SECTION 23 82 16
AIR COILS

PART 1 – GENERAL

1.01 WORK INCLUDED

A. The work of this Section shall include the furnishing and installation of all hydronic cooling and heating coils.

1.02 RELATED DOCUMENTS

A. Section 23 05 01 – HVAC General Provisions

B. Section 23 05 93 – Testing, Adjusting and Balancing for HVAC

C. Section 23 21 16 – Hydronic Piping Specialties

D. Section 23 73 13 – Factory Assembled A112 Handling Units

E. Section 23 82 19 – Fan Coil Units

1.03 REFERENCE STANDARDS

Published specifications, standards, tests or recommended methods of trade, industry or governmental organizations apply to work in this Section where cited below.

A. AHRI – Air Conditioning and Refrigeration Institute

1. AHRI 410 Forced-Circulation Air-Cooling and Air-Heating Coils

B. ASHRAE – American Society of Heating, Refrigeration, and Air Conditioning Engineers

1. ASHRAE Std 33-2016 Methods of Testing Forced-Circulation Air-Cooling and Air-Heating Coils

1.04 QUALITY ASSURANCE

A. Test, rate and certify hydronic coil performance and characteristics in accordance with AHRI and ASHRAE.

1.05 SUBMITTALS

A. Submit in accordance with Division 1 and Section 23 05 01 – HVAC General Provisions.

B. Product Data: Hydronic coils size, weight, materials of construction, mounting details, and arrangement data.

C. Certified performance data at AHRI conditions and scheduled performance conditions.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Hydronic Coils: Aerofin, Trane, Carrier, York, McQuay, Heatcraft

B. Reheat Coils at VAV Terminal Units: Titus, Krueger, Trane, Nailor

2.02 HYDRONIC COILS

A. Terminal unit and fan coil mounted coils shall be continuous tube coils without headers, ½-inch minimum O.D. seamless copper tubes and "U" bends of 0.025 inch minimum wall thickness, aluminum fins with maximum 12 fins per inch, and hot-dipped galvanized steel casing. Test at 250 pounds per square inch air pressure. Provide size, arrangement and performance as indicated on the Drawings. Provide tubes mechanically expanded into minimum 0.010 inch thick fins.

B. Air-handling unit, and built-up coils shall be finned coils with ⅝-inch O.D. seamless copper tubes, minimum 0.025-inch thick tube wall; aluminum fins with maximum 12 fins per inch, hot-dipped galvanized steel casing, seamless copper or brass headers. Provide ¼-inch IPS taps for drain and vent connections to each section. Test at 350 pounds per square inch. Provide size, arrangement and capacity as shown on the Drawings. Provide tubes mechanically expanded into fins.

C. Selection Criteria: Number of tube rows, air- and water-pressure drops, and accessory features as cleanability, drainability, same- or opposite-end connections, supports and venting; same as for type specified.

D. All coil performance shall be certified by the American Refrigeration Institute (AHRI) standard 410.

E. VAV terminal unit coils shall be selected for the scheduled maximum pressure drop at maximum (cooling) airflow.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Provide connections to coils as shown on the Drawings.

B. Provide suitable supports as required to properly mount coils. For built-up coil banks, each coil section shall be removable without removing other sections. Provide structural frame to support coil sections.

C. Install per manufacturer's recommendations.

D. Each hydronic coil section in a bank of coils shall have separately valved supply and return connections.

E. Crushed or dented return bends or fins shall be repaired to the satisfaction of the Architect or the entire coil shall be replaced.

F. Arrange for counter-flow airflow with respect to hydronic flow.

G. For built-up coil banks, see the Drawings.

H. Install all welded Type 316 stainless steel double-wall insulated drain pans pitched to drain under each cooling coil section extending minimum 9 inches upstream and 15 inches downstream of each coil. Trap and drain each pan. In built-up coil banks, intermediate drain pans may be piped from pan to lower main drain pan. Refer to Related Documents in Paragraph 1.02 for additional drain pan requirements.

I. Install coils with ½-percent minimum pitch in two directions to the connection end at coil to facilitate complete draining of coil. Size of drain connection shall be based on **International Mechanical Code** requirements.

J. Cooling coils shall be capable of operating at face velocities of up to 600 feet per minute without moisture carryover.

END OF SECTION 23 82 16