SECTION 237200 - AIR TO AIR ENERGY RECOVERY EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Total energy recovery wheels.

B. See section 23 73 13 for matching modular air handling unit.

1.2 SUBMITTALS

A. Submit shop drawings and product data per applicable Division I Specification.

B. Shop drawings shall include product data noting capacities at the specified conditions, materials, sizes, and dimensions.

1.3 QUALITY ASSURANCE

A. Total energy heat wheel recovery performance shall be in accordance with ASHRAE Standard 84.

B. Compliance to ARI 1060.

C. Units shall bear the ETL label and shall be ETL certified.

D. Wheel performance at specified conditions shall be guaranteed by the manufacturer.

1.4 WARRANTY

A. Contractor shall warranty entire systems and equipment for a period of one (1) year.

PART 2 - PRODUCTS

2.1 MANUFACTURERS APPROVED STANDARD OFFERING

A. Daiken

B. Trane

C. Johnson Controls, Inc.

D. Dunham Bush

2.2 COMPONENTS

A. The total energy heat recovery wheel shall reclaim both sensible and latent heat at minimum efficiency as listed in schedules.

B. The unit shall be constructed of structural steel tubular frame with epoxy primer and finish. The cabinet shall be 16 gauge bright galvanized steel construction.

C. Wheel Media: The ECW or enthalpy wheel shall be constructed of corrugated synthetic fibrous media, with a desiccant intimately bound and uniformly and permanently dispersed throughout the matrix structure of the media. Rotors with desiccants coated, bonded, or synthesized onto the media are not acceptable due to delamination or erosion of the desiccant material. Media shall be synthetic to provide corrosion resistance and resistance against attack from laboratory chemicals present in pharmaceutical, hospital, etc. environments as well as attack from external outdoor air conditions. Coated aluminum is not acceptable. Face flatness of the wheel shall be maximized in order to minimize wear on inner seal surfaces and to minimize cross leakage. Rotor shall be constructed of alternating layers of flat and corrugated media. Wheel layers should be uniform in construction forming uniform aperture sizes for air flow. Wheel construction shall be fluted or formed honeycomb geometry so as to eliminate internal wheel bypass. Wheel layers that can be separated or spread apart by air flow are unacceptable due to the possibility of channeling and performance degradation. The minimum acceptable performance shall be as specified in the drawings/submittal.

D. The face velocity across each side of the media (supply and exhaust) shall be less than 800 FPM and more than 350 FPM with a purge method that prevents exhaust air from being recirculated.

E. Each unit shall include a frost control method per sequence of operation specification. The control for the unit shall be provided through the building DDC control system.

F. Furnish a digital display for read out of both air stream temperatures and control settings.

G. Provide filter racks and minimum MERV rating of 8 on both entering air sides to the wheel.

H. Unit Construction: The energy wheel section shall contain the wheel and all upstream and downstream access requirements for airflow and maintenance. Casing shall be of G90 double wall construction. Opposing air-streams shall be separated by an insulated double wall panel. Adequate length must be provided in the section for bearing and wheel maintenance. Wheel cassette must be able to slide out of unit for servicing without disassembling air handling unit.

I. The energy recovery wheel shall be coated with desiccant without the use of binders or adhesives, which may plug the desiccant aperture. The substrate shall be lightweight polymer and shall not require additional coatings for application in marine or coastal environments. Coated segments shall be cleanable; desiccant shall not dissolve or deliquesce in the presence of water or high humidity. Wheel bearings shall be selected to provide an L-10 life in excess of 30 years. Rim shall be continuous rolled stainless steel to form an even concentric rim.

J. The energy recovery cassette shall be an Underwriters Laboratories Recognized Component for electrical and fire safety. The manufacturer in accordance with ASHRAE Standards 84 method of test and ARI Rating shall certify performance Standard 1060.

K. Energy recovery section include a separate return air section and a separate bathroom exhaust fan section. The bathroom exhaust energy recovery section shall have an airflow monitoring station to maintain a fixed bathroom exhaust CFM. The bathroom exhaust

section shall be separate from the return air but shall pass through the energy recovery wheel for recovery. The return air shall be controlled to allow some of the air to pass through the energy wheel and some to pass back to the mixing box.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Manufacturer shall test-check-start units.

END OF SECTION 237200

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