SECTION 23 72 23

PACKAGED AIR-TO-AIR ENERGY RECOVERY UNITS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. AHRI 1060 I-P - Performance Rating of Air-to-Air Heat Exchangers for Energy Recovery Ventilation Equipment; Air-Conditioning, Heating, and Refrigeration Institute.

B. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.

C. ASHRAE Std 84 - Method of Testing Air to Air Heat Exchangers.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. NFPA 70 - National Electrical Code.

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

G. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials

H. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 ENERGY RECOVERY UNITS

A. Energy Recovery Units: Fixed plate cross-flow energy exchange type (Dessicant impregnated air-to-air heat exchanger) type; prefabricated packaged system designed by manufacturer.
   1. Access: Hinged access panels on front.
   2. Lifting holes at the unit base.
   3. Permanent name plate listing manufacturer mounted inside door near electrical panel.

2.03 CASING

A. Wall, Floor, and Roof Panels:
   1. Construction: 1 inch thick, double wall box construction, with formed edges of exterior wall overlapping formed edges of interior wall.
   2. Exterior Wall: galvanized steel sheet.
      a. 20 gage galvanized steel.
   3. Interior Wall: Galvanized sheet metal.
      a. 22 gage galvanized sheet metal.
   4. Insulation:
      a. 1/2 inch insulated fiberglass.
      b. Panel Cores: Mineral wool board.
      c. Flame Spread Index: 25, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.
      d. Smoke Developed Index: 50, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.
   5. Panel Joints: T-shaped standing seams with overlapping metal caps.
   6. Isolation and Seal: Form continuous, thermally isolated, weather tight seal between inner wall of panels and structural framing with closed cell PVC foam gasketing.
   7. Seams: Sealed, requiring no caulking at job site.

B. Access Panels: Provide access to components through a large, tightly sealed and easily removable panel.

C. Doors:
   1. Construct doors of same construction and thickness as wall panels.
   2. Hardware:

2.04 FANS

A. Provide separate fans for exhaust and supply blowers.

B. Fans:
   1. Individually driven with a dedicated motor.

C. Bearings:
   1. Pillow block.
   2. Bearings: Permanently lubricated sealed ball bearings.
   3. Rated for not less than 200,000 hours of operation with accessible greased fittings.

D. Housings: 12 gage aluminized steel with plenums integral to general housing and constructed to Class 1 fan standards.

E. Motors:
   1. Motors: Open drip proof.
   2. Efficiency: Premium.
   3. Speed: Variable.
   4. Control: Constant Speed.
   5. Motor Slide Bases: Removable and adjustable.
   6. Fan Motor: Thermal overload protected.
   7. Fan Motor: UL listed and labeled.

F. Drives:
   1. Fans: Belt driven.
   2. Horsepower: 7.5 HP.
   3. Sheaves: Variable.
   4. Service Factor: 1.2.

2.05 TOTAL ENERGY RECOVERY MEDIA

A.

B. Transfer heat and humidity from one air stream to the other with no carryover of the exhaust air into the supply air stream.

C. Energy Recovery Media: Cleanable with low temperature steam, hot water or light detergent, without degrading the latent recovery.

D. Effectiveness: Rated in accordance with ASHRAE Std 84 and AHRI 1060.

E. Flame Spread Index: 25, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.

F. Smoke Developed Index: 50, maximum, when tested in accordance with ASTM E84, NFPA 255, and UL 723.

G. Energy Recovery Media Facing:
   1. Conform to NFPA 90A.

2.06 FILTERS

A. Efficiency: 11 MERV.

B. Exhaust and Fresh Air Streams: MERV11 filters constructed to meet ASHRAE Std 52.2.

C. Mount 1/2 inches thick permanent aluminum washable type filter in the outside air hood and in the return plenum air.

2.07 DAMPERS

A. Motorized Dampers: Provide motorized dampers at outside air inlet, exhaust air outlet, and supply air outlet.
   1. Type: Motorized two position parallel blade damper with blade seals.
   2. Motorized Damper: Roll-formed structural hat channels, reinforced at the corners,
   3. Blades: Single skin, 16 gage.

2.08 VIBRATION ISOLATION

2.09 POWER AND CONTROLS

A. Motor Control Panels: UL listed.

B. Include necessary motor starters, fuses, transformers and overload protection according to NFPA 70.

C. Install wiring in accordance with NFPA 70.

2.10 SERVICE ACCESSORIES

PART 3 EXECUTION

END OF SECTION