SECTION 26 28 23 - ENCLOSED CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes molded-case and insulated-case circuit breakers in individual enclosures.

1.2 REFERENCES

A. International Electrical Testing Association:

1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

B. Underwriters Laboratories Inc.:

1. NEMA AB-1 - Molded-Case Circuit Breakers, Molded-Case Switches.

1.3 SUBMITTALS

A. Product Data: Submit catalog sheets showing ratings, trip units, time current curves, dimensions, and enclosure details.

B. Submit shop drawings after Short Circuit and Overcurrent Protective Device Coordination Study is approved. Shop drawings without approved study will be returned and not reviewed.

C. AIC ratings shown on the single line diagrams are approximate values only. The AIC ratings of all submitted equipment shall not be less than 130 % of the available fault current as determined in the approved Short Circuit and Overcurrent Protective Device Coordination Study.

D. The electrical contractor shall submit ¼”=1’0” scale drawings including interior elevations of all electrical rooms and areas including actual dimensions of all equipment in electrical rooms and indicate clearances per NEC, as well as door swings or other obstacles. These drawings shall be submitted along with or prior to shop drawing submittals. Shop drawing submittal without sketches will be returned and not reviewed. The equipment depicted on the plans and interior elevations shall match the equipment indicated on the shop drawings.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations and continuous current ratings of enclosed circuit breakers.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 - PRODUCTS

2.1 MOLDED CASE CIRCUIT BREAKER

A. Manufacturers:

1. **Eaton.**
2. **General Electric.**
3. **Square D.**
4. **Substitutions: Not Permitted.**

B. Product Description: Enclosed, molded-case circuit breaker conforming to NEMA AB 1.

1. Field-Adjustable Trip Circuit Breaker: Circuit breakers with frame sizes 250 amperes and larger have mechanism for adjusting long time and short time continuous current, short time and long time pickup current setting for automatic operation. Provide interchangeable trip unit.
2. Circuit breakers with frame sizes 225 amperes and smaller are thermal-magnetic, non-adjustable type.
3. Solid-State Circuit Breaker: Electronic sensing, timing, and tripping circuits for adjustable current settings; ground fault trip with integral ground fault sensing; instantaneous trip; and adjustable short time trip. Listed for 100 percent continuous duty. Provide for circuit breakers rated 400A and above.
4. Accessories: As required by system design. Conform to UL 489.
    a. Shunt Trip Device: 120 volts, AC.
    b. Undervoltage Trip Device: 120 volts, AC.
    c. Auxiliary Switch: 120 volts, AC.
    d. Alarm Switch: 120 volts, AC.
    e. Electrical Operator: 120 volts, AC.
    f. Handle Lock: Provisions for padlocking.
    g. Insulated Grounding Lug: In each enclosure.
5. Enclosure: NEMA AB 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel.
    a. Interior Dry Locations: Type 1.
    b. Exterior Locations: Type 3R Stainless Steel or Type 4.
6. Series Rating: Not allowed. Provide fully-rated breaker with a rating of not less than 130% of the available fault current as determined by the Short Circuit and Overcurrent Protective Device Coordination Study.

PART 3 - EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned enclosed circuit breakers.

B. Maintain access to existing enclosed circuit breakers and other installations remaining active and requiring access. Modify installation or provide access panel.

C. Clean and repair existing enclosed circuit breakers to remain or to be reinstalled.

3.2 INSTALLATION

A. Install enclosed circuit breakers plumb. Provide supports.

B. Height: 5 feet to operating handle.

C. Install grounding and bonding.

D. Locate and install engraved plastic nameplates.

3.3 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS.

3.4 ADJUSTING

A. Adjust trip settings to coordinate circuit breakers with other overcurrent protective devices in circuit.

B. Adjust trip settings to provide adequate protection from overcurrent and fault currents.

C. Adjust all settings based on the Short Circuit and Overcurrent Protective Device Coordination Study.

END OF SECTION 26 28 23