

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Distribution Panelboard.
- B. Branch Circuit Panelboards

1.2 REFERENCES

- A. NECA (National Electrical Contractors Association) "Standard of Installation."
- B. NEMA AB 1 - Molded Case Circuit Breakers.
- C. NEMA PB 1 - Panelboards.
- D. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards rated 600 Volts or Less.
- E. NEMA PB 1.2 - Application Guide for Ground-fault Protective Devices for Equipment.
- F. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

- A. Submit shop drawings for equipment and component devices under provisions of Division 01 and Section 26 00 00.
- B. Include outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, and branch circuit breaker quantities and sizes.
- C. Operating and Maintenance Manuals: Provide for panelboards, enclosed circuit breakers and electrical use submeters.

1.4 SPARE PARTS

- A. Panelboard Cover Keys: Furnish 4 each to Owner.

PART 2 – PRODUCTS

2.1 PANELBOARDS

- A. Acceptable Manufacturers.

1. *Square D.*
2. *Cutler-Hammer.*
3. *General Electric.*
4. *Siemens.*
5. Substitutions: None Permitted.

B. Description

1. Panelboards: NEMA PB1; Circuit breaker type with bolt-on circuit breakers.
2. Enclosures: NEMA PB 1; Type 1.
3. Cabinet Sizes:
  - a. Branch Circuit Panelboards: 5 ¾ inches deep; 20 inches wide.
  - b. Distribution Panelboard: 6 ½ inches deep; 26 inches wide.
4. Provide cabinet fronts with concealed trim clamps, concealed hinge and flush lock all keyed alike. Finish in manufacturer’s standard gray enamel
5. Provide copper buses for all panels and load centers. Branch circuits panels and load centers shall be rated as scheduled within specification section 26 06 20.16. Service/distribution panel shall be rated as indicated on the single-line diagram in the contract drawings.
6. Minimum Integrated Short Circuit Ratings:
  - a. Distribution Panelboards: 65,000 AIC at 480 volts.
  - b. Branch Circuit Panelboards: 35,000 AIC at 120/240 volts.
7. Molded Case Circuit Breakers: NEMA AB 1; thermal magnetic trip circuit breakers, with common trip handle for all poles. Provide circuit breakers UL listed as Type SWD for lighting circuits.
8. Provide circuit breaker accessory trip units and auxiliary contacts as indicated.

2.2 SURGE PROTECTED PANELBOARDS

A. Description: Provide panelboards with built-in integral high frequency range power filter conforming to UL 1283, and high performance suppression conforming to UL 1449.

B. Operating Characteristics:

1. Single Pulse Surge Current Capacity:
 

L-N	80,000 Amps
L-G	80,000 Amps
L-L	80,000 Amps
N-G	80,000 AMps
2. Surge line Testing @ 1.2 x 50µsec: 20 kV > 2500 impulses
3. Maximum Continuous Operating Voltage: 115% of Normal.
4. EMI/RFI High Frequency Noise Power Filter:

Frequency	100kHz	1MHz	10MHz	100MHz
Attenuation (dB)	34	51	51	48
Attenuation Ratio	50:1	350:1	500:1	250:1

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide panelboards as indicated on the Contract Drawings.

- B. Install panelboards plumb and flush with wall finishes, in conformance with NEMA PB 1.1.
- C. Height: 6 feet to top of panelboard.
- D. Clearance: 3 feet front clearance, floor to ceiling with no foreign pipes, ducts, or other system equipment.
- E. Provide filler plates for unused spaces.
- F. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

3.2 FIELD QUALITY CONTROL

- A. Measure state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.
- B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers.

END OF SECTION 26 24 16