

SINGLE PACKAGE OUTDOOR GAS HEAT / ELECTRICAL COOLING UNITS:

Furnish and install single package outdoor unit utilizing a semi-hermetic reciprocating compressor for cooling and gas combustion heating as specified on the drawings. Unit shall be capable of supplying air vertically. The rooftop unit shall be a factory assembled, single-piece heating and cooling unit. Contained within the unit enclosure shall be all factory wiring piping, controls, refrigerant charge (R-410A), and special features required prior to field start-up.

Unit shall be rated in accordance with AHRI standard 340/360-2022, designed to conform with ANSI/ASHRAE 15 and UL Standard 465, and certified by UL or ETL as a total package. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

The exterior cabinet shall be constructed of pre-painted and heavy gauge galvanized steel with a baked enamel finish on all exterior surfaces. Unit casing shall be capable of withstanding 672-hour salt spray test in compliance with ASTM B117. Indoor blower compartment interior surfaces shall be insulated with a minimum 1/2-in. thick fiberglass insulation coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment. Cabinet panels shall be easily removable for servicing. Unit shall have a factory-installed internal condensate drain connection and a sloped condensate pan. Provide unit with factory installed condenser hail guards and stainless steel drain pan.

The compressor(s) shall be semi-hermetic, scroll type equipped with crank-case heaters, and spring-type vibration isolators. Units of 15 ton capacity and greater shall utilize dual compressors with dual independent refrigeration circuits. Each refrigerant circuit shall include independent thermostatic expansion device, strainer assembly, fixed orifice feed system, service gauge connections on suction line, liquid line and compressor discharge line, loss of charge protection, and internal high pressure relief. Refrigerant line filter driers shall be factory installed as standard. Factory-installed crankcase heater prevents refrigerant dilution of oil.

The condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed, leak tested @ 150 psig and pressure tested @ 650 psig. The condenser fan shall be direct-driven propeller type with permanently lubricated bearings and shall discharge air vertically.

The evaporator fan shall be dynamically balanced double-inlet centrifugal type with belt drive, adjustable pitch motor pulley and sealed permanently lubricated ball bearings. Fan wheel shall be made from steel with a corrosion resistant finish. It shall be a dynamically balanced, double-inlet type with forward-curved blades. The evaporator coil shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. The evaporator coil shall be leak tested @ 150 psig and pressure tested @ 450 psig.

The heat exchanger shall be of tubular section constructed of stainless steel. The burners shall be constructed stainless steel and shall be the in-shot type. The combustion system shall be an induced-draft type with direct-spark ignition and redundant main gas valve. All gas piping shall enter the unit at a single location.

The filter access shall be through panel. Provide Owner with one year's supply of factory MERV-13 (minimum) fiber glass filters. Contractor shall label filter access with plastic laminate white letter on black labels indicating filter number and size.

Gas package units shall be manufactured by Trane as specified on the drawings. Units meeting or exceeding specified equipment performance data manufactured by Carrier, York, or Paragon shall be considered equivalent.

ECONOMIZER:

Furnish & install Integrated Economizers where indicated on the drawings. Integrated type economizer capable of simultaneous economizer and compressor operation to provide cooling with outdoor air.

Economizer shall be equipped with low-leakage dampers not to exceed 3% leakage, at 1.0 in. wg pressure differential. Unit shall be capable of introducing up to 100% outdoor air and equipped with dry-bulb temperature control to govern economizer changeover. Provide power exhaust: package shall include an exhaust fan, motor, and damper for vertical flow units with economizer to control over pressurization of building. Provide a differential enthalpy sensor: capable of comparing heat content (temperature and humidity) of outdoor air and indoor air and controlling economizer cut-in point at the most economical level.

ROOFTOP UNIT SAFETIES:

- A. Unit shall incorporate a solid-state compressor lockout which provides reset capability at the space thermostat, should any of the following safety devices trip and shut off compressor:
 - 1) Compressor overtemperature, overcurrent.
 - 2) Low-pressure switch.
 - 3) Freezestat (evaporator coil).
 - 4) High-pressure switch.
 - 5) Condensate Overflow switch.
- B. Supply-air thermostat shall be located in the unit
- C. Heating section shall be provided with the following minimum protections:
 - 1) High-temperature limit switch.
 - 2) Induced-draft motor speed sensor.
 - 3) Flame rollout switch.
 - 4) Flame proving controls.
 - 5) Redundant gas valve.

ROOF CURBS:

Roof curbs shall be NRCA approved. Roof curbs shall be of prefabricated galvanized steel construction with counter-flashed wood nailer, insulated deck pan, and insulated vertical members. Installation shall be in strict accordance with manufacturer's instructions to insure a water-tight system. Provide vibration isolation rails where indicated on the drawings and equipment schedules. Roof curbs shall be supplied by package unit manufacturer or by Plenums, Inc.

WARRANTY:

Units shall be provided with 2-year factory labor warranty and a 5-year parts warranty from the manufacturer. Provide 20-year parts warranty for stainless steel heat exchangers on indirect fired units.

END OF SECTION