Panelboards | 26 24 16

The following information shall be included in specifications prepared for use on all University of Cincinnati construction and renovation projects. This information is supplemental and not intended to be a complete specification.

GENERAL STANDARDS

General Criteria
Panelboard Requirements - Building panelboards shall be accessible from the front and shall utilize group-mounted thermal-magnetic molded case circuit breakers. Load centers are not acceptable. Panel shall have a dedicated-access hinged door. Provide multiple lugs or feed-through type panels when required. Laboratory panels shall have double lugs.

Bus Requirements - Provide all 208Y/120V panels with a dedicated, isolated, full-size ground bus to serve future computer equipment and separate equipment grounding conductor bus. Provide terminals for a minimum of 50 percent of panel circuits on each bus.

Special Panel Requirements - Provide isolation panels for Medical Center and other special applications when required. Provide “service entrance” listed service entrance applications. Panelboards shall be 100 percent neutral rated, or greater when required. Panelboards shall be 200 percent neutral rated when serving non-linear type loads.

Panel Locations - Locate panels in electrical rooms, electrical closets, or utility hallways on each floor. Special rooms and laboratories with highly concentrated loads should have separate panels. Do not locate panels in janitor closets or toilet room entries. Locate panels near columns, on permanent corridor walls or on other permanent features to prevent future relocations.

Panel Mounting - Surface-mounted panels are preferred to flush panels. Surface mount panels in utility spaces. In finished areas, provide flush-mount with full-height access to ceiling for future raceways. Provide a minimum of three ¾-inch spare conduits stubbed into ceiling space.

Design Evaluation
The following information is required to evaluate the design:

Schematic Design Phase
Description of overall design concept for power distribution

Design Development Phase
Load calculations to determine quantity of panelboards
Preliminary one-line and riser diagrams showing quantity and location of panelboards
Preliminary plans showing panel locations and compliance to clearance requirements
Draft specifications

Construction Documents Phase
Final load calculations to determine quantity of panelboards
Final one-line and riser diagrams showing quantity and location of panelboards
Final plans showing panel locations and compliance with clearance requirements
Completed panel schedules showing circuit numbers and load information
Final specifications
**Submittals**
Shop drawings for review before manufacture
Panel schedules

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**PRODUCT STANDARDS**

**Product Manufacturers**
- Square D
- Cutler-Hammer
- Siemens

**Cabinet Requirements**

*Cabinet Type* - Cabinets and fronts shall be dead-front type.

*Door Type* - Doors shall be tight-closing, without play, when latched. Where remote-controlled switch or contactor is mounted in panelboard, mount on same frame as panelboard interior with dedicated-access hinged door and key lock.

*Door Fasteners* - Provide door-in-door construction with lockable metal latch fasteners on all doors. When more than one fastener is required on a door, provide single-operator handle with multi-point fasteners. Locks shall be keyed alike and match the existing standard keying system (Corbin Cabinet Lock TEU-1 or GE – 75). Opening outer door should expose terminals and circuit breakers in a single operation.

**Circuit Breaker Requirements**

*Rating Requirements* - Circuit breakers and fused switches shall have Underwriters Laboratories (UL) interrupting rating labeled. Coordinate interrupting ratings with the Protective System Device Studies. Minimum ratings shall be as follows:

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Rating Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>208Y/120V Panelboards</td>
<td>10,000 AIC symmetrical</td>
</tr>
<tr>
<td>480Y/277V Panelboards</td>
<td>14,000 AIC symmetrical</td>
</tr>
<tr>
<td>Fusible Panelboards</td>
<td>100,000 AIC symmetrical</td>
</tr>
</tbody>
</table>

*Breaker Type* - Circuit breakers shall be “bolt-in” breaker units with common trip on multiple-pole breakers.
**Spare Breakers** - Provide minimum of 30 percent spare breakers for lighting panels and 35 percent spare breakers for receptacle and equipment branch panels.

**Breaker Spaces** - Spaces shall be provided with busing, device-mounting hardware and steel knockouts in dead front.

**Additional Requirements** - Provide only 42 circuit panels with copper bus rated at 225 amp.

### EXEUCUTION STANDARDS

**Construction & Installation**

**Cabinet Mounting** - Firmly anchor cabinets directly or with concealed bracing to building structure. Mount 6 feet, 6 inches above finished floor unless otherwise required. When not located directly on the wall, provide support frame of formed steel channel anchored to floor and ceiling structure.

**Panelboard Requirements** - Panelboards rated for 400 and 600 amps shall accept 225-amp frame circuit breakers.

**Code Requirements** - Verify space available with equipment sizes and code required working clearances before submitting shop drawings.

**Cabinet Installation** - Furnish cabinets prime painted. Do not field paint factory-finished panelboard or equipment covers. Locate in dedicated spaces. Coordinate project construction so piping, ducts, and so forth are routed around dedicated spaces above and in front of panelboards per code. Provide nameplates and directories.

--- END OF SECTION ---