16400

DISCONNECT SWITCHES

PART 1 - GENERAL

1.1 DESCRIPTION:

A. This section includes all low voltage disconnect switches either stand alone in NEMA enclosures, fusible and non-fused, in panelboards, switchboards, or switchgear.

1.2 APPROVED MANUFACTURERS:

Square 'D'
General Electric
Siemens/ITE
Cutler Hammer

Disconnect switches shall be by the same manufacturer as the remainder of the distribution equipment on the project. No mixing of manufacturers on the project.

PART 2 - PRODUCTS

2.1 LOW VOLTAGE FUSIBLE SWITCHES RATED 800 AMPERES AND LESS:

A. Quick-make, quick-break type in accordance with UL 98, NEMA KS 1 and NEC.

B. Shall be capable of accepting UL and NEMA standard fuses.

C. Shall have the following features:

1. Switch mechanism shall be the quick-make, quick-break type.

2. Copper blades, visible in the OFF position.

3. An arc chute for each pole.

4. External operating handle shall indicate ON and OFF position and shall have lock-open padlocking provisions.

5. Mechanical interlock shall permit opening of the door only when the switch is in the OFF position, defeatable by a special tool to permit inspection.

6. Fuse mounting for the size and type of fuses specified. Furnish switches completely fused. Furnish a complete set of spare fuses for each size and type of fuse being installed.

7. Solid neutral for each switch being installed in a circuit which includes a neutral conductor.

8. Enclosures:

   a. Shall be NEMA 1 for interior, NEMA 3R for exterior and other types shown on the drawings for the switches.

   b. Where the types of switch enclosures are not shown, they shall be the NEMA types which are most suitable for the environmental conditions where the switches are being installed.

9. All fuse holders shall have rejection features to reject all fuses not specified. Provide fuse rejection kits as required.

D. Unless indicated otherwise, switches shall be heavy duty, horsepower rated for the load served, and provided with ground kit.

E. All disconnect switches shall be fused except for disconnect switches that have individual fuse protection at point circuit receives its supply.

F. Provide dead front type for all exterior disconnects on grade level when so required by local code.

G. All fused disconnect switches shall have a minimum rating of 100,000 A.I.C. with fuses installed unless noted otherwise on the drawings.

2.2 LOW VOLTAGE UNFUSED SWITCHES RATED 800 AMPERES AND LESS:

A. Shall be the same of Low Voltage Fusible Switches rated 800 amperes and less, except it shall not accept fuses.

2.3 THERMAL OVERLOAD SWITCHES:

A. Provide/install toggle type switches, voltage and horsepower rated for the load served 20 or 30 Amp for all small mechanical equipment as indicated.

2.4 FUSES:

A. This paragraph applies to all fuses provided under Division 16.

1. Cartridge type fuses of proper size and type as required shall be furnished and installed for all switches and panelboards throughout and an additional supply of three spare fuses of each size and type shall be furnished in original packages to the Owner. Furnish NEMA 1 enclosure with hinged cover equal to Bussmann Type SFC or Edison ESFC, for storing all spare fuses located adjacent to main service equipment. Fuses for motor and mechanical equipment shall be sized per nameplate data and N.E.C.

2. Fuses shall be manufactured by Bussmann Mfg. Co., Ferraz-Shawmut Co., Littelfuse or approved equal by Engineer. Fuse types shall be installed as follows:

Main Service and Distribution Feeder Protection:

	Bussman	Littelfuse	Ferraz Shawmut
601 amps and larger 600 volts and less (Class L)	KRP-C/KTN	KLPC	A4BQ
600 amps and less 250 volts and less (Class RK1)	LPN-RK	LLN-RK	A2D-R
600 amps and less 600 volts and less (Class RK1)	LPS-RK	LLS-RK	A6D-R

Motors and Primary Feeders for Transformers:

250 volts and less (Class RK5)	FRN-R	FLN-R	TR-R
600 volts and less (Class RK5)	FRS-R	FLS-R	TRS-R

3. Class T fuses will not be accepted, unless they are a part of a manufacturers assembly or approved by the Engineer. Class J fuses may be used as an alternate to the Class R fuses listed above.

4. Fuses installed on project shall be by one manufacturer only. (Do not intermix Manufacturers.)

2.5 EQUIPMENT CONNECTIONS:

A. For 120 volt motors 1/2 HP- and less, 15 amperes and less, Contractor shall provide Bussmann "SSY" box cover unit for indoor application and "SSN" box cover unit for outdoor applications, or equal by Perfect-Line, with fustat plug fuse and integral toggle switch for motors 1/2 HP-120V. and less. Fustats for cord and plug equipment with fuses 15 amperes and less shall be Bussmann “SRY” box cover unit, or equal by Perfect-Line, with fustat plug fuse. Mount fustats in housings of equipment served wherever possible. Plug fuses for motors shall be sized based upon 125% of manufacturer's nameplate full load amperage unless otherwise indicated on drawings.

B. For 3/4 HP-120V. motors, Contractor shall provide (1) 20 amp 1 pole 120 volt toggle disconnect switch with a Bussmann ‘HPD’ fuse holder and ‘FNQ-R’ fuse at each unit. Switch and fuse holder to be mounted in cover of a 4” square, 2 1/8” deep junction box at each unit. For 3/4 HP-120V. motors that are provided with cord and plug, Contractor shall provide 20 amp 120 volt duplex receptacle with (1) 20 amp 1 pole 120 volt toggle disconnect switch on line side of receptacle, and Bussmann ‘HPD’ fuse holder and ‘FNQ-R’ fuse on line side of receptacle. Switch, receptacle, and fuse holder to be mounted in cover of a 4” square, 2 1/8” deep junction box at each unit. Fuses for motors shall be sized based upon 125% of manufacturer's nameplate full load amperage unless otherwise indicated on drawings.

C. For connections to 277 volt equipment, Contractor shall provide (1) 20 amp 1 pole 277 volt toggle disconnect switch with a Bussmann ‘HPD’ fuse holder and ‘FNQ’ fuse at each unit. Switch and fuse holder to be mounted in cover of a 4” square, 2 1/8” deep junction box at each unit. Fuses for motors shall be sized based upon 125% of manufacturer's nameplate full load amperage unless otherwise indicated on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Installation shall be in accordance with the NEC and as shown on the drawings.

B. Enclosures shall be of the NEMA types shown on the drawings. Where the NEMA type is not shown, they are to be the NEMA type most suitable for the environmental conditions where the equipment is to be installed.

C. No piping, ductwork, or equipment foreign to the electrical installation shall be located in the electrical distribution equipment dedicated space as defined in

N.E.C. Article 110.26 (F) (1). The Mechanical Contractor and Fire Sprinkler System Contractor shall locate ductwork and piping to clear the electrical distribution equipment dedicated space.

END OF SECTION 16400