

SECTION 238110  
MINI SPLIT SYSTEMS

PART 1        GENERAL

1.1        SECTION INCLUDES

- A.    Air handling unit.
- B.    Air cooled condensing units or heat pump.
- C.    Controls.

1.2        RELATED SECTIONS

- A.    Section 26 05 05 - Equipment Wiring Systems: Electrical characteristics and wiring connections.

1.3        REFERENCES

- A.    ARI 210/240 - Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
- B.    ARI 270 - Sound Rating of Outdoor Unitary Equipment.
- C.    ARI 520 - Positive Displacement Refrigerant Compressors, Compressor Units and Condensing Units.
- D.    ASHRAE 14 - Methods of Testing for Rating Positive Displacement Condensing Units.
- E.    ASHRAE 15 - Safety Code for Mechanical Refrigeration.
- F.    ASHRAE 52 - Method of Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter.
- G.    ASHRAE 90A - Energy Conservation in New Building Design.
- H.    NEMA MG 1 - Motors and Generators.
- I.    NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- J.    UL 207 - Refrigerant-Containing Components and Accessories, Non-Electrical.
- K.    UL 303 - Refrigeration and Air-Conditioning Condensing and Compressor Units.

1.4        SUBMITTALS

- A.    Submit under the provisions of Division 01.
- B.    Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
- C.    Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
- D.    Design Data: Indicate refrigerant pipe sizing.

- E. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.

#### 1.5 SUBMITTALS AT PROJECT CLOSEOUT

- A. Submit under the provisions of Division 01.
- B. Project Record Documents: Record actual locations of components and connections.
- C. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.
- D. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with a minimum of three (3) years' experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with a minimum of three (3) years' experience, approved by the manufacturer.

#### 1.7 REGULATORY REQUIREMENTS

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

#### 1.8 WARRANTY

- A. Division 01 - Contract Closeout.
- B. Provide a minimum of a five-year manufacturer's parts warranty for compressors.

### PART 2 PRODUCTS

#### 2.1 AIR HANDLING UNIT

- A. Manufacturers:
  - 1. Sanyo.
  - 2. Mitsubishi.
  - 3. Daikin.
- B. Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, DX coil, controls, air filter, and accessories; wired for single power connection with control transformer.
  - 1. Air Flow Configuration: As scheduled on drawings.
  - 2. Electric Refrigeration: Refrigerant cooling coil and outdoor package containing compressor, condenser coil and condenser fan.
- C. Cabinet: Steel with baked enamel finish, easily removed and secured access doors, glass fiber insulation and reflective liner. Exposed face plate polycarbonate or high-density plastic, off-white finish.
- D. Supply Fan: Centrifugal type rubber mounted with direct drive motor.
- E. Motor: NEMA MG 1; 1750 rpm single speed.

- F. Air Filters: Washable type arranged for easy replacement.
- G. Evaporator Coil: Copper tube aluminum fin assembly, galvanized drain pan, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve, steel cabinet with baked enamel finish and insulation.
- H. Condensate Pump: Built-in and wired from air handler power. Sized by manufacturer for maximum flow and minimum 24 inches of lift.

## 2.2 CONDENSING UNITS OR HEAT PUMP

- A. Manufacturer: Match air handling unit.
- B. Construction and Ratings: In accordance with ARI 210/240, and UL 207 and UL 303. Testing: ASHRAE 14.
- C. Compressor: ARI 520; hermetic, 3600 rpm, resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling and rapid speed changes.
- D. Refrigeration Accessories: Filter Drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line). Provide thermostatic expansion valves. Provide refrigerant lines, factory cleaned, dried, pressurized, and sealed, with insulated suction line. Provide reversing valves on heat pump units.
- E. Air Cooled Condenser: ARI 520; aluminum fin and copper tube coil, with direct drive axial propeller fan resiliently mounted, galvanized fan and coil guard.
- F. Refrigeration Operating Controls
  - 1. Room Thermostat: Cycles condensing unit and supply fan to maintain room temperature setting.
  - 2. Low Ambient Kit: Provide refrigerant pressure switch to cycle condenser fan on when condenser refrigerant pressure is above 285-psig (1965 kPa) and off when pressure drops below 140-psig (965 kPa) for operation to 0 degrees F (-18 degrees C).

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with NFPA 90A.
- B. Install in accordance with the manufacturer's recommendations.
- C. Install refrigeration systems in accordance with ASHRAE 15.
- D. Pipe drain from cooling coils to nearest floor drain.
- E. Mount air cooled condenser-compressor package on vibration isolators.

END OF SECTION