

## SECTION 23 82 33 - CONVECTORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes **hydronic** convectors.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include rated capacities, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings:
  - 1. Include plans, elevations, sections, and details.
  - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 3. Include details and dimensions of custom-fabricated enclosures.
  - 4. Indicate location and size of each field connection.
  - 5. Indicate location and arrangement of piping valves and specialties.
  - 6. Indicate location and arrangement of integral controls.
  - 7. Include enclosure joints, corner pieces, access doors, and other accessories.
  - 8. Include diagrams for power, signal, and control wiring.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Color Samples for Initial Selection: For units with factory-applied color finishes.
- E. Color Samples for Verification: For each type of exposed finish.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Floor plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
  - 1. Structural members, including wall construction, to which convectors will be attached.
  - 2. Method of attaching convectors to building structure.
  - 3. Penetrations of fire-rated wall and floor assemblies.

- B. Field quality-control reports.

## PART 2 - PRODUCTS

### 2.1 HOT-WATER CONVECTORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Slant/Fin Corp.
  2. Sterling HVAC Products; a Mestek company.
  3. Trane.
- B. Heating Elements: Seamless copper tubing mechanically expanded into evenly spaced aluminum fins and rolled into cast-**iron or brass** headers with inlet/outlet and air vent; steel side plates and supports. Factory-pressure-test element at minimum 100 psig.
1. Element Height: as per drawings.
  2. Element Depth: as per drawings.
  3. Element Length: as per drawings.
  4. Entering-Air Temperature: as per drawings.
  5. Heat Output: as per drawings.
  6. Average Water Temperature: as per drawings.
  7. Temperature Drop: as per drawings.
  8. Pressure Loss: as per drawings.
  9. Heat Output: as per drawings.
- C. Front and Top Panel: Minimum **0.0677-inch-** thick steel with exposed corners rounded; removable front panels with tamper-resistant fasteners braced and reinforced for stiffness.
- D. Wall-Mounted Back and End Panels: Minimum 0.0428-inch- thick steel.
- E. Insulation: 1/2-inch- thick, fibrous glass on inside of the back of the enclosure.
- F. Finish: Baked-enamel finish in manufacturer's **custom** color as selected by Architect.
- G. Damper: Knob-operated internal damper.
- H. Access Doors: Factory made, permanently hinged with tamper-resistant fastener, minimum size 6 by 7 inches, integral with enclosure.
- I. Enclosure Style: **Flat** (recessed) top.
1. Front Inlet Grille: Punched louver; painted to match enclosure.
  2. Front Inlet Grille: Extruded-aluminum linear bar grille; pencil-proof bar spacing.
    - a. Mill-finish aluminum.
    - b. Anodized finish, color as selected by Architect from manufacturer's **custom** colors.
    - c. Painted to match enclosure.
  3. **Front** Outlet Grille: Punched louver; painted to match enclosure.

4. **Front** Outlet Grille: Extruded-aluminum linear bar grille; pencil-proof bar spacing.
  - a. Mill-finish aluminum.
  - b. Anodized finish, color as selected by Architect from manufacturer's **custom** colors.
  - c. Painted to match enclosure.
5. Enclosure Height: as per drawings.
6. Enclosure Depth: as per drawings .
7. Enclosure Length: as per drawings.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas to receive convectors for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for **hydronic-piping** connections to verify actual locations before installation of convector.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION

- A. Install convectors level and plumb.
- B. Install valves within reach of access door provided in enclosure.
- C. Install air-seal gasket between wall and recessed flanges or front cover of fully recessed unit.
- D. Install piping within pedestals for freestanding units.

#### 3.3 CONNECTIONS

- A. Piping installation requirements are specified in **Section 23 21 13 "Hydronic Piping" and Section 23 21 16 "Hydronic Piping Specialties."** Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect hot-water convectors and components to piping according to Section 23 21 13 "Hydronic Piping" and Section 23 21 16 "Hydronic Piping Specialties."
  1. Install shutoff valves on inlet and outlet, and balancing valve on outlet.
- C. Install control valves as required by Section 23 09 23.11 "Control Valves."
- D. Install piping adjacent to convectors to allow service and maintenance.

3.4 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: confirm proper operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

B. Convectors will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 23 82 33