

SECTION 15782 - ROOFTOP UNITS

PART 1 - GENERAL

0.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

0.2 SUMMARY

- A. This Section includes rooftop heating and cooling units.

0.3 NATIONAL ACCOUNT

- A. CVS/Pharmacy has entered into a national account agreement with York for furnishing the HVAC roof top units specified in this section. Complete installation shall be by the Contractor. For pricing quotations, placing orders, and further information, call York at (800) 775-9675 ext. 6084.

0.4 QUALITY ASSURANCE

- A. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."
- 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. Listing and Labeling: Provide electrically operated components specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
- E. Comply with AGA Z223.1 for gas-fired furnace section.
- F. Comply with NFPA 70.

0.5 COORDINATION

- A. Coordinate installation of roof curbs, equipment supports, and roof penetrations with roof construction.

0.6 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: A written warranty, executed by the manufacturer and signed by the Contractor, agreeing to replace components that fail in materials or workmanship, within the specified warranty period, provided manufacturer's written instructions for installation, operation, and maintenance have been followed.
 - 1. Warranty Period, Compressors: Manufacturers standard, but not less than 5 years after date of Substantial Completion.
 - 2. Warranty Period, Heat Exchangers: Manufacturers standard, but not less than 10 years after date of Substantial Completion.

0.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - 1. Fan Belts: One set for each belt-drive fan.
 - 2. Filters: One set of filters for each unit.

PART 2 - PRODUCTS

0.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide rooftop A/C units manufactured by York.

0.2 ROOFTOP UNITS

- A. Description: Factory assembled and tested; single package air to air DX cooling and heating system; down-flow configuration; designed for roof installation; and consisting of compressors, condensers, evaporator coils, condenser and evaporator fans, refrigeration and temperature controls, filters, and dampers.
- B. Casing: Manufacturer's standard construction with enamel paint exterior finish, removable panels or access doors with neoprene gaskets for inspection and access to internal parts, minimum 1/2-inch- thick thermal insulation, knockouts for electrical and piping connections, exterior condensate drain connection, and lifting lugs.

- C. Evaporator Fans: Forward curved, centrifugal, belt driven with adjustable sheaves or direct-drive fans; and with permanently lubricated motor bearings.
- D. Power Exhaust Fans (only where indicated): Forward-curved, centrifugal or propeller type, directly driven with permanently lubricated motor bearings.
- E. Condenser Fans: Propeller type, directly driven with permanently lubricated motor bearings.
- F. Refrigerant Coils: Aluminum-plate fin and seamless copper tube in galvanized steel casing with equalizing-type vertical distributor.
- G. Compressors: Serviceable, semihermetic, or fully hermetic compressors with integral vibration isolators and crankcase heaters.
 - 1. Safety Controls: Manual-reset type for low pressure, high pressure, and compressor motor overload protection.
 - 2. Timed-Off Control: Automatic-reset control shuts compressor off after 5 minutes.
- H. Heat Exchangers: Manufacturer's standard construction for induced draft gas-fired heat exchangers and burners with the following controls:
 - 1. Redundant, dual gas valves (3-6 tons: single stage; 7 ½ ton and larger 2-stage).
 - 2. Electronic-spark ignition system.
 - 3. High-limit cutout.
 - 4. Forced-draft proving switch.
- I. Economizer: Factory installed, return- and outside-air low leakage dampers, outside-air hood with filter, fully modulating electronic-control system with adjustable mixed-air thermostat (55°F set point) and automatic changeover through adjustable differential enthalpy-control device, and adjustable outdoor air minimum positioner; designed for 100% outside-air.
- J. Low Ambient Control: Head-pressure control, designed to operate at temperatures as low as 0 deg F.
- K. Sensor/ Thermostat: Provide temporary thermostat Honeywell Model T874D-1165 with sub-base model Q674A1019 or equal at all sensor locations. All thermostats will be removed and discarded by Energy Management System contractor.
- L. Smoke Detectors: Photoelectric detector to de-energize unit.
- M. Coastal Requirements: There are two different options to be specified in coastal area.
 - 1. Project located within five (5) miles of a body of salt water: The condenser coil and evaporator coil shall be coated using Technicoat 10-1 processes.
 - 2. Project located between five (5) and fifteen (15) miles from a body of salt water: The condenser coil shall be coated using Technicoat 10-1 processes.

0.3 ROOF CURBS

- A. Manufacturer's standard, insulated with corrosion-protection coating, gasketing, factory-installed wood nailer, according to NRCA standards.
 - 1. Curb Height: Minimum 14 inches.
 - 2. Burglar Bars: Furnished by rooftop A/C unit manufacturer for field installation. Designed to install in the supply and return air openings of the roof curb.

0.4 CONDENSATE PIPING

- A. Hard Copper Tube: ASTM B 88, Type M, water tube, drawn temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.
 - 3. Copper Unions: MSS SP-123, cast-copper alloy, hexagonal-stock body, with ball-and-socket, metal-to metal seating surfaces and solder-joint or threaded ends.
 - 4. Copper, Grooved-End Fittings: ASTM B 75 copper tube or ASTM B 584 bronze castings.
 - a. Copper-Tubing, Keyed Couplings: Copper-tube dimensions and design similar to AWWA C606. Include ferrous housing sections, gasket suitable for hot water, and bolts and nuts.

0.5 MOTORS

- A. Motor Construction: NEMA MG 1, general purpose, continuous duty, Design B.
- B. Enclosure Type: Open, dripproof.

0.6 SOURCE QUALITY CONTROL

- A. Verification of Performance: Rate capacity according to ARI 210/240, "Unitary Air-Conditioning and Air Source Heat Pump Equipment" for units with capacity 135,000 BTUH or greater.
- B. Verification of Performance: Rate capacity according to ARI 360, "Commercial and Industrial Unitary Air-Conditioning Equipment."
 - 1. Sound Power Level Ratings: Comply with ARI 270, "Standard for Sound Rating of Outdoor Unitary Equipment."

PART 3 - EXECUTION

0.1 EXAMINATION

- A. Examine roof for compliance with requirements for conditions affecting installation and performance of rooftop units. Do not proceed with installation until unsatisfactory conditions have been corrected.

0.2 INSTALLATION

- A. Install units according to manufacturer's written instructions.
- B. Install units level and plumb, maintaining manufacturer's recommended clearances.
- C. Curb Support: Install roof curb on roof structure, level, according to NRCA's written installation instructions. Install and secure rooftop units on curbs and coordinate roof penetrations and flashing with roof construction.
- D. Condensate Piping:
 - 1. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping installation.
 - 2. Install condensate piping at minimum 1% downward slope in direction of flow unless otherwise indicated.
 - 3. Refer to Division 15 Section "Pipe Insulation" for basic piping insulation requirements.
 - 4. Condensate drain: All sizes Type "M" Copper

0.3 CONNECTIONS

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate the general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
 - 1. Install piping to allow service and maintenance.
 - 2. Gas Piping: Conform to applicable requirements of Division 15 Section "Natural Gas Piping." Connect gas piping to burner, full size of gas train inlet, and provide union with sufficient clearance for burner removal and service.
- B. Duct installation requirements are specified in other Division 15 Sections. Drawings indicate the general arrangement of ducts. The following are specific connection requirements:
 - 1. Install ducts to termination in roof mounting frames. Roof penetrations shall be no larger than the ductwork size plus 1-inch. Insulate space between roof and bottom of unit.
 - 2. Install burglar bars in both supply and return air openings of roof curb.
- C. Electrical: Conform to applicable requirements in Division 16 Sections.
- D. Ground equipment.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

0.4 TESTING

- A. Manufacturer shall perform an Equipment Performance Check (E.P.C.). The E.P.C. shall be conducted by a factory trained field service representative.
- B. Submit report to Owner for approval. Report shall include a list of items checked/verified and actual performance data under both heating and cooling operations.
- C. Schedule E.P.C. with manufacturer after complete installation and start-up of equipment. Give manufacturer a minimum of 2 weeks notice. System must be operational a minimum of 24 hours before E.P.C.

END OF SECTION 15782