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## ELECTRIC HEATING

### PART 1 - GENERAL

#### 1.1 SCOPE

- A. Furnish and install electrical heating systems work, including:
  - 1. Convector, In Floor Trench.

#### 1.2 SUBMITTALS

- A. For all work specified in Division 23, submittals to include Type 1 (Manufacturer's Name) and Type 2 (Product Data) information. In addition, submittals for the work listed below shall include the indicated type of information.

### PART 2 - PRODUCTS

#### 2.1 Convector In Floor Trench HEATERS

- A. Heaters shall be designed for a range in heating outputs. Each unit shall have a minimum capacity of 500 watts per cubic foot.
- B. Enclosures shall be 16 gauge (.060" min.) galvanized steel enclosure designed to withstand heavy-duty commercial and institutional use. All fasteners shall be concealed.
  - 1. Enclosures shall be chemically-treated to resist corrosion and then finished in baked enamel powder coating. Finish shall be mar and temperature-resistant. Color to be black to conceal the interior of the heater.
  - 2. Enclosure and heater shall be UL2021 approved. Junction boxes shall be gasketed to meet this standard. Enclosure to include end-to-end factory installed wire way. Knockouts to be included to allow wire entry from either end or bottom of enclosure.
- C. Heaters and blank sections shall be designed so they can be butted together and leveled in a manner to maintain the continuous design.
- D. Heaters shall be designed with a built-in pre-wired raceway to enable multiple unit wiring from one branch circuit.

- E. Heaters shall be of a zero vertical profile with the entire enclosure submerged in the floor (6 1/8 x 6 1/8) available in standard lengths from 2 – 5 feet, with modular lengths above 5 feet
- F. Discharge louvers shall be an extruded aluminum bar grille, each bar to be of a concave design. Color to be selected by Architect. Unit shall have top air intake, top air discharge. The Grille finish shall be a polyester powder paint or an anodized finish.
- G. A 1/4 inch mesh screen shall be installed beneath the discharge grille to deter the insertion of foreign objects.
- H. Heating elements shall be constructed with nickel chromium wire encased in a steel sheath or stainless steel sheath, and MgO material. Aluminum fins are to be designed for a chimney effect to maximize airflow and pressure bonded to the steel sheath for efficient heat transfer. Elements shall be center-anchored and shall float freely on each end through nylon bushings for quietness. No noise shall be emitted from the units.
- I. Built-in optional controls shall all be included in the standard unit enclosure with no separate control box needed. The built-in optional controls shall include a power on/off switch, power relay, and/or a low voltage control relay located in the gasketed junction box.
- J. Heater shall include an automatic reset thermal overheat protector that shall run the full-length of the heater and shall turn off heating elements should overheating occur at any point along heating length. Heater will also include a manual reset limit as back up to the primary automatic reset limit. Automatic reset overheat protector shall restore operation automatically when cause of overheating is removed. The supply wiring compartment shall be located at the right side of the unit.
- K. Heater shall be capable of three mounting options out of the box. Frame mounted, direct on slab with included mounting legs or concrete pour with included concrete cover.
- L. Heater frame shall include heavy-duty adjustable swivel feet to level the unit. Heater will also include mounting legs.
- M. Heater shall withstand beyond twice the UL 2021 weight testing standard, without damage or deflection.
- N. Provide relay for automatic set-back control from BMS system.
- O. Accessories shall include blank sections and corners options. All accessories shall be completely enclosed to enable the installer to wire from heater to heater through the accessories.
- P. Manufacturer: Trench Mounted Units: Berko THX Series, Qmark THX Series, Marley THX Series

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## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install convector in-floor trench heaters complete with spacers and provide branch circuits and controls.

### 3.2 CONVECTOR IN-FLOOR TRENCH HEATER INSTALLATION

- B. Trench Heater
  - 1. Complete installation shall conform to UL standards and shall also be in accordance with manufacturer's specification as listed by UL.
  - 2. Trench shall be a minimum of six inches from the wall, as listed in manufactures installation instructions.
  - 3. Trench dimensions determined by installation method located in manufactures installation manual.
  - 4. In-coming power must match nameplate rated voltage of the heater. Connections by approved methods.

### 3.3 BRANCH CIRCUIT INSTALLATION

- C. Provide Branch Circuits for the Following Items:
  - 1. Convector in-floor trench heater.
- D. Provide local switch to disconnect power for heating equipment and the necessary raceway and wiring.

### 3.4 CONTROLS

- E. Provide controls as per specifications noted on drawings.
- F. Thermostat control will be remote mounted.
- G. BMS connections to be made to internal control relay as specified.

### 3.5 TESTING

- H. Perform adjustments and tests, including setting of thermostats furnished under this Section to assure satisfactory operation.

## END OF SECTION

### NOTES:

1. Marley Engineered Products reserves the right to change specification without prior notice.
2. Engineer to check catalog numbers, series definitions, and product's technical specification detail to insure compatibility with design intent.