Inspections Division
Date: 04/16/14

SUBMITTAL DATA

For: Approval

Order #: **Date:** 02/13/2014

Project: Rite Aid 4133

Project #:

Location: Portland, ME

Inspections Division
Date: 04/16/14)14

Project Name
Rite Aid 4133
Project Number
Client / Purchaser

Submittal Summary Page

Qty	Tag #	Model #	Description
2		ZJ120S20U2DEA5	10 Ton, York Predator Single Packaged R-410A Air Conditioner, 12.0 EER / 12.2 IEER, Two Stage Cooling, 200 MBH Output Stainless Steel, Two Stage Gas Heat, 3 HP High Static Belt Drive Blower, 2" Throwaway Filters, 208/230-3-60, Composite Drain Pan • Single Enthalpy Slab Economizer w/Barometric Relief Damper and Hoods (Bottom or End Return Only) • HACR Circuit Breaker/Disconnect (Sized for 208 Volts) • Non Powered Convenience Outlet • Electrofin Microchannel Condenser Coil • Phase Monitor
2		KCC-1707	KCC-1707 Transition Curb
1		ZF060S10P2DZZ20002	5 Ton, York Sunline Single Packaged R-410A Air Conditioner, 13.0 SEER / 10.8 EER, Single Stage Cooling, 100 MBH Output Stainless Steel, Single Stage Gas Heat, 1.5 HP Standard Static Belt Drive Blower, 1" Throwaway Filters, Single Enthalpy Economizer and Hood (No Barometric Relief Damper), 208/230-3-60 • Non Powered Convenience Outlet (110 VAC) • HACR Circuit Breaker/Disconnect (Sized for 208 Volts) • Electrofin Microchannel Condenser Coil • Hinged & Tool Free Filter, Motor and Elec'l Access Panels • Phase Monitor • Stainless Steel Drain Pan
1		1RD0410	Barometric Relief Damper with Hood Kit (Downflow Unit or Duct Mounted)

Equipment start-up and commissioning by a factory trained technician is recommended.
Contact your supplying distributor or sales representative for additional information & guidance.

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Predator

Single Package R-410A Air Conditioner

Project Name: **Rite Aid 4133** | Unit Model #: **ZJ120S20U2DEA5**

Quantity: **2** | System: **ZJ120S20U2DEA5 (2)**

Cooling Performance		
Total capacity	130.0	MBH
Sensible capacity	96.0	MBH
Refrigerant type	R-410A	
Efficiency (at ARI)	12.00	EER
Integrated eff. (at ARI)	12.80	IEER
Ambient DB temp.	95.0	°F
Entering DB temp.	80.0	°F
Entering WB temp.	67.0	°F
Leaving DB temp.	57.8	°F
Leaving WB temp.	56.7	°F
Part load efficiency	13.4	IPLV
Power input (w/o blower)	9.00	kW
Sound power	90	dB(A)

Gas Heating Performance		
Entering DB temp.	60	°F
Heating output capacity (Max)	192	MBH
Supply air	4000	CFM
Heating input capacity (Max)	240	MBH
Leaving DB temp.	104.4	°F
Air temp. rise	44.4	°F
SSE	80.0	%
Stages	2	

Supply Air Blower Performance		
Supply air	4000	CFM
Ext. static pressure	0.6	IWG
Unit static resistance	0.56	IWG
Blower speed	1176	RPM
Max BHP of Motor (including service factor)	3.45	HP
Duct location	Bottom	
Motor rating	3.00	HP
Actual required BHP	2.92	HP
Power input	2.72	kW
Elevation	0	ft.
Drive type	BELT	
Requires field-supplied drive	true	

Electrical Data		
Power supply	230-3-60	
Unit min circuit ampacity	52.6	Amps
Unit max over-current protection	60	Amps

Dimensions & Weight					
Hgt	51 in.	Len	89 in.	Wth	59 in.
Weight with factory installed options					1270 lbs.

Clearances					
Right	12 in.	Front	36 in.	Back	36 in.
Top	72 in.	Bottom	0 in.	Left	36 in.

Note: Please refer to the tech guide for listed maximum static pressures

10 Ton

- York Predator units are manufactured at an ISO 9001 registered facility and each rooftop is completely computer-run tested prior to shipment.

Unit Features

- Unit Cabinet Constructed of Powder Painted Steel, Certified At 1000 Hours Salt Spray Test (ASTM B-117 Standards)
- Through-the-Curb and Through-the-Base Utility Connections
- Full perimeter base rails with built in rigging capabilities
- Hinged Access Panels
- Slide-Out Condensate Drain Pan
- Scroll Compressors
- Two Stage Cooling
- Solid Core Liquid Line Filter Driers
- Electrofin Microchannel Condenser Coil
- 200 MBH Output Stainless Steel, Two Stage Gas Heat
- Unit Ships with 2" Throwaway Filters with a Standard Filter Rack that will Accept up to 4" Filters
- Single Point Power Connection
- HACR Circuit Breaker/Disconnect (Sized for 208 Volts)
- Non-Powered Convenience Outlet
- Phase Monitor
- Single Enthalpy Slab Economizer w/Barometric Relief Damper and Hoods (Bottom or End Return Only)
- Short Circuit Current: 5kA RMS Symmetrical

Standard Unit Controller: Simplicity Control Board

- Safety Monitoring - Monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, safety lockouts and repeated limit switch trips.

Warranty

- One (1) Year Limited Warranty on the Complete Unit
- Five (5) Year Warranty - Compressors
- Fifteen (15) Year Warranty on Stainless Steel Heat Exchanger
- Three (3) Year Warranty - ElectroFin Condenser Coil

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Predator

Single Package R-410A Air Conditioner

Project Name: **Rite Aid 4133** | Unit Model #: **ZJ120S20U2DEA5**

Quantity: **2** | System: **ZJ120S20U2DEA5 (2)**

Factory Installed Options

ZJ120S20U2DEA5

Product Category:	**Z**	York Predator Single Packaged R-410A Air Conditioner
Product Identifier:	**J**	12.0 EER / 12.2 IEER
Nominal Cooling Capacity:	**120**	10 Ton Two Stage Cooling
Heat Type and Nominal Heat Capacity:	**S20**	200 MBH Output Stainless Steel, Two Stage Gas Heat
Airflow:	**U**	3 HP High Static Belt Drive Blower Single Enthalpy Slab Economizer w/Barometric Relief Damper and Hoods (Bottom or End Return Only) 2" Throwaway Filters
Voltage:	**2**	208/230-3-60
Installation Options:	**D**	HACR Circuit Breaker/Disconnect (Sized for 208 Volts) Non Powered Convenience Outlet
Additional Options:	**EA**	Electrofin Microchannel Condenser Coil Phase Monitor Composite Drain Pan
Product Generation:	**5**	

Field Installed Accessories

- KCC-1707 - KCC-1707 Transition Curb

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Predator

Single Package R-410A Air Conditioner

Project Name: **Rite Aid 4133** | Unit Model #: **ZJ120S20U2DEA5**

Quantity: **2** | System: **ZJ120S20U2DEA5 (2)**

Consolidated Drawing

NOTES:
1. FOR OUTDOOR USE ONLY.
2. WEIGHTS SHOWN ARE FOR COOLING ONLY UNITS.
3. MIN. CLEARANCES TO BE:
   RIGHT SIDE: 12 [305]
   LEFT SIDE: 36 [915]
   FRONT: 36 [915]
   REAR: 36 [915]
   TOP: 72 [1830]
   BOTTOM: 0 [0]
4. TO REMOVE THE SLIDE-OUT DRAIN PAN, A REAR CLEARANCE OF 60 in (1525 mm) IS REQUIRED. IF SPACE IS UNAVAILABLE, THE DRAIN PAN CAN BE REMOVED THROUGH THE FRONT BY SEPARATING THE CORNER WALL.
5. FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES CONTACT YOUR APPLICATION ENGINEERING DEPARTMENT.
6. DOWNFLOW DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY. IF UNIT IS MOUNTED SIDE SUPPLY, IT IS RECOMMENDED THAT THE DUCTS ARE SUPPORTED BY CROSS BRACES, AS DONE ON ACCESSORY ROOF CURBS.
7. SIDE DUCT FLANGES ARE 0.75" HIGH. BOTTOM DUCTS DO NOT HAVE FLANGES.
8. MINIMUM CONDENSATION TRAP HEIGHT SHALL BE 1.5 TIMES THE LOWEST NEGATIVE STATIC.
9. DIMENSIONS IN [ ] ARE IN MILLIMETERS OR KILOGRAMS.
10. OPTIONAL COIL GUARDS, POWER EXHAUST, GAS HEAT, ECONOMIZER, DISCONNECT SWITCH, CONVENIENCE OUTLET, AND BAROMETRIC RELIEF HOOD SHOWN.

11 EXCEPT XP (HEAT PUMP) UNITS.

DIRECTION OF AIRFLOW
CENTER OF GRAVITY

TONNAGE	UNIT	OPERATING WEIGHT (LBS) (BASE UNIT)	CENTER OF GRAVITY LOCATION (BASE UNIT)		4 POINT CORNER LOADS (LBS) (BASE UNIT)			
			X	Y	A	B	C	D
8.5	ZF	1007 [458]	38 [965,2]	24 [609,6]	235 [107]	175 [79]	255 [116]	342 [155]
10	ZF	1103 [501]	38 [965,2]	24 [609,6]	257 [117]	192 [87]	279 [127]	375 [170]
8.5	ZH	1030 [467]	38 [965,2]	24 [609,6]	240 [109]	179 [81]	261 [118]	350 [159]
10	ZH	1090 [494]	38 [965,2]	24 [609,6]	254 [115]	189 [86]	276 [125]	371 [168]
6.5	ZJ	1030 [467]	39 [990,6]	25 [635]	245 [111]	191 [87]	260 [118]	333 [151]
7.5	ZJ	1050 [476]	39 [990,6]	25 [635]	250 [113]	195 [89]	265 [120]	340 [154]
8.5	ZJ	1060 [481]	38 [965,2]	24 [609,6]	247 [112]	184 [84]	268 [122]	360 [163]
10	ZJ	1070 [485]	39 [990,6]	24 [609,6]	245 [111]	191 [87]	278 [126]	357 [162]
8.5 & 10	ZR	1200 [544]	38 [965,2]	25.5 [647,7]	297 [135]	221 [100]	291 [132]	390 [177]
6.5	XP	1080 [490]	38 [965,2]	25 [635]	262 [119]	195 [89]	266 [121]	357 [162]
7.5	XP	1090 [494]	38 [965,2]	23 [584,2]	243 [110]	181 [82]	284 [129]	381 [173]
8.5	XP	1137 [516]	38 [965,2]	25.5 [647,7]	282 [128]	210 [95]	276 [125]	370 [168]
10	XP	1135 [515]	38 [965,2]	25.5 [647,7]	281 [127]	209 [95]	275 [125]	369 [167]

DETAIL A

TOP VIEW

REAR (PARTIAL VIEW)
(INTAKE HOOD NOT SHOWN IN THIS VIEW)

LEFT VIEW

FRONT VIEW (OPTIONAL FRONT COIL GUARD NOT SHOWN IN THIS VIEW)

RIGHT VIEW

Project Name: **Rite Aid 4133** | Unit Model #: **ZJ120S20U2DEA5**

Quantity: **2** | System: **ZJ120S20U2DEA5 (2)**

Component Location

6 1/2 Through 10 Tons

Single Package R-410A Air Conditioner

Project Name: **Rite Aid 4133** | Unit Model #: **ZF060S10P2DZZ20002**

Quantity: **1** | System: **ZF060S10P2DZZ20002**

Cooling Performance

Total capacity	59.8	MBH
Sensible capacity	45.3	MBH
Refrigerant type	R-410A	
Seasonal Efficiency (at ARI)	13.00	SEER
Efficiency (at ARI)	10.80	EER
Ambient DB temp.	95.0	°F
Entering DB temp.	80.0	°F
Entering WB temp.	67.0	°F
Leaving DB temp.	59.0	°F
Leaving WB temp.	57.6	°F
Power input (w/o blower)	4.54	kW
Sound power	82	dB(A)

Gas Heating Performance

Entering DB temp.	60	°F
Heating output capacity (Max)	100	MBH
Supply air	2000	CFM
Heating input capacity (Max)	125	MBH
Leaving DB temp.	106.3	°F
Air temp. rise	46.3	°F
SSE	80.6	%
AFUE	80.3	%
Stages	1	

Supply Air Blower Performance

Supply air	2000	CFM
Ext. static pressure	0.6	IWG
Unit static resistance	0.15	IWG
Blower speed	1151	RPM
Max BHP of Motor (including service factor)	1.73	HP
Duct location	Bottom	
Motor rating	1.50	HP
Actual required BHP	1.20	HP
Power input	1.12	kW
Elevation	0	ft.
Drive type	BELT	

Electrical Data

Power supply	230-3-60	
Unit min circuit ampacity	25.1	Amps
Unit max over-current protection	35	Amps

Dimensions & Weight

Hgt	33 in.	Len	83 in.	Wth	45 in.
Weight with factory installed options					699 lbs.

Clearances

Right	24 in.	Front	32 in.	Back	36 in.
Top	72 in.	Bottom	0 in.	Left	36 in.

Note: Please refer to the tech guide for listed maximum static pressures

5 Ton

- York Units are Manufactured at an ISO 9001 Registered Facility and Each Rooftop is Completely Computer-Run Tested Prior to Shipment.

Unit Features

- Unit Cabinet Constructed of Powder Painted Steel, Certified At 1000 Hours Salt Spray Test (ASTM B-117 Standards)
- Through-the-Curb and Through-The-Base Utility Connections
- Either Supply and/or Return can be Field Converted from Vertical to Horizontal Configuration without Cutting Panels.
- Full Perimeter Base Rails with Built in Rigging Capabilities
- Hinged & Tool Free Filter, Motor and Electrical Access Panels
- Stainless Steel Drain Pan
- Reciprocating Compressor
- Single Stage Cooling
- Solid Core Liquid Line Filter Driers
- Electrofin Microchannel Condenser Coil
- 100 MBH Output Stainless Steel, Single Stage Gas Nominal Heat
- 1.5 HP Standard Static Belt Drive Blower
- Unit Ships with 1" Throwaway Filters with a Standard Filter Rack That Will Accept up to 2" Filters
- Single Point Power Connection
- HACR Circuit Breaker/Disconnect (Sized for 208 Volts)
- Non Powered Convenience Outlet (110 VAC)
- Phase Monitor
- Single Enthalpy Economizer and Hood (No Barometric Relief Damper)
- Short Circuit Current: 5kA RMS Symmetrical

Standard Unit Controller: Simplicity Control Board

- An Integrated Low-Ambient Control, Anti-Short Cycle Protection, Lead-Lag, Fan On and Fan off Delays, Low Voltage Protection, On-Board Diagnostic and Fault Code Display.
- Safety Monitoring - Monitors the High and Low-Pressure Switches, the Freezestats, the Gas Valve, if Applicable, and the Temperature Limit Switch on Gas and Electric Heat Units. The Unit Control Board will Alarm on Ignition Failures, Safety Lockouts and Repeated Limit Switch Trips.

Warranty

- One (1) Year Limited Warranty on the Complete Unit
- Five (5) Year Warranty - Compressors and Electric Heater Elements
- Fifteen (15) Year Warranty - Stainless Steel Tubular Heat Exchangers
- Three (3) Year Warranty – ElectroFin Condenser Coil

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Small Sunline

Single Package R-410A Air Conditioner

Project Name: **Rite Aid 4133** | Unit Model #: **ZF060S10P2DZZ20002**

Quantity: **1** | System: **ZF060S10P2DZZ20002**

Factory Installed Options

ZF060S10P2DZZ20002

Product Category:	**Z**	York Sunline Single Packaged R-410A Air Conditioner
Product Identifier:	**F**	13.0 SEER / 10.8 EER
Nominal Cooling Capacity:	**060**	5 Ton Single Stage Cooling
Heat Type and Nominal Heat Capacity:	**S10**	100 MBH Output Stainless Steel, Single Stage Gas Heat
Airflow:	**P**	1.5 HP Standard Static Belt Drive Blower 1" Throwaway Filters Single Enthalpy Economizer and Hood (No Barometric Relief Damper)
Voltage:	**2**	208/230-3-60
Installation Options:	**D**	HACR Circuit Breaker/Disconnect (Sized for 208 Volts) Non Powered Convenience Outlet (110 VAC)
Additional Options:	**ZZ**	Electrofin Microchannel Condenser Coil Hinged & Tool Free Filter, Motor and Elec'l Access Panels Phase Monitor Stainless Steel Drain Pan
Product Generation:	**2**	

Field Installed Accessories

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Small Sunline

Single Package R-410A Air Conditioner

Project Name: **Rite Aid 4133** | Unit Model #: **ZF060S10P2DZZ20002**

Quantity: **1** | System: **ZF060S10P2DZZ20002**

Consolidated Drawing

NOTES:
1. FOR OUTDOOR USE ONLY.
2. WEIGHTS SHOWN ARE FOR COOLING ONLY UNITS.
3. MIN. CLEARANCES TO BE:
   - RIGHT SIDE: 24 [609,6]
   - LEFT SIDE: 24 [609,6] (LESS ECONOMIZER)
     36 [914,4] (WITH ECONOMIZER)
   - FRONT: 24 [609,6] (COOLING/ELECTRIC HEAT)
     32 [812,8] (GAS HEAT)
   - REAR: 12 [304,8] (LESS ECONOMIZER)
     36 [914,4] (WITH ECONOMIZER OR FIXED AIR/MOTORIZED DAMPER)
   - TOP: 72 [1828,8]
   - BOTTOM: 0 [0]
4. FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES CONTACT YOUR APPLICATION ENGINEERING DEPARTMENT.
5. DOWNFLOW DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY. IF UNIT IS MOUNTED SIDE SUPPLY, IT IS RECOMMENDED THAT THE DUCTS ARE SUPPORTED BY CROSS BRACES, AS DONE ON ACCESSORY ROOF CURBS.
6. SIDE DUCT FLANGES ARE 0.875" [22,2] HIGH. BOTTOM DUCTS DO NOT HAVE FLANGES.
7. MINIMUM CONDENSATION TRAP HEIGHT SHALL BE 1.5 TIMES THE LOWEST NEGATIVE STATIC.
8. DIMENSIONS IN [ ] ARE IN MILLIMETERS OR KILOGRAMS.
9. OPTIONAL COIL GUARD, GAS HEAT, ECONOMIZER HOOD, DISCONNECT SWITCH, CONVENIENCE OUTLET, AND OUTLET/INLET HOOD SHOWN.

10. EXCEPT XP (HEAT PUMP) UNITS.

DIRECTION OF AIRFLOW

CENTER OF GRAVITY

TONNAGE	UNIT	OPERATING WEIGHT (LBS) (BASE UNIT)	CENTER OF GRAVITY LOCATION (BASE UNIT)		4 POINT CORNER LOADS (LBS) (BASE UNIT)			
			X	Y	A	B	C	D
3	ZF	468 [212]	33 [838,2]	18.25 [463,6]	114 [52]	76 [35]	111 [50]	167 [76]
4	ZF	541 [245]	31.50 [800,1]	18.50 [469,9]	138 [63]	85 [39]	122 [55]	196 [89]
5	ZF	569 [258]	37 [939,8]	15 [381]	105 [48]	86 [39]	170 [77]	208 [94]
6	ZF	640 [290]	37 [939,8]	15 [381]	118 [54]	96 [44]	192 [87]	234 [106]
3	ZR	575 [261]	40 [1016]	20 [508]	132 [60]	125 [57]	155 [70]	164 [74]
4	ZR	585 [265]	40 [1016]	20 [508]	134 [61]	127 [58]	158 [72]	167 [76]
5	ZR	590 [268]	40 [1016]	20 [508]	135 [61]	128 [58]	159 [72]	168 [76]
3	XP	575 [261]	39 [990,6]	20 [508]	135 [61]	121 [55]	151 [69]	168 [76]
4	XP	585 [265]	39 [990,6]	20 [508]	137 [62]	124 [56]	154 [70]	171 [78]
5	XP	590 [268]	39 [990,6]	20 [508]	138 [63]	125 [57]	155 [70]	172 [78]

REAR (PARTIAL VIEW)
(RAIN HOOD NOT SHOWN IN THIS VIEW)

LEFT VIEW

FRONT VIEW

RIGHT VIEW

Project Name: **Rite Aid 4133** Unit Model #: **ZF060S10P2DZZ20002**

Quantity: **1** System: **ZF060S10P2DZZ20002**

Component Locations

Gas/Electric

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Rite Aid 4133
Project Number
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Guide Specification Summary Page

Product Series	Models and Unit Tags
Predator	ZJ120S20U2DEA5
Small Sunline	ZF060S10P2DZZ20002

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GENERAL

Units shall be manufactured by Unitary Products in an ISO 9001 certified facility. York Predator units are convertible single packages with a common footprint cabinet and common roof curb for all 6-1/2 through 12-1/2 ton models. All units have two compressors with independent R-410A refrigeration circuits to provide 2 stages of cooling. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame. All units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged with R-410A, wired, piped, and tested at the factory to provide a quick and easy field installation. All units are convertible between side and down airflow. Independent economizer designs are used on side and down discharge applications, as well as all tonnage sizes. Units are available in the following configurations: cooling only, cooling with electric heat, cooling with gas heat, reheat only, reheat with electric heat, reheat with gas heat, heat pump and heat pump with electric heat. Electric heaters are available as factory-installed options or field-installed accessories.

DESCRIPTION

Units shall be factory assembled, single package, (Elec/Elec, Gas/ Elec), designed for outdoor installation. They shall have built in field convertible duct connections for down discharge supply/return or horizontal discharge supply/return and be available with factory installed options or field installed accessories. The units shall be factory wired, piped and charged with R-410A refrigerant and factory tested prior to shipment. All unit wiring shall be both numbered and color coded. The cooling performance shall be rated in accordance with DOE and AHRI test procedures. Units shall be CSA certified to ANSI Z21.47 and UL 1995/CAN/CSA No. 236-M90 standards.

UNIT CABINET

Unit cabinet shall be constructed of galvanized steel with exterior surfaces coated with a non-chalking, powder paint finish, certified at 1000 hour salt spray test per ASTM-B117 standards. Indoor blower sections shall be insulated with up to 1” thick insulation coated on the airside. Either aluminum foil faced or elastometric rubber insulation shall be used in the unit’s compartments and be fastened to prevent insulation from entering the air stream. Cabinet doors shall be hinged with toolless access for easy servicing and maintenance. Full perimeter base rails shall be provided to assure reliable transit of equipment, overhead rigging, fork truck access and proper sealing on roof curb applications. Disposable 2” filters shall be furnished as standard and be accessible through hinged access door. Fan performance measuring ports shall be provided on the outside of the cabinet to allow accurate air measurements of evaporator fan performance without removing panels or creating bypass of the coils. Condensate pan shall be slide out design, constructed of a non corrosive material, internally sloped and conforming to ASHRAE 62-B9 standards. Condensate connection shall be a minimum of ¾” I.D. female and be rigid mount connection.

OUTDOOR (CONDENSER) FAN ASSEMBLY

The outdoor fans shall be of the direct drive type, discharge air vertically, have aluminum blades riveted to corrosion resistant steel spider brackets and shall be dynamically balanced for smooth operation. The outdoor fan motors shall have permanently lubricated bearings internally protected against overload conditions and staged independently. A cleaning window shall be provided on two sides of the units for coil cleaning.

REFRIGERANT COMPONENTS

Compressors:

a. Shall be fully hermetic type, direct drive, internally protected with internal high-pressure relief and over temperature protection. The hermetic motor shall be suction gas cooled and have a voltage range of + or – 10% of the unit nameplate voltage.
b. Shall have internal spring isolation and sound muffling to minimize vibration and noise, and be externally isolated on a dedicated, independent mounting.

Coils:

a. Evaporator coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed. Special Phenolic coating shall be available as a factory option.
b. Evaporator coils shall be of the direct expansion, draw-thru design.
c. Condenser coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed or Micro-Channel aluminum tube, aluminum fins. Special Phenolic coating shall be available as a factory option.
d. Condenser coils shall be of the draw-thru design.

Refrigerant Circuit and Refrigerant Safety Components shall include:

a. Independent fixed-orifice or thermally operated expansion devices.
b. Solid core filter drier/strainer to eliminate any moisture or foreign matter.

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c. Accessible service gage connections on both suction and discharge lines to charge, evacuate, and measure refrigerant pressure during any necessary servicing or troubleshooting, without losing charge.
d. The unit shall have two independent refrigerant circuits, equally split in 50% capacity increments.

Unit Controls:

a. Unit shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-volt transformer side.
b. Unit shall incorporate a lockout circuit which provides reset capability at the space thermostat or base unit should any of the following standard safety devices trip and shut off compressor:
   - Loss-of-charge/Low-pressure switch.
   - High-pressure switch.
   - Freeze-protection thermostat, evaporator coil. If any of the above safety devices trip, an LED (light-emitting diode) indicator shall flash a diagnostic code that indicates which safety switch has tripped.
c. Unit shall incorporate “AUTO RESET” compressor over temperature, over current protection.
d. Unit shall operate with conventional thermostat designs and have a low voltage terminal strip for easy hook-up.
e. Unit control board shall have on-board diagnostics and fault code display.
f. Standard controls shall include anti-short cycle and low voltage protection, and permit cooling operation down to 0 ºF.
g. Control board shall monitor each refrigerant safety switch independently.
h. Control board shall retain last 5 fault codes in non-volatile memory, which will not be lost in the event of a power loss.

GAS HEATING SECTION

Heat exchanger and exhaust system shall be constructed of aluminized steel and shall be designed with induced draft combustion with post purge logic, energy saving direct spark ignition, and redundant main gas valve. The heat exchanger shall be of the tubular type, constructed of T1-40 aluminized steel for corrosion resistance and allowing minimum mixed air entering temperature of 40 ºF. Burners shall be of the in-shot type, constructed of aluminum-coated steel. All gas piping shall enter the unit cabinet at a single location, through either the side or bottom, without any field modifications. An integrated control board shall provide timed control of evaporator fan functioning and burner ignition. Heating section shall be provided with the following minimum protection:

a. Primary and auxiliary high-temperature limit switches.
b. Induced draft pressure sensor.
c. Flame proving controls.
d. All two stage gas units shall have two independent stages of capacity (70% or 75% 1st stage, 100% 2nd stage) 3 through 5 ton and (60% 1st stage, 100% 2nd stage) 6-1/2 through 12-1/2 ton.

UNIT OPERATING CHARACTERISTICS

Unit shall be capable of starting and running at 125 ºF outdoor temperature, exceeding maximum load criteria of AHRI Standard 340/360. The compressor, with standard controls, shall be capable of operation down to 0 ºF outdoor temperature. Unit shall be provided with fan time delay to prevent cold air delivery before heat exchanger warms up. (Gas heat only)

ELECTRICAL REQUIREMENTS - All unit power wiring shall enter unit cabinet at a single factory provided location and be capable of side or bottom entry to minimize roof penetrations and avoid unit field modifications. Separate side and bottom openings shall be provided for the control wiring.

STANDARD LIMITED WARRANTIES - Compressor – 5 Years, Heat Exchanger – 10 Years, Stainless Steel Heat Exchanger – 15 Years, Elect. Heat Elem. – 5 Years, Parts – 1 Year.

FACTORY INSTALLED OPTIONAL OUTDOOR AIR (Shall be made available by either/or):

- **ELECTRONIC ENTHALPY AUTOMATIC ECONOMIZER** – Outdoor and return air dampers that are interlocked and positioned by a fully-modulating, spring-return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in outdoor air to meet the minimum ventilation requirement of the conditioned space during normal operation. During economizer operation, a mixed-air temperature control shall modulate the outdoor and return air damper assembly to prevent the supply air temperature from dropping below 55 ºF. Changeover from compressor to economizer operation shall be provided by an integral electronic enthalpy control that feeds input into the basic module. The outdoor intake opening shall be covered with a rain hood that matches the exterior of the unit. Water eliminator/filters shall be provided. Simultaneous economizer/compressor operation is also possible. Dampers shall fully close on power loss. Available with barometric relief or power exhaust.

ADDITIONAL FACTORY INSTALLED OPTIONS

- **Alternate Indoor Blower Motor** – For applications with high restrictions, units are available with optional indoor blower motors that provide higher static output and/or higher airflow.

- **Non-Powered Convenience Outlet** – Unit is provided with a non-powered 120VAC GFCI outlet with cover on the corner of the unit housing the compressors.

- **Breaker** – An HACR breaker can be factory installed on gas heat units or cooling units with electric heat.

- **Stainless Steel Heat Exchanger** – For applications in a corrosive environment, this option provides a full stainless steel heat exchanger assembly.

- **ElectroFin® E-coat Epoxy Polymer Coated Condenser Coil** – The condenser coils are coated with an epoxy polymer coating to protect against corrosion.

FIELD INSTALLED OPTIONS

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GENERAL

Units shall be manufactured by Johnson Controls Unitary Products in an ISO 9001 certified facility. York Sunline units are convertible single package units. Although the units are primarily designed for curb mounting on a roof, they can also be slab-mounted at ground level or set on steel beams above a finished roof. Cooling only, cooling with gas heat and cooling with electric heat models are available with a wide variety of factory-mounted options and field-installed accessories to make them suitable for almost every application. All units are self-contained and assembled on full perimeter base rails with holes in the four corners for overhead rigging. Every unit is completely piped, wired, charged and tested at the factory to simplify the field installation and to provide years of dependable operation. All models (including those with an economizer) are suitable for either bottom or horizontal duct connections. Models with power exhaust are suitable for bottom duct connections only. For bottom duct, remove the sheet metal panels from the supply and return air openings through the base of the unit. For horizontal duct, remove the supply and return air panels on the rear of the unit.

All non-Scroll compressors include crankcase heaters and all compressors have internal pressure relief. Every refrigerant circuit includes a liquid line filter-drier, a discharge line high pressure switch and a suction line with a freezestat and low pressure/loss of charge switch. The unit control circuit includes a 75 VA transformer, a 24-volt circuit breaker and a relay board with a compressor lockout circuit, a terminal strip for thermostat wiring, plus an additional set of pin connectors to simplify the interface of additional field controls. All models are CSA listed. All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements carry a 5-year warranty. Aluminized steel and Stainless steel tubular heat exchangers carry a 10-year warranty.

DESCRIPTION

Units shall be factory-assembled, single packaged, Electric Cooling/Gas Heat, Electric Cooling/Optional Electric Heat, Heat Pump/Optional Electric Heat are designed for outdoor mounted installation.

The 3 ton, 4 ton and 5 ton units shall have minimum SEER rating of 13.0 with heat pumps having a 7.7 H.S.P.F. The 6 Ton Cooling only or Cooling with Electric Heat shall have 11.2 EER, 6 Ton Cooling with Gas Heat shall have 11.0 EER. They shall have built-in field convertible duct connections for down discharge supply/return or horizontal discharge supply/return, and be available with factory installed options or field installed accessories. The units shall be factory wired, piped, charged with R-410A refrigerant and factory tested prior to shipment. All unit wiring shall be both numbered and color coded. All units the cooling performance shall be rated in accordance with DOE and AHRI test procedures. Units shall be CSA listed, classified to ANSI Z21.47, UL 1995/CSA No. 236 standards.

UNIT CABINET

Unit cabinet shall be constructed of galvanized steel, with exterior surfaces coated with a non-chalking, powdered paint finish, certified at 1000 hours salt spray test per ASTMB117 standards. Indoor blower section shall be insulated with a minimum 1/2” thick insulation, coated on the airside. Aluminum foil faced insulation shall be used in the furnace compartment and be fastened with ridged fasteners to prevent insulation from entering the air stream. Cabinet panels shall be “large” size, easily removable for servicing and maintenance. Full perimeter base rails shall be provided to assure reliable transit of equipment, overhead rigging and proper sealing on roof curb applications. Disposable 1" filters shall be furnished and be accessible through a removable access door, sealed airtight. Units filter track shall be designed to accommodate either 1" or 2" filters. Fan performance measuring ports shall be provided on the outside of the cabinet to allow accurate air measurements of evaporator fan performance without removing panels or creating air by-pass of the coils. Condensate pan shall be internally sloped and conform to ASHRAE 62-89 self-draining standards. Condensate connection shall be a minimum of 3/4” I.D. female and be a ridged mount connection.

INDOOR (EVAPORATOR) FAN ASSEMBLY

The indoor fan shall be a factory installed direct-drive or belt-drive assembly that includes an adjustable pitch motor pulley. Job site selected (B.H.P.) brake horsepower shall not exceed the motors nameplate horsepower rating, plus the service factor. Units shall be designed not to operate above service factor. Fan wheel shall be double-inlet type with forward-curved blades, dynamically balanced to operate smoothly throughout the entire range of operation. Airflow design shall be constant air volume. Bearings shall be sealed and permanently lubricated for longer life and no maintenance.

OUTDOOR (CONDENSER) FAN ASSEMBLY

The outdoor fan shall be of the direct-driven propeller type, discharge air vertically, have aluminum blades riveted to a corrosion resistant steel spider bracket and shall be dynamically balanced for smooth operation. The outdoor fan motor shall be totally enclosed with permanently lubricated bearings, internally protected against overload conditions and staged independently.

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REFRIGERANT COMPONENTS

Compressors:

a. Shall be internally protected with internal high-pressure relief and over temperature protection.
b. Shall have internal spring isolation and sound muffling to minimize vibration and noise, and be externally isolated on a dedicated, independent mounting.

Coils:

a. Evaporator coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed. Special Phenolic coating shall be available as a factory option.
b. Evaporator coils shall be of the direct expansion, draw-thru design.
c. Condenser coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed or Micro-Channel aluminum tube, aluminum fins.
d. Condenser coils shall be of the direct expansion, draw-thru design.

Refrigerant Circuit and Refrigerant Safety Components shall include:

a. Independent fixed-orifice or thermally operated expansion devices.
b. Filter drier/strainer to eliminate any moisture or foreign matter.
c. Accessible service gage connections on both suction and liquid lines to charge, evacuate, and measure refrigerant pressure during any necessary servicing or troubleshooting, without losing charge.
d. The refrigeration system shall provide at least 15°F of sub-cooling at design conditions.

Unit Controls:

a. Unit shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-volt transformer side.
b. Unit shall incorporate a lockout circuit which provides reset capability at the space thermostat or base unit, should any of the following standard safety devices trip and shut off compressor.
c. Loss-of-charge/Low-pressure switch.
d. High-pressure switch.
e. Freeze-protection thermostat, evaporator coil.
f. Unit shall incorporate “AUTO RESET” compressor over temperature, over current protection.
g. Unit shall operate with conventional thermostat designs and have a low voltage terminal strip for easy hook-up.
h. Unit control board shall have on-board diagnostics and fault code display.
i. Standard controls shall include anti-short cycle and low voltage protection, and permit cooling operation down to 0°F.
j. Control board shall monitor each refrigerant safety switch independently.
k. Control board shall retain last 5 fault codes in non volatile memory which will not be lost in the event of a power loss.

GAS HEATING SECTION (SINGLE STAGE)

Shall be designed with induced draft combustion with post purge logic, energy saving direct spark ignition, and redundant main gas valve. Venter wheel shall be constructed of stainless steel for corrosion resistance. The heat exchanger shall be of the tubular type, constructed of T1-40 aluminized steel for corrosion resistance and allowing minimum mixed air entering temperature of 25°F. Burners shall be of the inshot type, constructed of aluminum coated steel and contain air mixture adjustments. All gas piping shall enter the unit cabinet at a single location through either the side or curb without any field modifications. Integrated control boards shall provide timed control of evaporator fan functioning and burner ignition. Heating section shall be provided with the following minimum protection.

a. Primary and auxiliary high-temperature limit switches.
b. Induced draft motor speed sensor.
c. Flame roll out switch.
d. Flame proving controls.
e. If any of the above safety devices trip, a LED (light-emitting diode) indicator shall flash a diagnostic code that indicates which safety switch has tripped.

NOTE: All 2 Stage Gas Heat, 60% Capacity 1st Stage, 40% Capacity 2nd Stage.

UNIT OPERATING CHARACTERISTICS

Unit shall be capable of starting and running at 125°F outdoor temperature, exceeding maximum load criteria of AHRI Standard 210/240. The compressor, with standard controls, shall be capable of operation down to 0°F outdoor temperature. Unit shall be provided with fan time delay to prevent cold air delivery before heat exchanger warms up (Gas heat only).

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ELECTRICAL REQUIREMENTS

All unit power wiring shall enter unit cabinet at a single factory provided location and be capable of side or bottom entry, to minimize roof penetrations and avoid unit field modifications. Separate side and bottom openings shall be provided for the control wiring.

STANDARD LIMITED WARRANTIES

- Compressor 5 Years
- Heat Exchanger 10 Years
- Electric Heat Element 5 Years
- Other Parts 1 Year

OPTIONAL OUTDOOR AIR

- **Economizer** – Outdoor and return air dampers that are interlocked and positioned by a fully-modulating, spring return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in CFM of outdoor air to meet the minimum ventilation requirement of the conditioned space during normal operation. During economizer operation, a mixed-air temperature control shall modulate the outdoor and return air damper assembly to prevent the supply air temperature from dropping below 55°F. The outdoor intake opening shall be covered with a rain hood that matches the exterior of the unit. Water eliminator/filters shall be provided. Simultaneous economizer/compressor operation is also possible. Dampers shall fully close on power loss.

ADDITIONAL FACTORY INSTALLED OPTIONS

- **Stainless Steel Heat Exchanger** – For applications in corrosive environments, this option provides a full stainless steel heat exchanger assembly.
- **Stainless Steel Drain Pan** – An optional rustproof stainless steel drain pan is available to provide years of trouble-free operation in corrosive environments.
- **ElectroFin® E-coat Epoxy Polymer Coated Condenser Coil** – The condenser coils are coated with an epoxy polymer coating to protect against corrosion.
- **Phase Monitor** – Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of phase condition.
- **Non-powered GFI Convenience Outlet**
- **Hinged Filter Door Access And Toolless Access Panels**
- **Disconnect Switch** - For gas heat units and cooling units with electric heat, a HACR breaker sized to the unit is provided. For cooling only units, a switch sized to the largest electric heat available for the particular unit is provided.

FIELD INSTALLED OPTIONS

- **Barometric Relief Damper** – This damper accessory can be used to relieve internal building air pressure on units with an economizer without power exhaust. This accessory includes a rain hood, a bird screen and a fully assembled damper. With bottom duct connections, the damper should be mounted over the opening in the return air panel. With horizontal ductwork, the accessory should be mounted on the return air duct.