

SECTION 15830

HEATING TERMINAL UNITS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Baseboard or Fin-Tube Radiation.
2. Convectors.
3. Cabinet Unit Heaters.
4. Unit Heaters - Hot Water.
5. Hydronic Radiant Ceiling Panels.
6. Unit Ventilators

B. Related Sections:

1. Section 15010 - Basic Mechanical Requirements.
2. Section 15050 - Basic Mechanical Materials and Methods.
3. Section 15511 - Hydronic Piping and Specialties.
4. Section 15521 - Steam and Condensate Piping and Specialties.
5. Section 15835 - Electric Heat.
6. Section 15950 - Controls.

1.02 REFERENCES

- A. Institute of Boiler and Radiator Manufacturers (IBR), superseded by Hydronics Institute.
- B. Hydronics Institute (HYDI).

1.03 SYSTEM DESCRIPTION

A. Design Requirements:

1. General:

- a. Expand Part 2 Product specification minimums to include specific project requirements.
- b. Baseboard radiation is preferred for heating the exterior wall of all perimeter rooms. Use radiant ceiling panels only as a last choice.
- c. Use convectors where architectural features cause greater capacity requirements than baseboard radiation can provide in the available space.
- d. Use cabinet unit heaters at building entrances where greater capacity and quick response is necessary to adequately handle rapid changes in space temperature.
- e. Select cabinet unit heaters and unit heaters on low speed capacity of three speeds to provide quiet operation under normal conditions and have extra capacity at higher speeds for extreme conditions. Specify a fan-speed switch.

- f. For all the product types listed in this standard, specify the appropriate pressure

and temperature ratings.

- g. When providing any of the product types listed in this standard, allow for thermal expansion and contraction as required.

1.04 QUALITY ASSURANCE

- A. Radiation capacities shall be in accordance with HYDI Standard for "Testing and Rating Code for Finned-Tube Commercial Radiation".

PART 2 - PRODUCTS

2.01 FIN-TUBE RADIATION

- A. Manufacturer:

Dunham-Busch
Rittling
Rosemex
Sterling
Trane
Vulcan

- B. Heating Element:

1. Copper tubes with aluminum fins.

- C. Enclosures:

1. Fabricated from 16 gage steel.
2. Manual control dampers with knob actuators.
3. Enclosure to be readily removable between each mullion bracket and support enclosure for access to manual valves, balance cocks and air vents.
4. Enclosures shall be furnished less access panels. Provide hinged access panels separately, to be installed after piping and radiation covers are in place, to all manual valves, balance cocks, and air vents.
5. Enclosures shall have sloped top with manual damper or flat top with front outlet and manual damper.

2.02 CONVECTORS

- A. Manufacturers:

Airtherm
Dunham-Bush
Rittling
Rosemex
Sterling
Trane
Vulcan

- B. Heating Element:

1. Copper tubes with aluminum fins.

C. Enclosure:

1. Minimum 16 gage steel fronts and tops, 18 gage on backs.
2. Manual control damper with knob actuator.
3. Non-recessed types shall have sloping tops.
4. End caps where butted to wall, and on exposed ends.

2.03 CABINET UNIT HEATERS

A. Manufacturers:

Airtherm
McQuay
Modine
Rittling
Rosemex
Sterling
Trane
Vulcan

B. Heating Element:

1. Copper tubes with aluminum fins.

C. Cabinet:

1. Minimum 16 gage furniture grade steel.
2. Non-recessed types shall have sloping tops.

D. Fans:

1. Statically and dynamically balanced to eliminate vibrations.

E. Motors:

1. Three speed.

F. Filters:

1. One inch thick, permanent, cleanable-type, located in a frame in the return air stream, easily removable for service by removing front access panel.

G. Control:

1. Internal unit mounted, pre-wired 3-speed switch and "off" in addition to automatic temperature controls as specified in Section 15950 - Controls.

2.04 UNIT HEATERS - HOT WATER

A. Manufacturers:

Airtherm
McQuay
Modine
Rittling
Rosemex
Sterling
Trane
Vulcan

B. Heating Element:

1. Copper tubes with aluminum fins.

C. Cabinet:

1. Heavy gage steel.

D. Fans:

1. Horizontal or vertical propeller type.

E. Control:

1. As specified in Section 15950 - Controls.

F. Louvers:

1. Movable for lateral and horizontal diffusion.

2.05 HYDRONIC PANEL RADIATORS

A. Manufacturer:

Rittling
Runtal

B. Performance:

1. Panel performance and water pressure drops shall be certified by an independent certified testing laboratory.

C. Finishes:

1. Baked enamel

PART 3 - EXECUTION

3.01 INSTALLATION

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A. All fin tube radiation systems shall extend the entire length of any exterior windows regardless of fin tube load calculations.

3. In general, for project specifications, remove "Design Requirements" sub-paragraph A in Part 1, paragraph 1.03, "System Description" of this Design Guide and use list to expand on specific requirements of installation.

END OF SECTION