



Section 23 80 Decentralized HVAC Equipment

Part 1 – General

1.01 Scope

Furnish and install the Radiant Ceiling system/Airtite Radiant Ceiling system (Chilled Beam, Diffuser Panel, Extruded Panel, Modular Panel A or Modular Panel B) as manufactured by Steel Ceilings Inc., Johnstown, Ohio

1.02 Related Sections

- Section 09 20 Plaster and Gypsum Board
- Section 09 50 Ceilings
- Section 26 50 Lighting

1.03 References

- American Society for Testing and Materials (ASTM)

C635 Standard specification for the manufacture, performance and testing of metal suspension systems for acoustical tile and lay-in panel ceilings

C636 Standard practice for installation of metal ceiling suspension systems for acoustical tile and lay-in panels

E84 Test method for surface burning characteristics of building materials

CISCA Ceilings and Interior Systems Construction Association

1.04 Submittals

- Provide product data sheets listing dimensions, style, edge detail, perforation pattern, finish and thermal performance
- Alternates require prior approval no later than 21 days prior to bid date. In addition to the requirements above, submittals for approved alternates must include samples of actual products to be substituted together with test certificates supporting performance claims, a mock up and a written warranty.

1.05 Project Conditions

Environmental Requirements

- Area to receive ceiling systems shall be protected from the direct weather
- Wet trades work shall be complete and dry prior to installation of ceiling system

1.06 Attic Stock

Provide 2% of the ceiling system area materials to be used as attic stock

1.07 Performance

- Materials and installation must comply with Local Building Code and Regulations
- Materials should be stored and handled in accordance with CISCA's *Acoustical Ceilings – Use and Practice*
- Materials to comply to CISCA's *Metal Ceilings Technical Guidelines*
- There are no special seismic requirements

Part 2 – Products

2.01 Manufacturer

Airtite Radiant panels shall be manufactured by Steel Ceilings Inc., Johnstown, Ohio: www.steelceilings.com

2.02 Materials

Panels

- AR-X panels shall be constructed of extrusions providing panel widths from 4" up to 36" wide and up to 16' long
- AR-D diffuser panels shall be constructed of the special diffuser extrusions and standard extrusions, and will include an integral air diffuser bar/pattern controller. Blank-off material shall be included for a continuous slot appearance.
- **Modular Panels AR-M**
 - Panels shall measure 24 x 24" (or 24 x 48")
 - To be made of 0.040" thick aluminum
 - To be unperforated/perforated in Steel Ceilings, Inc. pattern M-block/silkscreened to match perforation of non-active metal ceiling panels
 - To be post-painted with polyester powder in manufacturer's standard white (colors are available)
 - Will have a 0.5" ID copper coil soldered on the backside of the panel
 - Fiberglass 1 x 1" pcf. to be supplied for the back of the panel

Modular Panels B

- Panels shall measure 24 x 24" (or 24 x 48")
- To be made of 0.040" thick aluminum

- To be unperforated/perforated in Steel Ceilings, Inc. patterns B, C or F
- To be post-painted with polyester powder in manufacturer's standard white (colors are available) or natural anodized
- Will have a copper coil snugly inserted in aluminum extrusions which are bonded directly onto the panel. Extrusions on the back of the panel shall be adhered directly to the panel, not to non-woven acoustic material.
- Will have a black non-woven acoustic fabric supplied in addition to the extrusion
- To be supplied with braided SST hoses with push fit connections

Performance

- The panels shall provide heating and cooling as laid out in the engineer's requirements

Part 3 – Execution

3.01 Examination

- Installer must inspect the area that is to receive the metal ceiling system for conditions that may affect the installation and notify, in writing, any conditions that must be rectified before commencing
- All work above the ceiling shall be completed before proceeding with this installation
- All wet work shall be completed and thoroughly dry before proceeding with this installation

3.02 Installation

- Radiant panels shall be delivered and clearly marked with manufacturer's name
- Material shall be stored in dry and protected areas
- Install the ceiling system in accordance with the manufacturer's recommendations and the approved shop drawings
- Panels shall be free from defects and damaged panels shall be removed and replaced

For Chilled Beam specification, please contact Steel Ceilings, Inc.

RADIANT CEILING SYSTEMS AND CHILLED BEAMS



OVERVIEW

GREEN TECHNOLOGY

STEEL CEILING RADIANT CEILING SYSTEMS AND CHILLED BEAMS

- Extruded Radiant Panels ▪ Diffuser Panels
- Modular Panels A ▪ Modular Panels B
- Hydronic radiant ceiling systems and chilled beams offer significant energy savings while providing superior user comfort
- Radiant ceilings work through direct energy transfer from room surfaces from both extruded and modular-type panels. Hot or cold water circulates through concealed copper tubing on the back of the panels providing sustainable heating and cooling with minimal air ventilation requirements.
- Trade names include Airtite Radiant, which has been manufactured for over 40 years.
- Chilled Beams are ceiling-mounted induction units using minimal primary air providing optimal heating and cooling.
- All products can be provided with overlaid fiberglass insulation.

EXTRUDED PANEL

The AR-X extruded hydronic panels are ideal for perimeter heating and cooling, eliminating the need for baseboard or floor mounted systems that are subject to damage and limit furniture placement. The panels are constructed with 4", 5" or 6" single-tube and 6" double-tube, with 4" single vertical and 4" single bullnose sections. Panels can be assembled with various extrusions in panel widths from 4 to 48"-plus, and lengths up to 16'. The panels are designed to be installed wall-to-wall or in other modules.



DIFFUSER PANEL

The AR-D combines an extruded radiant assembly and an integrated air diffuser panel, resulting in a unit with a seamless, streamlined finish. Three-position air pattern controllers can range from 12 to 60". Blank offs, as required, will provide a continuous slot appearance. Air flowing across the panel may increase the total heating capacity up to 35%. As with the AR-X, the AR-D can be installed wall-to-wall.



MODULAR PANEL A

The AR-M modular panels are normally formed in 0.040" aluminum in 24" x 24" (or 24" x 48") modules. The lightweight design has six-pass sinuous coils metallurgically bonded/soldered to the back of the panels. The panels can be made with an M-block pattern (where the tubes run over the non-perforated areas) or can be silkscreened to match adjacent acoustical ceiling tiles.

MODULAR PANEL B

Similar to standard Modular Panel A, these panels have perforations made to the same pattern as the adjacent acoustical metal panels. The copper tubes are bonded to the back of the panel with black-faced aluminum extrusions and the space between these is covered with black acoustic fleece. This provides additional acoustic NRC. The panels can be provided with braided SST hoses with push fit connections.

ACTIVE CHILLED BEAM

These lightweight beams are easily installed into standard suspended ceilings with exposed t-grid or bolt-slot systems. The amount of induced discharge air is controlled by variable nozzle positions, and the temperature is controlled by actuators with either digital or analog controls. A complete shutoff at one side is an available option. Other features include low noise, low maintenance and flexibility. A single high-capacity heating and cooling panel can supply a 100-sq.-ft. space.



HVAC ENGINEERING

Steel Ceilings can supply the following:

- Complete design, application assistance and training through its experienced engineering staff
- Post-installation thermal imaging to confirm performance

For more information go to www.steelceilings.com/radiant