



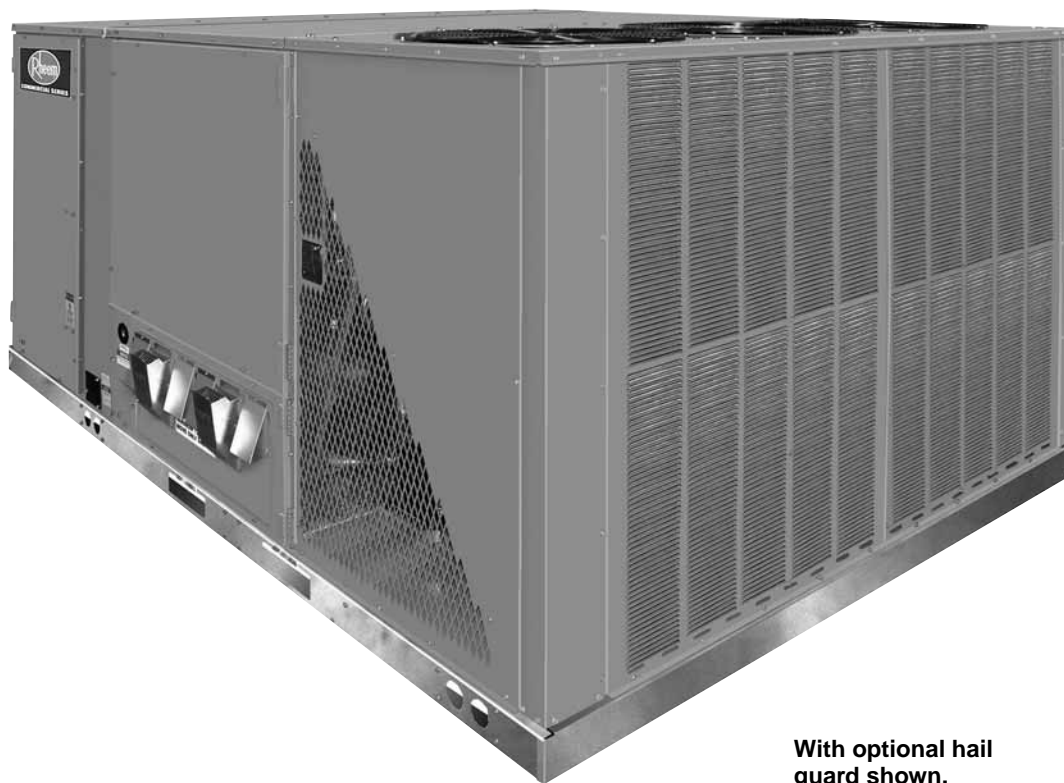
# PACKAGE GAS / ELECTRIC ROOFTOP UNITS

FORM NO. EXR11-848

Featuring Industry Standard R-410A Refrigerant

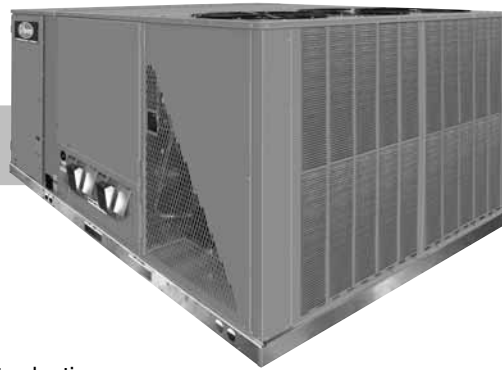
**R-410A**

**SKKL-B STANDARD EFFICIENCY SERIES**  
**NOMINAL SIZES 15 & 20 TONS [52.8 & 70.3 kW]**  
**ASHRAE 90.1-2007 COMPLIANT MODEL**



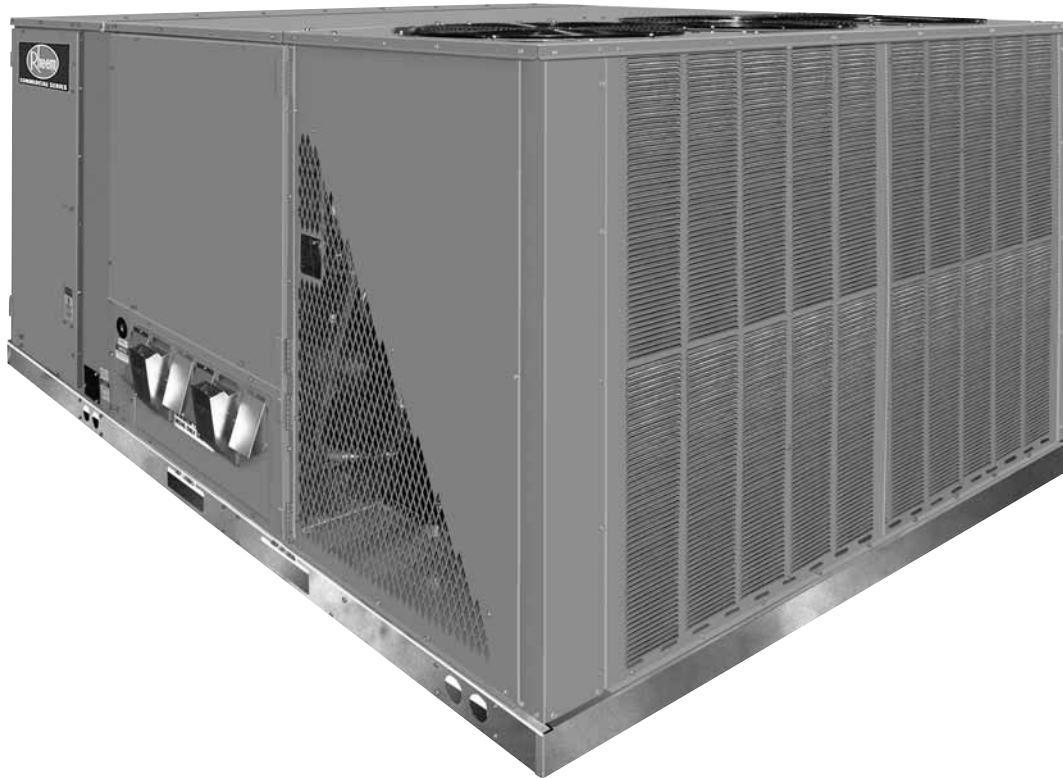
With optional hail guard shown.





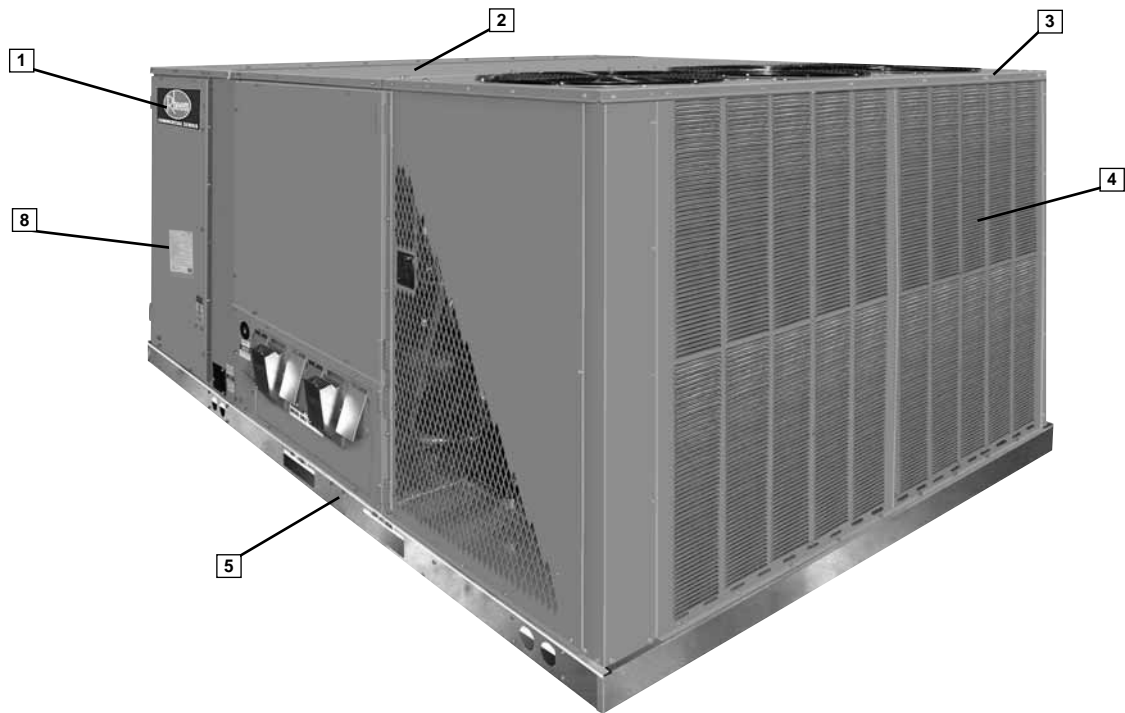
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## *These quality features are included in the Rheem Package Gas/Electric Unit*



### **STANDARD FEATURES INCLUDE:**

- R-410A HFC refrigerant.
- Complete factory charged, wired and run tested.
- Scroll compressors with internal line break overload and high-pressure protection.
- Two independent refrigerant circuits each with a scroll compressor provide two stage cooling operation.
- Convertible airflow – vertical downflow or horizontal sideflow.
- Capillary tube refrigerant metering system on each circuit.
- High Pressure and Low Pressure/Loss of charge protection standard on all models.
- Solid Core liquid line filter drier on each circuit.
- Single slab, single pass designed evaporator and condenser coils facilitate easy cleaning for maintaining high efficiencies.
- Cooling operation up to 125 degree F ambient.
- Foil faced insulation encapsulated throughout entire unit minimizes airborne fibers from the air stream.
- Hinged major access door with heavy-duty gasketing.
- Slide Out Indoor fan assembly for added service convenience.
- Powder Paint Finish meets ASTM B117 steel coated on each side for maximum protection. G90 galvanized.
- Base pan with drawn supply and return opening for superior water management.
- Forkable base rails for easy handling and lifting.
- Single point electrical connections.
- Internally sloped slide out condensate pan conforms to ASHRAE 62 standards.
- High performance belt drive motor with variable pitch pulleys and quick adjust belt system.
- Permanently lubricated evaporator, condenser and gas heat inducer motors.
- Condenser motors are internally protected, totally enclosed with shaft down design.
- 2 inch filter standard with slide out design.
- Two stage gas valve, direct spark ignition, and induced draft for efficiency and reliability.
- Tubular heat exchange for long life and induced draft for efficiency and reliability.
- Solid state furnace control with on board diagnostics.
- 24 volt control system with resettable circuit breakers.
- Colored and labeled wiring.
- Copper tube/Aluminum Fin indoor coil.
- Aluminum MicroChannel outdoor coil(s).



Rheem Package equipment is designed from the ground up with the latest features and benefits required to compete in today's market. The clean design stands alone in the industry and is a testament to the quality, reliability, ease of installation and serviceability that goes into each unit. Outwardly, the large Rheem *Commercial Series*<sup>™</sup> label (1) identifies the brand to the customer.

The sheet-metal cabinet (2) uses nothing less than 20-gauge material for structural components with an underlying coat of G90. To ensure the leak-proof integrity of these units, the design utilizes a top with a 1/8" drip lip (3), gasket-protected panels and screws. The (optional) hail guard protects the coil from hail damage (4). Every Rheem package unit uses the toughest finish in the industry, using electro deposition baked-on enamel tested to withstand a rigorous 1000-hour salt spray test, per ASTM B117.

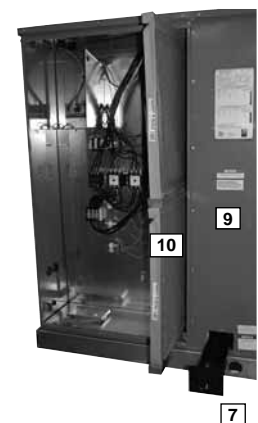
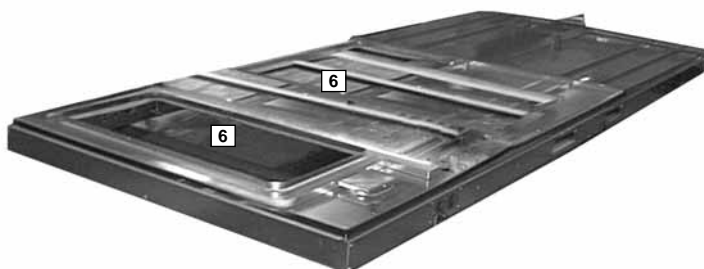
Anything built to last must start with the right foundation. In this case, the foundation is 14-gauge, commercial-grade, full-perimeter base rails (5), which integrate fork slots and rigging holes to save set-up time on the job site. The base pan is stamped, which forms a 1-1/8" flange around the supply and return opening and has eliminated the worry of water entering the conditioned space (6). The drainpan (7) is made of material that resists the growth of harmful bacteria and is sloped for the latest IAQ benefits. Furthermore, the drainpan slides out for easy cleaning. The insulation has been placed on the underside of the basepan, removing areas that would allow for potential moisture accumulation, which can facilitate growth of harmful bacteria. All insulation is secured with both adhesive and mechanical fasteners, and all edges are hidden.

During development, each unit was tested to U.L. 1995, ANSI 21.47, AHRI 340-360 and other Rheem-required reliability tests. Rheem adheres to stringent ISO 9002 quality procedures, and each unit bears the U.L. and AHRI certification labels located on the unit nameplate (8). Contractors can rest assured that when a Rheem package unit arrives at the job, it is ready to go with a factory charge and quality checks.

Access to all major compartments is from the front of the unit, including the filter and electrical compartment, blower compartment, furnace section, and outdoor section. Each panel is permanently embossed with the compartment name (control/filter access, blower access and furnace access).

Electrical and filter compartment access is through a large, hinged-access panel. On the outside of the panel is the unit nameplate, which contains the model and serial number, electrical data and other important unit information.

The unit charging chart is located on the inside of the electrical and filter compartment door. Electrical wiring diagrams are found on the control box cover, which allows contractors to move them to more readable locations. To the right of the control box the model and serial number can be found. Having this information on the inside will assure model identification for the life of the product. The production line quality test assurance label is also placed in this location (9). The two-inch throwaway filters (10) are easily removed on a tracked system for easy replacement.





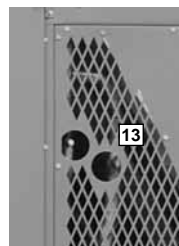
Inside the control box (11), each electrical component is clearly identified with a label that matches the component to the wire diagram for ease of troubleshooting. All wiring is numbered on each end of the termination and color-coded to match the wiring diagram. The integrated furnace control, used to control furnace operation, incorporates a flashing LED troubleshooting device. Flash codes are clearly outlined on the unit wiring diagram. The control transformer has a low voltage circuit breaker that trips if a low voltage electrical short occurs. There is a blower contactor and a contactor for each compressor.



For added convenience in the field, a factory-installed convenience outlet and disconnect (12) are available. Low and High voltage can enter either from the side or through the base. Low-voltage connections are made through the low-voltage terminal strip. For ease of access, the U.L.-required low voltage barrier can be temporarily removed for low-voltage termination and then reinstalled. The high-voltage connection is terminated at the high-voltage terminal block. The suggested mounting for the field-installed disconnect is on the exterior side of the electrical control box.



In the outdoor section are the external gauge ports. (13). With gauge ports mounted externally, an accurate diagnostic of system operation can be performed quickly and easily.



The blower compartment is to the right of the control box and can be accessed by 1/4 turn latches. To allow easy maintenance of the blower assembly, the entire assembly easily slides out by removing four #10 screws from the blower assembly. The adjustable motor pulley (14) can easily be adjusted by loosening the bolts on either side of the motor mount. Removing the bolts allows for easy removal of the blower pulley by pushing the blower assembly up to loosen the belt. Once the belt is removed, the motor sheave can be adjusted to the desired number of turns, ranging from 0 to 6 turns open. Where the demands for the job require high static, Rheem has high-static drives available that deliver nominal airflow up to 2" of static. By referring to the airflow performance tables listed in the installation instructions, proper static pressure and CFM requirements can be dialed in. The scroll housing (15) and blower scroll provide quiet and efficient airflow. The blower sheave is secured by an "H" bushing which firmly secures the pulley to the blower shaft for years of trouble-free operation. The "H" bushing allows for easy removal of the blower pulley from the shaft, as opposed to the use of a set screw, which can score the shaft, creating burrs that make blower-pulley removal difficult.



# UNIT FEATURES & BENEFITS—SKKL-B SERIES



Also inside the blower compartment are the optional low-ambient controls (16). The low-ambient controls allow for operation of the compressor down to 0 degrees ambient temperature by cycling the outdoor fans on high pressure. Use of polarized plugs and schrader fittings allow for easy field or factory installation.

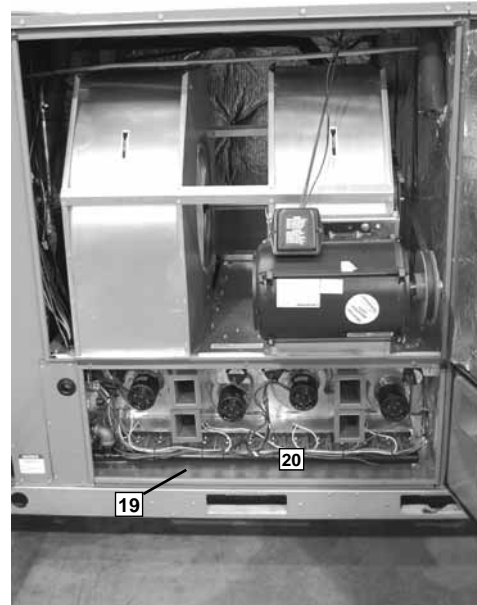


Inside the blower compartment the interlaced evaporator can also be viewed. The evaporator uses enhanced fin technology for maximum heat transfer. The capillary tube device assures even distribution of refrigerant throughout the evaporator.

Wiring throughout the unit is neatly bundled and routed. Where wire harnesses go through the condenser bulkhead or blower deck, a molded wire harness assembly (17) provides an air-tight and water-tight seal, and provides strain relief. Care is also taken to tuck raw edges of insulation behind sheet metal to improve indoor air quality.



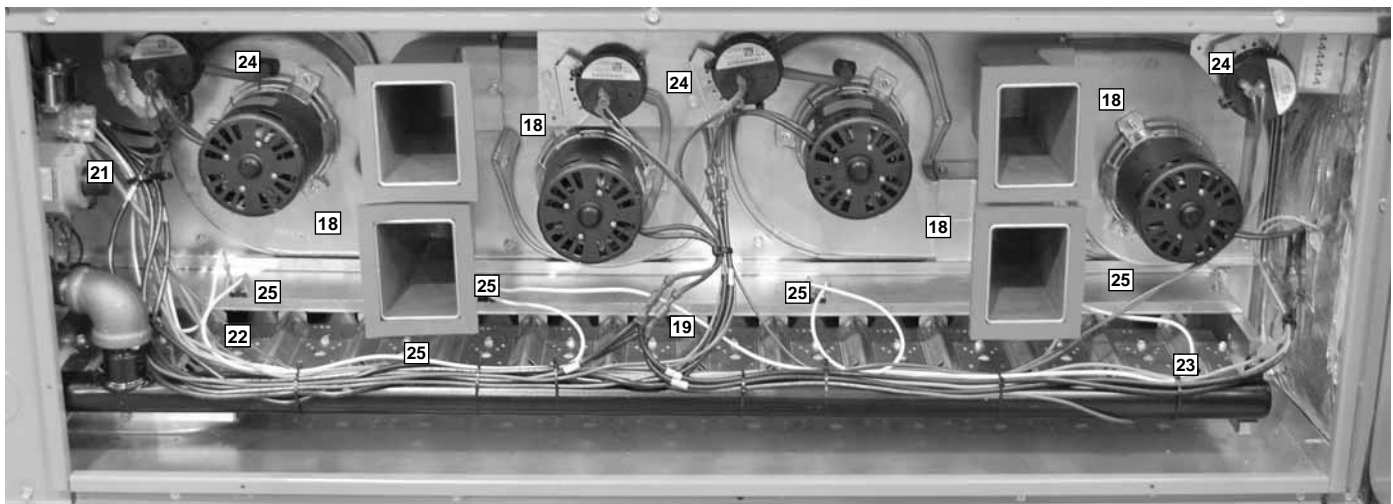
The furnace compartment contains the latest furnace technology on the market. The draft inducers (18) draw the flame from the Rheem exclusive in-shot burners (19) into the aluminized tubular heat exchanger (20) for clean, efficient gas heat. Stainless steel heat exchangers can be factory installed for those applications that have high fresh-air requirements, or applications in corrosive environments. Each furnace is equipped with a two-stage gas valve (21), which provides two stages of gas heat input. The first stage operates at 50% of the second stage (full fire). 81% steady state efficiency is maintained on both first and second stage by staging the multiple inducers to optimize the combustion airflow and maintain a near stoichiometric burn at each stage.

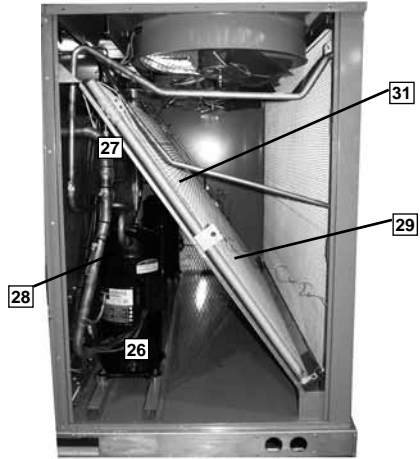


The direct spark igniter (22) assures reliable ignition in the most adverse conditions. This is coupled with remote flame sense (23) to assure that the flame has carried across the entire length of the burner assembly. Gas supply can be routed from the side or up through the base.

Each furnace has the following safety devices to assure consistent and reliable operation after ignition:

- Pressures switches (24) to assure adequate combustion airflow before ignition.
- Rollout switches (25) to assure no obstruction or cracks in the heat exchanger.
- A limit device that protects the furnace from over-temperature problems.

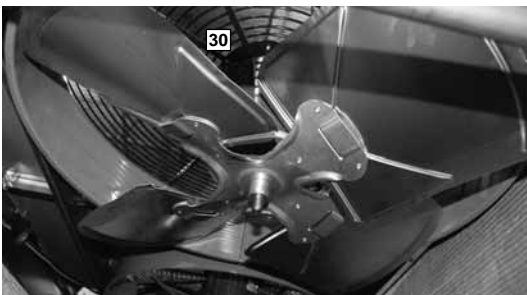




The compressor compartment houses the heartbeat of the unit. The scroll compressor (26) is known for its long life, and for reliable, quiet, and efficient operation. The suction and discharge lines are designed with shock loops (27) to absorb the strain and stress that the starting torque, steady state operation, and shut down cycle impose on the refrigerant tubing. Each compressor and circuit is independent for built-in redundancy, and each circuit is clearly marked throughout the system. Each unit has two stages of efficient cooling operation, first stage is approximately 50% of second stage.

The low-pressure switches (28) and high-pressure switches (29) are mounted on the appropriate refrigerant lines in the condenser section. The high-pressure switch will shut off the compressors if pressures exceeding 610 PSIG are detected as may occur if the outdoor fan motor fails. The low-pressure switches shut off the compressors if low pressure is detected due to loss of refrigerant charge. The optional freeze stats clip on the suction line above the compressor and wires into the low voltage plugs after removing a prewired jumper. The freeze stat protects the compressor if the evaporator coil gets too cold (below freezing) due to low airflow. Each factory-installed option is brazed into the appropriate high or low side and wired appropriately. Use of polarized plugs and schrader fittings allow for easy field installation.

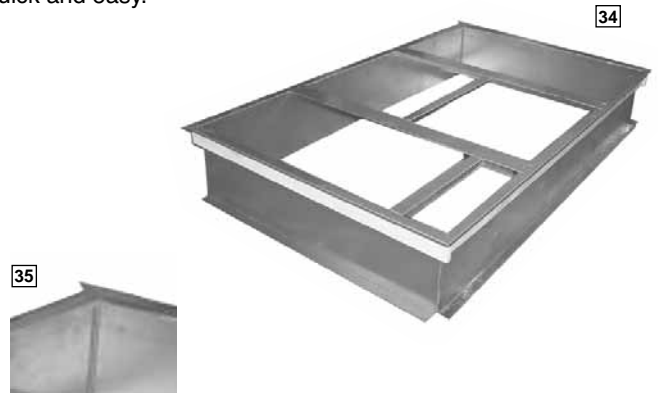
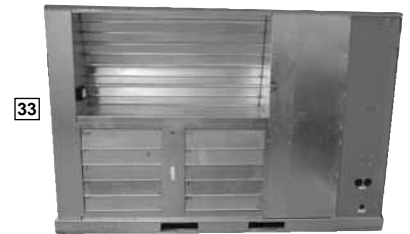
The condenser fan motor (30) can easily be accessed and maintained by removing the protective fan grille. The polarized plug connection allows the motor to be changed quickly and eliminates the need to snake wires through the unit. The aluminum MicroChannel outdoor coil uses the latest enhanced fin design (31) for the most effective method of heat transfer with a reduction in refrigerant charge and unit weight. The outdoor coil is protected by optional louvered panels, which allow unobstructed airflow while protecting the unit from both Mother Nature and vandalism.



Each unit is designed for both downflow or horizontal applications (32) for job configuration flexibility. The return air compartment can also contain an economizer (33). Three models exist, two for downflow applications, and one for horizontal applications. Each unit is pre-wired for the economizer to allow quick plug-in installation. The downflow economizer is also available as a factory-installed option. Power Exhaust is easily field-installed. The economizer, which provides free cooling when outdoor conditions are suitable and also provides fresh air to meet local requirements, comes standard with single enthalpy controls. The controls can be upgraded to dual enthalpy easily in the field. The direct drive actuator combined with gear drive dampers has eliminated the need for linkage adjustment in the field. The economizer control has a minimum position setpoint, an outdoor-air setpoint, a mix-air setpoint, and a CO<sup>2</sup> setpoint. Barometric relief is standard on all economizers. The power exhaust is housed in the barometric relief opening and is easily slipped in with a plug-in assembly.



The Rheem roofcurb (34) is made for toolless assembly at the jobsite by inserting a pin into a hinge in each corner of the adjacent curb sides (35), which makes the assembly process quick and easy.





To select an SKKL-B Cooling and Heating unit to meet a job requirement, follow this procedure, with example, using data supplied in this specification sheet.

## 1. DETERMINE COOLING AND HEATING REQUIREMENTS AND SPECIFIC OPERATING CONDITIONS FROM PLANS AND SPECS.

Example:

Voltage—	380/415V—3 Phase—50 Hz
Total Cooling Capacity—	195,000 BTUH [57.1 kW]
Sensible Cooling Capacity—	150,000 BTUH [43.9 kW]
Heating Capacity—	255,000 BTUH [74.7 kW]
*Condenser Entering Air—	95°F [35.0°C] DB
*Evaporator Mixed Air Entering—	65°F [18.3°C] WB 78°F [25.6°C] DB
*Indoor Air Flow (vertical)—	7200 CFM [3398 L/s]
*External Static Pressure—	0.70 in. WG [.17 kPa]

## 2. SELECT UNIT TO MEET COOLING REQUIREMENTS.

Since total cooling is within the range of a nominal 20 ton [70.3 kW] unit, enter cooling performance table at 95°F [35.0 °C] DB condenser inlet air. Interpolate between 63°F [17.2 °C] WB and 67°F [19.4 °C] WB to determine total and sensible capacity and power input for 65°F [18.3 °C] WB evaporator inlet air at 6325 CFM [2985 L/s] indoor air flow (table basis):

Total Cooling Capacity = 206,700 BTUH [60.52 kW]  
Sensible Cooling Capacity = 166,700 BTUH [48.81 kW]  
Power Input (Compressor and Cond. Fans) = 16,400 watts

Use formula in note (1) to determine sensible capacity at 78°F [25.6 °C] DB evaporator entering air:

$$166,700 + (1.10 \times 7,200 \times (1 - 0.1) \times (78 - 80))$$

$$\text{Sensible Cooling Capacity} = 152,444 \text{ BTUH [44.64 kW]}$$

## 3. CORRECT CAPACITIES OF STEP 2 FOR ACTUAL AIR FLOW.

Select factors from airflow correction table at 7200 CFM [3398 L/s] and apply to data obtained in step 2 to obtain gross capacity:

Total Capacity = 206,700 x 1.02 = 210,834 BTUH [61.73 kW]  
Sensible Capacity = 152,444 x 1.1 = 167,688 BTUH [49.10 kW]  
Power Input = 16,400 x 1.02 = 16,728 Watts

These are Gross Capacities, not corrected for blower motor heat or power.

## 4. DETERMINE BLOWER SPEED AND WATTS TO MEET SYSTEM DESIGN.

Enter Indoor Blower performance table at 7200 CFM [3398 L/s]. Total ESP (external static pressure) per the spec of 0.70 in. WG [.17 kPa] includes the system duct and grilles. Add from the table "Component Air Resistance", 0.01 in. WG [.00 kPa] for wet coil, 0.08 in. WG [.02 kPa] for downflow air flow, for a total selection static pressure of 0.79 (0.8) in. WG [.20 kPa], and determine:

RPM = 748  
WATTS = 3,058  
DRIVE = M (7.5 H.P. motor)

## 5. CALCULATE INDOOR BLOWER BTUH HEAT EFFECT FROM MOTOR WATTS, STEP 4.

$$3,058 \times 3.412 = 10,434 \text{ BTUH [3.06 kW]}$$

## 6. CALCULATE NET COOLING CAPACITIES, EQUAL TO GROSS CAPACITY, STEP 3, MINUS INDOOR BLOWER MOTOR HEAT.

$$\text{Net Total Capacity} = 210,834 - 10,434 = 200,400 \text{ BTUH [58.68 kW]}$$

$$\text{Net Sensible Capacity} = 167,688 - 10,434 = 157,254 \text{ BTUH [46.05 kW]}$$

## 7. CALCULATE UNIT INPUT AND JOB EER.

$$\text{Total Power Input} = 16,728 \text{ (step 3)} + 3,058 \text{ (step 4)} = 19,786 \text{ Watts}$$

$$\text{EER} = \frac{\text{Net Total BTUH [kW] (step 6)}}{\text{Power Input, Watts (above)}} = \frac{200,400}{19,786} = 10.13$$

## 8. SELECT UNIT HEATING CAPACITY.

From Physical Data Table read that gas heating output (input x efficiency) is:

$$\text{Heating Capacity} = 267,000 \text{ BTUH [78.2 kW]}$$

## 9. CHOOSE MODEL SKKL-B240NM33E

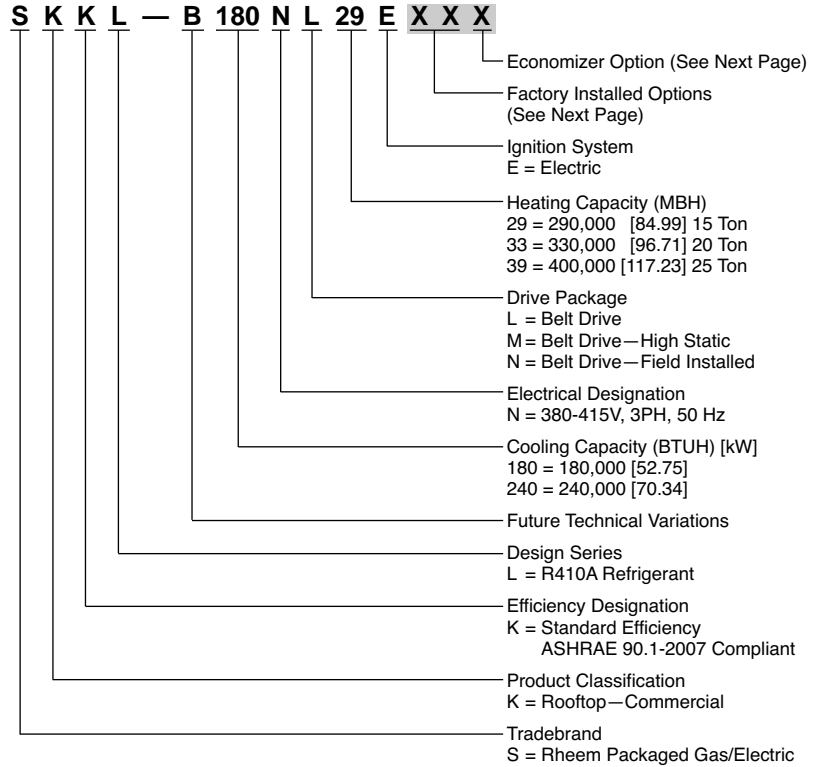
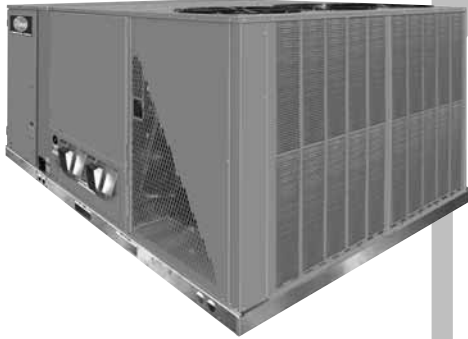
NOTE: \*These operating conditions are typical of a commercial application in a 95°F/79°F [35°C/26°C] design area with indoor design of 76°F [24°C] DB and 50% RH and 10% ventilation air, with the unit roof mounted and centered on the zone it conditions by ducts.

[ ] Designates Metric Conversions





# MODEL IDENTIFICATION—SKKL-B SERIES



[ ] Designates Metric Conversions



## FACTORY INSTALLED OPTION CODES FOR SKKL-B 180 & 240

Option Code	Hail Guard	Stainless Steel Heat Exchanger	Non-Powered Convenience Outlet/ Unfused Service Disconnect	Low Ambient / Freeze Stat
AD	x			
AJ		x		
AH			x	
AP				x
BF	x		x	
BG	x	x		
BY	x			x
JB		x	x	
CR	x	x		x
DN	x	x	x	x

“x” indicates factory installed option.

## ECONOMIZER SELECTION FOR SKKL-B 180 & 240

Option Code	No Economizer	Single Enthalpy Economizer* With Barometric Relief	Single Enthalpy Economizer* With Barometric Relief and Smoke Detector
A	x		
B		x	
C			x

“x” indicates factory installed option.

\*Downflow economizer only.

## Instructions for Factory Installed Option(s) Selection

**Note:** Three characters following the model number will be utilized to designate a factory-installed option or combination of options. If no factory option(s) is required, nothing follows the model number.

**Step 1.** After a basic rooftop model is selected, choose a *two-character* option code from the FACTORY INSTALLED OPTION SELECTION TABLE.

Proceed to Step 2.

**Step 2.** The last option code character is utilized for factory-installed economizers. Choose a character from the FACTORY INSTALLED ECONOMIZER SELECTION TABLE.

Example: SKKL-B240NM33E**XXX** (where **XX** is factory installed option)

Example: No Options

SKKL-B240NM33E

Example: No option with factory installed economizer

SKKL-B240NM33EAAB

Example: Options with low ambient and freeze stat, non-powered convenience outlet, unfused service disconnect hail guard, and stainless steel heat exchanger with no factory installed economizer

SKKL-B240NM33EDNA

Example: Options same as above with factory installed economizer

SKKL-B240NM33EDNB



## NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW] MODELS

Model SKKL- Series	B180NL29E	B240NM33E
<b>Cooling Performance<sup>1</sup></b>		
Gross Cooling Capacity Btu [kW]	144,000 [42.19]	208,000 [60.94]
EER/SEER <sup>2</sup>	10.9/NA	11/NA
Rated CFM [L/s]	5500 [2595]	6325 [2985]
Net Cooling Capacity Btu [kW]	140,000 [41.02]	202,000 [59.19]
Net Sensible Capacity Btu [kW]	103,100 [30.21]	146,100 [42.81]
Net Latent Capacity Btu [kW]	36,900 [10.81]	55,900 [16.38]
IEER <sup>3</sup>	11.1	11.5
Net System Power kW	12.83	18.39
<b>Heating Performance (Gas)<sup>4</sup></b>		
Heating Input Btu [kW] (1st Stage / 2nd Stage)	145,000/290,000 [42.48/84.97]	165,000/330,000 [48.34/96.69]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	117,500/235,000 [34.43/68.85]	133,500/267,000 [39.12/78.23]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	30-60 [16.7-33.3] / 30-60 [16.7-33.3]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]
Steady State Efficiency (%)	81	81
No. Burners	14	14
No. Stages	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]
<b>Compressor</b>		
No./Type	2/Scroll	2/Scroll
<b>Outdoor Sound Rating (dB)<sup>5</sup></b>		
	91	91
<b>Outdoor Coil—Fin Type</b>		
Tube Type	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	27.46 [2.55]	50.8 [4.72]
	1 / 23 [9]	1 / 23 [9]
<b>Indoor Coil—Fin Type</b>		
Tube Type	Louvered	Louvered
Tube Size in. [mm]	Rifled	Rifled
Face Area sq. ft. [sq. m]	0.375 [9.5]	0.375 [9.5]
Rows / FPI [FPcm]	26.67 [2.48]	26.67 [2.48]
Refrigerant Control	2 / 18 [7]	3 / 13 [5]
Drain Connection No./Size in. [mm]	Capillary Tubes	Capillary Tubes
	1/1 [25.4]	1/1 [25.4]
<b>Outdoor Fan—Type</b>		
No. Used/Diameter in. [mm]	Propeller	Propeller
Drive Type/No. Speeds	3/24 [609.6]	3/24 [609.6]
CFM [L/s]	Direct/1	Direct/1
No. Motors/HP	8300 [3917]	8300 [3917]
Motor RPM	3 at 1/2 HP	3 at 1/2 HP
	895	895
<b>Indoor Fan—Type</b>		
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal
Drive Type/No. Speeds	2/18x9 [457x229]	2/18x9 [457x229]
No. Motors	Belt/Variable	Belt/Variable
Motor HP	1	1
Motor RPM	3	7 1/2
Motor Frame Size	1440	1440
	56	213
<b>Filter—Type</b>		
Furnished	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes
	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
<b>Refrigerant Charge Oz. [g]</b>		
	112/114 [3175/3232]	195/206 [5528/5840]
<b>Weights</b>		
Net Weight lbs. [kg]	1986 [901]	2073 [940]
Ship Weight lbs. [kg]	2113 [958]	2200 [998]

See Page 12 for Notes.

[ ] Designates Metric Conversions



## NOTES:

1. Cooling Performance is rated at 95° F ambient, 80° F entering dry bulb, 67° F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to  $\pm 20\%$  of nominal cfm.
2. EER and/or SEER are rated at AHRI conditions and in accordance with DOE test procedures.
3. IEER is rated in accordance with AHRI standard 340/360.
4. Heating Performance limit settings and rating data were established and approved under laboratory test conditions using American National Standard Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level.
5. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.



# SYSTEMS PERFORMANCE—SKKL-B SERIES

## GROSS SYSTEMS PERFORMANCE DATA—B180NL29E

		ENTERING INDOOR AIR @ 80°F [26.7°C] dbE ①									
wbE		71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			
CFM [L/s]		6000 [2832]	5500 [2596]	4000 [1888]	6000 [2832]	5500 [2596]	4000 [1888]	6000 [2832]	5500 [2596]	4000 [1888]	
DR ①		0.24	0.26	0.3	0.24	0.26	0.3	0.24	0.26	0.3	
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total BTUH [kW] Sens BTUH [kW] Power	164.1 [48.1] 92.7 [27.2] 86.8	161.4 [47.3] 86.2 [25.3] 86.1	153.4 [44.9] 68.2 [25.3] 84.0	157.0 [46.0] 114.4 [33.5] 65.9	154.4 [45.2] 107.1 [31.4] 65.4	146.8 [43.0] 86.8 [31.4] 63.8	150.9 [44.2] 131.1 [38.4] 45.0	148.4 [43.5] 123.3 [36.1] 44.6	141.1 [41.3] 101.2 [36.1] 43.5
	80 [26.7]	Total BTUH [kW] Sens BTUH [kW] Power	162.1 [47.5] 93.5 [27.4] 75.9	159.4 [46.7] 87.0 [25.5] 75.3	151.5 [44.4] 69.0 [25.5] 73.5	155.0 [45.4] 115.2 [33.8] 55.0	152.4 [44.7] 107.9 [31.6] 54.6	144.9 [42.5] 87.6 [31.6] 53.3	148.9 [43.6] 132.0 [38.7] 34.1	146.5 [42.9] 124.2 [36.4] 33.9	139.2 [40.8] 102.0 [36.4] 33.1
	85 [29.4]	Total BTUH [kW] Sens BTUH [kW] Power	159.6 [46.8] 93.7 [27.5] 63.3	157.0 [46.0] 87.3 [25.6] 62.8	149.2 [43.7] 69.4 [25.6] 61.3	152.5 [44.7] 115.4 [33.8] 42.4	150.0 [43.9] 108.2 [31.7] 42.1	142.6 [41.8] 88.0 [31.7] 41.1	146.4 [42.9] 132.1 [38.7] 21.5	144.1 [42.2] 124.4 [36.4] 21.3	136.9 [40.1] 102.3 [36.4] 20.8
	90 [32.2]	Total BTUH [kW] Sens BTUH [kW] Power	156.7 [45.9] 93.3 [27.3] 48.9	154.2 [45.2] 87.0 [25.5] 48.5	146.5 [42.9] 69.2 [25.5] 47.3	149.6 [43.8] 115.0 [33.7] 28.0	147.2 [43.1] 107.9 [31.6] 27.8	139.9 [41.0] 87.8 [31.6] 27.1	143.6 [42.1] 131.9 [38.6] 7.1	141.2 [41.4] 124.1 [36.4] 7.0	134.2 [39.3] 102.2 [36.4] 6.9
	95 [35]	Total BTUH [kW] Sens BTUH [kW] Power	153.4 [44.9] 92.4 [27.1] 32.7	150.9 [44.2] 86.1 [25.2] 32.4	143.4 [42.0] 68.6 [25.2] 31.6	146.3 [42.9] 114.0 [33.4] 11.8	143.9 [42.2] 107.0 [31.4] 11.7	136.8 [40.1] 87.2 [31.4] 11.4	140.2 [41.1] 130.7 [38.3] 0.1	138.0 [40.4] 123.2 [36.1] 0.1	131.1 [38.4] 101.5 [36.1] 0.1
	100 [37.8]	Total BTUH [kW] Sens BTUH [kW] Power	149.7 [43.9] 90.8 [26.6] 14.7	147.2 [43.1] 84.6 [24.8] 14.5	139.9 [41.0] 67.5 [24.8] 14.2	142.5 [41.8] 112.4 [32.9] 0.1	140.2 [41.1] 105.5 [30.9] 0.1	133.3 [39.1] 86.1 [30.9] 0.1	136.5 [40.0] 129.3 [37.9] 0.1	134.3 [39.3] 121.8 [35.7] 0.1	127.6 [37.4] 100.4 [35.7] 0.1
	105 [40.6]	Total BTUH [kW] Sens BTUH [kW] Power	145.5 [42.6] 88.6 [26.0] 0.1	143.1 [41.9] 82.6 [24.2] 0.1	136.0 [39.8] 65.9 [24.2] 0.1	138.3 [40.5] 110.2 [32.3] 0.1	136.1 [39.9] 103.5 [30.3] 0.1	129.3 [37.9] 84.4 [30.3] 0.1	132.3 [38.8] 127.1 [37.2] 0.1	130.1 [38.1] 119.7 [35.1] 0.1	123.7 [36.2] 98.9 [35.1] 0.1
	110 [43.3]	Total BTUH [kW] Sens BTUH [kW] Power	140.8 [41.3] 85.8 [25.1] 0.1	138.5 [40.6] 80.0 [23.4] 0.1	131.7 [38.6] 63.9 [23.4] 0.1	133.7 [39.2] 107.5 [31.5] 0.1	131.5 [38.5] 100.9 [29.6] 0.1	125.0 [36.6] 82.4 [29.6] 0.1	127.6 [37.4] 124.2 [36.4] 0.1	125.6 [36.8] 117.1 [34.3] 0.1	119.3 [35.0] 96.7 [34.3] 0.1
	115 [46.1]	Total BTUH [kW] Sens BTUH [kW] Power	135.7 [39.8] 82.4 [24.1] 0.1	133.5 [39.1] 76.8 [22.5] 0.1	126.9 [37.2] 61.3 [22.5] 0.1	128.6 [37.7] 104.0 [30.5] 0.1	126.5 [37.1] 97.7 [28.6] 0.1	120.3 [35.2] 79.9 [28.6] 0.1	122.6 [35.9] 120.9 [35.4] 0.1	120.6 [35.3] 114.0 [33.4] 0.1	114.6 [33.6] 94.3 [33.4] 0.1

## GROSS SYSTEMS PERFORMANCE DATA—B240NM33E

		ENTERING INDOOR AIR @ 80°F [26.7°C] dbE ①									
wbE		71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			
CFM [L/s]		7400 [3493]	6325 [2985]	5000 [2360]	7400 [3493]	6325 [2985]	5000 [2360]	7400 [3493]	6325 [2985]	5000 [2360]	
DR ①		0.06	0.1	0.16	0.06	0.1	0.16	0.06	0.1	0.16	
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total BTUH [kW] Sens BTUH [kW] Power	241.9 [70.9] 143.4 [42.0] 13.9	234.7 [68.8] 125.7 [36.8] 13.7	225.7 [66.1] 105.3 [36.8] 13.5	231.7 [67.9] 174.7 [51.2] 13.7	224.8 [65.9] 155.0 [45.4] 13.5	216.2 [63.3] 132.1 [45.4] 13.3	228.2 [66.9] 205.4 [60.2] 13.6	221.4 [64.9] 183.5 [53.8] 13.4	213.0 [62.4] 158.0 [53.8] 13.1
	80 [26.7]	Total BTUH [kW] Sens BTUH [kW] Power	238.6 [69.9] 143.8 [42.1] 14.6	231.4 [67.8] 126.0 [36.9] 14.4	222.6 [65.2] 105.7 [36.9] 14.1	228.4 [66.9] 175.2 [51.3] 14.4	221.5 [64.9] 155.4 [45.5] 14.2	213.1 [62.4] 132.6 [45.5] 14.0	224.9 [65.9] 205.7 [60.3] 14.3	218.1 [63.9] 183.8 [53.9] 14.0	209.8 [61.5] 158.3 [53.9] 13.8
	85 [29.4]	Total BTUH [kW] Sens BTUH [kW] Power	234.6 [68.7] 143.2 [42.0] 15.3	227.6 [66.7] 125.7 [36.8] 15.1	218.9 [64.1] 105.6 [36.8] 14.8	224.4 [65.7] 174.6 [51.2] 15.2	217.7 [63.8] 155.1 [45.4] 14.9	209.4 [61.4] 132.4 [45.4] 14.7	221.0 [64.8] 205.3 [60.2] 15.0	214.3 [62.8] 183.5 [53.8] 14.8	206.2 [60.4] 158.3 [53.8] 14.5
	90 [32.2]	Total BTUH [kW] Sens BTUH [kW] Power	230.1 [67.4] 142.0 [41.6] 16.1	223.2 [65.4] 124.7 [36.5] 15.9	214.7 [62.9] 104.8 [36.5] 15.6	219.9 [64.4] 173.4 [50.8] 15.9	213.3 [62.5] 154.1 [45.2] 15.7	205.2 [60.1] 131.7 [45.2] 15.4	216.5 [63.4] 204.1 [59.8] 15.8	210.0 [61.5] 182.6 [53.5] 15.5	202.0 [59.2] 157.5 [53.5] 15.2
	95 [35]	Total BTUH [kW] Sens BTUH [kW] Power	225.1 [66.0] 140.2 [41.1] 16.9	218.3 [64.0] 123.1 [36.1] 16.7	210.0 [61.5] 103.6 [36.1] 16.4	214.8 [62.9] 171.5 [50.2] 16.8	208.4 [61.1] 152.5 [44.7] 16.5	200.5 [58.7] 130.5 [44.7] 16.2	211.4 [61.9] 202.2 [59.2] 16.6	205.0 [60.1] 180.9 [53.0] 16.3	197.2 [57.8] 156.2 [53.0] 16.0
	100 [37.8]	Total BTUH [kW] Sens BTUH [kW] Power	219.4 [64.3] 137.5 [40.3] 17.8	212.8 [62.3] 120.8 [35.4] 17.5	204.7 [60.0] 101.7 [35.4] 17.2	209.2 [61.3] 168.9 [49.5] 17.6	202.9 [59.4] 150.2 [44.0] 17.4	195.2 [57.2] 128.6 [44.0] 17.0	205.7 [60.3] 199.5 [58.5] 17.4	199.5 [58.5] 178.6 [52.3] 17.2	191.9 [56.2] 154.3 [52.3] 16.9
	105 [40.6]	Total BTUH [kW] Sens BTUH [kW] Power	213.2 [62.5] 134.1 [39.3] 18.7	206.8 [60.6] 117.8 [34.5] 18.4	198.9 [58.3] 99.2 [34.5] 18.1	202.9 [59.4] 165.4 [48.5] 18.5	196.9 [57.7] 147.2 [43.1] 18.3	189.4 [55.5] 126.0 [43.1] 17.9	199.5 [58.5] 196.0 [57.4] 18.4	193.5 [56.7] 175.6 [51.5] 18.1	186.1 [54.5] 151.8 [51.5] 17.7
	110 [43.3]	Total BTUH [kW] Sens BTUH [kW] Power	206.3 [60.4] 129.7 [38.0] 19.6	200.2 [58.7] 114.1 [33.4] 19.4	192.5 [56.4] 96.0 [33.4] 19.0	196.1 [57.5] 161.1 [47.2] 19.5	190.2 [55.7] 143.4 [42.0] 19.2	183.0 [53.6] 122.9 [42.0] 18.8	192.6 [56.4] 191.7 [56.2] 19.3	186.9 [54.8] 171.9 [50.4] 19.0	179.8 [52.7] 148.7 [50.4] 18.7
	115 [46.1]	Total BTUH [kW] Sens BTUH [kW] Power	198.9 [58.3] 124.8 [36.6] 20.6	193.0 [56.5] 109.7 [32.1] 20.3	185.6 [54.4] 92.3 [32.1] 20.0	188.7 [55.3] 156.2 [45.8] 20.5	183.1 [53.6] 139.1 [40.8] 20.2	176.1 [51.6] 119.2 [40.8] 19.8	185.2 [54.3] 185.2 [54.3] 20.3	179.7 [52.7] 167.5 [49.1] 20.0	172.8 [50.6] 144.9 [49.1] 19.6

DR —Depression ratio  
dbE—Entering air dry bulb  
wbE—Entering air wet bulb

Total —Total capacity x 1000 BTUH  
Sens —Sensible capacity x 1000 BTUH  
Power—kW input

NOTES: ① When the entering air dry bulb is other than 80°F [27°C], adjust the sensible capacity from the table by adding  $[1.10 \times \text{CFM} \times (1 - \text{DR}) \times (\text{dbE} - 80)]$ .

[ ] Designates Metric Conversions





AIRFLOW PERFORMANCE—20 TON [70.3 kW]—50 Hz—SIDEFLOW

Table with columns for Air Flow CFM [L/s], Voltage 380-415 — 3 Phase 50 Hz, and External Static Pressure—Inches of Water [kPa]. Rows show RPM and W values for various pressure and flow rates.

NOTE: L-Drive left of bold line, M-Drive right of bold line.

Table with columns for Drive Package, Motor H.P. [W], Blower Sheave, Motor Sheave, Turns Open, and RPM. Rows show L and M drive configurations with various sheave sizes and RPM values.

NOTES: 1. Factory sheave settings are shown in bold type.

2. Do not set motor sheave below minimum turns open shown.

3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.

4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

COMPONENT AIRFLOW RESISTANCE—20 TON [70.3 kW]

Table showing Standard Indoor Airflow—CFM [L/s] and Resistance—Inches Water [kPa] for various components like Wet Coil, Downflow, Downflow Economizer, Horizontal Economizer, Concentric Grill, and Concentric Grill with Transition.

AIRFLOW CORRECTION FACTORS—20 TON [70.3 kW]

Table with columns for ACTUAL-CFM [L/s], TOTAL MBH, SENSIBLE MBH, and POWER kW. Rows show correction factors for different CFM and MBH values.

NOTES: Multiply correction factor times gross performance data—resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions



ELECTRICAL DATA – SKKL- SERIES			
		B180NL	B240NM
Unit Information	Unit Operating Voltage Range	342-456	342-456
	Volts	380/415	380/415
	Minimum Circuit Ampacity	37/37	52/52
	Minimum Overcurrent Protection Device Size	40/40	60/60
	Maximum Overcurrent Protection Device Size	45/45	60/60
Compressor Motor	No.	2	2
	Volts	380/415	380/415
	Phase	3	3
	RPM	2900	2900
	HP, Compressor 1	7	10
	Amps (RLA), Comp. 1	12.2/12.2	17.9/17.9
	Amps (LRA), Comp. 1	101/101	118/118
	HP, Compressor 2	6	8 1/2
	Amps (RLA), Comp. 2	12.2/12.2	16.7/16.7
Amps (LRA), Comp. 2	100/100	111/111	
Compressor Motor	No.	3	3
	Volts	380/415	380/415
	Phase	1	1
	HP	1/2	1/2
	Amps (FLA, each)	1.5/1.5	1.5/1.5
	Amps (LRA, each)	3.1/3.1	3.1/3.1
Evaporator Fan	No.	1	1
	Volts	380/415	380/415
	Phase	3	3
	HP	3	7 1/2
	Amps (FLA, each)	4.6/4.6	8/8
	Amps (LRA, each)	38.1/38.1	67/67





## GAS HEAT / ELECTRIC COOLING PACKAGE

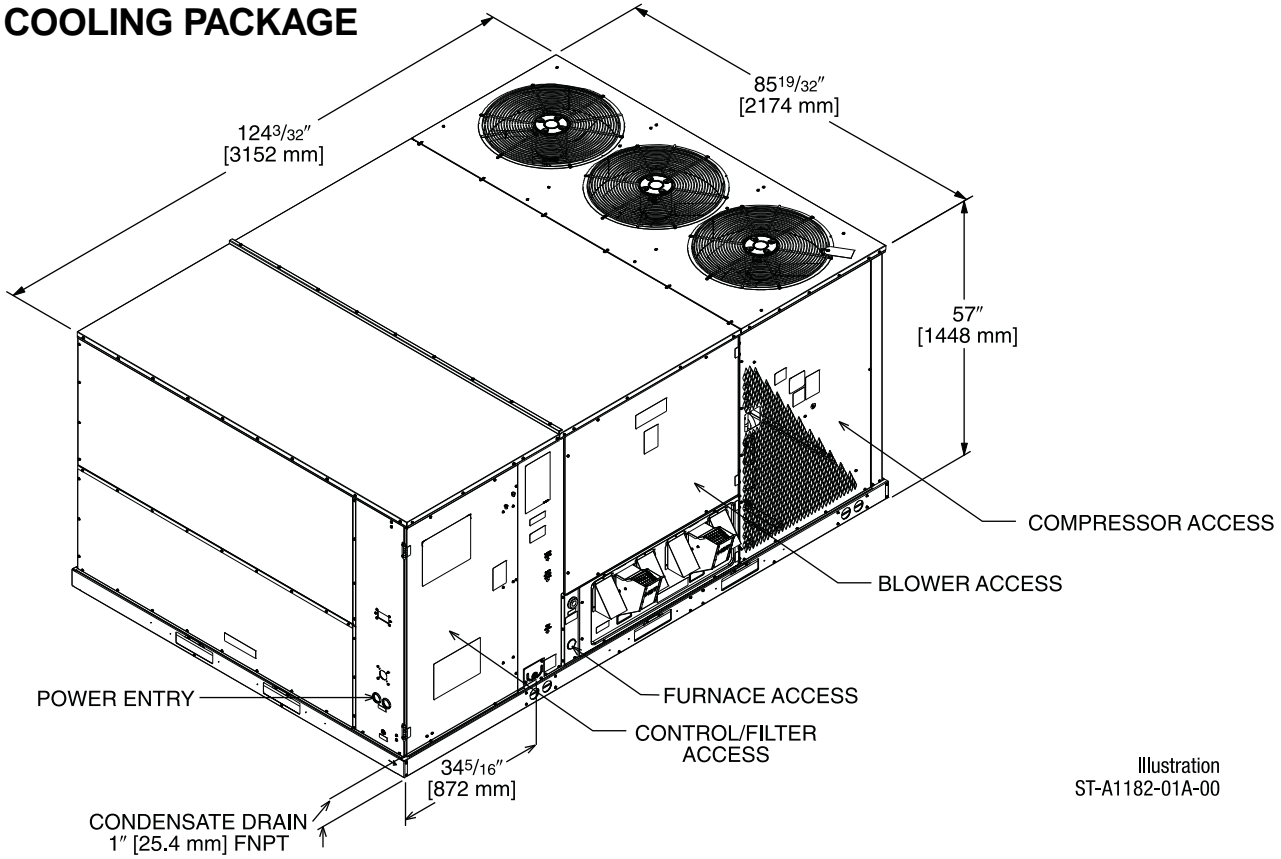
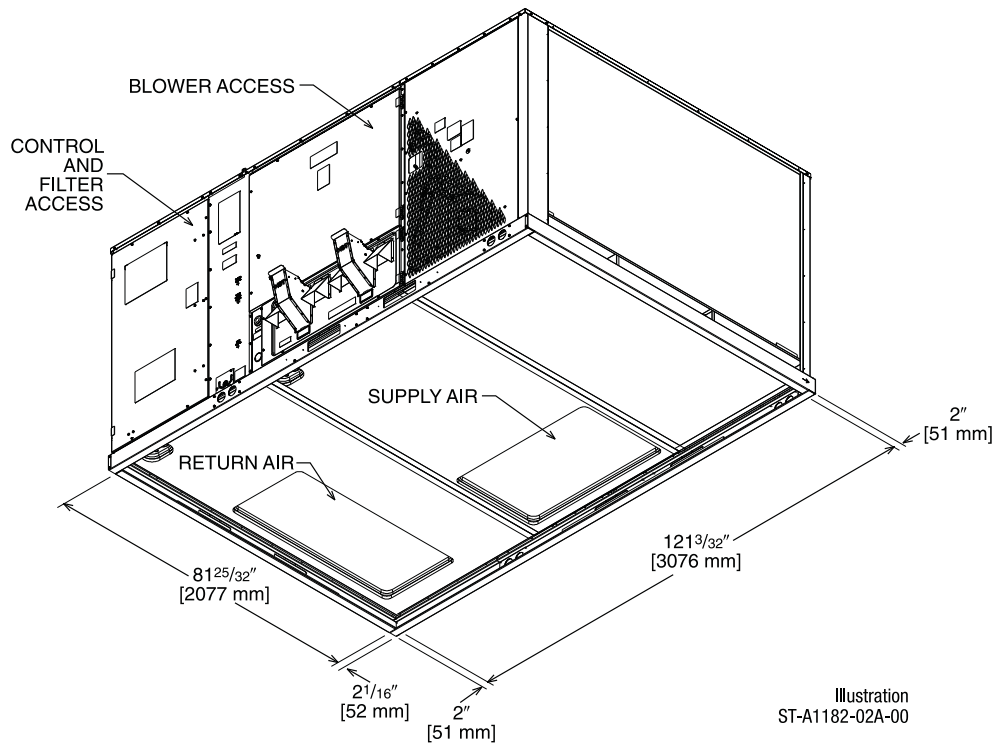


Illustration  
ST-A1182-01A-00



## BOTTOM VIEW

Illustration  
ST-A1182-02A-00

[ ] Designates Metric Conversions

## GAS HEAT / ELECTRIC COOLING PACKAGE

### SUPPLY AND RETURN DIMENSIONS FOR HORIZONTAL APPLICATIONS

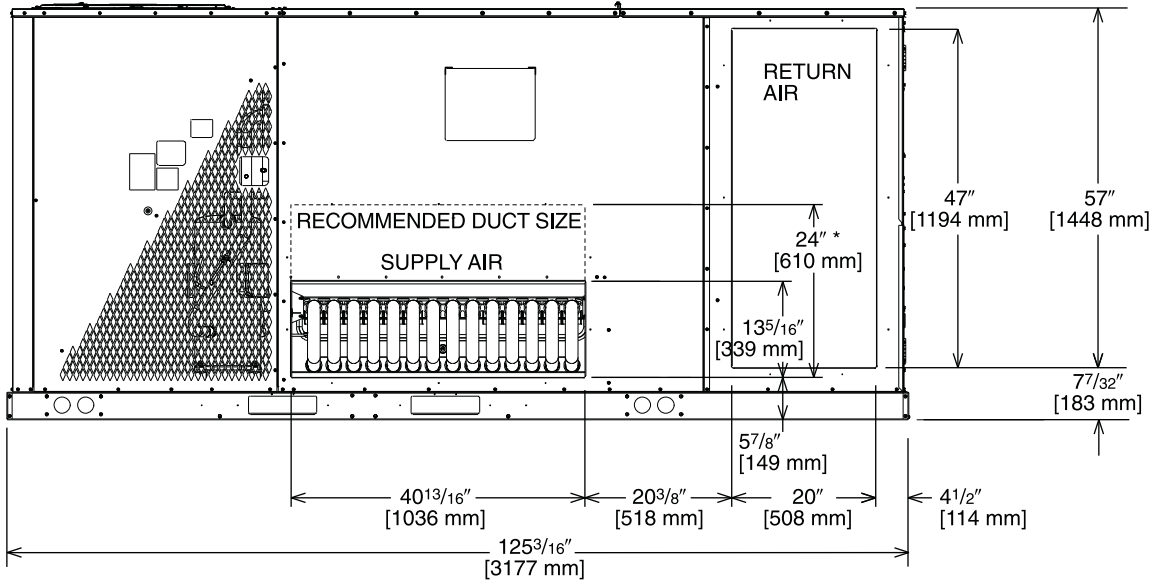


Illustration  
ST-A1182-08A-00

\* RECOMMENDED DUCT CONNECTION SIZE

### DUCT SIDE VIEW (REAR)

### SUPPLY AND RETURN DIMENSIONS FOR DOWNFLOW APPLICATIONS

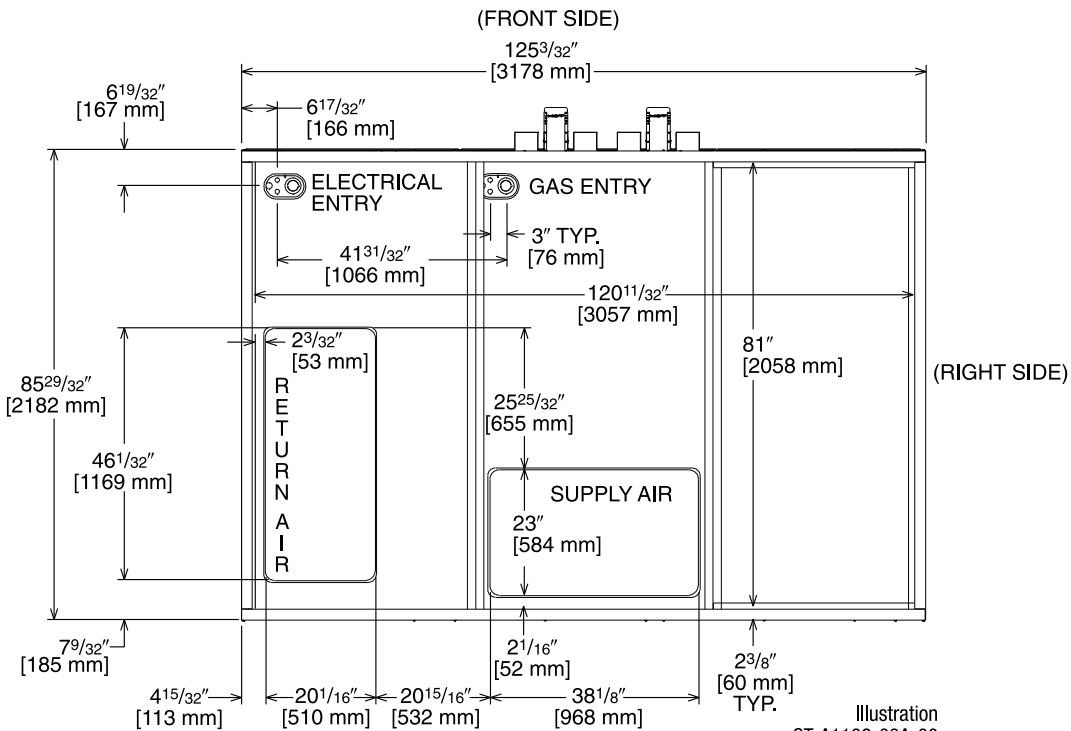


Illustration  
ST-A1182-09A-00

### BOTTOM VIEW

[ ] Designates Metric Conversions



## UNIT DIMENSIONS GAS HEAT / ELECTRIC COOLING PACKAGE

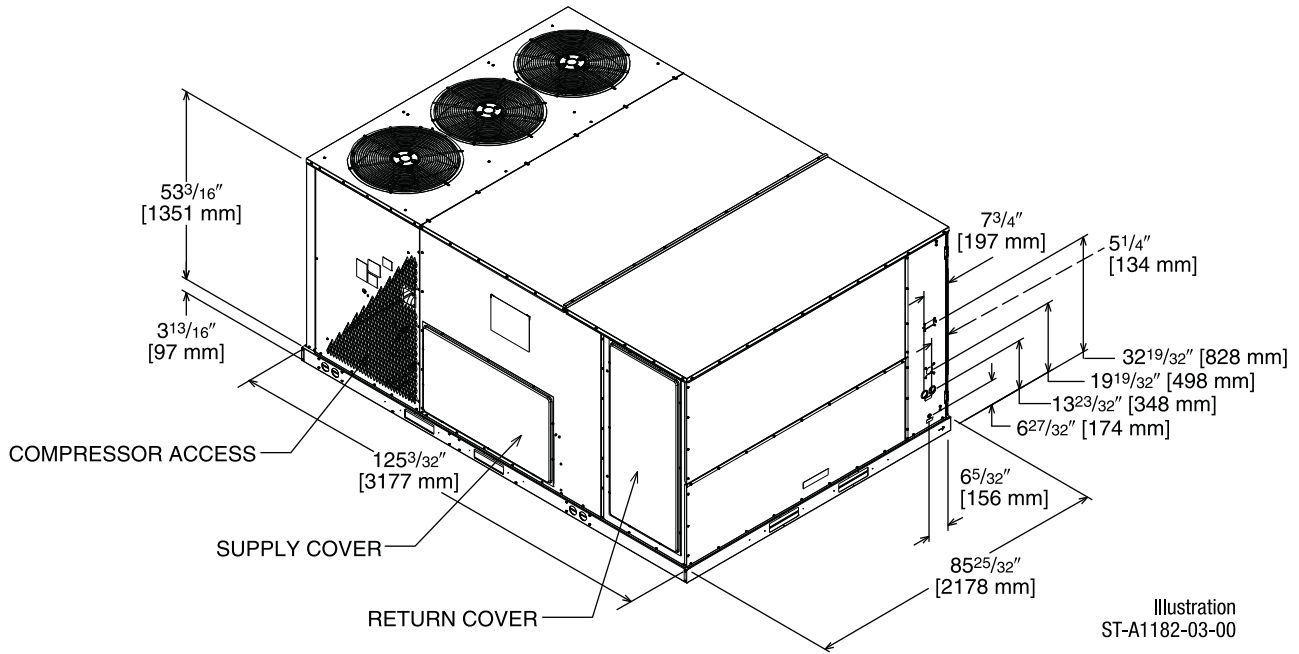


Illustration  
ST-A1182-03-00

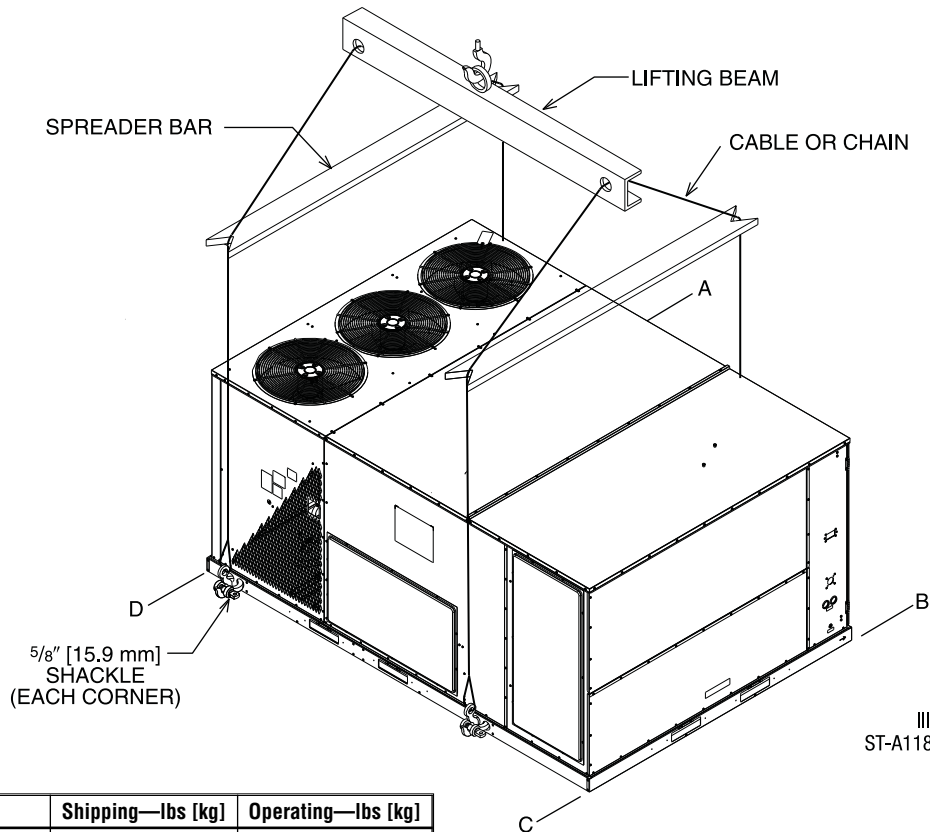


Illustration  
ST-A1182-25-00

## WEIGHTS

Accessory	Shipping—lbs [kg]	Operating—lbs [kg]
Downflow Economizer	277 [125.6]	168 [76.2]
Horizontal Economizer	333 [151.0]	301 [136.5]
Power Exhaust	119 [54.0]	59 [26.8]
Manual Fresh Air Damper*	61 [27.7]	52 [23.6]
Motor Kit for Fresh Air Damper*	42 [19.1]	35 [15.9]
Roofcurb, 14"	184 [83.5]	176 [79.8]
Hail Guard	50 [22.7]	45 [20.4]

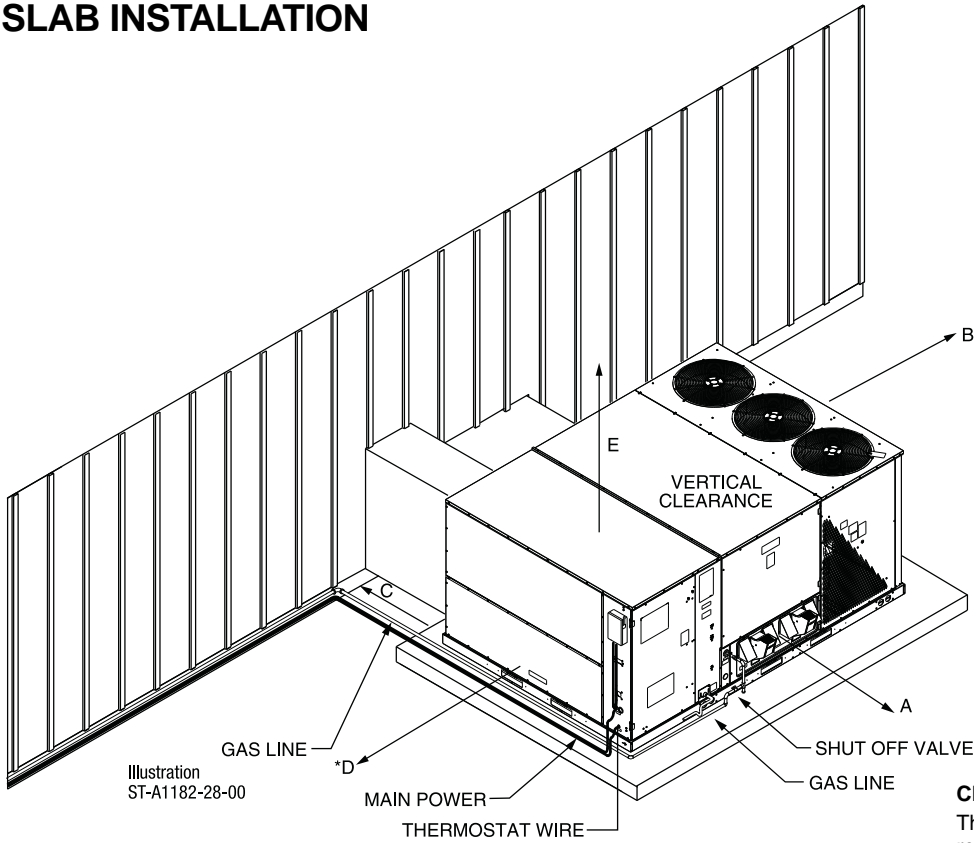
Capacity Tons [kW]	Corner Weights by Percentage			
	A	B	C	D
15-25 [52.8-87.9]	32%	27%	16%	24%

Corner weights measured at base of unit.

[ ] Designates Metric Conversions

NOTES: \*Motorized Kit and Manual Fresh Air Damper must be combined for a complete Motorized Outside Air Damper Selection.

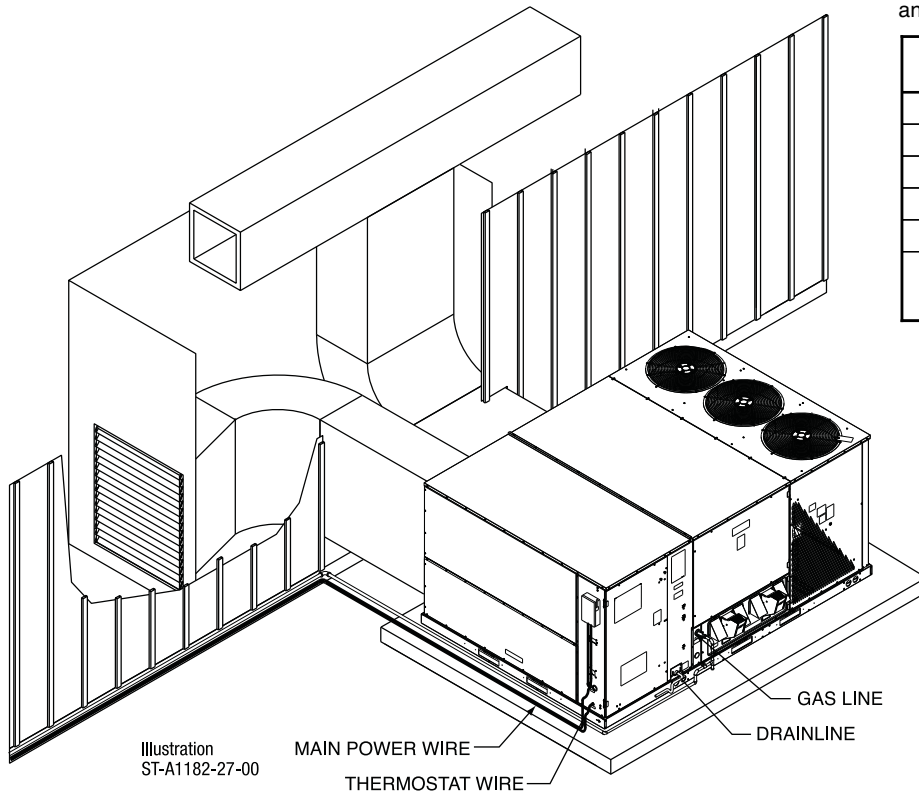
## SLAB INSTALLATION



### CLEARANCES

The following minimum clearances are recommended for proper unit performance and serviceability.

Recommended Clearance In. [mm]	Location
80 [2032]	A - Front
18 [457]	B - Condenser Coil
+18 [457]	+C - Duct Side
*18 [457]	*D - Evaporator End
60 [1524]	E - Above
*Without Economizer. 48" [1219 mm] With Economizer +Without Horizontal Economizer, 42" [1067 mm] with Horizontal Economizer	



[ ] Designates Metric Conversions

## FIELD INSTALLED ACCESSORY EQUIPMENT

Accessory Description	Model Number	Shipping Weight Lbs. [kg]	Installed Weight Lbs. [kg]	Factory Installation Available?
Thermostat or Room Sensor	See Thermostat Specification Sheet (T11-001)			No
Downflow Economizer w/ Single Enthalpy	RXRD-PGCM3	277 [125.6]	168 [76.2]	Yes
Downflow Economizer w/ Smoke Detector	RXRD-SGCM3	280 [127.0]	171 [77.6]	Yes
Dual Enthalpy Kit	RXRX-AV02	1 [0.5]	0.5 [0.2]	No
Horizontal Economizer w/ Single Enthalpy	RXRD-RGCM3	333 [151.0]	301 [136.5]	No
Carbon Dioxide Sensor (Wall Mount)	RXRX-AR02	3 [1.4]	2 [0.9]	No
Manual Fresh Air Damper*	RXRF-KFA1	61 [27.7]	52 [23.6]	No
Motorized Kit for Manual Fresh Air Damper*	RXRX-AW03	42 [19.1]	35 [15.9]	No
Roofcurb, 14"	RXKG-CBH14	184 [83.5]	176 [79.8]	No
Roofcurb Adapter to RXRK-E56	RXRX-CJCE56	465 [210.9]	415 [188.2]	No
Roofcurb Adapter to RXKG-CAF14	RXRX-CJCF14	555 [251.7]	505 [229.1]	No
Concentric Diffuser (Step-Down 18" x 36")	RXRN-AD81	310 [140.6]	157 [71.2]	No
Concentric Diffuser (Step-Down 24" x 48")	RXRN-AD86	367 [166.5]	212 [96.2]	No
Concentric Diffuser (Flush, 18" x 36")	RXRN-AD80	213 [96.6]	115 [52.2]	No
Downflow Transition (Rect. To Rect. 18" x 36")	RXMC-CJ07 <sup>1</sup>	81 [36.7]	74 [33.6]	No
Downflow Transition (Rect. To Rect. 24" x 48")	RXMC-CK08 <sup>2</sup>	81 [36.7]	74 [33.6]	No
Compressor Time-Delay Relay Kit	RXMD-A04	2 [0.9]	1 [0.5]	No
Low-Ambient Control Kit (1 Per Compressor)	RXRZ-C02	3 [1.4]	2 [0.9]	Yes
Freeze Stat	RXRX-AM03	1 [0.5]	0.5 [0.2]	Yes
Unwired Convenience Outlet	RXRX-AN01	2 [0.9]	1.5 [0.7]	Yes
Unfused Service Disconnect	RXRX-AP01	10 [4.5]	9 [4.1]	Yes
Hail Guard	RXRX-AAD01K	50 [22.7]	45 [20.4]	Yes

NOTES: \* Motorized Kit and Manual Fresh Air Damper must be combined for a complete Motorized Outside Air Damper Selection

1. Used with RXRN-AD81 and RXRN-AD80 concentric diffusers

2. Used with RXRN-AD86 concentric diffusers

NOTICE: Please refer to conversion kit index provided with the unit for selecting the LP conversion kit model number.

[ ] Designates Metric Conversions

## THERMOSTATS



**100-Series \***  
Non-Programmable



**200-Series \***  
Programmable



**300-Series \***  
Deluxe Programmable



**400-Series \***  
Special Applications/  
Programmable

**500-Series \***  
Communicating/  
Programmable

Brand	Unique Model Number Prefix	Descriptor (3 Characters)	Series (3 Characters)	System (2 Characters)	Type (2 Characters)
RHC	-	TST	101	GE	MS
RHC=Rheem		TST=Thermostat	100=Non-Programmable 200=Programmable 300=Deluxe Programmable 400=Special Applications/ Programmable 500=Communicating/ Programmable	GE=Gas/Oil/Electric HP=Heat Pump MD=Modulating Furnace DF=Dual Fuel UN=Universal AC/HP/GE CM=Communicating	SS=Single-Stage MS=Multi-Stage

\* Photos are representative. Actual models may vary.

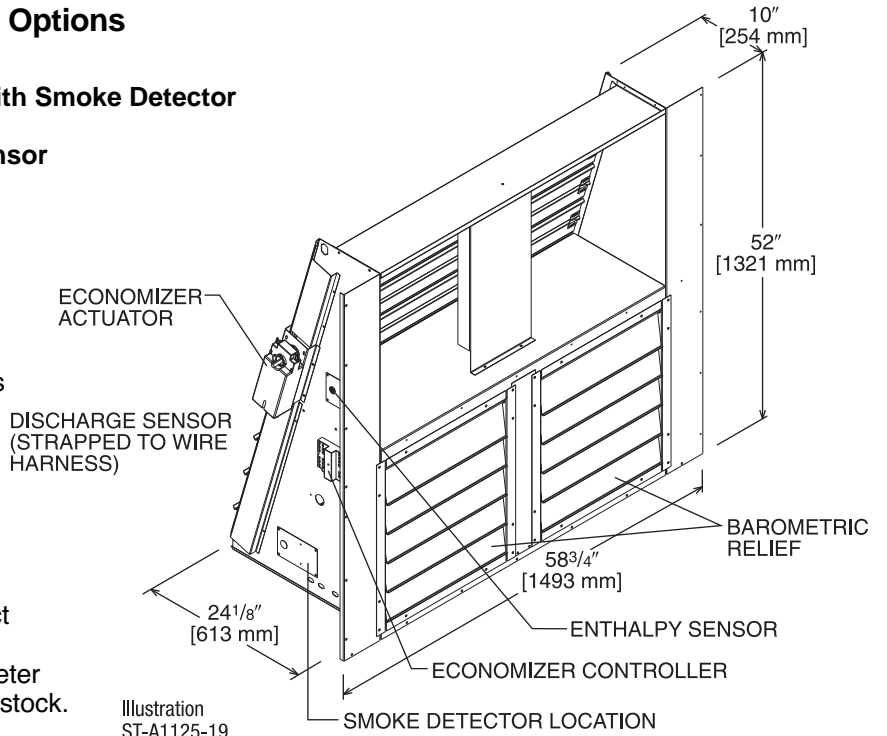
For detailed thermostat match-up information, see specification sheet form number T11-001.

## ECONOMIZERS

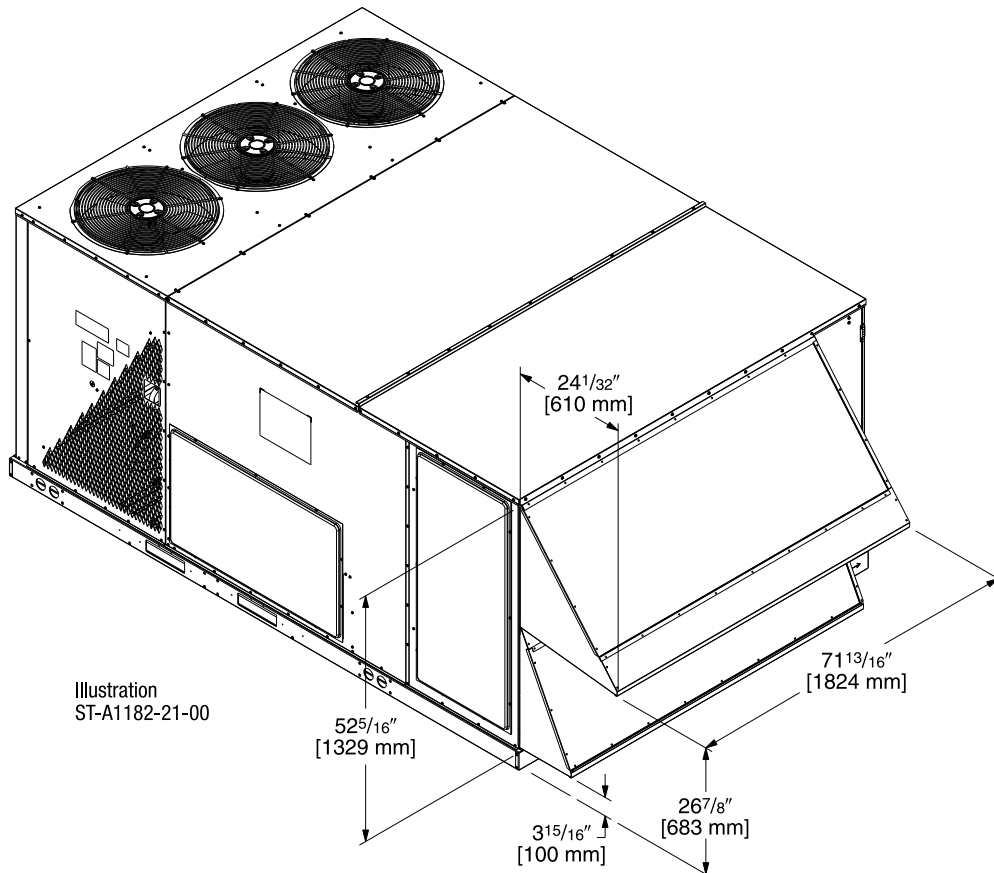
### Use to Select Factory or Field Installed Options

- RXRD-PGCM3—Single Enthalpy (Outdoor)
- RXRD-SGCM3—Single Enthalpy (Outdoor) with Smoke Detector
- RRRX-AV02—Dual Enthalpy Upgrade Kit
- RRRX-AR02—Optional Wall-Mounted CO<sub>2</sub> Sensor

- Features **Honeywell** Controls
- Available Factory Installed or Field Accessory
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO<sub>2</sub> Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application.
- Optional Remote Minimum Position Potentiometer (Honeywell #S963B1128) is Available from Prostock.
- Field Installed Power Exhaust Available



TOLERANCE ±.125



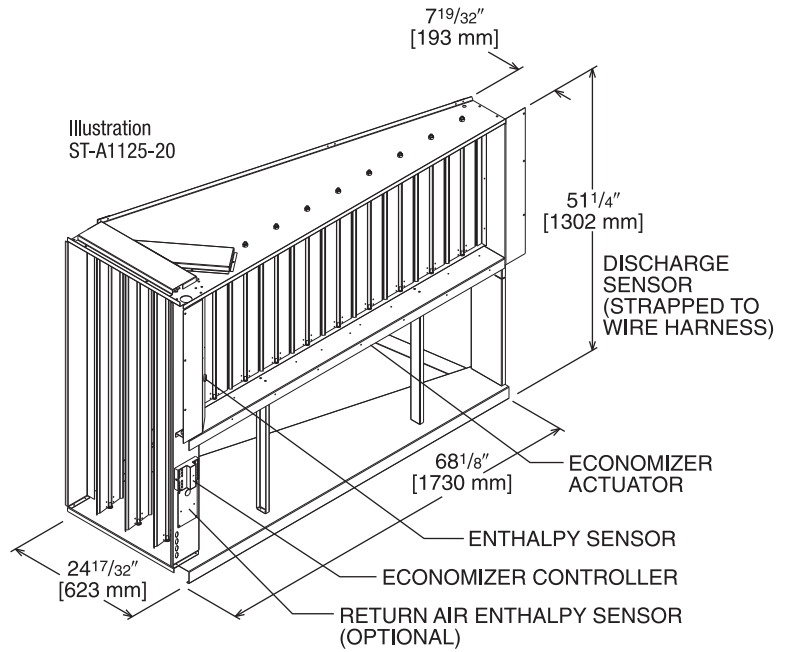
[ ] Designates Metric Conversions

## ECONOMIZER FOR HORIZONTAL DUCT INSTALLATION

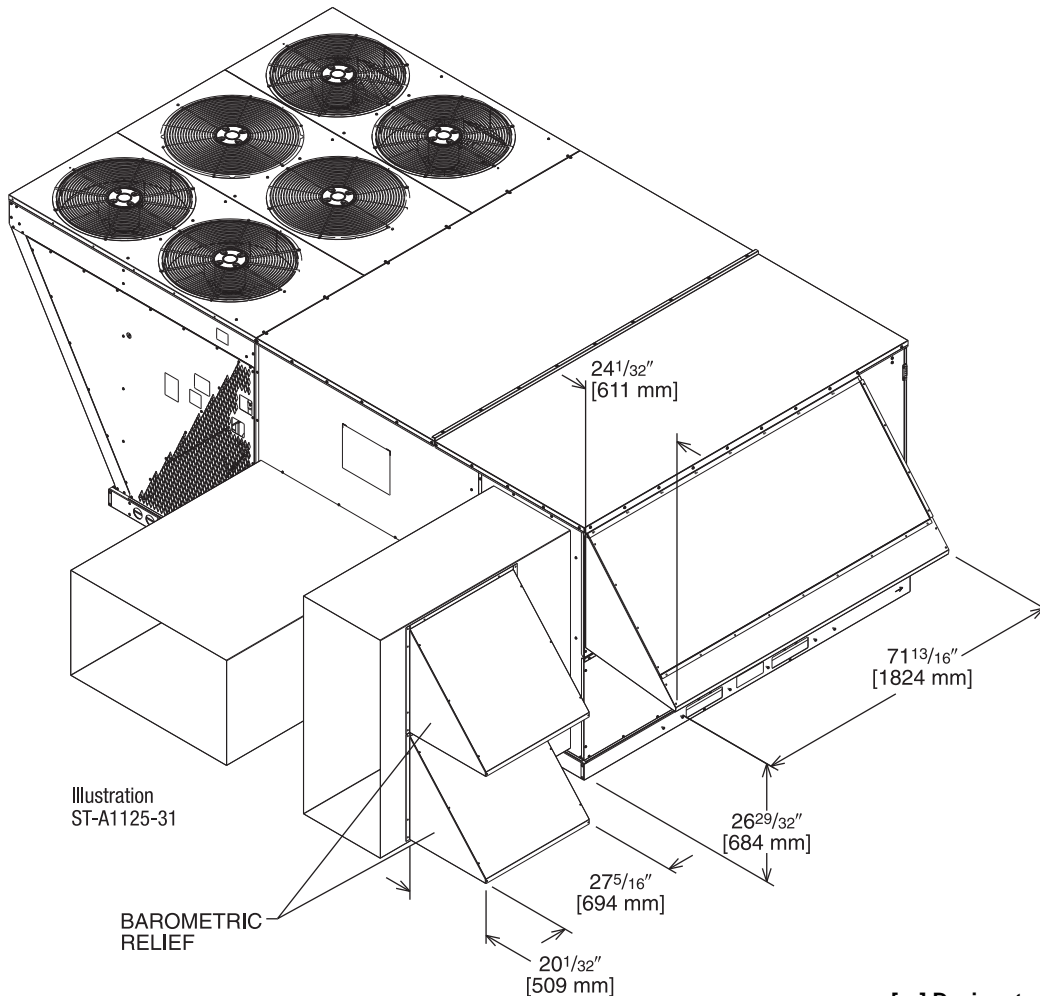
### Field Installed Only

- RXRD-RGCM3—Single Enthalpy (Outdoor)
- RRRX-AV02—Dual Enthalpy Upgrade Kit
- RRRX-AR02—Wall-mounted CO<sub>2</sub> Sensor

- Features **Honeywell** Controls
- Available as a Field Installed Accessory Only
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO<sub>2</sub> Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Horizontal Duct Application
- Optional Remote Minimum Position Potentiometer (Honeywell #S963B1128) is Available from Prostock
- Field Installed Power Exhaust Available



TOLERANCE ± .125



[ ] Designates Metric Conversions

**FRESH AIR DAMPER**

**MOTORIZED DAMPER KIT  
RXX-AW03  
(Motor Kit for RXRF-KFA1)**

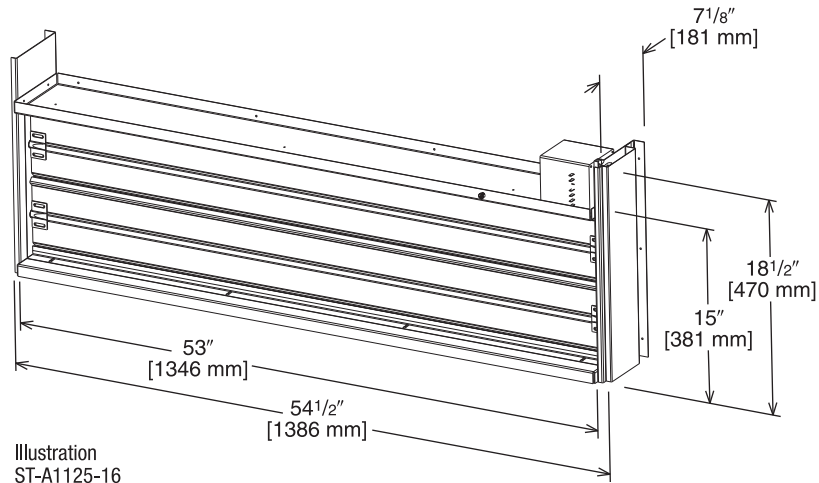


Illustration  
ST-A1125-16

**RXRF-KFA1 (Manual)  
RXX-AW03 (Motorized damper kit for  
manual fresh air damper)**

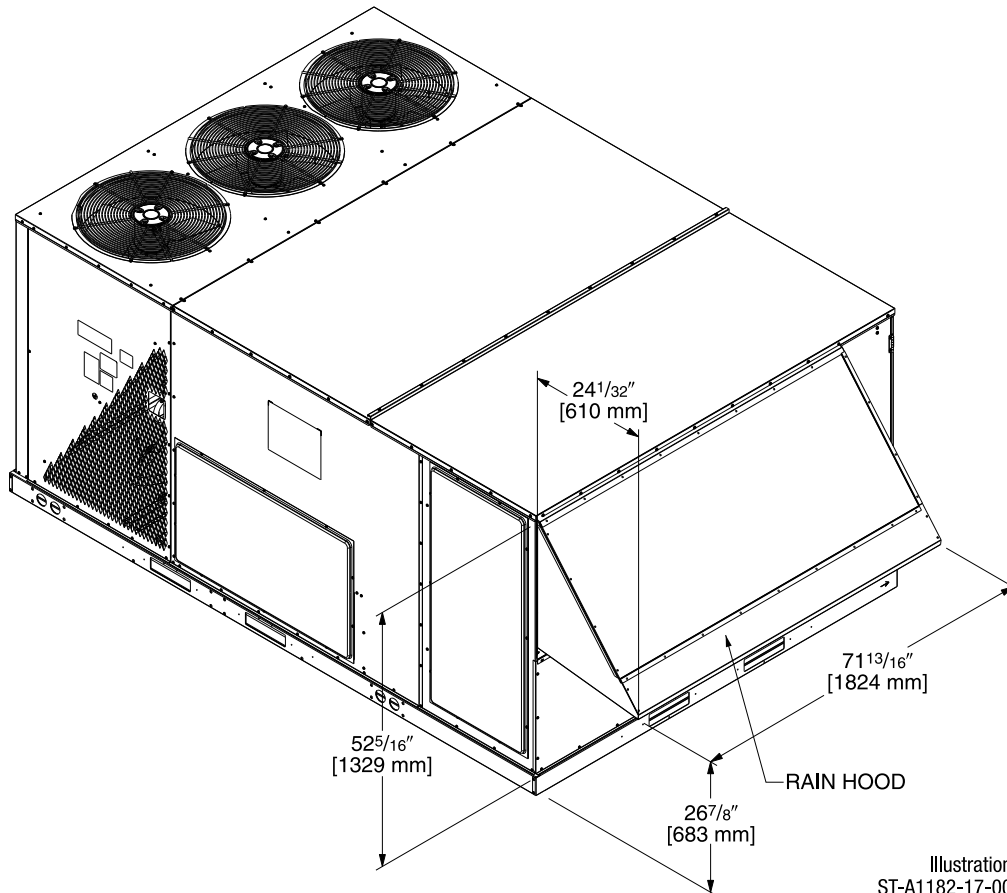


Illustration  
ST-A1182-17-00

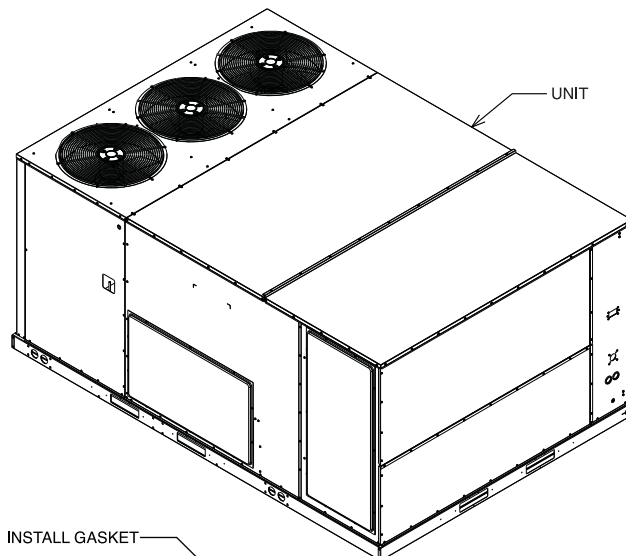
[ ] Designates Metric Conversions



## ROOFCURBS (Full Perimeter)

- Rheem's new roofcurb designs can be utilized on 15 & 20 ton [52.8 & 70.3 kW] models.
- One available height (14" [356 mm]).
- Quick assembly corners for simple and fast assembly.
- 1" [25.4 mm] x 4" [102 mm] Nailers provided.
- Insulating panels not required because of insulated outdoor base pan.
- Sealing gasket (28" [711 mm]) provided with Roofcurb.
- Packaged for easy field assembly.

## TYPICAL INSTALLATION



## ROOFCURB ASSEMBLY

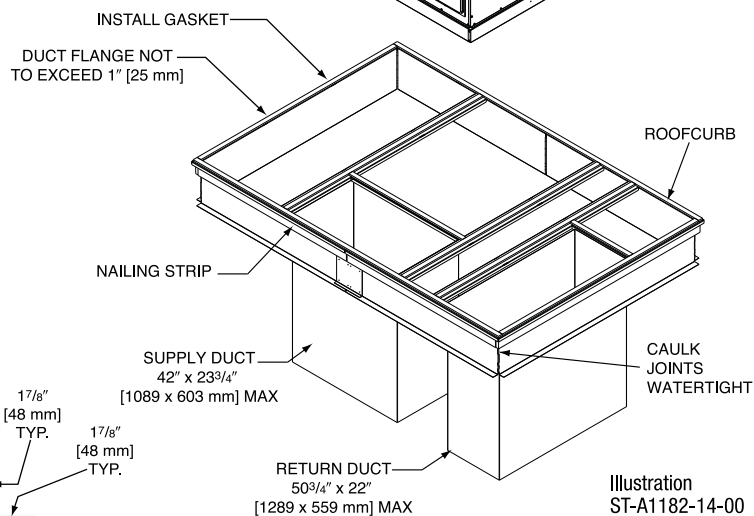
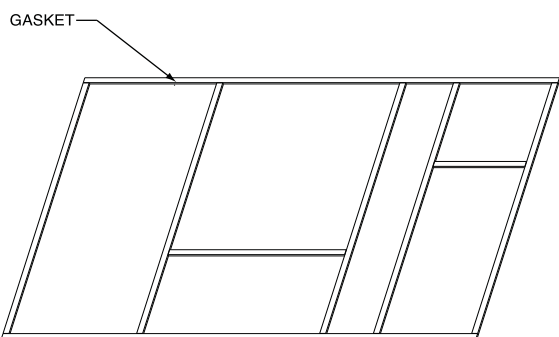


Illustration  
ST-A1182-14-00

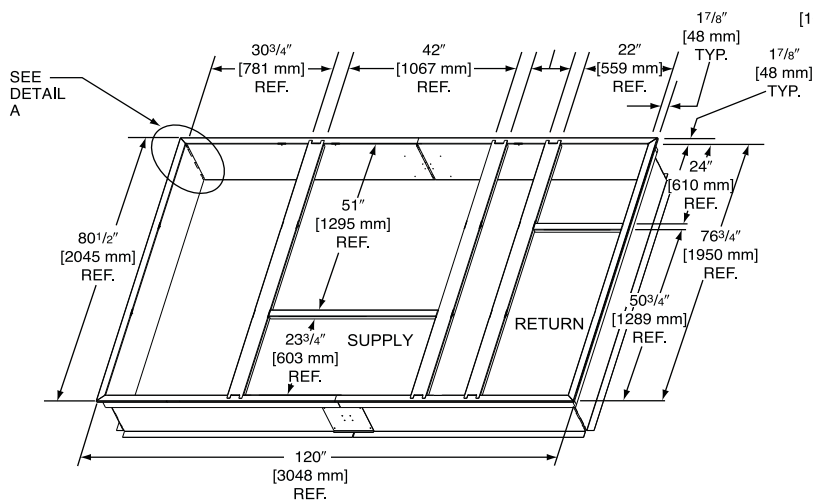
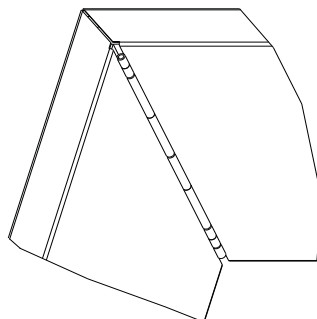
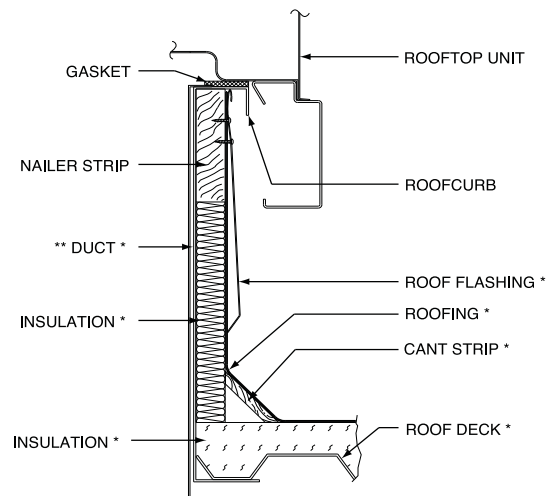


Illustration  
ST-A1125-14



DETAIL A



\* BY CONTRACTOR

\*\* FOR INSTALLATION OF DUCT AS SHOWN, USE RECOMMENDED DUCT SIZES FROM ROOFCURB INSTALLATION INSTRUCTIONS. FOR DUCT FLANGE ATTACHMENT TO UNIT, SEE INSTALLATION INSTRUCTIONS FOR RECOMMENDED DUCT SIZES.

## ROOFCURB ADAPTER

**OLD MODELS**

**COMMERCIAL CABINET**  
(12.5, 15 & 20 TON)  
([44, 52.8 & 70.3 kW])  
(-)RCF, (-)RGF, (-)REF

**OLD CURB MODEL**

RXRK-E56

**ROOFCURB ADAPTER**

RXRX-CJCE56

**NEW MODEL**

(-)KKL  
(15 & 20 TON)  
([52.8 & 70.3 kW])

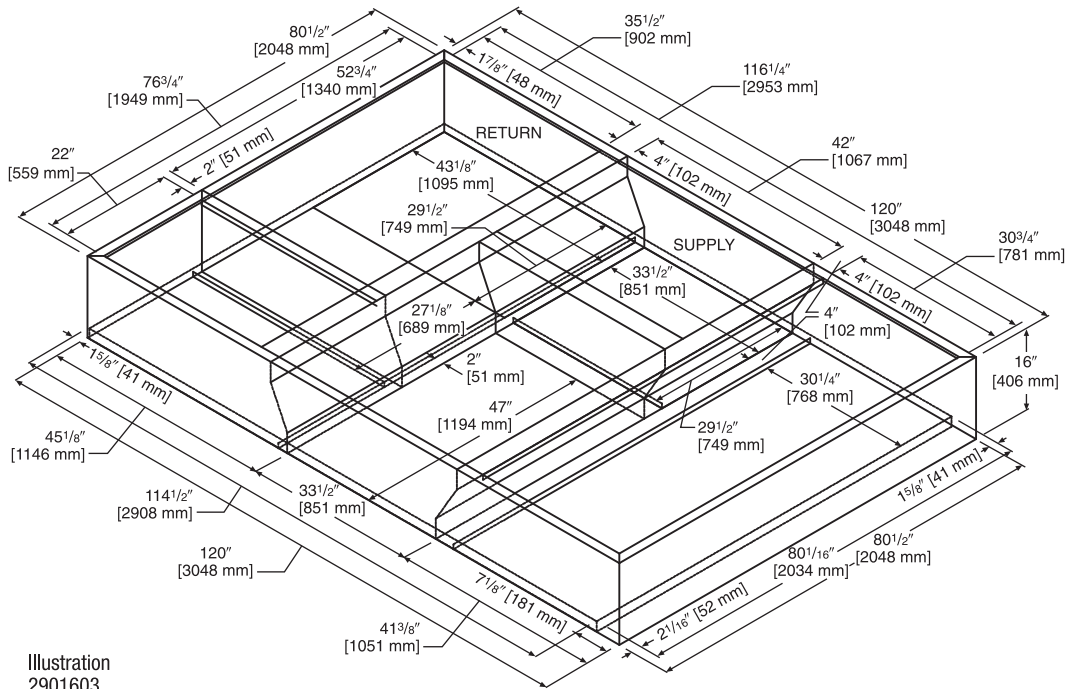


Illustration  
2901603

**COMMERCIAL CABINET**  
(15, 20 & 25 TON)  
([52.8, 70.3, 87.9 kW])  
(-)KKB, (-)KMB, (-)KNB

RXKG-CAF14

RXRX-CJCF14

(-)KKL  
(15 & 20 TON)  
([52.8 & 70.3 kW])

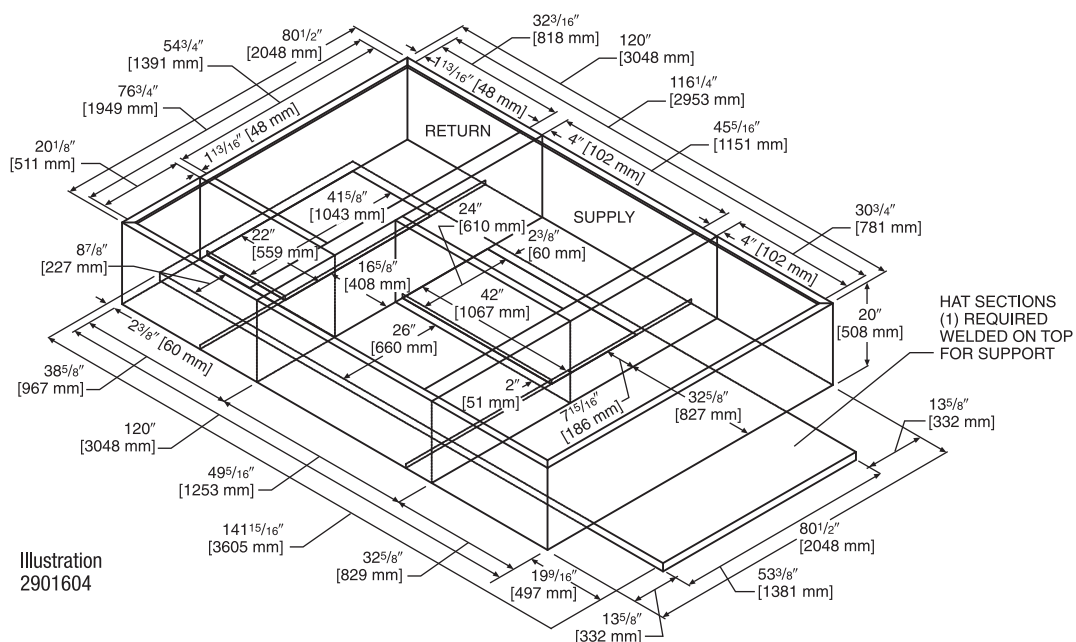


Illustration  
2901604

HAT SECTIONS  
(1) REQUIRED  
WELDED ON TOP  
FOR SUPPORT

## CONCENTRIC DIFFUSER APPLICATION

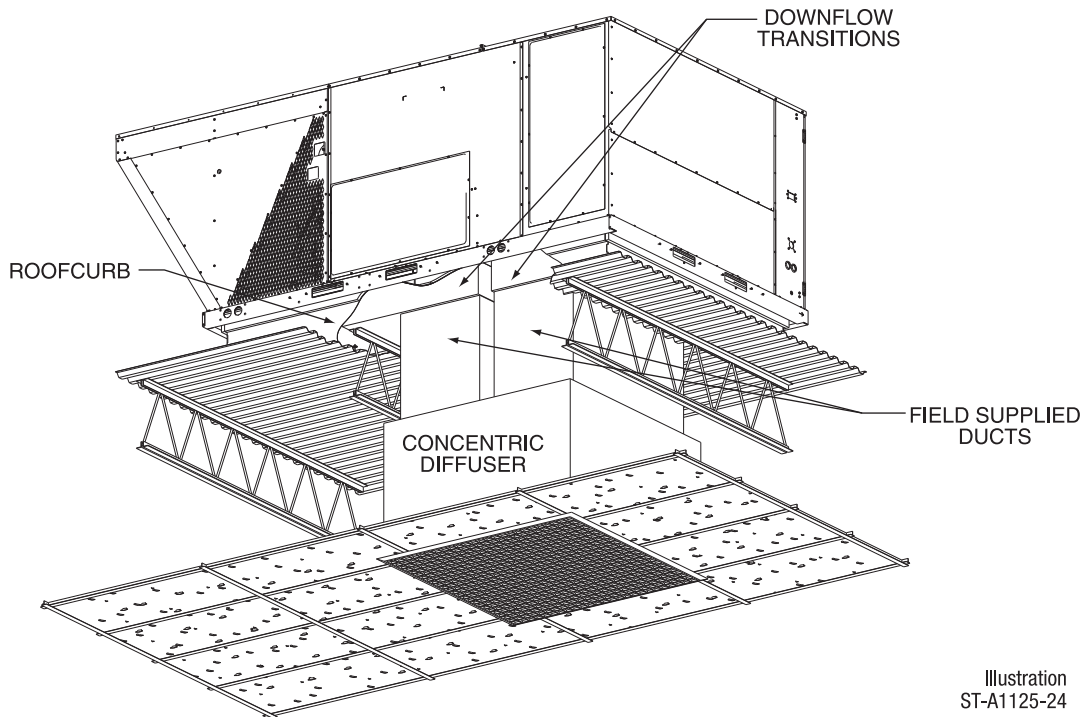


Illustration  
ST-A1125-24

## DOWNFLOW TRANSITION DRAWINGS

### RXMC-CJ07 (15 Ton) [52.8 kW]

- Used with RXRN-AD80 and RXRN-AD81 Concentric Diffusers.

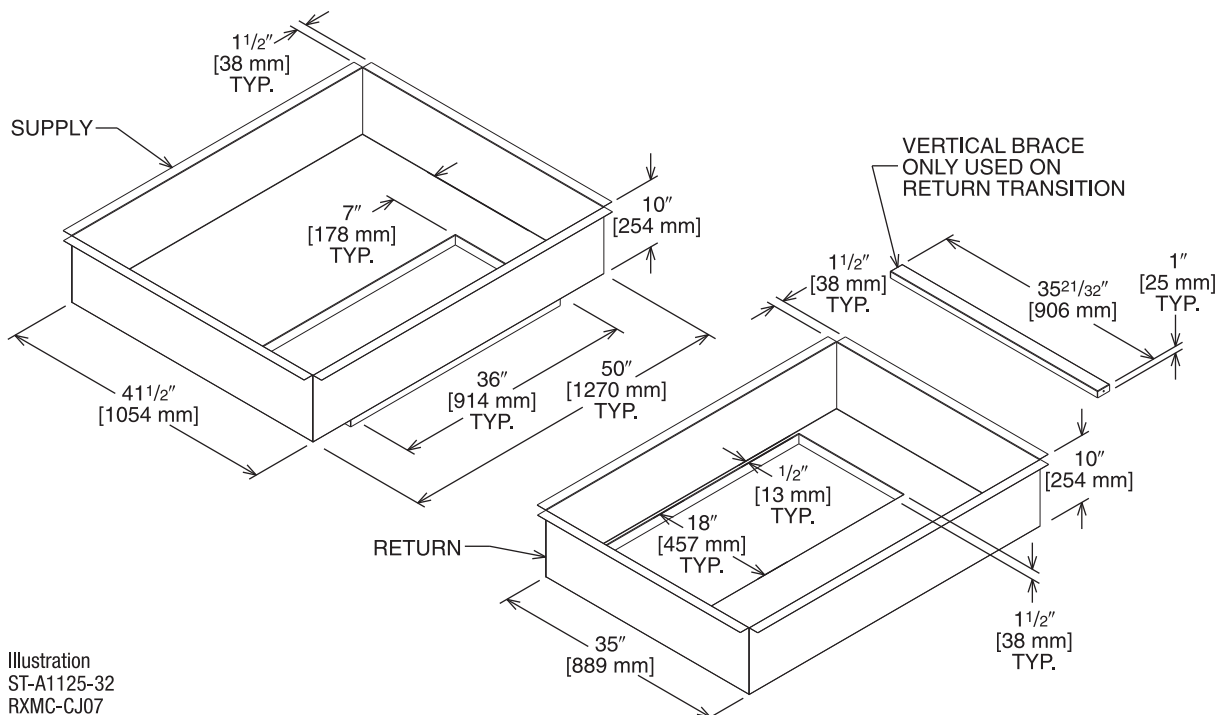


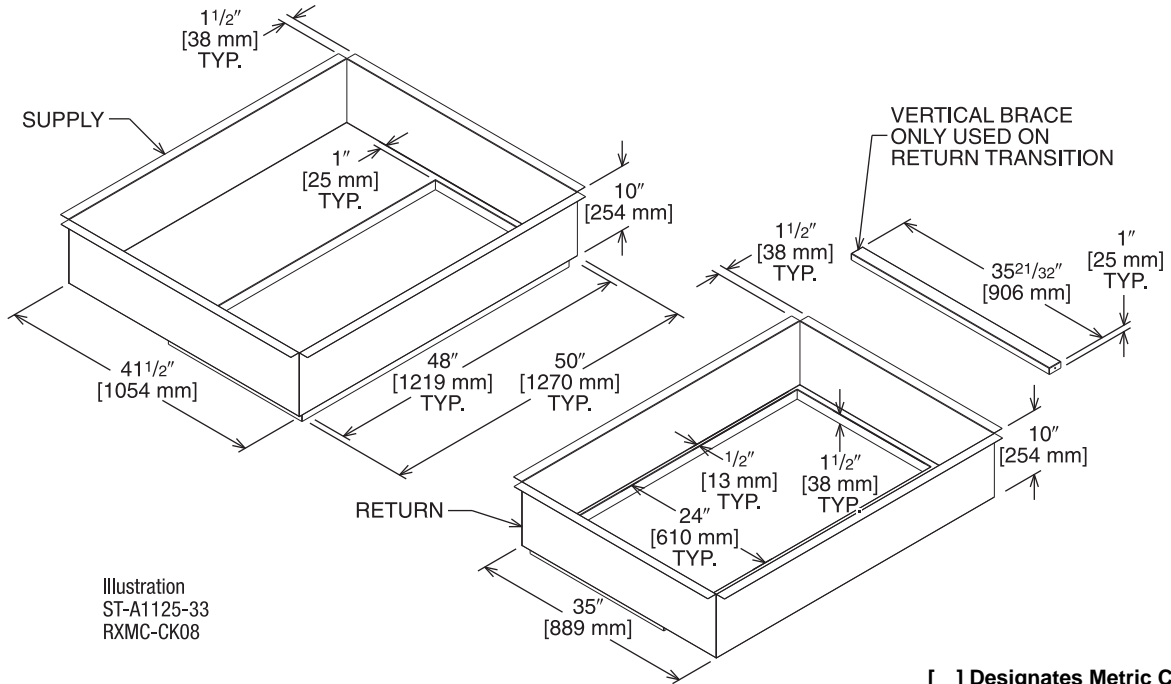
Illustration  
ST-A1125-32  
RXMC-CJ07

[ ] Designates Metric Conversions

## DOWNFLOW TRANSITION DRAWINGS (Cont.)

### RXMC-CK08 (20 Ton) [70.3 kW]

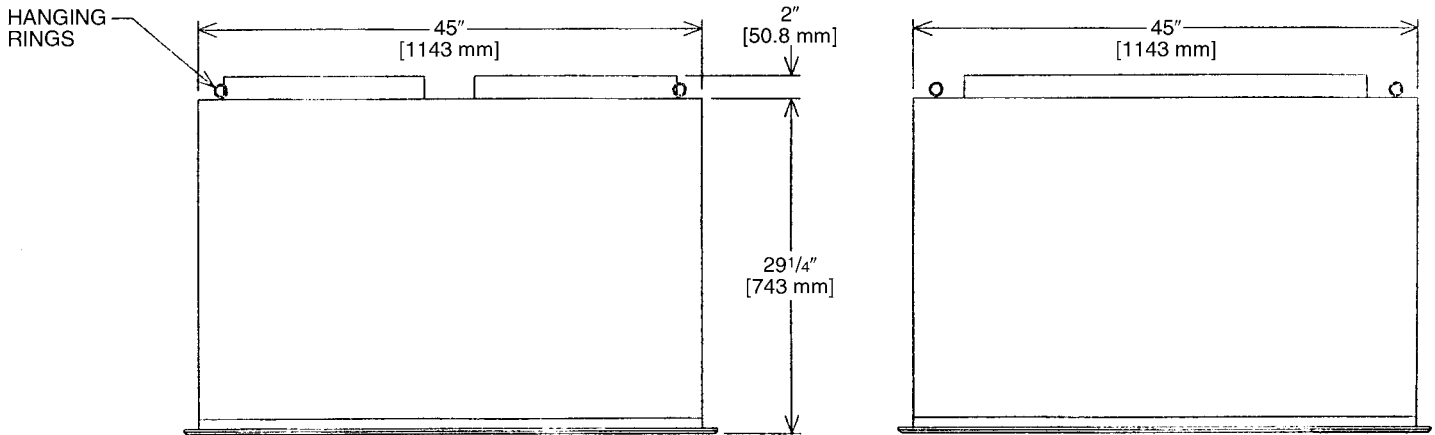
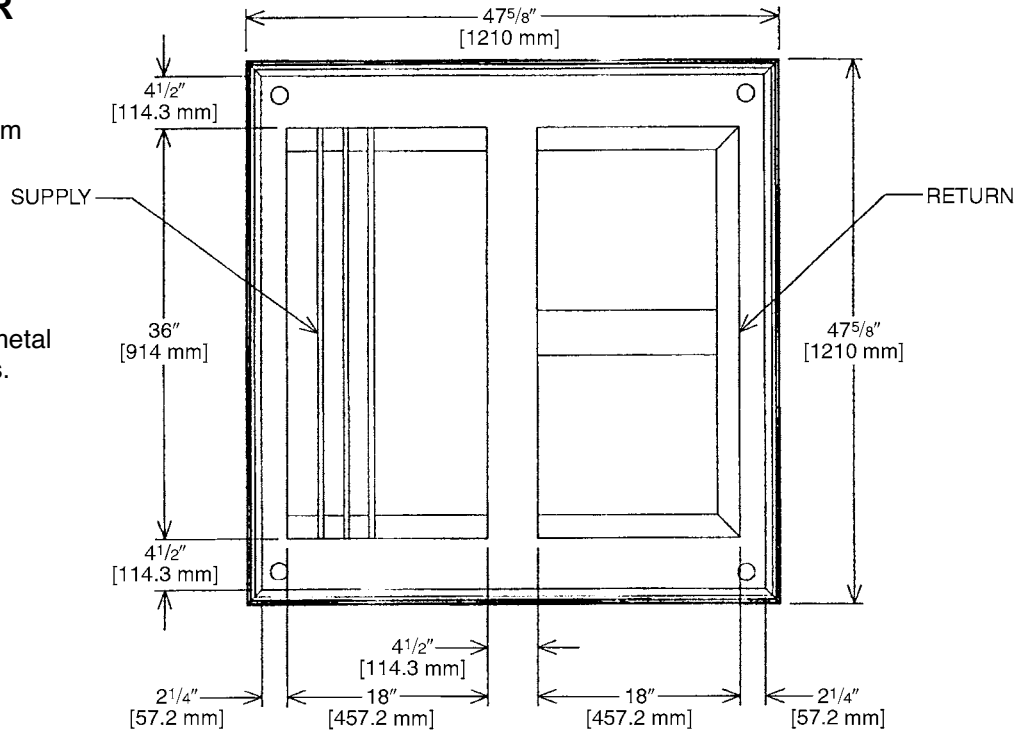
- Used with RXRN-AD86 Concentric Diffusers.



[ ] Designates Metric Conversions

### CONCENTRIC DIFFUSER RXRN-AD80 SERIES 15 TON [52.8 kW] FLUSH

- All aluminum diffuser with aluminum return air eggcrate.
- Built-in anti-sweat gasket.
- Molded fiberglass supports.
- Built-in hanging supports.
- Diffuser box constructed of sheetmetal insulated with 1" [25.4 mm] 1.5 lbs. [.7 kg] duct liner.



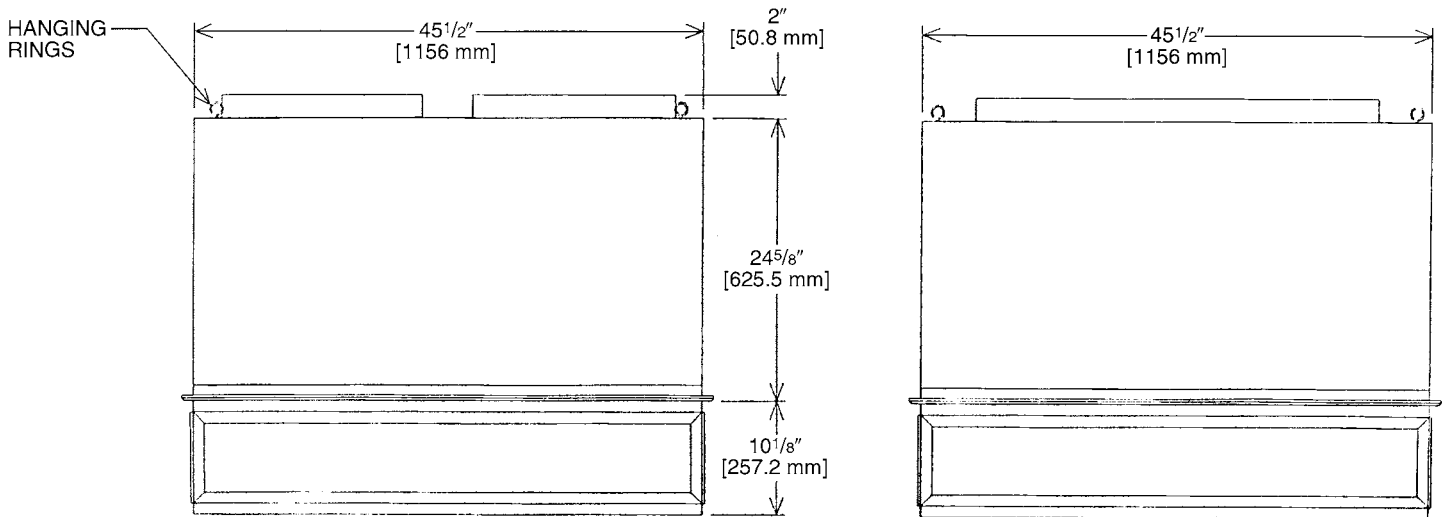
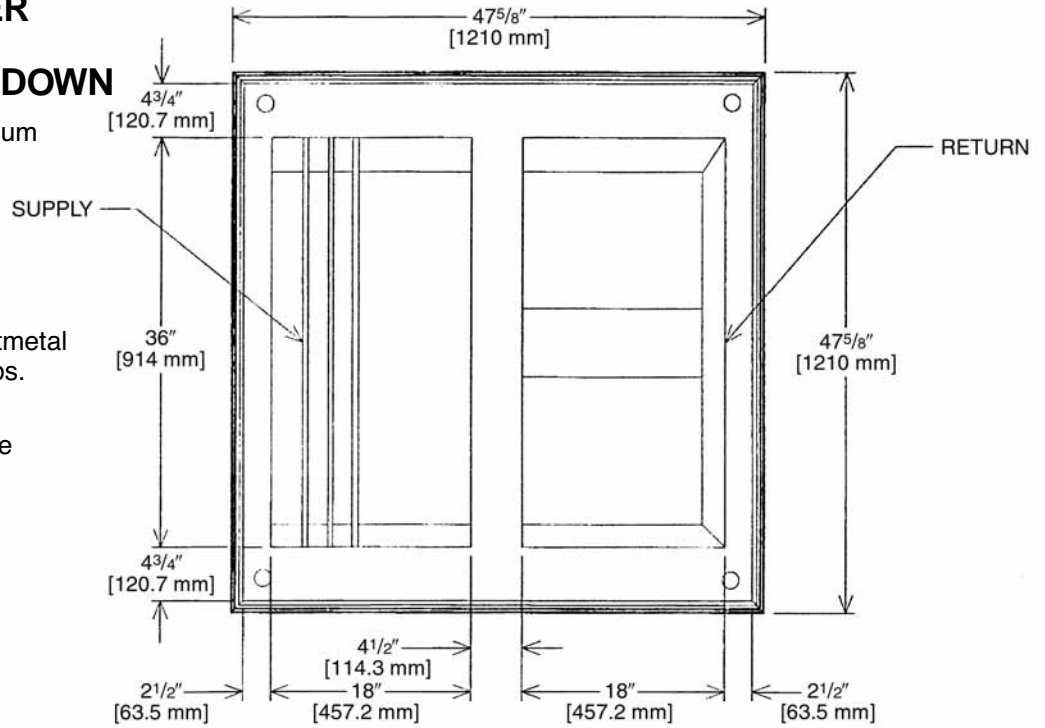
### CONCENTRIC DIFFUSER SPECIFICATIONS

PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD80	5600 [2643]	0.36	28-37	1000	2082
	5800 [2737]	0.39	29-38	1036	2156
	6000 [2832]	0.42	40-50	1071	2230
	6200 [2926]	0.46	42-51	1107	2308
	6400 [3020]	0.50	43-52	1143	2379
	6600 [3115]	0.54	45-56	1179	2454

[ ] Designates Metric Conversions

## CONCENTRIC DIFFUSER RXRN-AD81 SERIES 15 TON [52.8 kW] STEP DOWN

- All aluminum diffuser with aluminum return air eggcrate.
- Built-in anti-sweat gasket.
- Molded fiberglass supports.
- Built-in hanging supports.
- Diffuser box constructed of sheetmetal insulated with 1" [25.4 mm] 1.5 lbs. [.7 kg] duct liner.
- Double deflection diffuser with the blades secured by spring steel.



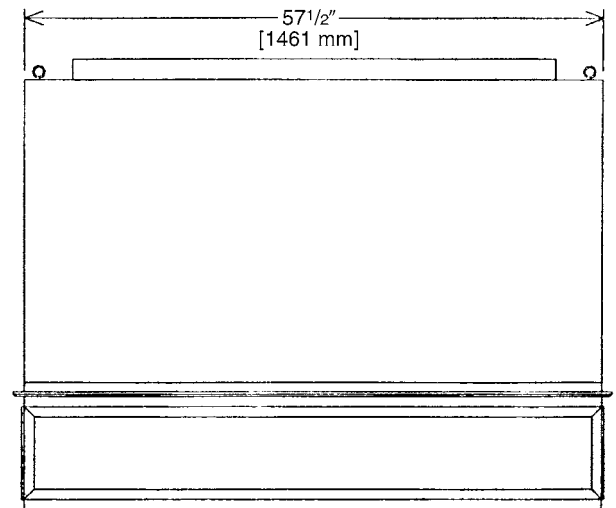
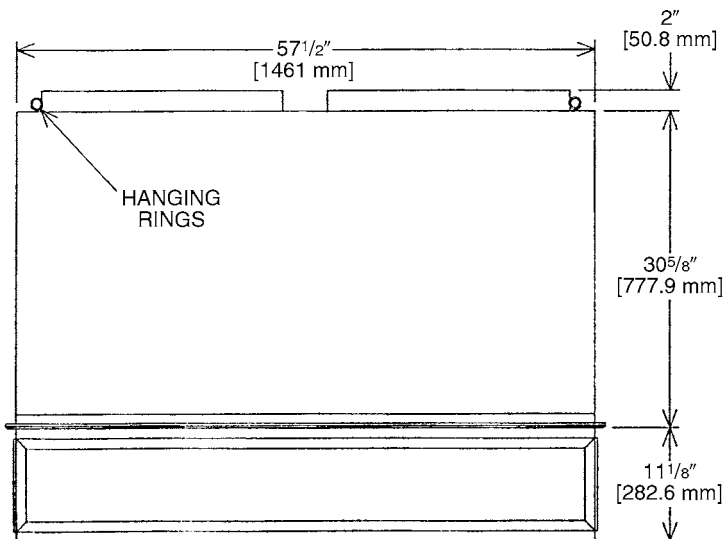
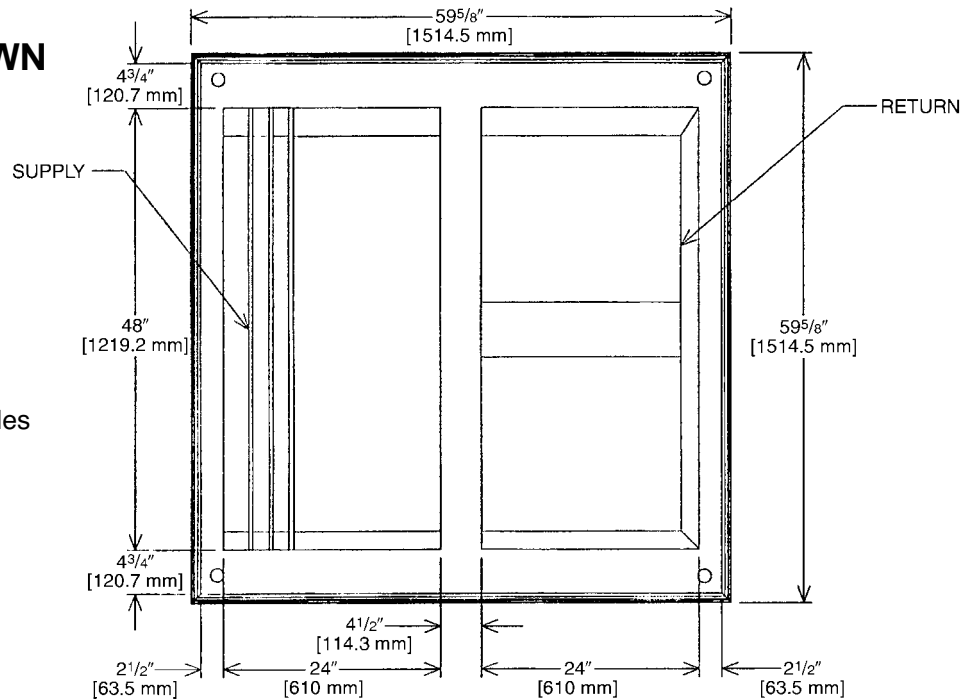
## CONCENTRIC DIFFUSER SPECIFICATIONS

PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD81	5600 [2643]	0.36	39-49	920	920
	5800 [2737]	0.39	42-51	954	954
	6000 [2832]	0.42	44-54	1022	1022
	6200 [2926]	0.46	45-55	1056	1056
	6400 [3020]	0.50	46-55	1090	1090
	6600 [3115]	0.54	47-56	1124	1124

[ ] Designates Metric Conversions

## CONCENTRIC DIFFUSER RXRN-AD86 SERIES 20 TON [70.3 kW] STEP DOWN

- All aluminum diffuser with aluminum return air eggcrate.
- Built-in anti-sweat gasket.
- Molded fiberglass supports.
- Built-in hanging supports.
- Diffuser box constructed of sheetmetal insulated with 1" [25.4 mm] 1.5 lbs. [.7 kg] duct liner.
- Double deflection diffuser with the blades secured by spring steel.



## CONCENTRIC DIFFUSER SPECIFICATIONS

PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD86	7200 [3398]	0.39	33-38	827	827
	7400 [3492]	0.41	35-40	850	850
	7600 [3587]	0.43	36-41	873	873
	7800 [3681]	0.47	38-43	896	896
	8000 [3776]	0.50	39-44	918	918
	8200 [3870]	0.53	41-46	941	941
	8400 [3964]	0.56	43-49	964	964
	8600 [4059]	0.59	44-50	987	987
	8800 [4153]	0.63	47-55	1010	1010

[ ] Designates Metric Conversions

## Guide Specifications SKKL-B180 thru B240

Note about this specification: Please feel free to copy this specification directly into your building spec. This specification is written to comply with the 2004 version of the “master-format” as published by the Construction Specification Institute. [www.csinet.org](http://www.csinet.org).

### GAS HEAT PACKAGED ROOFTOP

#### HVAC Guide Specifications

Size Range: 15 to 20 Nominal Tons

Section	Description
---------	-------------

<b>23 06 80</b>	<b>Schedules for Decentralized HVAC Equipment</b>
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<b>23 06 80.13</b>	<b>Decentralized Unitary HVAC Equipment Schedule</b>
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23 06 80.13.A.	Rooftop unit schedule
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1. Schedule is per the project specification requirements.

<b>23 07 16</b>	<b>HVAC Equipment Insulation</b>
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<b>23 07 16.13</b>	<b>Decentralized, Rooftop Units:</b>
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1. Interior cabinet surfaces shall be insulated with a minimum 3/4-in. thick, minimum 1-1/2 lb density, flexible fiberglass insulation bonded with a phenolic binder, with aluminum foil facing on the air side.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

<b>23 09 13</b>	<b>Instrumentation and Control Devices for HVAC</b>
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<b>23 09 13.23</b>	<b>Sensors and Transmitters:</b>
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23 09 13.23.A.	Thermostats
----------------	-------------

1. Thermostat must
  - a. energize “G” when calling for heat.
  - b. have capability to energize 2 different stages of cooling, and 2 different stages of heating.
  - c. must include capability for occupancy scheduling.

<b>23 09 33</b>	<b>Electric and Electronic Control System for HVAC</b>
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<b>23 09 33.13</b>	<b>Decentralized, Rooftop Units:</b>
--------------------	--------------------------------------

23 09 33.13.A.	General:
----------------	----------

1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side.
2. Shall utilize color-coded wiring.
3. The heat exchanger shall be controlled by an integrated furnace controller (IFC) microprocessor. See heat exchanger section of this specification.
4. Unit shall include a minimum of one 9-pin screw terminal connection board for connection of control wiring.

23 09 33.23.B.	Safeties:
----------------	-----------

1. Compressor over-temperature, over current.
2. Low-pressure switch.
3. High-pressure switch.
4. Automatic reset, motor thermal overload protector.
5. Heating section shall be provided with the following minimum protections.
  - a. High-temperature limit switches.
  - b. Induced draft motor pressure switch.
  - c. Flame rollout switch.
  - d. Flame proving controls.

<b>23 09 93</b>	<b>Sequence of Operations for HVAC Controls</b>
-----------------	---

<b>23 09 93.13</b>	<b>Decentralized, Rooftop Units:</b>
--------------------	--------------------------------------

23 09 93.13	INSERT SEQUENCE OF OPERATION
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<b>23 40 13</b>	<b>Panel Air Filters</b>
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<b>23 40 13.13</b>	<b>Decentralized, Rooftop Units:</b>
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23 40 13.13.A.	Standard filter section shall
----------------	-------------------------------

1. Shall consist of factory-installed, low velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes.
2. Unit shall use only one filter size. Multiple sizes are not acceptable.
3. Filter face velocity shall not exceed 365 fpm at nominal airflows.
4. Filters shall be accessible through an access panel as described in the unit cabinet section of the specification (23 81 19.13.H).





## 23 81 19 Self-Contained Air Conditioners

### 23 81 19.13 Small-Capacity Self-Contained Air Conditioners

#### 23 81 19.13.A. General

1. Outdoor, rooftop mounted, electrically controlled, heating and cooling unit utilizing a(n) hermetic scroll compressor(s) for cooling duty and gas combustion for heating duty.
2. Factory assembled, single-piece heating and cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
3. Unit shall use environmentally safe, R-410A refrigerant.
4. Unit shall be installed in accordance with the manufacturer's instructions.
5. Unit must be selected and installed in compliance with local, state, and federal codes.

#### 23 81 19.13.B. Quality Assurance

1. Unit meets ASHRAE 90.1-2004 minimum efficiency requirements.
2. 3 phase units are Energy Star qualified.
3. Unit shall be rated in accordance with AHRI Standards 210 and 360.
4. Unit shall be designed to conform to ASHRAE 15, 2001.
5. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.
6. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
7. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
8. Unit casing shall be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 5000-hour salt spray.
9. Unit shall be designed in accordance with ISO 9001:2000, and shall be manufactured in a facility registered by ISO 9001:2000.
10. Roof curb shall be designed to conform to NRCA Standards.
11. Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request.
12. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain.
13. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.

#### 23 81 19.13.C. Delivery, Storage, and Handling

1. Unit shall be stored and handled per manufacturer's recommendations.
2. Lifted by crane requires either shipping top panel or spreader bars.
3. Unit shall only be stored or positioned in the upright position.

#### 23 81 19.13.E. Project Conditions

1. As specified in the contract.

#### 23 81 19.13.F. Operating Characteristics

1. Unit shall be capable of starting and running at 115°F (46°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 210/240 or 360 at  $\pm 10\%$  voltage.
2. Compressor with standard controls shall be capable of operation down to 40°F (4°C), ambient outdoor temperatures. Accessory low ambient kit is necessary if mechanically cooling at ambient temperatures below 40°F (4°C).
3. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.
4. Unit shall be factory configured for vertical supply & return configurations.
5. Unit shall be field convertible from vertical to horizontal configuration.

#### 23 81 19.13.G. Electrical Requirements

1. Main power supply voltage, phase, and frequency must match those required by the manufacturer.

#### 23 81 19.13.H. Unit Cabinet

1. Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a baked enamel finish on all externally exposed surfaces.
2. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003 inches minimum, gloss (per ASTM D523, 60°F / 16°C): 60, Hardness: H-2H Pencil hardness.
3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210 or 360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 3/4-in. thick, 1 lb. density, flexible fiberglass insulation, aluminum foil-face coated on the air side.
4. Base of unit shall have locations for thru-the-base gas and electrical connections (factory installed or field installed), standard.
5. Base Rail
  - a. Unit shall have base rails on all sides.
  - b. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.



- c. Holes shall be provided in the base rail for moving the rooftop by fork truck.
  - d. Base rail shall be a minimum of 14 gauge thickness.
  - 6. Condensate pan and connections:
    - a. Shall be a sloped condensate drain pan made of a non-corrosive material.
    - b. Shall comply with ASHRAE Standard 62.
    - c. Shall use a 1" x 11-1/2 NPT drain connection through the side of the drain pan. Connection shall be made per manufacturer's recommendations.
  - 7. Gas Connections:
    - a. All gas piping connecting to unit gas valve shall enter the unit cabinet at a single location on side of unit (horizontal plane).
    - b. Thru-the-base capability
      - i. Standard unit shall have a thru-the-base gas-line location using a raised, embossed portion of the unit basepan.
      - ii. No basepan penetration, other than those authorized by the manufacturer, is permitted.
  - 8. Electrical Connections
    - a. All unit power wiring shall enter unit cabinet at a single, factory-prepared, knockout location.
    - b. Thru-the-base capability
      - i. Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.
      - ii. No basepan penetration, other than those authorized by the manufacturer, is permitted.
  - 9. Component access panels (standard)
    - a. Cabinet panels shall be easily removable for servicing.
    - b. Stainless steel metal hinges are standard on all doors.
- 23 81 19.13.I. Gas Heat
- 1. General
    - a. Heat exchanger shall be an induced draft design. Positive pressure heat exchanger designs shall not be allowed.
    - b. Shall incorporate a direct-spark ignition system and redundant main gas valve.
    - c. Heat exchanger design shall allow combustion process condensate to gravity drain; maintenance to drain the gas heat exchanger shall not be required.
    - d. Gas supply pressure at the inlet to the rooftop unit gas valve must match that required by the manufacturer.
  - 2. The heat exchanger shall be controlled by an integrated furnace controller (IFC) microprocessor.
    - a. IFC board shall notify users of fault using an LED (light-emitting diode).
  - 3. Standard Heat Exchanger construction
    - a. Heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gauge aluminum coated steel for corrosion resistance.
    - b. Burners shall be of the in-shot type constructed of aluminum-coated steel.
    - c. Burners shall incorporate orifices for rated heat output up to 2000 ft (610m) elevation. Additional accessory kits may be required for applications above 2000 ft (610m) elevation, depending on local gas supply conditions.
  - 4. Optional Stainless Steel Heat Exchanger construction
    - a. Use energy saving, direct-spark ignition system.
    - b. Use a redundant main gas valve.
    - c. Burners shall be of the in-shot type constructed of aluminum-coated steel.
    - d. All gas piping shall enter the unit cabinet at a single location on side of unit (horizontal plane).
    - e. The optional stainless steel heat exchanger shall be of the tubular-section type, constructed of a minimum of 20-gauge type 409 stainless steel.
    - f. Type 409 stainless steel shall be used in heat exchanger tubes and vestibule plate.
    - g. Complete stainless steel heat exchanger allows for greater application flexibility.
  - 5. Induced draft combustion motors and blowers
    - a. Shall be a direct-drive, single inlet, forward-curved centrifugal type.
    - b. Shall be made from steel with a corrosion-resistant finish.
    - c. Shall have permanently lubricated sealed bearings.
    - d. Shall have inherent thermal overload protection.
    - e. Shall have an automatic reset feature.



## 23 81 19.13.J. Coils

### 1. Standard Aluminum/Copper Coils:

- a. Standard evaporator coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
- b. Evaporator and condenser coils shall be leak tested to 150 psig, pressure tested to 550 psig, and qualified to UL 1995 burst test at 2,200 psi.
- c. Condenser coils shall be aluminum MicroChannel coils.

## 23 81 19.13.K. Refrigerant Components

### 1. Refrigerant circuit shall include the following control, safety, and maintenance features:

- a. Capillary tubes.
- b. Refrigerant filter drier.
- c. Service gauge connections on suction and discharge lines.
- d. Pressure gauge access through an access port in the front and rear panel of the unit.

### 2. Compressors

- a. Unit shall use one fully hermetic, scroll compressor for each independent refrigeration circuit.
- b. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
- c. Compressors shall be internally protected from high discharge temperature conditions. Advanced Scroll Temperature Protection on 240 sizes.
- d. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device.
- e. Compressor shall be factory mounted on rubber grommets.
- f. Compressor motors shall have internal line break thermal and current overload protection.
- g. Crankcase heaters shall not be required for normal operating range.

## 23 81 19.13.L. Filter Section

1. Filters access is specified in the unit cabinet section of this specification.
2. Filters shall be held in place by filter tray, facilitating easy removal and installation.
3. Shall consist of factory-installed, low velocity, throw-away 2-in. thick fiberglass filters.
4. Filter face velocity shall not exceed 365 fpm at nominal airflows.
5. Filters shall be standard, commercially available sizes.
6. Only one size filter per unit is allowed.

## 23 81 19.13.M. Evaporator Fan and Motor

### 1. Evaporator fan motor:

- a. Shall have permanently lubricated bearings.
- b. Shall have inherent automatic-reset thermal overload protection.
- c. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.

### 2. Belt-driven Evaporator Fan:

- a. Belt drive shall include an adjustable-pitch motor pulley.
- b. Shall use sealed, permanently lubricated ball-bearing type.
- c. Blower fan shall be double-inlet type with forward-curved blades.
- d. Shall be constructed from steel with a corrosion resistant finish and dynamically balanced.

## 23 81 19.13.N. Condenser Fans and Motors

### 1. Condenser fan motors:

- a. Shall be a totally enclosed motor.
- b. Shall use permanently lubricated bearings.
- c. Shall have inherent thermal overload protection with an automatic reset feature.
- d. Shall use a shaft-down design. Shaft-up designs including those with “rain-slinger devices” shall not be allowed.

### 2. Condenser Fans shall:

- a. Shall be a direct-driven propeller type fan
- b. Shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.



## 23 81 19.13.O. Special Features

### 1. Integrated Economizers:

- a. Integrated, gear-driven parallel modulating blade design type capable of simultaneous economizer and compressor operation.
- b. Independent modules for vertical or horizontal return configurations shall be available. Vertical return modules shall be available as a factory installed option.
- c. Damper blades shall be galvanized steel with metal gears. Plastic or composite blades on intake or return shall not be acceptable.
- d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
- e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
- f. Shall be capable of introducing up to 100% outdoor air.
- g. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air. The barometric relief damper shall include seals, hardware and hoods to relieve building pressure. Damper shall gravity close upon unit shut down.
- h. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
- i. An outdoor single-enthalpy sensor shall be provided as standard. Outdoor air enthalpy set point shall be adjustable and shall range from the enthalpy equivalent of 63°F @ 50% rh to 73°F @ 50% rh. Additional sensor options shall be available as accessories.
- j. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 70%, with a range of 0% to 100%.
- k. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy. A remote potentiometer may be used to override the damper set point.
- l. Economizer controller shall accept a 2-10Vdc CO<sub>2</sub> sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor-air damper to provide ventilation based on the sensor input.
- m. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
- n. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.

### 2. Two-Position Damper

- a. Damper shall be a Two-Position Damper. Damper travel shall be from the full closed position to the field adjustable %-open setpoint.
- b. Damper shall include adjustable damper travel from 25% to 100% (full open).
- c. Damper shall include single or dual blade, gear driven damper and actuator motor.
- d. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
- e. Damper will admit up to 100% outdoor air for applicable rooftop units.
- f. Damper shall close upon indoor (evaporator) fan shutoff and/or loss of power.
- g. The damper actuator shall plug into the rooftop unit's wiring harness plug. No hard wiring shall be required.
- h. Outside air hood shall include aluminum water entrainment filter.

### 3. Manual damper

- a. Manual damper package shall consist of damper, air inlet screen, and rain hood which can be preset to admit up to 50% outdoor air for year round ventilation.

### 4. Head Pressure Control Package

- a. Controller shall control coil head pressure by condenser-fan cycling.

### 5. Liquid Propane (LP) Conversion Kit

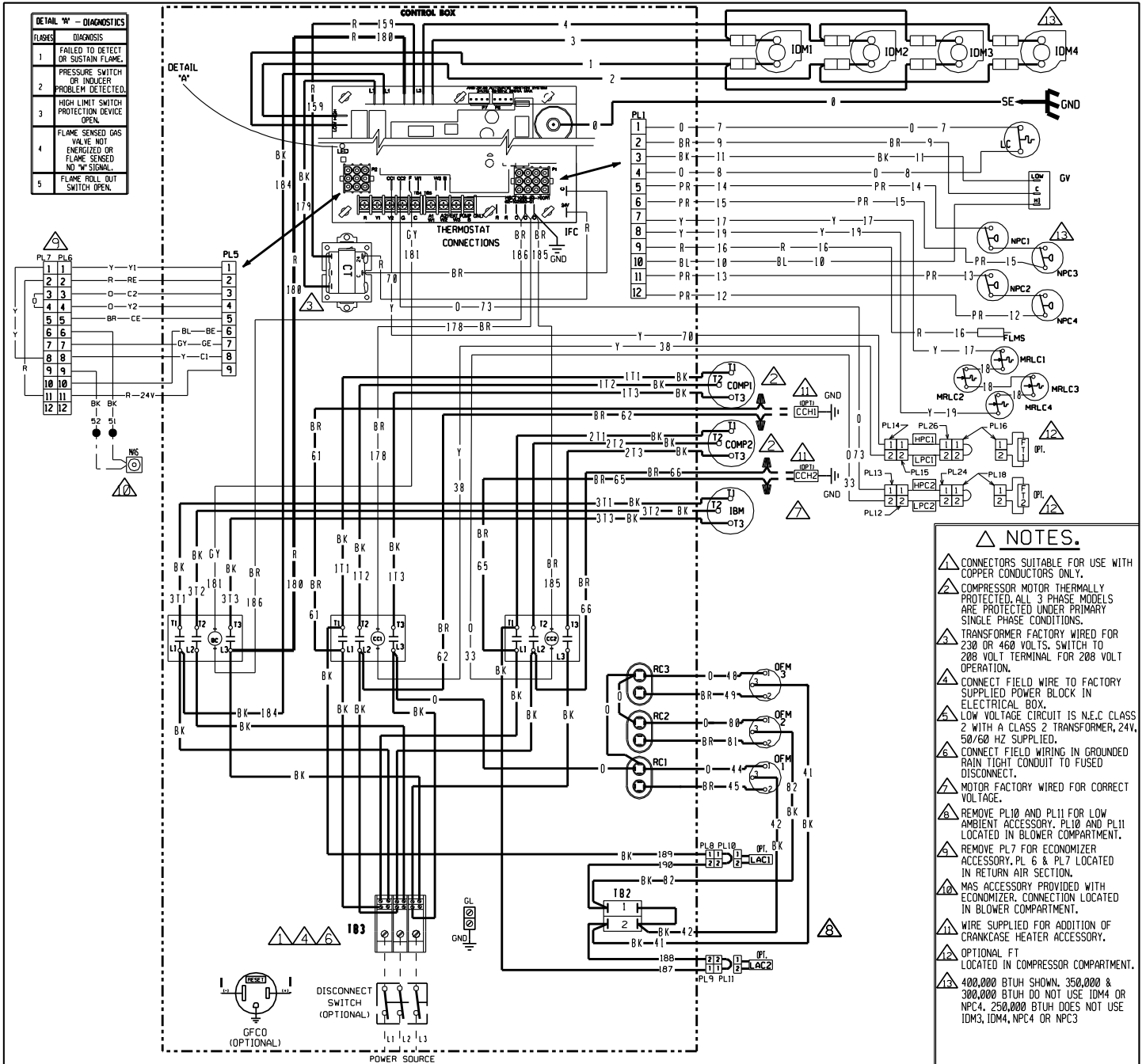
- a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit for use with liquefied propane, up to 2000 ft (610m) elevation.

### 6. Unit-Mounted, Non-Fused Disconnect Switch:

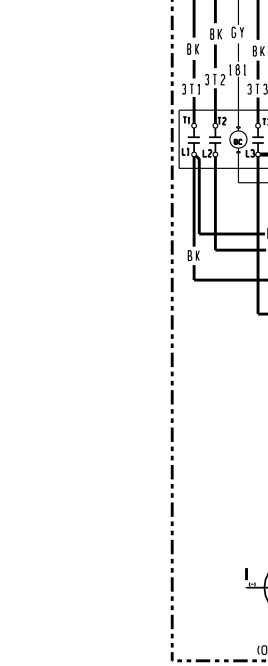
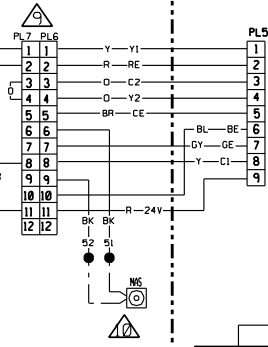
- a. Switch shall be factory-installed, internally mounted.
- b. National Electric Code (NEC) and UL approved non-fused switch shall provide unit power shutoff.
- c. Shall be accessible from outside the unit.
- d. Shall provide local shutdown and lockout capability.



- e. Non-Powered convenience outlet.
  - f. Outlet shall be powered from a separate 115-120v power source.
  - g. A transformer shall not be included.
  - h. Outlet shall be field-installed and internally mounted with easily accessible 115-v female receptacle.
  - i. Outlet shall include 15 amp GFI receptacle.
  - j. Outlet shall be accessible from outside the unit.
7. Flue Discharge Deflector:
- a. Flue discharge deflector shall direct unit exhaust vertically instead of horizontally.
  - b. Deflector shall be defined as a “natural draft” device by the National Fuel and Gas (NFG) code.
8. Thru-the-Base Connectors:
- a. Kits shall provide connectors to permit gas and electrical connections to be brought to the unit through the unit basepan.
9. Propeller Power Exhaust:
- a. Power exhaust shall be used in conjunction with an integrated economizer.
  - b. Independent modules for vertical or horizontal return configurations shall be available.
  - c. Horizontal power exhaust is shall be mounted in return ductwork.
  - d. Power exhaust shall be controlled by economizer controller operation. Exhaust fans shall be energized when dampers open past the 0-100% adjustable setpoint on the economizer control.
10. Roof Curbs (Vertical):
- a. Full perimeter roof curb with exhaust capability providing separate airstreams for energy recovery from the exhaust air without supply air contamination.
  - b. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
  - c. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
11. Universal Gas Conversion Kit:
- a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit to operate from 2000-7000 ft (610 to 2134m) elevation with natural gas or from 0-7000 ft (90-2134m) elevation with liquefied propane.
12. Outdoor Air Enthalpy Sensor:
- a. The outdoor air enthalpy sensor shall be used to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the unit will provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.
13. Return Air Enthalpy Sensor:
- a. The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
14. Indoor Air Quality (CO<sub>2</sub>) Sensor:
- a. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
  - b. The IAQ sensor shall be available in wall mount with LED display. The set point shall have adjustment capability.
15. Smoke detectors:
- a. Shall be a Four-Wire Controller and Detector.
  - b. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
  - c. Shall use magnet-activated test/reset sensor switches.
  - d. Shall have tool-less connection terminal access.
  - e. Shall have a recessed momentary switch for testing and resetting the detector.
  - f. Controller shall include:
    - i. One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel
    - ii. Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
    - iii. One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
    - iv. Capable of direct connection to two individual detector modules.
    - v. Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.



DETAIL 'W' - DIAGNOSTICS	
FLAG	DIAGNOSIS
1	FAILED TO DETECT OR SUSTAIN FLAME.
2	PRESSURE SWITCH OR INDUCER PROBLEM DETECTED.
3	HIGH LIMIT SWITCH PROTECTION DEVICE OPEN.
4	FLAME SENSED GAS VALVE NOT ENERGIZED OR FLAME SENSED NO "W" SIGNAL.
5	FLAME ROLL OUT SWITCH OPEN.



COMPONENT CODE	
BC	BLOWER CONTACTOR
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
DISC	DISCONNECT SWITCH
FLMS	FLAME SENSOR
FT	FREEZE STAT
GFCO	GROUND FAULT CONVENIENCE OUTLET
GL	GROUND LUG
GND	GROUND
GV	GAS VALVE
HPC	HIGH PRESSURE CONTROL
IBM	INDOOR BLOWER MOTOR BELT DRIVE
IDM	INDUCED DRAFT MOTOR
IFC	INTEGRATED FURNACE CONTROL
LAC	LOW AMBIENT COOLING CONTROL
LC	LIMIT CONTROL
LPC	LOW PRESSURE CONTROL
MAS	MIX AIR SENSOR
MRLC	MANUAL RESET LIMIT CONTROL
NPC	NEGATIVE PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
RC	RUN CAPACITOR
SE	SPARK ELECTRODE
TB	TERMINAL BLOCK
PL	PLUG
PT	POWER TRANSFORMER
WN	WIRE NUT

WIRING INFORMATION	
LINE VOLTAGE	—
-FACTORY STANDARD	—
-FACTORY OPTION	---
-FIELD INSTALLED	----
LOW VOLTAGE	—
-FACTORY STANDARD	—
-FACTORY OPTION	---
-FIELD INSTALLED	----
REPLACEMENT WIRE	—
-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)	
WARNING	
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.	

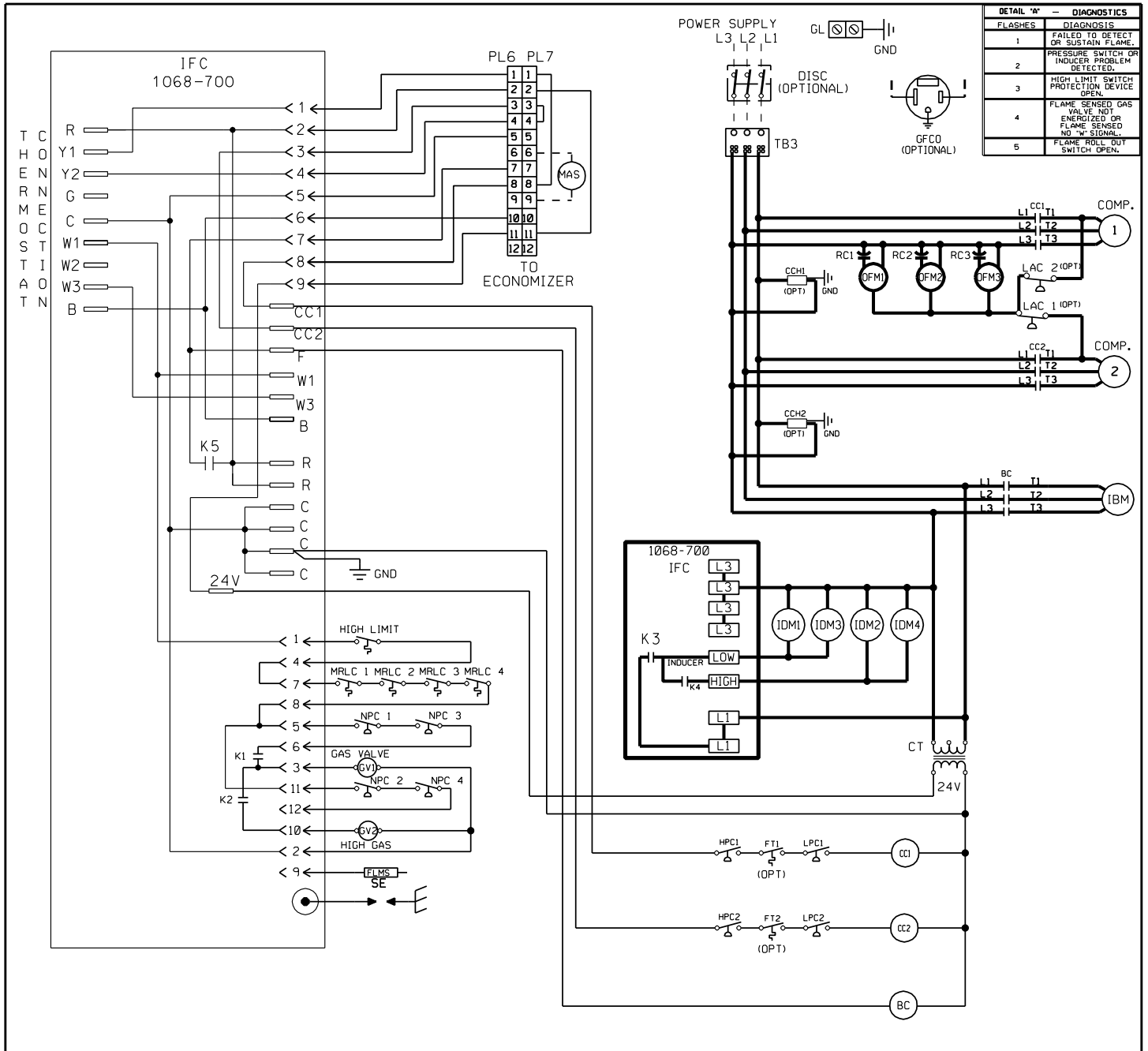
WIRE COLOR CODE			
BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

WIRING DIAGRAM			
RKKL-B180/240			
208-230/460V 3 PH, 60 HZ.			
200-220/380-415V 3PH, 50 HZ.			
ROOFTOP			
DR. BY	APP. BY	DATE	DWG. NO.
MGR		7-21-10	90-42517-36
			REV 01

- NOTES.**
- 1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
  - 2. COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MODELS ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.
  - 3. TRANSFORMER FACTORY WIRED FOR 230 OR 460 VOLTS. SWITCH TO 208 VOLT TERMINAL FOR 208 VOLT OPERATION.
  - 4. CONNECT FIELD WIRE TO FACTORY SUPPLIED POWER BLOCK IN ELECTRICAL BOX.
  - 5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER, 24V, 50/60 HZ SUPPLIED.
  - 6. CONNECT FIELD WIRING IN GROUNDED RAIN TIGHT CONDUIT TO FUSED DISCONNECT.
  - 7. MOTOR FACTORY WIRED FOR CORRECT VOLTAGE.
  - 8. REMOVE PL10 AND PL11 FOR LOW AMBIENT ACCESSORY. PL10 AND PL11 LOCATED IN BLOWER COMPARTMENT.
  - 9. REMOVE PL7 FOR ECONOMIZER ACCESSORY. PL 6 & PL7 LOCATED IN RETURN AIR SECTION.
  - 10. MAS ACCESSORY PROVIDED WITH ECONOMIZER. CONNECTION LOCATED IN BLOWER COMPARTMENT.
  - 11. WIRE SUPPLIED FOR ADDITION OF CRANKCASE HEATER ACCESSORY.
  - 12. OPTIONAL FT LOCATED IN COMPRESSOR COMPARTMENT.
  - 13. 400,000 BTUH SHOWN. 350,000 & 300,000 BTUH DO NOT USE IDM4 OR NPC4, 250,000 BTUH DOES NOT USE IDM3, IDM4, NPC4 OR NPC3



# WIRING SCHEMATICS—SKKL-B SERIES



COMPONENT CODE			
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CC	COMPRESSOR CONTACTOR	MAS	MIX AIR SENSOR
CCH	CRANKCASE HEATER	MRLC	MANUAL RESET LIMIT CONTROL
COMP	COMPRESSOR	NPC	NEGATIVE PRESSURE CONTROL
CT	CONTROL TRANSFORMER	OFM	OUTDOOR FAN MOTOR
DISC	DISCONNECT SWITCH	PL	PLUG
FLMS	FLAME SENSOR	RC	RUN CAPACITOR
FT	FREEZE STAT	SE	SPARK ELECTRODE
GFCO	GROUND FAULT CONVENIENCE OUTLET	TB	TERMINAL BLOCK
GL	GROUND LUG		
GND	GROUND		
GV	GAS VALVE		
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LOW VOLTAGE	—
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REPLACEMENT WIRE	—
-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)	
WARNING	
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.	

WIRE COLOR CODE			
BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

WIRING SCHEMATIC			
RKKL-B180/240			
208-230/460V, 3 PH, 60 HZ.			
200-220/380-415V 3 PH, 50 HZ.			
ROOFTOP			
DR. BY	APP. BY	DATE	DWG. NO.
MGR		7-21-10	90-42517-37
			REV 01

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Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

**Rheem Heating,  
Cooling and  
Water Heating**

P.O. Box 17010, Fort Smith, AR 72917



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*"In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice."*