

## SECTION 238113.11 - PACKAGED TERMINAL AIR-CONDITIONERS, THROUGH-WALL UNITS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes packaged, terminal, through-the-wall air conditioners.
- B. Reference and Industry Standards

##### Enterprise Green Communities Criteria

- 1. Mandatory Requirements: See the current edition of the NYC overlay of EGC reference standard for full specifications.
  - a. NYC New Construction projects must achieve at least 60 optional points, and Substantial and Moderate Rehab projects must also achieve at least 55 optional points.
  - b. Building Performance Standard Criterion 5.1b
  - c. Sizing of Heating and Cooling Equipment 5.6
- C. Comply with the current edition of the New York City Energy Conservation Code.
- D. Comply with HPD electric heating policy, if applicable.
- E. Comply with HPD resident paid heat pump policy, if applicable.
- F. Comply with relevant HPD design guidelines section or appendix.
- G. <https://www.nyc.gov/site/hpd/services-and-information/sustainability.page>
- H. <https://www.nyc.gov/site/hpd/services-and-information/bls.page>

#### 1.2 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURED UNITS

- A. Description: Factory-assembled and -tested, self-contained, packaged, terminal air conditioner with room cabinet, electric refrigeration system, heating (Heat Pump or Hot Water), and temperature controls; fully charged with refrigerant and filled with oil; with cord-connected hardwired chassis.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - "Ventilation Rate Procedures," and Section 7 - "Construction and Startup."
- D. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1.

### 2.2 CHASSIS

- A. Cabinet: ~~0.052-inch-~~ (1.3-mm-) thick galvanized steel with removable front panel with concealed latches.
  - 1. Mounting: Wall with wall sleeve.
  - 2. Top: Angled Flat.
  - 3. Discharge Grille: Punched-louver discharge grille allowing four-way discharge-air pattern Extruded-aluminum discharge grille, tamperproof, and carrying a flame test rating in accordance with UL standard 494.
  - 4. Louvers: Extruded aluminum with enamel finish or Stamped aluminum with clear-anodized finish or Stamped steel with enamel finish; color selection by design consultant.
  - 5. Finish: Epoxy coating Baked enamel.
  - 6. Access Door: Hinged door in top of cabinet for access to controls.
  - 7. Cabinet Extension: Matching cabinet in construction and finish, allowing diversion of airflow to adjoining room; with grille.
  - 8. Finish of Interior Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
  - 9. Subbase: Enameled steel with adjustable leveling feet and adjustable end plates, with factory-installed and -wired, fused disconnect switch and receptacle sized for unit.
  - 10. Wall Sleeves: Galvanized steel with polyester finish or Galvanized steel with powder-coated paint or Molded polymer or Molded fiberglass-reinforced polyester.
- B. Refrigeration System: Direct-expansion indoor coil with capillary restrictor and hermetically sealed scroll compressor with vibration isolation and overload protection.
  - 1. Indoor and Outdoor Coils: Seamless copper tubes mechanically expanded into aluminum fins with capillary tube distributor on indoor coil.
  - 2. Accumulator.
  - 3. Constant-pressure expansion valve.

4. Reversing valve.
  5. Charge: R-410A.
- C. Indoor Fan: Forward curved, centrifugal; with motor and positive-pressure ventilation damper with electric operator.
- D. Filters: Washable polyurethane in molded plastic frame.
- E. Condensate Drain: Drain pan piping to direct condensate to building waste and vent piping.
1. Comply with ASHRAE 62.1 for drain pan construction and connections.
- F. Outdoor Fan: Forward curved, centrifugal or propeller type with separate motor.
1. Indoor and Outdoor Fan Motors: Two speed; comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
    - a. Fan Motors: Permanently lubricated split capacitor.
    - b. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
    - c. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.

## 2.3 HEATING

- A. Electric-Resistance Heating is not allowed on HPD subsidized projects.
- B. Water Coil: Copper tube, with mechanically bonded aluminum fins spaced no closer than 0.1 inch (2.5 mm); leak tested to 300 psig (2070 kPa) underwater; with a two-position control valve.

## 2.4 CONTROLS

- A. Control Module: Unit-mounted digital panel with touchpad temperature control and with touchpad for heating, cooling, and fan operation. Include the following features:
1. Low-Ambient Lockout Control: Prevents cooling-cycle operation below 40 deg F (5 deg C) outdoor air temperature.
  2. Heat-Pump Ambient Control: Field-adjustable switch changes to heat-pump heating operation above 40 deg F (5 deg C) and to supplemental heating below plus 25 deg F (minus 4 deg C).
  3. Temperature-Limit Control: Prevents occupant from exceeding preset setback or setup temperature.
  4. Reverse-Cycle Defrost: Solid-state sensor monitors frost buildup on indoor outdoor coil and reverses unit to melt frost.

- B. Remote Control: Standard unit-mounted controls with remote-mounted, low-voltage, adjustable thermostat with heat anticipator; heat-off-cool-auto switch; and on-auto fan switch.
- C. Outdoor Air: Motorized intake damper. Open intake when unit indoor-air fan runs.
- D. Outdoor Air: Manual intake damper.

## 2.5 SOURCE QUALITY CONTROL

- A. Sound-Power Level Ratings: Factory test to comply with AHRI 300, "Sound Rating and Sound Transmission Loss of Packaged Terminal Equipment."
- B. Unit Performance Ratings: Factory test to comply with AHRI 310/380/CSA C744, "Packaged Terminal Air-Conditioners and Heat Pumps."

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install units level and plumb, maintaining manufacturer's recommended clearances and tolerances.
- B. Install wall sleeves in finished wall assembly; seal and weatherproof. Joint-sealant materials and applications are specified in Section 079200 "Joint Sealants."
- C. Install and anchor wall sleeves to withstand, without damage to equipment and structure, seismic forces required by building code.

### 3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
  - 1. Water Coil Connections: Comply with requirements specified in Section 232113 "Hydronic Piping" and Section 232116 "Hydronic Piping Specialties." Connect hydronic piping to supply and return coil 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.

### 3.3 FIELD QUALITY CONTROL

- A. Tests and Inspections:
  - 1. Inspect for and remove shipping bolts, blocks, and tie-down straps.

2. After installing packaged, terminal air conditioners and after electrical circuitry has been energized, test for compliance with requirements.
  3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
  4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Packaged, terminal air conditioners will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 238113.11