SECTION 23 82 00
CONVECTION HEATING AND COOLING UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Radiant ceiling panels.

1.2 RELATED WORK

A. Section 23 05 11, COMMON WORK RESULTS FOR HVAC: General mechanical requirements and items, which are common to more than one section of Division 23.

B. Section 23 05 41, NOISE and VIBRATION CONTROL FOR HVAC PIPING and EQUIPMENT: Noise requirements.

C. Section 23 21 13, HYDRONIC PIPING: Heating hot water and chilled water piping.

D. Section 23 31 00, HVAC DUCTS and CASINGS: Ducts and flexible connectors.

E. Section 23 09 23, DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC: Valve operators.

F. Section 23 05 93, TESTING, ADJUSTING, and BALANCING FOR HVAC: Flow rates adjusting and balancing.

G. Section 23 82 16, AIR COILS: Additional coil requirements.

H. Section 23 08 00 – COMMISSIONING OF HVAC SYSTEMS: Requirements for commissioning, systems readiness checklists, and training.

I. Section 01 09 00 – GENERAL COMMISSIONING REQUIREMENTS

1.3 QUALITY ASSURANCE

A. Refer to Paragraph, QUALITY ASSURANCE, in Section 23 05 11, COMMON WORK RESULTS FOR HVAC.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Radiant ceiling panels.

C. Certificates:

1. Compliance with paragraph, QUALITY ASSURANCE.
2. Compliance with specified standards.

D. Operation and Maintenance Manuals: Submit in accordance with paragraph, INSTRUCTIONS, in Section 01 00 00, GENERAL REQUIREMENTS.

E. Completed System Readiness Checklists provided by the Commissioning Agent and completed by the contractor, signed by a qualified technician and dated on the date of completion, in accordance with the requirements of Section 23 08 00 COMMISSIONING OF HVAC SYSTEMS.

1.5 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American National Standards Institute / Air Conditioning, Heating and Refrigeration Institute (ANSI/AHRI):

440-08.....Performance Rating of Room Fan Coils

National Fire Protection Association (NFPA):

90A-09.....Standard for the Installation of Air Conditioning and Ventilating Systems

70-11.....National Electrical Code

C. Underwriters Laboratories, Inc. (UL):

181-08.....Standard for Factory-Made Air Ducts and Air Connectors

1995-05.....Heating and Cooling Equipment

1.6 GUARANTY

A. In accordance with FAR clause 52.246-21

PART 2 - PRODUCTS

2.1 RADIANT CEILING PANELS:

A. Hydronic Radiant Panels: Lay-in type, 1.00 mm (0.040) inch aluminum faceplate with 13 mm (l/2-inch) I.D copper serpentine water coil mechanically bonded to faceplate, finished with two coats baked white polyester finish with a light reflection value of 70 to 80 percent. Panels shall weigh no more than 0.68 kg (l.5 pounds) per square foot when filled with water. Provide 75 mm (3-inch) un-faced fiberglass blanket insulation pre-cut for installation above panels. Panels shall be 600 mm x 600 mm (2’ x 2’) continuous linear arranged as shown on the drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Work shall be installed as shown and according to the manufacturer’s diagrams and recommendations.

B. Handle and install units in accordance with manufacturer's written instructions.

C. Support units rigidly so they remain stationary at all times. Cross-bracing or other means of stiffening shall be provided as necessary. Method of support shall be such that distortion and malfunction of units cannot occur.

D. Install fiberglass blanket insulation with a minimum R value of 8 above hydronic radiant panels.

3.2 OPERATIONAL TEST

A. Refer to Section 23 05 11, COMMON WORK RESULTS FOR HVAC.

3.3 STARTUP AND TESTING

A. The Commissioning Agent will observe startup and contractor testing of selected equipment. Coordinate the startup and contractor testing schedules with the Resident Engineer and Commissioning Agent. Provide a minimum of 7 days prior notice.

3.4 COMMISSIONING

A. Provide commissioning documentation in accordance with the requirements of Section 23 08 00 – COMMISSIONING OF HVAC SYSTEMS for all inspection, start up, and contractor testing required above and required by the System Readiness Checklist provided by the Commissioning Agent.

B. Components provided under this section of the specification will be tested as part of a larger system. Refer to Section 23 08 00 – COMMISSIONING OF HVAC SYSTEMS and related sections for contractor responsibilities for system commissioning.

3.5 DEMONSTRATION AND TRAINING

A. Provide services of manufacturer’s technical representative for four hours to instruct VA personnel in operation and maintenance of units.

B. Submit training plans and instructor qualifications in accordance with the requirements of Section 23 08 00 – COMMISSIONING OF HVAC SYSTEMS.

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