

# Quik-Spec™ Coordination Panelboard Specifications

30A - 400A Fusible Panelboards

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## SECTION 26 24 xx

*(This Specification references CSI MasterFormat™ 2004)*

### FUSIBLE BRANCH CIRCUIT PANELBOARDS

#### PART 1 GENERAL

##### 1.01 SUMMARY

A. Furnish and install fusible branch circuit panelboards as specified, and as shown on the associated drawings.

##### 1.02 RELATED SECTIONS

- A. Section 26 28 13 – Fuses.
- B. Section 26 xx xx – Electrical System Selective Coordination Studies.

##### 1.03 REFERENCES

- A. UL 248 – Low-Voltage Fuses.
- B. UL 98 – Enclosed and Dead-front Switches.
- C. UL 67 – Panelboards.
- D. UL 50/ UL 50E – Enclosures for Electrical Equipment.
- 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. NEMA FU 1 – Low Voltage Cartridge Fuses.
- H. NFPA-70 – National Electrical Code®.
- I. CSA Standard C22.2 No. 248 – Low Voltage Fuses.

##### 1.04 SUBMITTALS

- A. Submit ten copies of product data sheets or bulletins detailing items B-D.
- B. Construction drawings including:
  - a. Overall, wiring gutter, and interior mounting dimensions
  - b. Conduit entrance/exit locations, size, number/phase, and termination types
  - c. Main/branch device, neutral, and ground locations
  - d. Assembly and component device and nameplate information
- C. Assembly ratings including:
  - a. Voltage, ampacity, and short-circuit current ratings, including any specific lineside overcurrent protection requirements
- D. Main disconnect ratings (if applicable):
  - a. Voltage and ampacity ratings of the disconnect
  - b. Voltage, ampacity, and interrupting ratings of fuses
- E. Branch device ratings including:
  - a. Voltage, ampacity, and interrupting ratings of fused branch devices

##### 1.05 CLOSEOUT SUBMITTALS

- A. Submit ten copies of:
  - a. Final as-built drawings, assembly and component device ratings as required with Section 1.04
  - b. Operation and Maintenance manuals including replacement parts list if available

##### 1.06 SYSTEM DESCRIPTION

- A. The panelboards shall be UL and cUL Listed.
- B. Selective Coordination:
  - a. Panelboards overcurrent protective devices shall be selectively coordinated with all supply side (fed from both the normal and emergency source) Cooper Bussmann™ Low-Peak™ LPJ\_SP, LPN-RK\_SP/LPS-RK\_SP or KRP-C\_SP fuses sized at a minimum amp ratio of 2:1. Consult Cooper Bussmann for coordination ratios with other fuse types.

##### 1.07 QUALIFICATIONS

- A. The equipment manufacturer shall have a minimum five years experience in producing electrical distribution panelboards.
- B. Fusible branch circuit panelboards shall be listed to UL 67.

##### 1.08 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be shipped without branch circuit fuses installed. Branch circuit fuses shall be shipped separately with the chassis. Where  $\geq 100A$  main fuses are specified, equipment shall be shipped with main fuses installed. Where  $\leq 100A$  main fuses are specified, fuses shall be shipped separately with the chassis.
- B. Inspect equipment for possible damage during delivery and prior to installation.
- C. Handle and store in accordance with manufacturer's instructions.

##### 1.09 INSTALLATION, OPERATION, AND MAINTENANCE MATERIALS

- A. Furnish operation and maintenance tools/key(s) if available from manufacturer.
- B. Manufacturer shall provide copies of installation, operation and maintenance manuals to owner including replacement parts list if available.

##### 1.10 WARRANTY

- A. Manufacturer shall warrant specified equipment free of materials and workmanship defects for 18 months from the date of shipment or 12 months from date of first use, whichever occurs first.

##### 1.11 ADDITIONAL MATERIALS

- A. Furnish [10%] [20%] or minimum of three fuses of each rating and type of fuse installed.
- B. Furnish a minimum of one spare fuse cabinet or as indicated on the drawings.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- A. Fusible Panelboards shall be Cooper Bussmann™ Quik-Spec™ Coordination Panelboards type QSCP.
- B. Substitutions will be accepted only if the below requirements are met and written approval is provided from the engineer:
  - a. The electrical contractor supplies a written request to the engineer three weeks prior to the project bid date
  - b. The electrical contractor provides product documentation to prove complete compliance with specification and all pertinent codes and standards requirements as specified in this section

## 2.02 PANELBOARD RATINGS

- A. Panelboards shall be labeled with a short-circuit current rating equal to or greater than that indicated on the associated schedules or drawings.
- B. Non-service entrance rated panelboards shall be UL and cUL Listed. Service entrance rated panelboards shall be UL Listed.
- C. Panelboards shall be rated  $\geq$  system voltages up to 600Vac/125Vdc and have a current rating as indicated on the associated schedules or drawings.
- D. Panelboard overcurrent protective device interrupting ratings shall be fully rated for the maximum available fault current and have a UL Listed interrupting rating of 300kA and CSA Certified interrupting rating of 200kA.
- E. Current ratings, configuration of poles and number of circuits shall be indicated on associated schedules or drawings.

## 2.03 CONSTRUCTION

- A. Panelboard circuits 100A and less shall incorporate overcurrent protection and branch-circuit rated disconnecting means into a single integrated component.
- B. Interiors shall be factory assembled.
- C. Panelboard shall be equipped with a six-space spare fuse compartment for storing replacement branch circuit fuses. Spare fuse compartment shall be located behind locking panel door.
- D. Bus bars shall be tin-plated copper with sufficient cross sectional area to meet UL 67 temperature rise requirements.
- E. 200A/400A rated neutrals shall be standard, 400A or 800A rated neutral shall be provided where indicated in the associated schedules or drawings.
- F. Bonded neutral shall be provided where specified in associated drawings.
- G. Isolated or non-isolated equipment ground bar shall be provided as indicated in the associated schedules or drawings.
- H. Where a service-entrance rated panelboard is indicated in associated schedules or drawings, a bonded neutral and non-isolated equipment ground bar shall be provided by the manufacturer.
- I. Main lug conductor terminations:
  - a. MLO terminations shall be rated for 60/75°C, Cu-Al
  - b. Main disconnect terminations shall be rated for 75°C, Cu Only
- J. NEMA 1 panelboards shall be field convertible for top or bottom incoming feed. NEMA 3R panelboards are bottom feed only.

## 2.04 MAIN DISCONNECT

- A. Permanently installed lockout means shall be provided on the main disconnect for lockout tagout procedures.
- B. Main disconnect shall be quick-make, quick-break type.

## 2.05 BRANCH FUSED DISCONNECTS

- A. Device shall have visible circuit ON/OFF indication with colored and international symbol markings.
- B. Device shall provide open fuse indication via permanently installed neon indicating light.
- C. Device shall be UL and cUL Listed 600Vac/200kA or 125Vdc/100kA voltage/short-circuit current rating, load-break disconnect with amp ratings and number of poles as indicated on the panelboard schedule.
- D. Fuse and disconnect assembly shall be a finger-safe component with trim installed.
- E. Fuse and disconnect shall be mechanically interlocked so as not to allow fuse removal while fuse terminals are energized.
- F. No special tools shall be required for fuse removal.
- G. Devices shall have bolt-on style bus connectors.
- H. Device housing shall be clearly marked with device amperage.
- I. Permanently installed lockout means shall be provided on the device for lockout tagout procedures. Permanently installed means for locking device in the ON position shall also be provided.
- J. Device shall provide fuse amp rating rejection at the following ampacities to ensure continued circuit protection at the specified circuit rating: 15A, 20A, 30A, 40A, 50A, 60A, 70A, 90A & 100A.

## 2.06 MAIN & BRANCH OVERCURRENT PROTECTION

- A. All overcurrent protective devices shall have a minimum UL Listed interrupting rating of 300kA and CSA Certified interrupting rating of 200kA.
- B. Branch circuit overcurrent protection shall be 600Vac UL Listed minimum 300kA IR and CSA Certified minimum 200kA IR finger-safe fuse with Class J\* performance characteristics.
- C. Main overcurrent protective devices shall be 600Vac UL Listed minimum 300kA IR and CSA Certified minimum 200kA IR Class J time-delay fuses or Class J\* performance fuses.
- D. Where panelboard main fuses are installed, fuses in panelboard branch circuits shall selectively coordinate with main fuses for all overcurrents up to 200kA.

## 2.07 ENCLOSURE

- A. NEMA 1 enclosures shall be surface or flush mount as indicated in associated schedules or drawings. NEMA 3R enclosures shall be surface mount only.
- B. Boxes shall be a nominal 20 inches wide and 5- $\frac{3}{4}$  inches deep with wire bending space per the National Electrical Code®.
- C. Panelboard trim shall be supplied with lockable door covering all disconnect handles.
- D. Panelboard trim shall be dead-front construction covering all energized parts.
- E. Enclosures shall be NEMA Type 1 or Type 3R as indicated in associated schedules or drawings.
- F. Door-in-door type trim shall be provided for NEMA 1 enclosures where it is specified in the associated schedules or drawings.
- G. Front trim shall be lockable. All lock assemblies shall be keyed alike with like NEMA rated enclosures.

\* Cooper Bussmann UL Class CF CUBEFuse meets this requirement.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Equipment shall be installed in accordance with NEMA PB1.1 and manufacturer's recommendations.
- B. Equipment shall have a nameplate installed and mounted to the front cover and indicate: panelboard type, amp rating, voltage rating and short-circuit current rating.
- C. Verify connected load(s) and selection of fuse sizes prior to installation.
- D. Inspect completed installation for physical damage, alignment, and support.
- E. The directory card on the inside of the door shall be completed, identifying every circuit.

### **3.02 FIELD ADJUSTMENTS & TESTING**

- A. Tighten chassis, device and termination connections in accordance with manufacturer's recommendations.
- B. Measure load currents for each branch device and balance phase loads where possible.

### **3.03 CLEANING**

- A. Touch up scratched or marred surfaces to match original finish.