

SECTION 16650
ENERGY MANAGEMENT AND CONTROL SYSTEM

PART 1 GENERAL

1.1 SCOPE

- A. Provide power wiring and Network Conduit for the Energy Management and Control System (EMCS).

1.2 COORDINATION

- A. Review Division 15 EMCS contract documents in order to provide all labor, materials and equipment required to install a complete and operational EMCS.
- B. Receive EMCS Panels, and other EMCS components in accordance with contract documents. Upon receipt of EMCS components, Electrical Contractor shall be responsible for those components until EMCS is accepted by the University.

PART 2 PRODUCTS

2.1 Provide conduit and wiring in accordance with Division 16 specifications.

2.2 Bond or ground wires shall not be pulled in conduit with sensor or communication wiring.

PART 3 EXECUTION

3.1 EMCS shall be designed, installed, and commissioned in a turnkey, fully implemented and operational manner. In the work description below, the word "provide" shall mean to "furnish and install."

3.2 Mechanical Contractor shall provide smoke and/or fire/smoke dampers with factory mounted actuators with end switches. EMCS Contractor shall provide EMCS conduit and wiring to end switches. Electrical Contractor shall wire and interlock smoke and/or fire/smoke dampers with the Fire Alarm System. The fire alarm system shall activate the smoke dampers and the EMCS shall monitor the smoke damper status.

3.3 EMCS Contractor shall furnish EMCS Panels via the EMCS Contractor to the Electrical Contractor. Electrical Contractor shall install EMCS Panels and shall provide dedicated 120vac circuit adjacent to each EMCS Panel. EMCS Contractor shall provide 120vac switch and outlet inside of EMCS Panel.

3.4 Mechanical contractor shall furnish Variable speed drives (refer to Section 15765) to the Electrical Contractor. Electrical Contractor shall install Variable Speed Drives and provide power wiring. EMCS Contractor shall provide control conduit and wiring.

3.5 Electrical Contractor shall provide conduit with pull string and Class 1 earth grounding for the Network Conduit as shown by the Riser Diagrams and as specified below.

- A. Connection of each EMCS Panel within the same building and between buildings.
- B. Connection from the EM CS Panel (as specified in 15900) to the Electric Meter.
- C. Connection from the Gateway Communications EMCS Cabinet to the data closet (as specified in 15900).

- D. For air-cooled chillers and chilled water pumps (located in the chiller enclosure), connection from the chiller EMCS Panel (located within the building) to each chiller control panel and to each pump starter.
- E. For direct expansion split systems, connection from the AHU EMCS Panel to the condensing unit control panel.
- F. For direct expansion packaged units, connection from the packaged unit EMCS Panel (located within the building) to the packaged unit control panel.
- G. For chilled water penthouse AHU's, connection from the AHU EMCS Panel (located within the building) to the penthouse AHU control panel.
- H. EMCS Contractor provides control wiring. University Telephone Staff provides telephone wiring.
- I. Run one-inch conduit from power metering device(s) at main switchboard(s) to nearest EMCS terminal cabinet(s).
- J. Run one 1" conduit from the irrigation pump controller to the nearest EMCS terminal cabinet.

3.6 Electrical Contractor shall provide all 120vac and above power wiring. This work includes fans and/or other equipment that are manually controlled by toggle switches, push buttons and/or light switches which interrupt line voltage power and that are automatically controlled by line voltage thermostats.

3.7 Where a relay or contactor, which is tied to the EMCS, controls multiple pieces of equipment and/or lighting circuits Electrical Contractor shall provide the power wiring and the relay or contactor. EMCS Contractor provides the control conduit and wiring.

END OF SECTION