SWITCHBOARD, SWBD

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Switchboards 600 Volts and Below

The following guidelines are intended to be in general compliance with the switchboard requirements of the **ELECTRIC UTILITY SERVICE EQUIPMENT REQUIREMENTS COMMITTEE (EUSERC)**. Before any switchboard is fabricated or manufactured, the manufacturer shall submit **four copies** of the switchboard drawings to GWP for review and approval.
Note: Not all manufacturers meet the **EUSERC** requirements.

For the purposes of these requirements, switchboard service sections are those sections containing an area for incoming service entrance conductors, instrument transformer or test by-pass compartments, panels for mounting meters or associated equipment, and meter (service) switch(es), breaker(s), or main disconnect(s).

Switchboards are required for all services larger than 200 amp (residential Class 320 ampere services are exempt), and all 480 volt services. Self-contained multiple metering installations (240 volt maximum 200 amperes for each meter socket) may also be placed in switchboard service sections. **See Drawing EUSERC DRAWING #306 for details.**

Any portion of a switchboard service section that can be removed to give access to un-metered service or service entrance conductors shall be sealable or made non-removable. Where a raceway for meter secondary wiring is required, access points to this raceway shall be sealable.

All side ports between any locations in service sections of switchboards (pull sections, meter sections, etc.), except those occupied by service conductors, and all ports above the level of the main switch/breaker compartment, shall be completely barriered.

Conductors shall not be rerouted through any metering compartment. Fused and unfused conductors shall not occupy the same raceway unless they are completely barriered from each other in a manner acceptable to GWP.

On 240 volt three-phase services, the identified grounding conductor routed through the instrument transformer compartment with the phase busing may be bus-bar or wire. Where wire is used, it shall be routed along the back of the instrument transformer compartment and fastened in place.

Every meter main disconnect or breaker for an individual meter rated at 600 volts or less shall be on the load side (new sequence) of the meter or metering equipment. A main disconnect shall be permitted on the line side (old sequence) of a group of two to six meters and shall be required for a group of more than six meters (disconnects). **See METERING EQUIPMENT (MTR) Chapter, Section MTR-102.**

Equipment permitted to be connected ahead of the meter main switch or breaker by local codes or ordinances shall not be tapped ahead of metering or anywhere within an instrument transformer compartment. Where a main disconnect is placed on the supply side of a group of meters, any equipment tapped ahead of the metering or disconnect shall be separately metered.

Switchboards 600 Volts and Above

These types of switchboards shall be equipped with an overcurrent protection mechanism to isolate the faults on the customers' facilities without affecting GWP's main utility circuit. The customer shall be responsible for submitting settings for its overcurrent protection devices (relays, fuses, etc.) and one-line diagrams to GWP for review and approval. The customer must also ensure that its overcurrent protection is coordinated with GWP's protective devices on the main utility circuit.

Moisture

Pull sections, pull boxes and switchboard service sections shall be located so that any moisture which might enter the pull section or pull box from underground service conduits cannot run into the service section, either directly or through conduits/raceways. Where the service section is installed at a level lower than that of the service conduits, both ends of all conduits shall be sealed to prevent moisture from entering the termination enclosure/section. Service lateral conduit(s) shall not be terminated above service entrance bus or in a current transformer compartment.

Switchboard Locations

Switchboards shall be located so that the meters have the required clearances from side walls, ceilings and other obstructions, and so that the requirements of **METERING EQUIPMENT (MTR) Chapter, Section MTR-105** are met.

See UNDERGROUND (UG) Chapter, Section UG-104 for additional requirements affecting terminating enclosures and switchboard locations.

Grounding and Bonding

Refer to National Electrical Code (NEC) for grounding and bonding requirements.

INSTRUMENT TRANSFORMER COMPARTMENTS AND METER PANELS SWBD-101

Instrument Transformer Compartments

Instrument transformer compartments in switchboard service sections shall be fabricated in accordance with the following requirements:

Service	Ampacity	Drawing No.
Single or three-phase, three-wire services	Up to 1,000 amperes	**EUSERC DRAWING #319**
Three-phase, four-wire services	Up to 1,000 amperes	**EUSERC DRAWING #320**
Three-phase, four-wire services	1,001-3,000 amperes	**EUSERC DRAWING #322**
Three-phase, four-wire services	3,001-4,000 amperes	**EUSERC DRAWING #324**

Meters and Meter Panels

All meter sockets shall be furnished and installed by the manufacturer. Meter sockets installed on hinged panels shall be designed for back connection. **Refer to METERING EQUIPMENT (MTR) Chapter, MTR-DWG-002 for meter socket terminal arrangements.**

The maximum meter socket height measured from the center of the socket to the standing and working surface is 6’-3”. The minimum height is 4’-0” for exposed meters and 3’-0” for enclosed meters or meters in meter rooms.

Meter panels shall be constructed of a minimum of twelve gauge steel and shall be hinged and sealable. Hinges shall be readily interchangeable, right or left, on the job site. Where clevis-type or removable pin-type hinges are used, provisions shall be made so that the pin can be removed from the top. Hinges must support a minimum of 25 pounds of load applied to the unsupported end of the panel with a one-eight inch maximum sag when open. Meter panels shall not be hinged to filler panels. Filler panels shall be hinged to provide a full access opening to the instrument transformer compartment. Hinged panels shall be capable of being opened a full 90 degrees with all metering equipment in place. Enclosed meter panels may require wider access openings to permit 90 degree opening. See **EUSERC DRAWING #354.**

Meter panels shall be fabricated in accordance with **EUSERC DRAWING #332.**

For meter and meter panel requirements on self-contained, multiple metering installations, see **EUSERC DRAWING #306.**

Totalized Services

These services are no longer provided.

Overhead Service Connections

The service entrance conductors from the point of service delivery to the point of attachment in the switchboard service section shall be furnished and installed by the customer. See **OVERHEAD (OH)** Chapter for details**.** The customer is responsible for terminating the service entrance conductors to the switchboard bus.

Underground Service Connections

A separate terminating pull section (See **EUSERC DRAWING #345**) or a wall mounted terminating pull box (See **UNDERGROUND (UG)** Chapter, Section **UG-104**) shall be provided on every underground service from either an overhead or underground source. Terminating pull sections are preferred.

Service Entrance Conductors

Where the pull section or pull box is not attached to the switchboard service section, the customer shall furnish and install service entrance conductors from the pull section or pull box to the service section. The customer is responsible for terminating the service entrance conductors to the service entrance or current transformer bus. See **EUSERC DRAWING #345**, Figure 2.

Termination Points

Lug landings shall be provided in switchboard pull sections and wall mounted pull boxes. See **EUSERC DRAWING #345** and **EUSERC DRAWING #347**. The number of lug landing positions required per phase will be designated by GWP. GWP will furnish and install terminating lugs on GWP's service lateral cables and attach same to the lug landings.