

Quik-Spec™ Coordination Panelboard Specifications

30A - 400A Fusible Panelboards

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 cULus 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) Eaton's Bussmann series Low-Peak™ LPJ_SP, TCF_, LPN-RK_SP/LPS-RK_SP or KRP-C_SP fuses sized at a minimum amp ratio of 2:1. Consult Eaton for coordination ratios with other fuse types or upstream Eaton circuit breakers

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 and cULus to CSA Standard 22.2.

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 >100A main fuses are specified, equipment shall be shipped with main fuses installed. Where <=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 Eaton's Bussmann series 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 UL Listed with a labeled short-circuit current rating equal to or greater than that indicated on the associated schedules or drawings.
- B. Panelboards shall be rated 600Vac/125Vdc but marked for actual system voltage.
- C. Provide Main lug only, main fused switch or main non-fused switch as indicated in the associated schedules or drawings.
- D. Provide branch circuits as indicated in the associated schedules or drawings.
- E. Branch circuits must be interchangeable with fusible switches from 15A to 100A without additional required space.
- F. Panelboard branch circuits shall incorporate overcurrent protection and branch-circuit rated disconnecting means into a single integrated component (1 pole, 2 pole or 3 pole) that prevents removal of the fuse while energized, provides open fuse indication, and fuse ampere rating rejection feature at 15A, 20A, 30A, 40A, 50A, 60A, 70A, 90A, and 100A. Provide open fuse indication on the branch circuit fuses where indicated in the associated schedules or drawings.
- G. Provide <Time-Delay Non-Indicating> <Time-Delay Indicating> < Fast-Acting> Class CF fuses for branch circuits.
- H. Bus bars shall be tin-plated copper
- I. Neutral and equipment ground bar (isolated or non-isolated) shall be provided where indicated in the associated schedules or drawings.
- J. Panelboard trim shall be <standard> <door-in-door> <surface> <flush> type.
- K. Panelboard enclosure shall be of type indicated in the associated schedules or drawings.
- L. Boxes shall be a nominal 20 inches wide and 5-¾ inches deep
- M. Panelboard shall be equipped with a spare branch circuit fuse holder and spare fuses (10% of fuse for each ampacity installed in branch circuits).
- N. Panelboard shall be equipped with an integral Surge Protective Device, compliant with UL 1449 4th Edition. SPD shall include remote signaling contact.

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 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 available.
- 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 CF (equivalent to 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 fuses or Class CF (equivalent to 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 5-³/₄ inches deep (NEMA 1) or 6.3" (NEMA 3R) 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.

2.08 INTEGRAL SURGE PROTECTION

- A. For code required applications, panelboard should include an integral UL 1449 4th Edition Recognized Type 2 Component Assembly. Device should be certified by UL to a 20kA Inominal Rating. Device should also be CSA Accepted.
- B. SPD status monitoring shall be provided by local visual indication and, if needed, by remote contact signaling using an optional Form C contact relay

--OR--

2.08 EXTERNAL SURGE PROTECTION

- A. For code required applications, panelboard should include an externally mounted Type 1 or Type 2 UL 1449 4th Edition Listed and CSA Approved Type 2 SPD. SPD may be installed on unoccupied feed through lugs, or by wiring into unoccupied 60A-100A CCPB slots for the respective line connections.

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 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.