

SECTION 26 24 00: PANELBOARDS

1. GENERAL

- A. This section includes design and performance requirements for electrical distribution panelboards and enclosed circuit breakers for use on secondary distribution systems rated 600 VAC and below
- B. Submit product literature detailing electrical ratings, dimensions, materials of construction, mounting and installation details, applicable wiring diagrams, enclosure type and accessories.
- C. Schedule to have main circuit breakers shall be configured with vertically mounted main breakers.
- D. Load center-type panelboards are not acceptable except for residential or apartment use
 1. Load centers shall generally comply with the requirements for circuit breaker type panelboards, except that plug-in type breakers are acceptable, and panel door latches are acceptable in lieu of lockable doors.
 2. Circuit breakers shall be of the full-size type: half-size or twin circuit breakers are not acceptable; where required, load centers shall be rated for service entrance use
- E. Panelboards shall be fully rated, versus series rated
- F. Bussing:
 - Bussing shall be bare or tin-plated copper; bussing to be full rated throughout the height of the panel
- G. Branch Circuit Over-Current Protective Devices:
 1. Tandem mounted breakers are not acceptable.
 2. All circuit breakers shall be clearly and visibly marked on the handles for their ampere trip rating; panel and breaker designs where the panel trim must be removed to determine trip rating are not acceptable
 3. Panelboards designated for use as lighting panelboards with circuit breakers as the source of switch control shall have branch circuit breakers U.L. listed as type SWD for lighting circuits
 4. Where new circuit breakers are to be installed within existing panelboards, they shall be listed for use with the existing panelboard type, and of sufficient short circuit rating for the application
 5. Circuit breakers for frame sizes less than 250 amps shall be thermal-magnetic type trip units
 6. Circuit breakers in frame sizes 250A and larger shall have adjustable, electronic trip units with long time, short time, instantaneous and time delay settings

- H. Interrupting Capacity:
 - 1. Panel board bussing, main and branch circuit breakers shall be rated for the minimum fault current level available on the system. Where fault current information is not readily available, the following ratings shall apply:
 - i. 120-208/240 VAC panels rated 225 amps and less shall be rated for 10,000 AIC minimum.
 - ii. 120-208/240 VAC panels rated over 225 amps shall be rated for 22,000 AIC minimum.
 - iii. 277/480 VAC panels rated 225 amps and less shall be rated for 14,000 AIC minimum.
 - iv. 277/480 VAC panels rated over 225 amps shall be rated for 25,000 AIC minimum.
- I. Cabinets & Trim
 - 1. Panelboards shall be furnished with lockable or screw-type, hinged, door-in door type cabinet trims.
 - 2. Provide panels with auxiliary gutters where panels are of the feed-through type.
 - 3. Cabinets shall be rated NEMA type-1 for dry interior areas, and type-4x for wet and exterior areas.
 - 4. Provide panelboards with a hinged door, combination spring lock and catch, directory frame and two (2) keys. Panels over 48 inches high shall be provided with 3-point type latches or multiple latches. All panel locks shall be keyed alike and a neatly typed directory identifying each circuit shall be provided in the frame.
- J. Separately Enclosed Molded Case Circuit Breakers:
 - 1. Where separately enclosed molded case circuit breakers are required, provide circuit breakers in accordance with the requirements noted for panelboards
 - 2. Enclosed circuit breakers scheduled for use as Service Entrance equipment shall be UL-labeled for this duty
 - 3. Enclosed circuit breaker cabinets shall be rated NEMA type-1 for dry interior areas, and type-4x for wet and exterior areas, unless otherwise directed
- K. Where new circuit breakers are installed or added to existing switchboards, update the existing circuit directory with a new typewritten label(s) to clearly identify the load(s) served
- L. Where new panelboard interiors are installed within existing panel backboxes, the existing backboxes shall be thoroughly cleaned of rust and scale. The interiors shall then be painted with a white, rust-inhibiting paint before the new interior is installed. New exterior panel trims, doors and locks shall then be provided for these panels. Provide new, typewritten panelboard circuit directories for all panelboard replacements to clearly identify the loads served.
- M. Calibrate adjustable-trip circuit breakers per engineer's instructions

- N. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 20% of each other; maintain proper phasing for multi-wire branch circuits
- O. Provide and install a plastic engraved nameplate for each panelboard detailing the following:
 - 1. Panel designation
 - 2. Panel operating voltage
 - 3. Source & circuit number of panelboard supply (for disconnection & isolation)
- P. Manufacturers: Panelboard and circuit breaker manufacturer shall generally match the brand of installed building electrical distribution equipment
 - 1. Square D
 - 2. Siemens