

Part 1 General

1.1 SUMMARY

- .1 Division 01 – General Requirements.
- .2 Section 21 05 01 – Common Work Results for Mechanical.
- .3 Section 23 05 48 – Vibration Controls for HVAC Piping and Equipment.

1.2 REFERENCES

- .1 American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE):
 - .1 Standard 90.1-2001 Energy Standard for Buildings Except Low-Rise Residential Buildings.
- .2 Electrical Equipment Manufacturers Advisory Council (EEMAC).
- .3 Canadian Standards Association (CSA International):
 - .1 CAN/CSA-B214-01, Installation Code for Hydronic Heating Systems.
- .4 National Electrical Manufacturers Association (NEMA):
 - .1 NEMA MG 1-2003, Motors and Generators.

1.3 SUBMITTALS

- .1 Submittals in accordance with Division 01 – General Requirements.
- .2 Submit Manufacturer printed shop drawings and product data in accordance with Division 01 – General Requirements.
- .3 Submit manufacturer's detailed composite wiring diagrams for control systems showing factory installed wiring and equipment on packaged equipment or required for controlling devices or ancillaries, accessories and controllers.
- .4 Submit product data of pump curves for review showing point of operation.
- .5 Indicate piping, valves and fittings shipped loose by packaged equipment supplier, showing their final location in field assembly.
- .6 Provide maintenance data for incorporation into manual in accordance with Division 01 – General Requirements.

1.4 HEALTH AND SAFETY

- .1 Do construction occupational health and safety in accordance with Division 01 – General Requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Division 01 – General Requirements.

1.6 EXTRA MATERIALS

- .1 Provide maintenance materials in accordance with Division 01 – General Requirements.

Part 2 Products

2.1 HORIZONTAL UNIT HEATERS

- .1 General:
 - .1 Contractor shall furnish and install hot water unit heaters. Performance shall be as indicated on the equipment schedule in the plans. Unit heaters shall listed by CSA as certified.
- .2 Units:
 - .1 Self-contained, factory assembled, pre-wired unit consisting of cabinet with supply fan, motor, and condenser.
- .3 Casing:
 - .1 Casings shall be 18 gauge steel and consist of front and back halves. Both halves are joined together at the top and bottom utilizing the condenser mounting screws. Casing top is provided with threaded hanger connections for unit suspension. Fan Venturi is formed in casing back half.
- .4 Coating:
 - .1 Electrostatically applied baked on grey green corrosion resistant, polyester powder coat paint that meets the following tests:
 - .1 500 hours of salt spray as defined in ASTM B117.
 - .2 Adhesion/crosshatch tape tests as defined in ASTM D3359, Method B, Rating 5B.
 - .3 Will not crack or peel when test panel is bent around a 1/8 inch arbor.
- .5 Condenser:
 - .1 Condenser coils are of the extended surface type of serpentine design, utilizing aluminum fins and DLP-type copper tubes with cast bronze supply and return connections. Tubes are mechanically bonded to the collars of the fins. The condensers are warranted for operation at steam or hot water pressures up to 1034 kPa and/or temperatures up to 191°C. All coils are leak tested at 1138 to 1379 kPa, air under water. Fins are continuous across the width and depth of the condenser and are vertically oriented to minimize the collection of dirt and dust.
 - .2 Coils are of serpentine design with horizontal tubes, vertical fins and side supply and return. All tube bends are brazed. All tubes have individual expansion bends. Copper tubes are 25mm O.D. with 0.76mm wall thickness.
- .6 Motor:
 - .1 Single motor with a supply voltage of 115/60/1 and horsepower as indicated on the equipment schedule and manufactured in accordance with NEMA standards for continuous fan duty type applications. Must be totally enclosed and single phase motors will have built in thermal overload protection.

Will be mounted to the unit with rubber vibration absorbing material. The entire length of the line voltage motor leads will be shielded and terminate in a factory supplied junction box mounted on the unit or integral to the motor.

- .7 Fan/Fan Guards:
 - .1 Fans AMCA rated direct drive, aluminum blade, steel hub propeller will be statically and dynamically balanced. Unit shall be equipped with a safety fan guard.
 - .2 The unit shall be furnished with vertical deflector blades which are individually adjustable to provide four way directional discharge air control coated to match casing finish.
- .8 Performance: Refer to schedule on drawings for additional accessories to be c/w the heater and other information.

Part 3 Execution

3.1 INSTALLATION

- .1 Install in accordance with manufacturer's instructions.
- .2 Provide double swing pipe joints.
- .3 Check final location with Engineer if different from that indicated prior to installation.
- .4 For each unit, install gate valve on inlet and outlet of each unit. Install drain valve at low point:
 - .1 Install manual air vent at high point.
- .5 Clean finned tubes and comb straight.
- .6 Provide supplementary suspension steel as required.
- .7 Before acceptance, set discharge patterns and fan speeds to suit requirements.

END OF SECTION