

SECTION 15855  
AIR HANDLING UNITS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The other Contract Documents complement the requirements of this section. The General Requirements apply to the work of this section.

1.2 SCOPE

- A. Provide material, equipment, labor and supervision necessary to install Air Handling Units.

1.3 STANDARDS

- A. Units shall have certified ratings complying with ARI Standard 430.

1.4 QUALIFICATIONS

- A. Air handling units shall be as manufactured by one of the following or Engineer approved equal.
  1. Trane
  2. Carrier
  3. York
  4. Engineer and Owner approved equal.

1.5 SUBMITTALS

- A. Submittal data shall consist of drawings showing coil dimensions, construction materials, fan performance curves, coil capacity, horsepower, electrical characteristics and installation instructions.
- B. Fan manufacturers shall furnish for approval for each fan, certified sound power ratings with an octave band analysis and also the volume-pressure-horsepower characteristic curves from shut-off to free air delivery.

PART 2 PRODUCTS

2.1 GENERAL

- A. Unit shall be factory built and assembled with arrangements as indicated.
- B. Units shall have capacities, ratings and performance as scheduled.

2.2 CASING

- A. Casing shall be constructed of the best quality galvanized steel reinforced for maximum rigidity with galvanized steel angle framework as required. Each shall consist of a fan section, coil section, coil access sections, drain pan and a filter section. Casings for coil section and all sections down stream from coil section shall be of the dual wall internally insulated type with a solid internal galvanized liner.

- B. The casing shall be designed for the design pressure equal to the negative of the maximum static pressure differential between the highest peak on the selected fan characteristic curve and ambient pressure. The casing shall be furnished with lifting lugs or other attachments to facilitate handling.
- C. Casing shall have removable panels to provide access to internal components. Coils shall be removable without disassembly of unit.
- D. Condensate drain pans shall be stainless steel double wall construction and provided under the complete fan and coil section for horizontal units and under the complete coil section for vertical units, with drain connection on lower end. If coil moisture carry-over is present drain pan shall extend to the section down stream from the coil. Drain pans shall be insulated with 1" insulation between the two walls and the inner pan shall be coated with an EPR approved antibacteriological agent, intercept or equal. Drain pan shall be internally sloped to provide positive drainage of accumulated condensate.

### 2.3 FANS

- A. The unit manufacturer shall manufacture all fans and shafts. Fan wheels shall be constructed of galvanized steel.
- B. All units shall have externally mounted bearings and motors. Internal bearings, with extended grease lines will be permitted.
- C. Fan housing shall be die-formed with streamlined inlets and side sheets. Bearings shall be grease lubricated ball bearings selected for an L-10 rating life of not less than 130,000 hours for direct connected service and not less than 42,500 for belt connected service.
- D. Fans shall be statically and dynamically balanced and factory run tested in the unit.
- E. Fans shall be internally isolated for vibrations.
- F. Fan noise levels shall not exceed the specified performance.

### 2.4 COILS

- A. Coils shall be furnished for cooling media as scheduled.
- B. Coils shall be aluminum fin copper tube type. Fins shall have drawn, belled, collars bonded to the tubes by means of mechanical expansion of the tubes. Coils casings shall be galvanized steel.
- C. Refrigerant cooling coils shall be as listed in schedule, and shall be split with two individual circuits. If independent compressors are used in lieu of two speed compressors, a four-circuited coil shall be used.
- D. Engineer shall specify face split, row split or intertwined coils.

### 2.5 MOTORS AND DRIVES

- A. Motors shall be NEMA Standard, normal torque, 40° rise, splash proof, of horsepower rating and electrical characteristics as scheduled on drawings. Motors shall be of the high efficiency type.
- B. Drives shall be rated at 1.25 x the motor horsepower rating. Drives shall be adjustable speed drives for adjustment within plus or minus 10% of specified RPM.
- C. Motor shall be mounted on an adjustable, spring isolated mount, suitable for adjusting belt tension and drive alignment.
- D. Furnish and install belt guards in accordance with OSHA requirements for all sheaves, exposed shafts and belts.

### 2.6 INSULATION

- A. Double wall unit casings for coil section and all sections down stream from coil section shall have 2" thick insulation between the shells. Double wall sections shall be factory insulated to prevent sweating at all operating conditions.

## 2.7 FILTERS

- A. Provide manufacturers medium capacity filter section. Filter section shall incorporate full size hinged and gasketed access doors with a minimum of two lever type handles. Filters shall be as specified in Section 15885. Filters for Student Housing shall be located in the return air grille or other easily accessible location for periodic (monthly) maintenance purposes.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. The Contractor shall lay out exact unit location based upon coordinated ductwork shop drawings. Fabricate unit supports as detailed on the drawings.
- B. The Contractor shall install units and make piping and duct connections.
- C. Install refrigerant piping, thermal expansion valves, sight glasses and similar refrigeration specialties.
- D. Extend condensate drain line from the drain pan, through a trap, to a hub drain with a lip 1" above the finished floor. The condensate drain shall terminate with a 1" air gap above the rim of the open hub drain. The hub drain shall be routed to a French drain or a storm water system, if connected to a roof storm water system a backwater valve is required. Contractor shall provide sufficient height between drain pan and condensate drain trap to allow drainage against negative fan pressure.
- E. Install fire resistant flexible connectors in ducts at connections to units. Flexible connectors shall be in accordance with NFPA 90A.
- F. Provide flexible pipe connectors at inlet and outlet piping to each air-handling unit.
- G. Maintain access to all unit components that require maintenance. Do not block coil or filter access doors. Adequate space shall be provided for coil and filter pull space.
- H. Install all air handlers on housekeeping pad extending minimum 6" beyond the footprint of the unit.
- I. Provide vibration isolator pads between the AHU supports and housekeeping pad.
- J. When adjustable pulley is set for the required airflow performance it shall be replaced with fixed diameter pulley.
- K. AHU shall be wired to immediately shut down upon of the fire alarm system.

END OF SECTION