

SECTION 16410
DISCONNECT SWITCHES

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.
- B. Requirements of Section 16050, "Basic Electrical Materials and Methods," apply to this Section.

1.02 SUMMARY

- A. Work Included: Furnishing and installation of the disconnect switches, including enclosures, and all materials required to install, support, secure, and provided a complete system for support and protection of electrical conductors.
 - 1. Furnish disconnect switches in quantities sufficient for a complete installation.
 - 2. Examine drawings, criteria sheets and other Sections of the specifications for requirements which affect work under this Section.
- B. Related Work Specified in Other Sections:
 - 1. Hangers and supports, Section 16070.
 - 2. Electrical identification, Section 16075.
 - 3. Grounding, Section 16060.
 - 4. Fuses, Section 16490.

1.03 REFERENCES

- A. National Electrical Code, NFPA-70.
- B. National Electrical Manufacturer's Association: NEMA KS-1, Enclosed Switches.
- C. Underwriters Laboratories:
 - 1. UL 98: Enclosed Switches
 - 2. UL 198: Power Fuses.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's catalog cuts, including dimensions, for each type of disconnect switch provided on this project.

1.05 QUALITY ASSURANCE

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

1.06 COORDINATION

- A. Coordinate the work of this section with other work of the Contract, Coordinate placement of disconnect switches with HVAC ductwork and plumbing piping prior to installation.

1.07 EXTRA MATERIALS

- A. Spare Fuses: Furnish to Owner for use as maintenance stock, 10 percent spare fuses, or three spare fuses, whichever is the greater number, of each size used.

PART 2 - MATERIALS

2.01 MANUFACTURER

- A. Subject to compliance with requirements, furnish disconnect switches manufactured by one of the following:
 1. Allen-Bradley Co.
 2. General Electric
 3. Cutler- Hammer.
 4. Siemens.

2.02 DISCONNECT SWITCHES

- A. Switches: NEMA KS-1, fused or non-fused as indicated on the drawings, heavy-duty industrial type, horsepower rated, single-throw, with quick-make, quick-break mechanism and interlocking cover that cannot be opened with the switch in the "ON" position. Provide means of bypassing the mechanically interlocked door and handle. Provide means for padlocking switch in the "OPEN" and "CLOSED" positions.
 1. Fusible switches: Equip fusible switches with positive pressure rejection type fuse clips as specified in Section 16490, Fuses.
 2. Cabinet: Enclose switches in code gauge, sheet steel metal cabinets.
 3. Auxiliary contacts: Provide for the switch for the elevator machine controller.
- B. Minimum Fault Current Rating: Capable of withstanding the available fault current as indicated on the drawings and as required per Section 16490, Fuses.
- C. Double-throw disconnect switches: Furnish where indicated on the drawings. NEMA Type HD, UL listed, horsepower rated, quick-make, quick -break, non-fused, and three-pole.
- D. Enclosure: NEMA 1 type for dry interior use; NEMA 3R type where exposed to weather or in wet locations.
- E. Fabrication: Fabricate current carrying component of disconnect switches from high conductivity copper, designed to carry rated loads without excessive heating. Fabricate contacts from silver tungsten alloy, or plate contact metal to prevent corrosion, pitting, and oxidation and to assure suitable conductivity.

2.03 MOTOR DISCONNECT SWITCHES

- A. Motor Disconnect Switches: Quick-make, quick-break, heavy duty, sized for the horsepower of the motor served, and with interlocking doors.

- B. Enclosures: NEMA 1 type for dry interior use; NEMA 3R type where exposed to weather or in wet locations, and finished in gray enamel.
- C. For single-phase motors, a single or double pole tumbler or snap switch, rated only for alternating current, will be acceptable for capacities less than 30 amperes, provided that the ampere rating of the switch is at least 125 percent of the rating of the controlled equipment. Provide horsepower rated switch with number of poles to disconnect all ungrounded conductors.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install disconnect switches in locations as indicated, in accordance with manufacturer's printed instructions.
- B. Install switches plumb, level, and true to finished lines and locations. Rigidly support and securely fasten switches in place. Support switches in accordance with requirements of Section 16070, "Hangers and Supports."
- C. Connect disconnect switches and components to electrical wiring and grounding systems. Tighten connectors and terminals.
- D. Label disconnect switches in accordance with the requirements of Section 16075, "Electrical Identification."
- E. Mounting height: Mount disconnect switches so that the top of the switch is no higher than 6 feet, 6 inches above the finished floor, unless otherwise indicated on the drawings. If other construction interferes with mounting at this height, obtain Architect's approval of proposed location before installing the switch.
- F. Local Disconnect Switch: For equipment and motors that require local disconnect switch, mount switch on, or adjacent to, the equipment or motor in an easily accessible position.

3.02 CLEANING

- A. Clean disconnect switches thoroughly prior to energizing. Vacuum buses and enclosures, inside and out, and wipe down.
- B. If disconnect switches or enclosures are wet or contain moisture, dry them thoroughly before energizing.

END OF SECTION 16410