SECTION 23 7323 - FACTORY FABRICATED CUSTOM AIR HANDLING UNITS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Indoor and outdoor air handling units and components as scheduled and shown on drawings.

B. Motor disconnects, motor starters, and variable frequency drives.

C. Other required features.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Book Division 01 Sections, apply to this section.

1.3 REFERENCES

A. AMCA 99 – Standard Handbook

B. AMCA 210 – Laboratory Methods of Testing Fans for Rating Purposes

C. AMCA 500 – Test Methods for Louvers, Dampers, and Shutters

D. AMCA 611-95 – Methods of Testing Airflow Measurement Stations for Rating

E. ANSI/AFBMA 9 – Load Ratings and Fatigue Life for Ball Bearings

F. ANSI/UL 900 – Test Performance of Air Filter Units

O. NFPA 90A – Installation of Air Conditioning and Ventilation Systems

P.

6. Interference with existing or planned ductwork, piping and wiring
7. Electrical power requirements and wire/conduit and over current protection sizes.
8. Trap height

B. Delegated-Design Submittal: For RTU supports indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Design Calculations: Calculate requirements for selecting vibration isolators and for designing vibration isolation bases.
2. Detail mounting, securing, and flashing of roof curb to roof structure. Indicate coordinating requirements with roof membrane system.
3. Wind-Restraint Details: Detail fabrication and attachment of wind restraints and snubbers. Show anchorage details and indicate quantity, diameter, and depth of penetration of anchors.

C. Coordination Drawings: Plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Structural members to which RTUs will be attached.
2. Roof openings
3. Roof curbs and flashing.

D. Manufacturer Wind Loading Qualification Certification: Submit certification that specified equipment will withstand wind forces identified in "Performance Requirements" Article and in Section 23 0550 "Vibration Isolation."

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculations.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of wind force and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

E. Furnish fan performance ratings and fan curves with specified operating point clearly plotted.

F. Furnish drawings indicating unit dimensions, required clearances, field connection locations, wiring diagrams, shipping drawings, and curb drawings.

G. Furnish performance report showing unit level performance data including: fan(s), motor(s), coil(s) and other functional components. Performance report shall also include unit casing performance. p

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G. Seal openings to protect against damage during shipping, handling and storage.

H. Wrap indoor units with a tight sealing membrane. Wrapping membrane shall cover entire AHU during shipping and storage. Cover equipment, regardless of size or shape. Alternatively AHU must be tarped for shipment and storage.

I. Wrap equipment, including electrical components, for protection against rain, snow, wind, dirt, sun fading, road salt/chemicals, rust and corrosion. Keep equipment clean and dry.

J. Tarp outdoor units to protect against rain and road debris during shipping.

K. Clearly mark AHU sections with unit tag number, segment sequence number, and direction of airflow. Securely affix safety-warning labels.

1.10 EXTRA MATERIALS

A. Provide one set of filters for balancing, and one additional set for final turnover to owner.

B. Provide one extra set of belts, in addition to the factory-installed set.

1.11 WARRANTY

A. Provide warranty for 5 years from date of turnover to the Owner at substantial completion, see Division 01. Warranty shall cover manufacturer

5. Trane Custom TCFS, div of Ingersoll Rand Inc.

2.2 GENERAL UNIT REQUIREMENTS

A. Coils shall be arranged so that space between the coils is a minimum of 24".

B. Fan compartments shall be arranged such that the space between the fan inlets and the housing is a minimum of one fan diameter.

C. Arrangement of components shall be such that coil face velocity distribution shall not vary by more than 20% from the average coil velocity.

D. Coil assemblies shall have provisions to(i)-8.9(n/ns)-8( )0.7(t)-1.1(o3(i)3.1(eb3)Tj -0.002 Tc 0.122 T-_on)
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2. Exterior surface

a. Galvanized

a. Frames: Type 6063-T6 aluminum extrusion, [with thermal break for "no through metal" construction], welded at the corners and attached to the unit casing with [plated, stainless steel] hardware.
b. Hinges: A full height stainless-steel piano hinge with minimum two roller cam latches per door, operable from inside and outside. Rotating knife-edge or “paw” latches are not acceptable. [Provide galvanized, Z-type safety latch for all outward opening access doors opening with unit pressure.]
c. Handles: Glass fiber reinforced, UV rated, padlockable, nylon polyamide as manufactured by Allegis Corporation.
d. Gasket: EPDM-sponge, applied around entire perimeters of panel frames. [Provide one set of spare door gaskets for each access door.]
e. Viewports: Provide [8"x8", 12"x12"] , [single pane,

shall be statically and dynamically balanced and designed for continuous operation at maximum- rated fan speed and motor horsepower. Fans shall have a sharply rising

C. Outer casings of rectangular silencers

minimized to only that required to simulate permanent jobsite conditions not otherwise duplicable in the factory.]

B. [Factory performance to be witnessed by owner's representative. Owner's representative shall select one unit, at time of release, to be tested. Manufacturer shall notify contractor and/or owner 14 days prior to test for witnessing. (Travel expenses are not part of this contract). A written report shall be provided showing the test results and the test methods used.]

C.

1. Vapor Resistant Pendant: Factory shall provide vapor resistant pendant, marine type light fixture with clear globe, metal guard, and [100W incandescent, 23W compact fluorescent] bulb in segments and quantity as noted on drawings.
2. Fluorescent Twin Tube: Factory shall provide 48" fluorescent light fixture with corrosion resistant housing, acrylic diffuser and twin 32W, T8 lamps and rated for installation in damp environment.
3. Provide low temperature ballasts for fixtures in low temperature locations. Ballasts to be electronic.
4. Factory shall wire all light fixtures to a common 120v switch located on the supply fan segment.
5. Factory shall wire each light fixture to a separate 120v switch located near the access door of the segment with