

SECTION 26 2416 - PANELBOARDS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

- A. Lighting and power panelboards and their installation.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Short Circuit and Protective Device Coordination Study
- B. Surge Suppressors

PART 2 - PRODUCTS

2.1 GENERAL:

- A. Construct panelboards in accordance with latest NEMA and UL standards.
- B. Panelboards to be same manufacturer as other distribution equipment.
- C. Panelboard assembly UL labeled, and UL labeled as Service Entrance Equipment where used for that purpose.
- D. Panelboards to have integrated equipment fault rating equal to interrupting rating of lowest rated overcurrent device. They shall be fully rated. Series rating is not allowed.
- E. Bussing:
 - 1. 98% conductivity copper, silverplated at joints or equivalent plated 55% conductivity aluminum.
 - 2. Bus assembly designed for a maximum temperature rise of 55 degree C above 40 degree C ambient temperature when carrying rated current.
 - 3. Minimum thickness of bus bars - 3/32".
 - 4. Bussing braced to withstand a fault current equal to the highest device interrupting capacity in the panel.
 - 5. Neutral bus full size copper or aluminum sized on same basis as phase busses and insulated from the cabinet.
 - 6. Arrange bus bar connections so that adjacent vertical circuit protective devices are consecutively connected to phases A, B, and C throughout panel. Provide 50% capacity ground bus in each panel cabinet, bolted to cabinet.
- F. Cable terminations:
 - 1. Include neutral and ground connections as shown.
 - 2. Make with separate, compression, AL/CU rated lugs, Thomas & Betts, IlSCO, Blackburn or approved equivalent.
 - 3. Use 2 bolt tongue or equivalent connection to bus for #1/0 or larger cables.
 - 4. Securely bolt lugs to bus with bolts, nuts and lock washers.
 - 5. Provide double lugs on main bus where shown.
 - 6. Feed-through lugs (one set of lugs on each end of main vertical bus) is not acceptable. All multi-section panels shall include sub-feed lugs in the first section to serve the second section.
- G. Circuit breakers:
 - 1. Molded case, thermal-magnetic, quick-make, quick-break, trip free on faults, thermal-inverse time delay element and magnetic instantaneous trip coil in each ungrounded phase conductor, or approved equivalent solid state trip unit.
 - 2. Engrave breaker ampere rating on handle or trip unit.
 - 3. Furnish multipole breakers with internal common trip.
 - 4. Ground fault breakers class "A" type to trip on fault currents of 4-6 ma.
 - 5. Main circuit breakers UL rated for service entrance use.
 - 6. Switch "SWD" rated where required by NEC.

- H. Panelboards classified by type over-current protection as follows:
 - 1. BQL Bolted quick-lag circuit breaker distribution, 0-100 ampere branches, with minimum interrupting rating of 10,000 symmetrical amperes at 240 volts. Equivalent to Square "D", NQOD, Siemens NLAB, Westinghouse BB, G.E. NLAB.
 - 2. BEF Heavy duty circuit breaker distribution, 0-100 ampere branches, with minimum interrupting rating of 14,000 symmetrical amperes at 480 volts. Equivalent to Square "D", NEHB, Siemens NHB, Cutler-Hammer CDP, G.E. type CCB.
 - 3. CCB Heavy duty convertible circuit breaker distribution, 0-800 ampere branches with minimum interrupting rating of 25,000 symmetrical amperes at 240 volts. Equivalent to Square "D", I-Line, Siemens CDP-6, Westinghouse POW-R-Line 4, G.E. type Spectra series.
 - I. All space in panelboards usable. Panelboard space provided with necessary connections for future installation of overcurrent devices.
 - J. Arrange breakers in panels as per panel schedules and plans.
 - K. Identification:
 - 1. Permanently attach nameplates and circuit numbers to panel.
 - 2. Provide typewritten circuit directories describing service of each circuit in Types BQL panels.
 - 3. Provide laminated plastic nameplate circuit identification for each circuit in Type CCB panels.
 - 4. Provide each panelboard with nameplate showing name and voltage.
 - 5. Provide each panelboard with an arch flash warning label per article 110.16 of the NEC.
 - L. Manufacturers:
 - 1. Panelboards manufactured by Siemens, Square "D", General Electric or Westinghouse.
- 2.2 CABINETS: (Same manufacture as interiors)
- A. Code thickness, hot dip galvanized steel or painted with trim and door. Hardware: combination latch and cylinder lock, all keyed the same. Provide celluloid or plastic covered directory card holder on the inside of door. Trim, door and exposed interior shall be finished with factory prime and smooth finish coat of the color selected by Architect. Reinforce cabinets as necessary for service and short circuit rating intended.
 - B. Flush or surface as indicated of sufficient size to allow minimum 3" gutter space each side of panel and eight inches (8") at top and bottom, minimum 20" wide. Provide adjustable trim clamp, semi-flush hinges and inside rabbet.
 - C. Provide panels with hinged trim construction.

PART 3 - EXECUTION

- 3.1 INSTALLATION:
- A. Mount panelboards securely to building structure with 3/8" minimum diameter galvanized bolts and inserts number as required for size of panel, but not less than 4. Mount panelboards with centerline 4'-6" approximately above finished floor. Where panels of different heights are mounted adjacent, install top of panel trim at same height above floor. Close all unused openings.
 - B. Where two sets of feeder cables are required in panel gutter space, run one set in each side of panel.
 - C. The typewritten panel directories shall be in place prior to the final inspection by the Architect.
 - D. All adjustable breakers shall be set as per the recommendations of the report under Section "Short Circuit and Protective Device Coordination Study". This shall be done prior to the final inspection by the Architect.

END OF SECTION