shall provide, install, and secure at each end a polyester pulling tape of 2500 lb. capacity when access inside Ameren equipment is not needed. Pulling tape must be extended a minimum of 10 ft beyond each end of the conduit system. Ameren personnel will be responsible for providing and installing the pulling tape when access inside Ameren equipment is required to complete installation.

CUSTOMER CHECKLIST

- Ameren Approved Meter Socket is installed? (Refer to BuildWithAmeren.com)
- Meter Socket is properly installed? (Refer to Location for Point of Delivery on Building (**ASM Figure 200-3B**), Meter Location - **ASM Section 200.01**)
- Meter Socket is properly grounded? (Refer to **ASM Section 500**)
- Permanent unobstructed workspace left in front of meter socket? (Maintain a minimum 3 1/2' of clear working space in front of meter and 6" above, below, and to each side of the meter socket, 78" standing headroom)
- Expansion coupling installed in the left bottom meter socket knockout is for complete conduit system only and is not required in direct buried applications.
- Customer wiring completed and inspected as necessary?
- Correct conduit size and length of service installed? (See material list for details)
- All conduit that is subject to traffic damage is required to be Schedule 80 PVC or greater.
- Conduit installed (see Installation Details of Pedestal or Transformer or Pole) for complete conduit system only.
- Grade over conduit within 6" of final grade over entire length of conduit? Customer installed conduit shall be a depth that will result in a minimum depth of 24" after final grading.
- Clear work area required around meter and Ameren Missouri transformer, pedestal, or pole.
- Cost arrangements made and easements provided? (As required)

Ameren Missouri Work Request No. _____

Engineering Contact: _____ Phone: _____

Construction Contact: _____ Phone: _____

Thank you for letting Ameren Missouri serve your energy needs.



Construction and Engineering Services
Contact Us Via Email: ConstructionHotline@ameren.com
Phone: 866-992-6619
Monday – Friday 7:30-5:00
Visit us at: BuildWithAmeren.com

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.

Call Before You Dig!

- Nationwide: 811
- Missouri (DIG-RITE): 800-DIG-RITE (344-7483) or www.mo1call.com

Customer Owned Underground Facilities

Underground facilities on a customer's premises that are owned by the customer are not located by DIG-RITE. These facilities may include but are not limited to water lines, 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.

