

SECTION 16470
PANELBOARDS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section describes general provisions, products, and methods of execution relating to branch circuit panelboards approved for use at ANC. Type, size, ratings, etc., shall be as required by the application and in accordance with U.L. Standards 50 and 67.

1.2 SPECIAL REQUIREMENTS

- A. Special features such as double main lugs, feed through lugs, extended side gutters, integral transient voltage surge suppression (TVSS), etc., shall be provided as required by the application.
1. Trims shall be furnished to be compatible with type of mounting.
 2. "Door-in-door" construction shall be furnished on all panelboards unless specifically authorized otherwise in writing by ANC.
 3. Provide 6 inch extended side gutters on distribution panels that require energy meters on distribution circuit breakers.

1.3 QUALITY ASSURANCE

- A. Panelboards shall be of the latest approved design as manufactured by Square D Company to match equipment provided in the C Concourse Phase 2 Building Completion Package. Panelboards shall be listed by Underwriters' Laboratory and bear the UL label.

PART 2 - PRODUCTS

2.1 CABINETS AND FRONTS

- A. Panelboard assembly shall be enclosed in a steel cabinet. Fronts shall include doors and have flush, brushed stainless steel, cylinder tumbler-type locks with catches and spring-loaded door pulls. All panelboard locks shall be keyed alike. Fronts shall have adjustable, indicating trim clamps that shall be completely concealed when the doors are closed. Doors shall be mounted by completely concealed steel hinges. Fronts shall not be removable with door in the locked position. A circuit directory frame and card with a clear plastic covering shall be provided on the inside of the door. The directory card shall provide a space at least 1/4 inch high by three inches long or equivalent for each circuit. The directory shall be typed to identify the load fed by each circuit. Fronts shall be of code gauge, full finished steel with rust-inhibiting primer and baked enamel finish. Cabinets shall be labeled in accordance with Section 16010.

2.2 SAFETY BARRIERS

- A. The panelboard interior assembly shall be dead front with panelboard front removed.

2.3 BUS ASSEMBLY

- A. Panelboard bus structure and main lugs or main breaker shall have current ratings as required by the application. Bus structure shall allow 1, 2 and 3-pole breakers of various frame sizes to be mounted in any location and in any combination up to the capability of the panel.

2.4 SHORT CIRCUIT CURRENT RATING

- A. Each panelboard, as a complete unit, shall have a short circuit current rating (SCCR) as required by the application. The SCCR rating shall not, in any case, be less than 10,000 A at 240 volts, and 14,000 A at 480 volts.

2.5 PROTECTION DEVICES

- A. Circuit breakers shall individually comply with Section 16475 - OVERCURRENT PROTECTIVE DEVICES. The type to be furnished shall be as required by the application. If no withstand rating is specified, minimum requirements shall be as necessary to comply with the preceding requirements.

2.6 NEUTRAL TERMINAL BAR

- A. All panelboards shall be equipped with an insulated neutral terminal bar.
- B. Panelboards fed from transformers with a "K-rating" of 13 shall be equipped with 200 percent rated neutrals and neutral lugs and shall be U.L. Listed as suitable for non-linear loads.
- C. Panelboards with a large proportion of non-linear loads shall be equipped with 200 percent rated neutrals and neutral lugs and shall be U.L. Listed as suitable for non-linear loads.
- D. Panelboards with integral TVSS devices shall be equipped with 200 percent rated neutrals and neutral lugs and shall be U.L. Listed as suitable for non-linear loads.

2.7 EQUIPMENT GROUNDING TERMINAL BAR

- A. Panelboards shall be equipped with an equipment grounding terminal bar to terminate equipment grounding conductors.
- B. Panelboards shall be equipped with an isolated, insulated equipment grounding terminal bar to terminate isolated equipment grounding conductors where required.

2.8 HANDLE LOCK-OFF EQUIPMENT

- A. Circuit breakers serving as the required disconnecting means for appliances or other equipment shall be equipped with equipment to allow the breaker to be padlocked in the "off" position.

2.9 INTEGRAL TVSS DEVICES

- A. Provide panelboards with integral TVSS devices if required by the application in accordance with Specification Section 16471 - Transient Voltage Surge Suppression.
- B. Integral TVSS devices shall be factory installed in the panelboard.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify mounting arrangements for each location. Where cabinets are recessed, verify adequate thickness of wall and make arrangements for furring or trim as required. In general, all conduits shall enter the top or bottom of panel.

- B. Provide additional wire gutters or pull boxes to facilitate orderly entry of conduits into cabinets. Bundle and support wires and arrange them in an orderly manner in the designated wire gutters.
- C. Panelboards shall not be used for pull boxes for wiring not terminating in the panelboard.

3.2 SPARE CONDUITS

- A. Provide spare conduits from flush mounted panels into accessible ceiling or floor spaces as follows:

No. of Poles (Spares + Spaces)	Spare Conduits
1 - 3	One 3/4"
4 - 6	Two 3/4"
7 or more	Two 3/4", One 1"

3.3 PANELBOARD LABELS

- A. In addition to applicable NEC requirements for emergency systems, series rated applications, etc., label panelboards in accordance with Section 16010.
 - 1. First line shall be panelboard name.
 - 2. Second line shall be voltage and phase.
 - 3. Third line shall indicate if panelboard is "NORMAL" (black background), or "STANDBY" (yellow background) or "EMERGENCY" (red background).

END OF SECTION