

SECTION 26 28 16
ENCLOSED SWITCHES and CIRCUIT BREAKERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Enclosed molded case circuit breakers

1.2 REFERENCES

- A. FS W-C-375 - Circuit Breakers, Molded Case, Branch Circuit and Service
- B. UL 489 - Molded Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures

1.3 SUBMITTALS

- A. Submit product data under provisions of Section 01 30 00.
- B. Include circuit breaker and current limiter ratings, trip current and let-through current curves, outline dimensions, and terminal lug sizes.

1.4 COMMISSIONING

- A. Commissioning of a system or systems specified in this section is part of the construction process.
- B. Documentation and testing of these systems, as well as training of the Owner's operation and maintenance personnel, is required in cooperation with the Owner's Representative and the Commissioning Authority.
- C. Project Closeout is dependent on successful completion of all commissioning procedures, documentation, and issue closure.
- D. Refer to Section 01 77 00 - Contract Closeout, for substantial completion details.
- E. Refer to Section 01 91 00 - Commissioning, for detailed commissioning requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Square D
- B. General Electric
- C. Cutler Hammer
- D. Siemens/ITE

2.2 MOLDED CASE CIRCUIT BREAKER

- A. Circuit Breaker: UL 489

2.3 RATINGS

- A. UL 489; as scheduled

2.4 TERMINAL LUGS

- A. Provide and install UL 489 as scheduled and suitable for copper.

2.5 CURRENT LIMITERS

- A. Current Limiter: Use devices designed for application with molded case circuit breaker.
- B. Coordinate limiter size with trip rating of circuit breaker to prevent nuisance tripping and to achieve interrupting current rating specified for circuit breaker.
- C. Provide interlocks to trip circuit breaker and prevent closing the circuit breaker when limiter compartment cover off or when one or more limiter is not in place or has operated.

2.6 ENCLOSURE

- A. Enclosure: UL 489 type as required to meet conditions of installation unless indicated on the Drawings.
- B. Fabricate enclosure from steel.
- C. Finish using manufacturer's standard enamel color.

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2.7 ACCESSORIES

- A. Provide accessories as scheduled, to UL 489.
- B. Shunt Trip Device: 120 volts AC
- C. Under voltage Trip Device: 120 volts AC
- D. Auxiliary Switch: 120 volts AC
- E. Alarm Switch: 120 volts AC
- F. Electrical Operator: 120 volts AC
- G. Handle Lock: Include provisions for padlocking.
- H. Provide mechanical trip device.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Verify field measurements are as shown on Drawings.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Beginning of installation means installer accepts conditions.

3.2 INSTALLATION

- A. Install enclosed circuit breakers where shown on Drawings, in accordance with manufacturer's instructions.

3.3 ADJUSTING

- A. Adjust work under provisions of Section 01 75 00.
- B. Adjust trip settings so that circuit breakers coordinate with other overcurrent protective devices in circuit.
- C. Adjust trip settings to provide adequate protection from overcurrent and fault currents.

3.4 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Section 01 40 00.
- B. Inspect and test each circuit breaker to UL 489.
- C. Inspect visually and perform several mechanical ON-OFF operations on each circuit breaker.
- D. Verify circuit continuity on each pole in closed position.

3.5 FUNCTIONAL PERFORMANCE TESTING

- A. System Functional Performance Testing is part of the Commissioning Process.
 - 1. The Contractor shall perform the Functional Performance Testing and the Commissioning Authority shall witness and document the test.
 - 2. Refer to Section 01 91 00, Commissioning, for functional performance tests and commissioning requirements.
- B. Systems Readiness Checklists shall be completed and submitted for each piece of equipment included in this section.
- C. Perform the functional performance testing of Enclosed Circuit Breakers as part of the Electrical System Functional Performance testing.

3.6 DEMONSTRATION AND TRAINING

- A. Training of the Owner's operation and maintenance personnel is required in cooperation with the Owner's Representative.
 - 1. Provide competent, factory authorized personnel to provide instruction to operation and maintenance personnel concerning the location, operation, and troubleshooting of the installed systems.

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2. Schedule the instruction in coordination with the Owner's Representative after submission and approval of formal training plans.
 3. Refer to Section 01 91 00, Commissioning, for further contractor training requirements.
- B. Provide demonstration and training for all types of enclosed circuit breakers installed in this project.

END OF SECTION