

SECTION 23 09 13 - INSTRUMENTATION AND CONTROL DEVICES FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. **KROGER DIRECT BUY PROGRAM:** Owner supplied/Contractor installed.
    - a. The Kroger Company will supply the following instrumentation and control devices for HVAC
      - 1) Environmental control panel
      - 2) Controller
      - 3) Inside temperature sensor
      - 4) Inside relative humidity sensor
      - 5) Outside temperature sensor
      - 6) Outside relative humidity sensor
      - 7) Thermostats
      - 8) Immersable temperature sensor
    - b. Comply with requirements in Division 00 Section "General Conditions."
  2. Contractor supplied items:
    - a. Anchors and tension plates, and other items not provided by Owner necessary for a complete installation.
    - b. Locking thermostat covers.
  3. Contractor installed items:
    - a. Provide all work shown on Drawings including:
      - 1) Final connection of HVAC controls
      - 2) Thermostats
      - 3) Temperature sensors
      - 4) Humidity sensors
      - 5) Environmental Control Panel
      - 6) Final connections of low voltage control wiring, including smoke detector shut down.
      - 7) All associated items as required to make systems installation complete and operable.
      - 8) Coordination of Work installed by other Contractors
- B. This Section includes control equipment for HVAC systems and components, including control components for heating and cooling units.

## 1.2 SUBMITTALS

- A. The Owner will provide the following submittals for the Contractor's review. The Contractor shall review and return submittals as specified in Division 00 Section "General Conditions."
  - 1. Product Data: For each control device indicated.
  - 2. Shop Drawings: Kroger Controls Installation Template EM-1 through EM-6.

## 1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS

- A. Refer to Division 01 Section "Vendor Contact List" for contact information on HVAC controls.

### 2.2 THERMOSTAT COVERS

- A. Room Thermostat Cover Construction: Manufacturer's standard locking covers.
  - 1. Basis of Design: Better Engineered Controls; Sentinel Model BTG-54VL (Metal Beige).
  - 2. Provide thermostat guards for manager's office and vestibule thermostats.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Contractors are responsible for coordinating delivery, proper storage (if necessary), installation, startup and the first year of labor warranty. Installation includes: replacement of missing and/or damaged materials final connections to HVAC Units and heat reclaim water tank temperature sensors.

### 3.2 ELECTRICAL WIRING AND CONNECTION INSTALLATION

- A. Install raceways, boxes, and cabinets according to Division 26 Section "Raceway and Boxes."
- B. Install building wire and cable according to Division 26 Section "Low Voltage Electrical Power Conductors and Cables."
  - 1. Conceal cable up to 14 feet above finish floor or above Décor elevation, except in mechanical rooms and areas where other conduit and piping are exposed.

2. Install exposed cable in raceway.
3. Install concealed cable in raceway.
4. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.
5. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.
6. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.
7. Install wire and cable with sufficient slack and flexible connections to allow for vibration of piping and equipment.

### 3.3 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections.

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.
2. Test and adjust controls and safeties.
3. Test each point through its full operating range to verify that safety and operating control set points are as required.
4. Test each control loop to verify stable mode of operation and compliance with sequence of operation.
5. Test each system for compliance with sequence of operation.
6. Test software and hardware interlocks.

### 3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel or Owner's authorized maintenance company to adjust, operate, and maintain HVAC instrumentation and controls.

END OF SECTION 23 09 13

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