SECTION 262416

PANELBOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Distribution panelboards.

B. Branch circuit panelboards.

1.2 RELATED SECTIONS

A. Section 26 05 26 - Grounding and Bonding.

B. Section 26 05 53 - Electrical Identification.

1.3 REFERENCES

A. NECA Standard of Installation (published by the National Electrical Contractors Association).

B. NEMA AB1 - Molded Case Circuit Breakers.

C. NEMA ICS 2 - Industrial Control Devices, Controllers and Assemblies.

D. NEMA KS1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

E. NEMA PB 1 - Panelboards.

F. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

G. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment (published by the International Electrical Testing Association).

H. NFPA 70 - National Electrical Code.

1.4 SUBMITTALS FOR REVIEW

A. Division 01 - Submittals: Procedures for the submittals.

B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, short circuit ampere rating, circuit breaker arrangement and sizes.

1.5 SUBMITTALS FOR CLOSEOUT

A. Division 01 - Submittals for the project closeout.

B. Record actual locations of panelboards and record actual circuiting arrangements in project record documents.

C. Maintenance Data: Include spare parts listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with a minimum of three (3) years' documented experience.

1.7 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc.

1.8 MAINTENANCE MATERIALS

A. Division 01 - Contract Closeout.

B. Furnish two of each panelboard key.

PART 2 PRODUCTS

2.1 DISTRIBUTION PANELBOARDS

A. Division 01 - Material and Equipment: Product Options and Substitutions.

B. Manufacturers:
1. Square D Model I-Line.
2. ABB.
3. Siemens Model P5.
4. Cutler-Hammer Model PRL5P/PRL4.

C. Description: NEMA PB 1, circuit breaker type.

D. Service Conditions:
1. Temperature: 104 degrees F (40 degrees C).
2. Altitude: Less than 6,000 feet (1830 m).

E. Panelboard Bus: Aluminum, ratings as indicated. Provide copper ground bus in each panelboard.

F. Minimum short circuit rating: As indicated. Series rating is not acceptable.

G. Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.

H. Circuit Breaker Accessories: Trip units and auxiliary switches as indicated.

I. Enclosure: NEMA PB 1, Type 1 for interior dry locations and Type 3R for exterior locations, 12 inches deep, 42 inches wide, cabinet box.

J. Cabinet Front: Surface type, fastened with hinged door with flush lock, finished in manufacturer's standard gray enamel.

K. Provide service entrance label where required.

2.2 BRANCH CIRCUIT PANELBOARDS

A. Division 01 - Material and Equipment: Product Options and Substitutions.

B. Manufacturers:
1. Square D Model NQOD/NF.
2. ABB.
3. Siemens Model P1.
4. Cutler-Hammer Model PRL 1a/2a/3a.

C. Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.

D. Panelboard Bus: Aluminum, ratings as indicated. Provide copper ground bus in each panelboard; provide insulated ground bus where indicated.

E. Minimum Short Circuit Rating: As indicated. Series rating is not acceptable.

F. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles, listed as Type SWD for lighting circuits, Type HACR for air conditioning equipment circuits, Class A ground fault interrupter circuit breakers where scheduled. Do not use tandem circuit breakers. Visual trip indicators are required.

G. Enclosure: NEMA PB 1, Type 1 for interior dry locations and Type 3R for exterior locations.

H. Cabinet Box: 6 inches deep, 20 inches wide. All double section panelboards shall be of equal height.

I. Cabinet Front: Flush or Surface cabinet front as indicated with concealed trim clamps, concealed hinge, metal directory frame, and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.

J. Provide service entrance label where required.

K. Provide lock-on devices for installation of circuits required by local authorities.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install panelboards in accordance with NEMA PB 1.1 and the NECA "Standard of Installation".

B. Install the panelboards plumb.

C. Height: 6 feet (1800 mm) to top of panelboard; install panelboards taller than 6 feet (1800 mm) with bottom no more than 4 inches (100 mm) above floor.

D. Provide filler plates for unused spaces in panelboards.

E. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads. Revise directory to reflect changes in room names and numbering as required by Owner. Also, identify the panelboard source on the directory card.

F. Provide engraved plastic nameplates under the provisions of Section 26 05 53.

G. Provide spare conduits out of each recessed panelboard to an accessible location above ceiling below floor. Minimum spare conduits: 5 empty 1 inch. Identify each as SPARE.

H. Ground and bond panelboard enclosure according to Section 26 05 26.

3.2 FIELD QUALITY CONTROL

A. Division 01 - Field inspection, testing, and adjusting.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.4 for switches, Section 7.5 for circuit breakers.

3.3 ADJUSTING

A. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.

END OF SECTION