

## 26 24 00 – Switchboards and Panelboards

### 1. Introduction

- A. Switchboards shall be utilized within electrical distribution system to provide a central location for sub-feed distribution assemblies and large branch circuits to originate.

### 2. References

- A. NFPA 70 National Electrical Code

### 3. Design Standards

- A. Approved Manufacturers:
  - 1. Square D (QED Series)
  - 2. Eaton/Cutler-Hammer (Magnum DS Series)
  - 3. General Electric (Spectra Series)
- B. Provide full-length 75°C copper busbars with ratings as required.
- C. Provide full-length 75°C copper neutral busbar. Lugs shall be provided and sized appropriately for each outgoing circuit that requires a neutral connection.
- D. Provide copper ground bus. Lugs shall be provided and sized appropriately for each outgoing circuit.
- E. Provided with a factory installed main circuit breaker in all switchboards without draw out power circuit breakers.
- F. All breakers (main and branch) shall be rated 75°C. Circuit breakers shall be manually operated, low voltage power circuit breakers with solid state electronic trip units having adjustments for current, long-time pickup/delay, instantaneous pickup/delay, short-time pickup/delay and ground-fault pickup/delay.
- G. Shunt trip breakers shall have 120V coils.
- H. Switchboards 1,000 amps and greater shall be equipped with digital power meters manufactured and installed by the factory.
- I. Switchboards shall be dead-front, metal-enclosed and self-supporting type.
- J. Provide Main-Tie-Tie-Main configuration for all dual feed services.
- K. Kirk key interlocks shall be provided between the tiebreakers and the corresponding main circuit breakers.

- L. Switchboards utilized for service entrance shall have appropriate UL labeled as suitable for service entrance. Ground fault protection shall be provided on service entrance breaker.
- M. Provide 25% spare capacity in each switchboard for both demand and space. Spaces allocated for future use shall be fully bussed and complete with mounting hardware and filler plates.
- N. Match NEMA rating of switchboard to associated environment.

#### 4. Documentation and Review Requirements

- A. All switchboards associated with the project shall have a detailed elevation with breaker arrangement. The elevation shall include the SE rating, bus rating, voltage rating, main breaker rating, neutral bus rating, AIC rating, switch configuration, total load, demand factor, total demand load and total demand amps. Each sub-feed shall be identified and described.
- B. Provide load summary and the NEC required monitoring data for all existing to remain switchboards being utilized within the project.

#### 5. Installation and Performance Requirements

- A. Neatly train and bundle all feeders. Identify feeders inside switchboard and at destination equipment or device with self-adhesive wire tag attached to the wire.
- B. Provide typed switchboard directory. Provide self-adhesive melamine label for each sub-feed breaker. No handwritten directories are permitted. When circuiting at existing switchboard is changed, a new typed circuit directory shall be provided.
- C. Provide self-adhesive label that indicates the flash boundary and available incident energy at switchboard. Neatly affix label to exterior portion of switchboard.
- D. Provide self-adhesive labeling tape provided by the manufacturer that indicates the bus arrangement inside each section/cubicle.
- E. With the switchboard open to expose all connections, perform an infrared camera scan on each switchboard.
- F. Torque all connections to manufacturer's recommendations, vacuum and wipe clean.
- G. Provide 4" housekeeping pad under all switchboards.
- H. Refer to Section 26 08 01 for Electrical Equipment Acceptance Testing.

**6. As-Built Requirements**

- A. Provide a certified report that identifies the scanning results for all switchboards.
- B. Provide electronic copies of as-built elevations and breaker arrangements.
- C. Provide time current curves.
- D. Provide settings of all over-current protective devices, including long-time, instantaneous, short time and ground-fault pickups and delays.