

**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. The requirements of the General Conditions, Supplementary Conditions and the following specification sections apply to all Work herein:
1. Section 26 00 10 - General Requirements
  2. Section 26 00 20 - Scope of Work
  3. Section 26 05 19 - Electrical Conductors - 600 Volts
  4. Section 26 05 26 - Grounding and Bonding
  5. Section 26 05 33 - Raceways and Boxes
  6. Section 26 08 13 - Testing
  7. Section 26 28 16 - Enclosed Switches and Circuit Breakers

**1.2 SUMMARY**

- A. Furnish and install conduit and conductors and make all terminations for all motors, motor controllers, speed controllers, electric heating coils, pilot devices, interlocks, safety devices, etc., and make all interconnections as specified herein, as shown on the Drawings and as required to provide complete and functioning systems. Coordinate the requirements of this Section with all other trades.

**1.3 REFERENCE STANDARDS**

- A. All motor and control wiring system installation shall comply with the latest applicable UL, NEMA and ANSI Standards as well as NFPA 70 - National Electrical Code (NEC).
- B. All equipment and material to be furnished and installed on this Project shall be UL or ETL listed, in accordance with the requirements of the authorities having jurisdiction, and suitable for its intended use on this Project.

**1.4 SUBMITTALS**

- A. Submittal requirements for all equipment, components, and wiring devices used for motor and control wiring systems shall be in accordance with the submittal requirements of the applicable Division 26 Specifications.

**1.5 WARRANTY**

- A. Comply with the requirements of the General Conditions and Section 26 00 10.

**PART 2 PRODUCTS****2.1 ACCEPTABLE MANUFACTURERS**

- A. All equipment, components and wiring devices used for motor and control wiring systems shall be in accordance with the manufacturer requirements of the applicable Division 26 Specification section.

**PART 3 EXECUTION****3.1 INSTALLATION**

- A. Motor Wiring:
1. The Owner or other Subcontractors under other Divisions will furnish and set in place the necessary foundations or supports for all motors. Under this Division, all loose motors shall be set in place, belt drives aligned, couplings attached, etc., as required. The final alignment, belt tension, etc., shall be done in cooperation with the party that furnished the equipment. The Subcontractor is advised that alignment and vibration tests are required for motors as part of Division 23 and that the Work performed in this Division must satisfy those requirements.

2. All motor controllers shall be furnished and installed under this Division unless the motor controller is an integral part of a piece of equipment furnished under Division 21, 22, or 23. The Owner or other Subcontractors under other Divisions will also furnish motor controllers and control equipment ready for installation for certain equipment. See other Divisions for these requirements. The Electrical Subcontractor shall mount and install the variable speed drive controllers furnished by Division 23 for the typical floor air handling units. The Electrical Subcontractor shall install all motor controllers in suitable locations, subject to approval by the Engineer.
  3. Under this Division and where not provided integral to the motor controller, the Electrical Subcontractor shall furnish and install an externally operated disconnect device capable of disconnecting the motor and controller from the circuit, either fused or nonfused, as shown on the Drawings and/or as required by the National Electrical Code. When the disconnect device is not within sight of the motor and motor controller, the Electrical Subcontractor shall furnish and install additional externally operated disconnect devices as required that are within sight of such motor and motor controller and are approved for such use by the National Electrical Code.
  4. Where possible, all conduit shall terminate in conduit boxes at motors. A piece of flexible metal conduit not less than 12" in length nor more than 24" long shall be connected between the conduit and the motor terminal to permit the maximum movement of the sliding base in each direction and to reduce vibration transmitted to the conduit. Where motors are not provided with conduit boxes, terminate the conduit in suitable conduit and make the appropriate motor connection. All flexible metal conduit shall have grounding jumpers as specified in Section 26 05 33 titled "Raceways and Boxes".
  5. Conduit routed from fire pump motors to the fire pump controller shall be rigid metal conduit or liquid tight flexible metal conduit.
  6. For motor controllers furnished by this Division, see Section 26 29 13 titled "Enclosed Controllers" and Section 26 24 19 titled "Motor Control Centers".
  7. Under this Division, the Electrical Subcontractor shall be responsible for the reconnection in the field of all power wiring across the casing section splits provided by the manufacturer of the Modular Factory-Built Field Assembled Air Handling Units prior to shipment. This includes wiring for motors and unit mounted controllers, internal lights and switches, and receptacles. Refer to Division 23 Specifications for additional information.
- B. Control and Equipment Wiring:
1. Under this Division, the Electrical Subcontractor shall furnish and install conduit and conductors, install all remote control devices and make all electrical connections required for all power, controls, interlocks and safety devices, for all equipment such as:
    - a. Domestic water pump and remote compression tank pressure sensors and transducers. House tank level controllers and alarms. Refer to Division 21 and Division 22 for additional requirements.
    - b. Cooling tower level controllers, and make-up valves. Cooling tower filtration system pumps and basin isolation valves, and condenser water chemical treatment system sensor wiring and blow-down valve.
    - c. Central plant emergency ventilation system controls and start/stop station.
    - d. Field wiring of all power connections between factory splits of all custom or modular factory built air handling units. Coordinate with Division 23 for requirements.
    - e. Air handling unit service lighting and receptacles factory mounted by the Division 23 manufacturers. Refer to Division 23 for specific equipment provided with service lighting and receptacles.
    - f. UVC germicidal disinfective lighting systems factory mounted in air handling units. Refer to Division 23 for specific equipment provided with this equipment.
    - g. Sewage ejector and sump pump controls and local alarms including elevator pit sump pumps as required by the local authorities.
    - h. Control wiring connecting evaporator and condenser sections of split-system air conditioning equipment.
    - i. Status and alarm wiring to the fire pump controllers.
    - j. Fire pump control wiring shall be routed in rigid metal conduit or liquid tight flexible metal conduit.
    - k. Automatic transfer switch start/stop, status and elevator presignal control wiring.
    - l. All control wiring between the fire pump automatic transfer switch(s) and the generator control panel(s) shall be routed in a 1-hour fire rated enclosure or shall be a 1-hour rated circuit protective system cable/raceway.
  2. All conduits shall terminate in conduit boxes adjacent to control devices. A piece of flexible metal conduit not less than 12" in length and not more than 24" shall be connected between the conduit and the control device to permit adjusting and maintenance removal of the control device. All flexible metal conduit shall have grounding jumpers as specified in Section 26 05 33 "Raceways and Boxes".

3. Control power for all equipment shall originate from the same branch circuit or distribution panelboard serving the equipment.

**3.2 FACTORY TESTING**

- A. All motor and control wiring system components shall be tested in accordance with the latest applicable industry standards and the latest version of NEMA and UL Standards.

**3.3 FIELD TESTING**

- A. Refer to Section 26 08 13 for additional testing requirements for motor and control wiring systems.

**END OF SECTION**