

# Electric Meter Requirements

## **Meter Locations**

1. All electric meters for new installations and rewires, excluding multi-tenant residential apartment buildings, shall be located on the exterior of the building or the service will not be energized.
  - For multi-tenant residential apartment buildings, Connexus Energy will install a lock box. Property management will provide keys for access to the building and mechanical room where meters are housed. Keys will be placed in the lock box for use by Connexus Energy personnel. When locks are changed, Property management will be required to notify Group Lead Meter Reading at 763.323.2650 to arrange for new keys to be placed in the lock box.
2. All multiple meter socket installations shall have the unit number marked on the face of the meter socket and disconnect.
  - If the meter socket(s) are not clearly and accurately marked, or we are unable to match individual units to the meter socket(s), the building will not be energized until they are properly marked. A new service request must be filed with Connexus Energy at that time.
3. Meters shall not be located where a hazardous condition exists.
4. Meters shall have safe access during normal working hours.
5. If meters are located where there is a potential for falling objects (snow, ice, etc.) to damage the meter, the customer shall provide a protective covering approved by Connexus Energy.
6. Meter sockets shall have an unobstructed space of not less than 4 ft. in front, 1 ft. on both sides and 2 ft. on top.
7. Inside multiple meter socket installations shall have a minimum distance of 2 ft. from the final floor or grade to the center of the lowest meter.
8. Outside multiple meter socket installations shall have a minimum distance of 3 ft. from the final floor or grade to the center of the lowest meter.
9. The maximum distance for inside and outside multiple meter socket installations from the final floor or grade to the center of the highest meter shall be 6 ft. 6 in.
10. If a door is provided on outside multiple meter socket installations, the minimum distance from the final floor or grade to the bottom of the door is 2 ft.
11. All other meter socket installations shall have a minimum distance of 4 ft. and a maximum distance of 6 ft. from the final floor or grade to the center of the meter.

## **Voltage Requirement**

1. Three-phase and single-phase services with voltages 250 volts and below and with service ratings of 200 amps or less will typically use self-contained meters.
2. Three-phase and single-phase services with nominal voltages greater than 250 volts shall have both current transformers (CTs) and voltage transformers (VTs) installed and use transformer-rated meters (see **Transformer-Rated Metering**).
  - The only two exceptions to the VT requirement on service voltages greater than 250 volts are as follows:
    - a. MN/DOT Lighting Service Cabinets L1 & L2 that utilize a cold sequence disconnect wired ahead of the meter. (Any changes to MN/DOT standards regarding cold sequence disconnects must be approved by Connexus Energy.)
    - b. Temporary services 200 amps or less, will not require VTs or cold sequence disconnects. (These must not be in service for a time greater than one year.)
  - Connexus Energy will run the secondary wires from the transformer to the CT cabinet on services with voltages greater than 250 volts and service ratings 200 amps or less, as long as the following conditions are met:
    - a. CT cabinets are installed on the exterior of the structure.
    - b. A service entrance pipe at least 2" in diameter is installed and buried to a depth of 18" from the final grade.

## **Self-Contained Metering**

1. Customers shall provide and install meter sockets on the source side of the customer's service equipment.
2. Meter sockets for three phase up to 200 amps and single phase up to 400 amps (320 amps continuous) require a heavy-duty bypass mechanism. Approved bypass mechanisms are Landis & Gyr (HQ), Milbank (HD200) and Thomas and Betts (TB).
3. All single-phase, self-contained temporary services fed from three-phase transformers shall have a five terminal network meter socket.
4. Single-phase services over 200 amps up to 400 amps shall have a meter socket with a continuous amp rating of 320 amps. If the service will have more than 320 amps continuous, refer to Transformer-Rated Metering.
5. Meter sockets shall be UL approved.

## Transformer-Rated Metering

- Transformer-rated meter sockets shall be furnished by Connexus Energy and installed by the customer for all three-phase services over 200 amps, single phase services over 320 amps continuous, and services with nominal voltages greater than 250 volts (see **Voltage Requirements**). The customer shall provide a minimum of 1¼" conduit from the meter socket to the current transformer cabinet or switchgear, not to exceed 25'. Use 90 degree sweeps and bends in conduit - DO NOT USE LBs.
  - If distance from meter socket to the metering point, where CTs are mounted, is between 25-50', the electrical contractor is to run #10 stranded copper wire with the following colors:

Black.....	(Voltage A phase)	Orange .....	(Current C phase)
White with black stripe or tracer .....	(Current A phase)	White .....	(CT current return)
Blue.....	(Voltage B phase)	Green with black stripe or tracer.....	(Socket ground)
Green.....	(Current B phase)	Red with black stripe or tracer .....	(Meter neutral)
Red .....	(Voltage C phase)	<b>Will NOT allow all black wires</b>	
  - If colors are not available, run solid color and mark both ends with black tape OR, use the following colors: Yellow, Brown, or Gray.
  - If distance from meter socket to metering point, where CTs are mounted, is over 50', the electrical contractor is to run #8 stranded copper wire.
- Current transformers (CTs) shall be provided by Connexus Energy and installed by the customer on the source side of the customer's disconnection service equipment inside a cabinet. Voltage transformers (VTs) shall be provided and installed by Connexus Energy inside the customer's CT cabinet.
- Current transformer cabinets for services up to 400 amps shall have a minimum size of 30"H x 24"W x 9"D. For services over 400 amps, the current transformer cabinet shall have a minimum size of 48"H x 30"W x 11"D.
- Current transformer cabinets or switchgear shall be complete with landing pads.
- The door for the current transformer cabinet or compartment shall have provisions for locking with a padlock and shall be hinged on either side.
- The meter socket cannot be installed on the door of the current transformer cabinet. It can be mounted on the side if it has a minimum height of 4' and a maximum height of 6' to the center of the meter.
- The current transformer cabinet shall have an unobstructed space not less than 2' beyond the door in the open position or a minimum of 5', whichever is greater.
- For services requiring a 300KVA or larger transformer, a ½" conduit with an analog telephone line shall be installed to the meter socket. The customer is responsible for terminating/connecting the analog telephone line to a number on the customer's phone equipment. Do not install this conduit into live switchgear. Connexus Energy shall be responsible for connecting the telephone line to the meter.
- Call Connexus Energy Engineering Customer Service Specialists at 763.323.2632 or 763.323.2637 and inform them when all the metering equipment is installed and ready to wire.

## Restrictions on Metering Installations

- Connexus Energy will not permit temporary or permanent jumpers to be installed in the meter socket, which will result in unbilled energy.
- Connexus Energy will not permit meter socket bypass handles to be in the bypass position, which will result in unbilled energy.
- No customer wiring or devices are permitted on the source side of Connexus Energy's metering points.
- Meters and all associated metering equipment and cabinets will be sealed and/or locked by Connexus Energy.
- Unauthorized removal of Connexus Energy's seals and locks is unlawful.
- Connexus Energy may grant permission to remove a seal and/or lock for maintenance of customer's equipment.
- Unauthorized removal of Connexus Energy's meter without prior approval from Connexus Energy is unlawful.
- Contact a Connexus Energy Customer Service Specialist at 763.323.2650 or 1.800.642.1672 for authorization to remove a seal, lock, or meter.

## Authorization for Variances

Any variance to these requirements must have prior written authorization from the Connexus Energy Metering Department.