

## SECTION 26 24 16 - PANELBOARDS

### PART I - GENERAL

#### 1.1 SECTION INCLUDES

- A. This section applies to branch circuit and distribution panels.

### PART 2 - PRODUCTS

#### 2.1 EQUIPMENT

- A. Breakers for Devices 400 Amps or Less: Protective devices in branch circuit and distribution panels that are rated 400 amperes or less shall be circuit breakers with appropriate short circuit ratings to maintain building coordination. Circuit breakers shall have bolt or screw mounting to bus. Push-on mounting to bus is unacceptable.
- B. All panelboards shall be FULLY RATED. No Series-Rating is allowed.
- C. Lighting and Receptacle Breakers: Branch circuit breakers for lighting and convenience receptacles shall be 20 amperes. Lighting and receptacles shall be connected to separate circuits. Lighting fixtures shall be fed from Lighting Panelboards. Receptacles and power shall be fed from Receptacle Panelboards or Power Panelboards. All lighting and receptacle branch circuits shall be fed from the same floor lighting or receptacle panelboards, exceptions can be obtained on a case by case basis from F & S Engineering in writing.
- D. Emergency Panel boards: When necessary for NEC Selective Coordination requirements, Emergency Panel boards can be fusible type, similar to Eaton Busman QSCP, or approved equal.
- E. Panel Capacity: All new distribution and branch circuit panels shall have 42 spaces. In addition, all new panels shall have a minimum of 9 spare spaces when installation is complete. Panel boards with 84 circuits in one panel are not allowed. Panel boards with 42 circuits and feed-thru lugs to a panel board next to it for a total of 84 circuits are allowed.
- F. Gutter Space: New branch circuit panels shall have minimum of 5-inch gutters, with additional gutter space being provided for feeder lugs or main breaker as required for particular installations.
- G. Lockable: All distribution and branch circuit panels shall be lockable. Lock shall be equivalent to Corbin Series 1001, master key able, and operate with a FAB-7 key. Panels with interiors and trims that do not allow use of this lock are unacceptable. Panel boards shall be door-in-door type.
- H. Schedule: Each panel shall contain a typewritten schedule. The schedule shall contain complete and detailed information for loads on each circuit. Any changes, additions, or modifications to Panel boards shall require in a new typed directory.
- I. Buss Material: All panelboard Phase, Neutral, and Equipment Ground buss shall be tinned-copper.
- J. Fire Equipment Breakers: All breakers supplying equipment associated with the Fire Alarm System shall be red in color, Per NEC Article 760. Breaker shall be factory colored red – painting in the field is not allowed.
- K. Manufacturers: Eaton, GE or Square D.

## 2.2 ARC-FLASH LABELING

- A. All Panel boards shall have arc flash warning labels on the electrical equipment with a specific incident energy value in calories/cm<sup>2</sup>.
  - 1. Perform incident energy calculations (arc flash analysis) by a qualified engineer using methods similar to those described in IEEE Standard 1584-2002 "Standard Method for Determining Incident Energy" - Nov 2002
  - 2. Incident Energy calculations take into account bolted fault current, clearing time, equipment type, grounding and construction over a range of voltages
  - 3. Information required to perform an Arc-Flash Analysis shall include:
    - a. Up to date system one-line diagram (NFPA 70E)
    - b. Conductor size, types, and lengths
    - c. Electric utility source information
    - d. Current short-circuit/coordination study (*per 2.5*)
    - e. Validated protective device types and settings
- B. Arc-Flash labels shall meet the requirements of NFPA 70E.
  - 1. Labels shall include the following information for Appropriate PPE Required:
    - a. Flash Hazard Boundary Distance
    - b. Flash Hazard at 18 inches
    - c. Arc-Flash Hazard Risk/PPE Category
    - d. Shock Hazard when cover is removed
    - e. Class of glove
    - f. Limited Approach Distance
    - g. Restricted Approach Distance
    - h. Prohibited Approach Distance
    - i. Name. Address of Company preparing the Label
    - j. Date of Label Preparation

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Flush Mounted: Where possible, distribution and branch circuit panels installed in finished areas shall be flush mounted and served through concealed conduit.
- B. 65 Feet Max Distance: Branch circuit panels shall be located so that they will be not more than 65 feet from any portion of the floor served, so that branch circuits will not exceed 100 feet in total length.
- C. 4 Spare Conduits: All flush mounted panels shall have at least 4 spare 3/4-inch conduits extended to space above or near the ceiling for future use.

END OF SECTION **26** 24 16

This section of the *U of I Facilities Standards* establishes minimum requirements only.  
It should not be used as a complete specification.