

SECTION 23 81 26 – SPLIT SYSTEM AIR CONDITIONERS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes split system air conditioning and heat pump units consisting of separate evaporator fan and compressor condenser components. Units are designed for exposed or concealed mounting, and may be connected to ducts.

1.2 SUBMITTALS

- A. Product Data: For each unit indicated. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.
- B. Operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- C. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- D. Units shall be designed to operate with HCFC-free refrigerants.

1.4 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace split system air conditioning units that fail in materials and workmanship within five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
1. Carrier Air Conditioning; Div. of Carrier Corp.
 2. First Co.
 3. Friedrich Air Conditioning Company.
 4. Koldwave, Inc.
 5. Lennox Industries Inc.
 6. Trane Co. (The); Unitary Products Group.
 7. York International Corp.

2.2 EVAPORATOR FAN UNIT

- A. Concealed Unit Chassis: Galvanized steel with flanged edges, removable panels for servicing, and insulation on back of panel.
1. Insulation: Faced, glass fiber duct liner.
 2. Drain Pans: Galvanized steel, with connection for drain; insulated.
- B. Floor Mounting, Unit Cabinet: Enameled steel with removable panels on front and ends.
1. Discharge Grille: **[Steel with surface mounted frame] [Welded steel bars forming a linear grille and welded into supporting panel].**
 2. Insulation: Faced, glass fiber, duct liner.
 3. Drain Pans: Galvanized steel, with connection for drain; insulated.
- C. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins, complying with ARI 210/240, and with thermal expansion valve.

OR

- D. Water Coil: Copper-tube water coil, with mechanically bonded aluminum fins spaced no closer than 0.1 inch; leak tested to 300 psig underwater; and having a 2-position control valve.

OR

- E. Electric Coil: Helical, nickel chrome, electric resistance heating elements with refractory ceramic support bushings; automatic reset thermal cutout; built-in magnetic contactors; manual reset thermal cutout; airflow proving device; and one time fuses in terminal box for overcurrent protection.
- F. Evaporator Fan: Forward curved, double-width wheel of galvanized steel; directly connected to motor.

- G. Fan Motor: Multispeed.
- H. Filters: 1 inch thick, in fiberboard frames.

2.3 AIR-COOLED, COMPRESSOR CONDENSER UNIT

- A. Casing steel, finished with baked enamel, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
- B. Compressor: Hermetically sealed [**reciprocating**] [**scroll**] type with crankcase heater and mounted on vibration isolation. Compressor motor shall have thermal and current sensitive overload devices, start capacitor, relay, and contactor. [**Two speed compressor motor with manual reset high pressure switch and automatic reset low pressure switch**].
 - 1. Refrigerant Charge: [**R-407C**] [**R-410A**].
- C. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins, complying with ARI 210/240, and with liquid subcooler.
- D. Heat Pump Components: Reversing valve and low temperature air cut-off thermostat.
- E. Fan: Aluminum, propeller type, directly connected to motor.
- F. Motor: Permanently lubricated, with integral thermal overload protection.
- G. Low Ambient Kit: Permits operation down to 45 deg F.
- H. Mounting Base: Polyethylene.

2.4 ACCESSORIES

- A. Thermostat: Low voltage with subbase to control compressor and evaporator fan.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install evaporator fan components using manufacturer's standard mounting devices securely fastened to building structure.
- B. Install ground mounted, compressor condenser units on concrete base using elastomeric mounts. Secure units to anchor bolts installed in concrete bases. Concrete base is specified in Division 23 Section "Common Work Results for Mechanical" and concrete materials and installation requirements are specified in Division 03 Section "Cast-in-Place Concrete."

Comply with requirements for vibration isolation devices specified in Division 23 Section "Vibration and Seismic Controls for Mechanical Piping and Equipment."

OR

- C. Install ground mounted, compressor condenser units on polyethylene mounting base.
- D. Install roof mounted, compressor condenser units on equipment supports specified in Division 07 Section "Roof Accessories." Anchor units to supports with removable, cadmium-plated fasteners.

3.2 CONNECTIONS

- A. Connect supply and return water coil with shutoff duty valve and union or flange on the supply connection and with throttling duty valve and union or flange on the return connection.
- B. Connect supply and return condenser connections with shutoff duty valve and union or flange on the supply connection and with throttling duty valve and union or flange on the return connection.
- C. Install piping adjacent to unit to allow service and maintenance.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
- C. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new components, and retest.
- D. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

END OF SECTION 23 81 26