

## GENERAL REQUIREMENTS FOR METERING

### General

The information covered in this section is applicable to overhead, underground, substation, and AC network sources of supply covered in the foregoing sections of the manual.

### Location of Meters and Metering Equipment

1. Outdoor metering is required for residential, one or two customer, and farm installations with 1-phase service of 200 amperes or less.
2. Meters shall be installed outdoors in cases such as summer dwellings and other premises not occupied during the entire year or not accessible during regular working hours of Company personnel.
3. For outdoor installations with an OH service drop, the centerline of all meters shall be between 4 and 6 feet from the finished grade.
4. For outdoor installations with an UG service lateral, the centerline of all meters shall be between 3 and 6 feet from the finished grade.
5. For indoor installations, locate meters in the basement or other suitable and readily accessible place as near as possible to the point where the service enters the building. The centerline of all meters shall be between 4 and 6 feet above the floor (not applicable to ganged or grouped installations of more than 2 units as covered in 6 below).
6. For indoor group installations the centerline of all meters shall be between 2 and 6 feet above the floor. For apartment, commercial and other appropriate buildings of more than 2 floors, meters may be located on the different floors of the building provided they are grouped in enclosures as near as practicable to the risers serving the floors and the wiring and metering layout for the building is accepted by the Company.
7. For multiple unit buildings (two or more), each meter position shall be marked on the outside of the socket or by the breaker (if available) with the address of the unit served. If the marking is on outside of the removable cover, it shall also be marked on the inside of the meter socket in a visible location. This marking shall also be placed on the corresponding distribution panel(s). The marking shall be a permanent label with 1/2" block letters and may consist of individual self-stick letters or numbers, suitable for the location so as to be considered permanent.
8. There shall be a 3' minimum of unobstructed working space, measured from the meter face, in front of all meters. This space shall extend from the floor or grade to a height of 6'-6". At least one entrance of sufficient area shall be provided to give access to this working space.
9. The unobstructed space required in front of meter cabinets, current transformer compartments, and transformer loss compensation cabinets shall be as defined by the "Working Space About Electrical Equipment" section 110.26 of the **National Electrical Code** (latest revision as adopted by the states of Michigan and Wisconsin). This unobstructed space shall extend from the floor or ground to a height of 6'-6". Equipment doors are required by the NEC to open a minimum of 90°.
10. Ample space shall be provided for all meters, metering equipment, and other apparatus so that they can be safely read, inspected, and tested. Meter equipment shall not be located:
  - a. In animal enclosures, attics, closets, elevator or ventilating shafts, hallways, living quarters, stairways, or rooms containing corrosive or explosive vapors (battery rooms).
  - b. Near stoves, radiators, steam or hot water pipes, or within 5' of moving machinery.
  - c. Above laundry equipment, plumbing fixtures or other bulky equipment.
  - d. Behind shrubbery or swinging doors, or over alleys, driveways, decks or porches (or over sidewalks where practicable), or where it is necessary to trespass on adjacent property.
  - e. In hazardous locations as defined in articles 500 to 516 of the **National Electric Code** as amended in Michigan by the **Michigan Administrative Code** and as amended in Wisconsin by the **Wisconsin Administrative Code**.
  - f. Where subject to damage from falling ice, snow or other debris. If the metering equipment cannot be moved to an area free of these hazards the necessary protection may be provided by a roof overhang or gutter that extends a minimum of 12" past the face of the meter socket. In place of the roof overhang the customer shall provide and install a deflector that shall extend 12" past the face of the meter socket and be installed at a height greater than 6'-6" to comply with Notes 8 & 9 above.
11. Meter locations shall be free from excessive moisture, vibrations, and heat. Meters shall not be placed on partitions, insecure walls or over doorways. Meters shall be shielded from magnetic disturbances and protected from mechanical damage, moving machinery and belts by means of a suitable protecting cabinet.
12. 3' horizontal clearance between gas and electric metering equipment should be provided.

### **Methods of Mounting Metering Equipment**

1. Socket-type meter mounting devices installed on concrete or masonry walls shall be fastened by non-corrosive metal machine screws in lead sleeve, wedge-type expansion anchors.
2. All mounting devices for metering equipment shall be plumb.

### **Methods of Wiring Service Equipment and Meters**

1. On outdoor installations, the knockouts of meter sockets, transockets, or meter pedestals shall not be used for service entrance conductors unless the knockouts are located entirely below the lowest live parts.
2. Metered and unmetered conductors shall not be installed in the same conduit, wiring trough, channel, gutter or similar enclosure.
3. Where a group of meters is supplied from a service raceway, the covers of the raceway must be provided with a means for sealing where individual service taps are made into the raceway.
4. Termination compartments, meter mounting devices or current transformer compartments shall not be used as junction boxes for additional customer circuit connections.
  - a. This includes taps for emergency circuits or fire alarms.
  - b. At single metered installations where 2 to 6 disconnects are used in place of a single main disconnect, a customer owned junction box or switchboard section shall be installed on the load side of all Company facilities for the purpose of making taps to the individual disconnects.
  - c. Customer provided termination compartments and transockets are permitted to have up to 2 circuits exiting them.
5. Sockets shall be equipped with blank covers furnished by the customer at the time of installation.
6. The rating of a single service switch or the combined rating of all service switches connected to a 1-phase 120/240 volt service shall not exceed 400 amperes unless accepted by the Company.
7. A common grounding conductor shall be used to ground the service entrance equipment and the grounded circuit conductor. A grounding conductor shall not be run from the meter socket to ground or through the meter socket, termination compartment or transocket in going from the customer's main service switch or disconnect means to ground. Direct grounding of meter sockets is permissible, only on meter poles where the disconnecting means is installed at some other location. For multi-metered installations the grounding electrode conductor may be bonded to the neutral in a termination compartment.
8. Service switches or service breakers shall be installed so that any one service switch or breaker, when disconnected, shall not interrupt continuity of service to any other separately metered customer on the premises.
9. All large installations not covered by this Metering Section require special consideration and the Company shall be consulted in all cases. The customer shall submit 3 drawings of the proposed service equipment and metering arrangement to the local Company office for acceptance.
10. Any service entrance that serves a 24-hour load, 30 days each month of 150 amperes or more, shall have a current transformer metering installation.
11. Any fire pump service where the Full Load Running Amperage (FLRA) of the pump(s) exceeds 125 Amperes shall have a current transformer metering installation.
12. On outdoor current transformer installations the meter cabinet and conduit shall be grounded, either by bonding to the service entrance conduit or bus duct.
13. The Company shall meter only those voltages supplied to the customer by the Company; there will be no Company metering after a customer-owned stepdown transformer.
14. On new installations it is the customer's responsibility to ensure that the meter stops or grounding brackets are clean and provide for a good electrical contact with the meter base.
15. Multi-metered installations shall be installed so as to balance the load on the service.
16. For Communication Tower Policy and Service Termination see pages U-32 and U-33.