PART 1 - GENERAL

1.01 WORK INCLUDED

Motor Control Centers

1.02 RELATED WORK

Section 26 05 29 Supporting Devices

1.03 REFERENCES

1. ANSI/NEMA ICS 6—Enclosures for Industrial Controls and Systems.
2. ANSI/UL 198E—Class R Fuses.
3. FS W-F-870—Fuse Holders (For Plug and Enclosed Cartridge Fuses).
4. FS W-S-865—Switch, Box, (Enclosed), Surface-Mounted.
5. NEMA ICS 2—Industrial Control Devices, Controllers, and Assemblies.

1.04 SUBMITTALS

A. Submit shop drawings and product data under provisions of Division 01.

B. Indicate on shop drawings, front and side views of motor control center enclosures with overall dimensions. Include conduit entrance locations and requirements; nameplate legends; size and number of bus bars per phase, neutral, and ground; electrical characteristics including voltage, frame size and trip ratings, withstand ratings, and time-current curves of all equipment and components.

C. Provide product data on motor starters and combination motor starters, relays, pilot devices, and switching and overcurrent protective devices.

D. Submit manufacturers' instructions under provisions of Division 01.

1.05 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 01.

B. Include spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 01.

B. Store and protect products under provisions of Division 01.

C. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

D. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to motor control center components, enclosure, and finish.

1.07 SPARE PARTS

A. Keys: Furnish five (5) each to Owner [one (1) for Electrical Manager in Maintenance Department].

B. Fuses: Furnish two (2) spare fuses of each type and rating installed to Owner. Leave spare fuses in equipment; the fuses are protecting.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS—MOTOR CONTROL CENTER

1. Square D
2. Cutler Hammer
3. Siemens
4. General Electric
5. Substitutions: Under provisions of Division 01

2.02 MOTOR CONTROL CENTER

A. Motor Control Centers: NEMA ICS 2; Class I, Type B

B. Main Overcurrent Protection: As scheduled

C. Feeder Tap Units: As scheduled

D. Voltage Rating: 208 volts or 480 volts, three phase, three wire, 60 Hertz as scheduled on drawings.

E. Horizontal Bussing: Copper with a continuous current rating as scheduled. Include copper ground bus entire length of control center.

F. Vertical Bussing: NEMA ICS 2; copper with a continuous current rating and run the full height.

G. Integrated Equipment Short Circuit Rating: 100,000 amperes rms symmetrical at 480 volts.

H. Configuration: Units front mounting only, accessible from the front only

I. Enclosure: ANSI/NEMA ICS 6; Type 1

J. Finish: Manufacturer's standard gray enamel

K. Fusible Switch Assemblies: NEMA KS 1; FS W-S-865; quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle. Provide interlock to prevent opening front cover with switch in ON position. Handle lockable in OFF position.

Fuse Clips: FS W-F-870 - Designed to accommodate Class R fuses

L. Magnetic Motor Starters: NEMA ICS 2; AC general-purpose Class A magnetic controller for induction motors rated in horsepower. Provide with all accessories listed below.

M. Full Voltage Starting: Non-reversing type.

N. Reduced Voltage Starting: Closed-circuit transition wye-delta type.

O. Two Speed Starting: Two speed, two winding, variable torque type. Include integral adjustable time delay transition between FAST and SLOW speeds. Coordinate actual time setting required for motor that starter is connected to with manufacturer.

P. Coil Operating Voltage: 120 volts, 60 Hertz. Coordinate other voltages with Controls Contractor prior to ordering. All control voltage shall be 120 volts or less.

Q. Size: NEMA ICS 2; size as shown on drawings

R. Overload Relay: NEMA ICS 2; electronic motor logic protection

S. Enclosure: NEMA ICS 6; type as shown on drawings

T. Auxiliary Contacts: NEMA ICS 2; two field convertible contacts in addition to seal-in contact shall be provided.

U. Indicating Lights: NEMA ICS 2; RUN: green in front cover shall be provided.

V. Selector Switches: NEMA ICS 2; HAND/OFF/AUTO, locking type, in front cover shall be provided.

W. Relays: NEMA ICS 2; provide as necessary for control functions.

X. Control Power Transformers: 120 volt secondary in each motor starter shall be provided. All control voltage shall be 120 volts or less.

Y. Phase Failure, Overvoltage, and Undervoltage Relays: Provide contacts and locking potentiometers with overvoltage or undervoltage adjustments and LED indicators.

2.03 ACCEPTABLE MANUFACTURERS—FUSES

1. Bussmann
2. Gould-Shawmut
3. Littelfuse
4. Substitutions: Under provisions of Division 01

2.04 FUSES

A. Fuses: ANSI/UL 198E, Class RK5; dual element, current limiting, time delay, one- time fuse, 250 or 600 volt.

B. Interrupting Rating: 200,000 rms amperes.

C. Fusible units shall be equipped with UL Class R rejection clips.

PART 3 - EXECUTION

3.01 INSTALLATION

1. Install motor control equipment in accordance with manufacturer's instructions.
2. Motor starters supplied by the Electrical Contractor unless otherwise indicated.
3. Install fuses in fusible switches.
4. Select, install, and adjust electronic logic heater elements in motor starters to match installed motor characteristics.
5. Motor Data: Provide engraved nameplates, securely mounted to the door exterior, for each motor starter enclosure door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.
6. All motor control centers shall be installed on a minimum 3½" concrete housekeeping pad.
7. Install in accordance with manufacturer's instructions and per NEC 110-26.

**END OF SECTION**