SECTION 15734CPPR – SPLIT SYSTEM AIR CONDITIONING UNITS

PART 1 - GENERAL

1.1 Related Sections¹:

A. Section 01351C - Brown University Standard for Narragansett Electric Company Rebate Program

B. Section 15002C – HVAC Design Criteria.

C. Section 15070 - Mechanical Sound, Vibration, and Seismic Control: Product requirements for vibration isolators for placement by this section.

D. Section 15080 - Mechanical Insulation: Product requirements for insulation for placement by this section.

E. Section 15120 - Piping Specialties.

F. Section 15820 - Duct Accessories: Product requirements for flexible duct connections for placement by this section.

G. Section 15900PPRS – HVAC/BAS

H. Section 15940 - Sequence of Operation: Sequences of operation applying to units in this section.

I. Section 16150 - Wiring Connections: Execution requirements for electric connections specified by this section.

J. Section 16265 - Variable Frequency Controllers: Variable frequency controllers.

1.2 Show Manufacturer’s recommended service clearances and pull clearances as shaded areas on mechanical plans.

PART 2 - PRODUCTS

2.1 Manufacturers

A. Carrier

B. Trane

C. York

¹ Listing of related sections is for convenience and is not all-inclusive. Affected sections or drawings where specific design requirements are to be specified, or related sections where applicable Brown Guidelines may appear, are indicated.
D. No substitutions

2.2 Equipment must meet efficiency requirements for highest level of utility company rebate. See Section 01351C - Brown University Standard for Narragansett Electric Company Rebate Program.

2.3 Equipment must be capable of housing and moving air through minimum MERV 7 air filters. See Section 15002C – HVAC Design Criteria.

2.4 Provide complete DX system for air conditioning units of types, sizes and capacities shown on schedules. System shall consist of matching air-cooled condensing units, compressors, piping, controls, wiring and other accessories and appurtenances necessary to provide fully automatically functioning system.

2.5 Condenser coil shall be aluminum plate fins mechanically bonded to seamless copper tubes, circuited for subcooling. Provide propeller fans arranged for vertical discharge. Condenser fan motors shall have inherent protection and shall be permanently lubricated and resiliently mounted. Fans shall have safety guards. Provide controls for cycling fans.

2.6 Compressors shall have external spring isolators.

A. Provide factory-wired controls in separate enclosure. Safety devices shall consist of manual reset high pressure and oil pressure cutouts, low pressure switching, and compressor overload devices. Wiring shall incorporate positive acting timer to prevent short cycling of compressor if power is interrupted. Time shall prevent compressor from restarting for approximately 5 minutes after shutoff. Units shall have transformer control circuit.

B. Where condensing unit is located above evaporator, include suction line traps for oil return in accordance with manufacturer’s recommendations.

C. For applications requiring winter operation, furnish low ambient control to 0°F.  
   1. DX air conditioning system be capable of starting and operating down to 0 degrees F ambient. Low ambient operation shall be accomplished by varying the speed of condenser fan based on sensing of head pressure in refrigerant liquid line, by modulating damper in condenser fan discharge based on refrigerant head pressure sensing, or by flooding the condenser coil with liquid refrigerant to maintain the desired condenser pressure.
   2. Low ambient systems which cycle fans or modulate dampers based on ambient temperature exclusively., are prohibited.
   3. Provide time delay relay for timed bypass of the low-pressure switch or other means to start condensing unit at 0 degrees F without nuisance safety trip.
   4. If condensing unit does not come with hot gas bypass pre-piped, hot gas bypass system shall be installed in accordance with recommendations of condensing unit manufacturer and shop drawings shall be submitted.
Shop drawings shall show refrigerant piping, hot gas piping layout including bypass pipe sizes and connection locations, hot gas bypass valve and solenoid valves manufacturers and model numbers, sensing capillary bulb locations, control wiring of solenoid and details of any other components.

5. Adjust hot gas bypass in field, as required, to maintain proper system operation.

D. Furnish the following options or accessories:
   1. Crankcase heaters.

END OF SECTION