

SECTION 23 82 16
AIR COILS

PART 1 - GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 ADDITIONAL RELATED DOCUMENTS

- A. Division 23 Section "Hangers and Supports for HVAC Piping and Equipment" for hangers and supports for coil/equipment supports and piping.

1.3 SUMMARY

- A. This Section includes integral face-and-bypass hot water coils associated with the DOAS units.

1.4 ACTION SUBMITTALS

- A. Product data including rated capacities of selected models, pressure drop, weights (shipping, installed, and operating), installation instructions, and startup instructions.
- B. Shop drawings detailing fabrication and installation of air coils, including plans, elevations, sections, details of components, and attachments to other units of Work. Detail connections to piping. Indicate dimensions, weight loadings, weight distribution, and clearances required. Show support locations, type of support, and weight on each support. Indicate and certify field measurements.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating coil location and ceiling-mounted access panels.
- B. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance data for air coils to include in the operation and maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Comply with ARI 410, "Standard for Forced-Circulation Air-Cooling and Air-Heating Coils," and ASHRAE 33 for components, construction, and rating.

1.8 COORDINATION

- A. Coordinate layout and installation of air coils with duct, insulation, and with other installations. Revise locations and elevations from those indicated as required to suit field conditions, and as approved by the Professional.

PART 2 - PRODUCTS

2.1 INTEGRAL FACE-AND-BYPASS HOT WATER COILS

- A. General: Provide hot water integral face and by-pass type heating coils complete with controls and accessories required for a complete installation.
- B. Description: Each heating coil shall consist of a built-in series of finned heating elements and by-passes with interlocked dampers controlled by an electric damper motor. The damper motor shall be provided by the DDC system sub-contractor. The piloting temperature sensor (also provided by the DDC system sub-contractor) shall be mounted in ductwork downstream of coil in accordance with coil manufacturer's recommendations - typically no less than 36-inches downstream of the coil. Dampers shall be arranged so as to completely enclose and isolate the heating coil passes when no temperature rise is required. Each coil shall be capable of maintaining a constant discharge air temperature regardless of variations in entering air temperatures with full hot water flow.
- C. Dampers: 16-gauge roll-formed cold-rolled steel with baked enamel finish.
 - 1. Volume of air passing through the coil shall not vary more than +/- 5%, regardless of the position of the dampers.
- D. Casing: 14-gauge steel, galvanized and painted, with rigid framework.
- E. Heating Elements: Finned heating elements fabricated of seamless straight, copper tubes with rectangular aluminum fins. Minimum tube thickness shall be 0.035". Each tube shall be individually secured to the hot water supply and return headers by a brazed joint with provision for individual tube expansion and contraction.
- F. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. L.J. Wing; a Div. of Mestek Inc.
 - 2. Aero-fin
 - 3. Engineered Air
 - 4. Marlo, division of DRS Technologies
 - 5. Trane
 - 6. Equal as Approved by the Professional.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine ducts to receive air coils for compliance with requirements for installation tolerances and other conditions affecting performance of the air coils. Verify piping rough-in dimensions. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install air coils level and plumb, and according to manufacturer's written instructions, rough-in drawings, the original design, and referenced standards.
- B. Install air coils in metal ducts constructed according to SMACNA "HVAC Duct Construction Standards."
- C. Provide a duct access door upstream of all duct coils.
- D. Anchor air coils in position using suitable supports. Support coils independently of connecting ductwork.
- E. Install piping connections, maintaining manufacturer's recommended clearances for service and maintenance of coils.
- F. Install shutoff valves at coil inlet and outlet connections.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. The Drawings indicate the general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
 - 1. Install piping adjacent to machine to allow service and maintenance.
 - 2. Connect piping with flexible connectors. Support piping independently of unit and coils.
 - 3. Hot Water Piping: Conform to applicable requirements of Division 23 Section "Hydronic Piping." Connect to supply and return coil tapings with shutoff or balancing valve and union or flange at each connection, if appurtenances are not indicated on the Drawings.
- B. Hot water coil headers exposed to the airstream shall be insulated and jacketed as specified per the connecting piping, except that aluminum jacket and fitting covers shall be provided.

3.4 ADJUSTING

- A. Comb bent fins on each air coil.

3.5 CLEANING

- A. After completing system installation, including duct and fittings, clean coils using materials and methods recommended by manufacturers, and clean inside of casings and enclosures to remove dust and debris.

END OF SECTION