

CHP16-072

6 Ton (21.1 kW)

Net Cooling Capacity - 72,000 Btuh (21.1 kW)

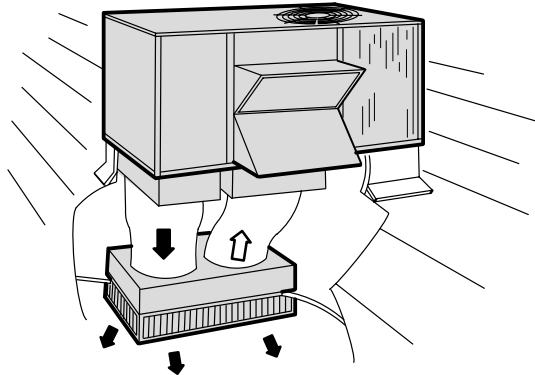
Net Heating Capacity - 69,000 (20.2 kW)

Optional Electric Heat - 10 to 40 kW

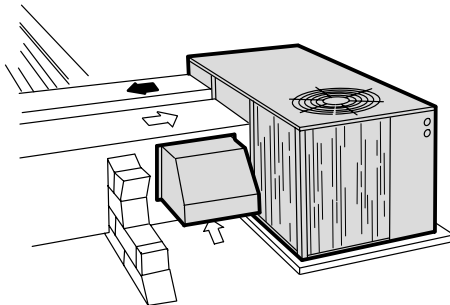
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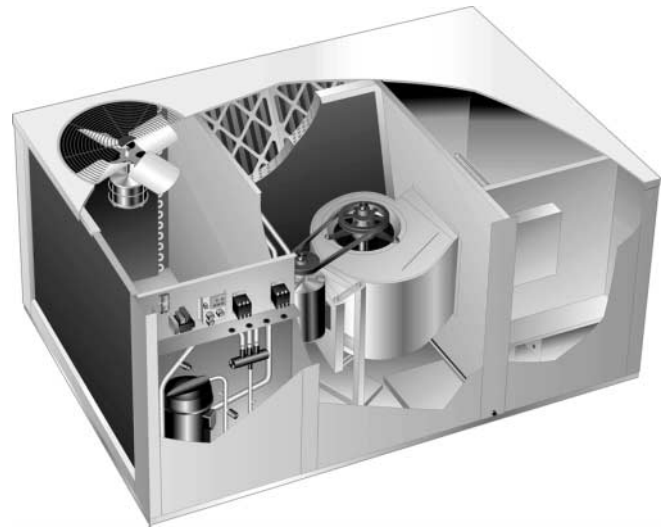
Supersedes February 2001



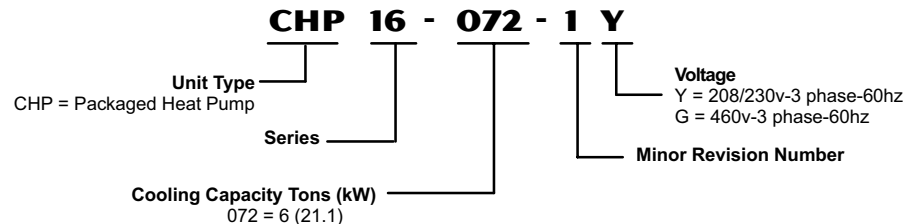
Down-Flow Supply and Return Air Installation
With RMF16 Roof Mounting Frame, REMD16 Economizer
and RTD11 Ceiling Diffuser.



Horizontal (Side) Supply and Return Air
Installation with OAD16 Outdoor Air Dampers.



MODEL NUMBER IDENTIFICATION



FEATURES

Air Flow Choice

- Bottom (down-flow) or horizontal (side) supply and return air.

Approvals

- Components bonded for grounding to meet safety standards for servicing required by UL, CSA and National and Canadian Electrical Codes.
- Developed in accordance with ISO 9002 quality standards

ARI Certified and Rated

- Certified in accordance with the ULE certification program which is based on ARI Standard 340/360-2000.

Cabinet

- Constructed of heavy gauge galvanized steel.
- Powdered enamel paint finish.
- Removable cabinet panels allow service access.
- Base section and cabinet panels exposed to conditioned air lined with thick fiberglass insulation.
- Electrical inlets provided in cabinet base and indoor section cabinet panel for wiring entry.
- Control box with low voltage pigtail wiring connections and controls conveniently located for service access.
- Indoor coil condensate drain connection extends outside cabinet for ease of connection.
- Lifting brackets furnished for handling and rigging.

FEATURES

Coil Construction (Indoor and Outdoor)

- Extra large surface area and circuiting of coils provide maximum cooling efficiency, excellent heat transfer and low air resistance.
- Constructed of precisely spaced ripple-edged aluminum fins fitted to copper tubes.
- Fins equipped with collars that grip tubing for maximum contact area.
- Flared shoulder tubing connections and silver soldering provide tight, leakproof joints.
- Long life copper tubing is easy to field service.
- Coil is factory tested under high pressure to insure leakproof construction.

Compressor

- Copeland Scroll™ type.

Defrost Control

- A solid-state defrost control board is furnished as standard equipment. It gives a defrost cycle (14 minutes) for every 30, 60 or 90 minutes (adjustable) of compressor "on" time at outdoor coil temperature below 35°F (1.7°C).
- A sensing element mounted on the low pressure side of the outdoor thermal expansion valve determines when the defrost cycle is required. Pressure switch mounted on discharge vapor line terminates defrost cycle.

Filters

- Unit is furnished with disposable 2 inch (51 mm) pleated MERV 7 rated filters (Minimum Efficiency Reporting Value based on ASHRAE 52.2).

Outdoor Coil

- Formed coil construction.

Outdoor Fan

- Direct drive fan draws large air volumes uniformly through outdoor coil and discharges it vertically.
- Fan orifice design and low fan tip speed keeps operating sound level at a minimum.
- Uniform air flow through the coil results in high refrigerant cooling capacity.
- Corrosion resistant polyvinyl chloride (PVC) coated steel wire fan guard(s) furnished.

Outdoor Fan Motor

- Fan motor has ball bearings and is permanently lubricated, overload protected and resiliently mounted.

Refrigeration System

- Consists of: compressor with crankcase heater, outdoor coil and direct drive fan, indoor coil and belt drive blower, reversing valve, check/expansion valve, high capacity drier, high pressure switch, full refrigerant charge, freezestat (prevents coil freeze-up during low ambient operation), low ambient cooling operation down to 30°F (-1°C) without additional controls.

Sound Rating

- Tested in accordance with conditions included in ARI 270.

Supply Air Blower

- Belt drive.
- Forward curved blades with double inlet.
- Statically and dynamically balanced.
- Permanently lubricated self aligning ball bearings with adjustable pulley.

Supply Air Motor

- Overload protected, equipped with ball bearings.
- Motor mounting base permits quick and simple motor changeover, belt tension adjustment or belt changing.
- Adjustable motor pulley allows for variable speed adjustments.

Warranty

- Compressor — limited warranty for five years.
- All other covered components — limited warranty for one year.
- Refer to Lennox Equipment Limited Warranty certificate included with unit for specific details.

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Bottom Power Entry	LB-55757CA (34G70) - 12 lbs. (5 kg)
Control Systems	See Page 10
Ceiling Diffusers (Step-Down) - Aluminum grilles, double deflection louvers, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings	RTD11-95 - 125 lbs. (57 kg)
Ceiling Diffusers (Flush) - Aluminum grilles, fixed blade louvers, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings	FD11-95 - 95 lbs. (43 kg)
Ceiling Diffuser Transitions (Supply and Return) - Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated	SRT16-09 -38 lbs. (17 kg)

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA	
Item	CHP16-072
Coil Guard - PVC coated steel wire guards to protect outdoor coil. Not used with Hail Guards.	60L31
Economizer Dampers (Down-Flow) - Mechanically linked recirculated air and outdoor air dampers, plug-in connections to unit, nylon bearings, stainless steel seals (outdoor dampers), 24 volt fully modulating spring return damper motor, adjustable minimum damper position switch, mixed air controller, solid-state adjustable outdoor air enthalpy control, 0 to 100% outdoor air adjustable, gravity exhaust air dampers furnished, powdered enamel paint finish NOTE - Fresh air/exhaust air hood with cleanable aluminum mesh frame filter, is required and must be ordered separately for field installation.	REMD16M-09 - 60 lbs. (27 kg) Net face area - 2.1 ft. ² (0.20 m ²)
Economizer Damper Hood (Down-flow) - For use with REMD16M economizer dampers (see above). Must be ordered separately.	27L58 No. and size of filters (1) 32-1/4 x 16-1/2 x 1 (819 x 419 x 25)
Economizer Dampers (Horizontal) - Mechanically linked recirculated air and outdoor air dampers, plug-in connections to unit, nylon bearings, stainless steel seals (outdoor dampers), 24 volt fully modulating spring return damper motor, adjustable minimum damper position switch, mixed air controller, solid-state adjustable outdoor air enthalpy control, 0 to 100% outdoor air adjustable, galvanized steel cabinet, flanged air openings on return air section, powdered enamel paint finish, fully insulated. NOTE - Outdoor air hood with two cleanable aluminum mesh frame filters is required and must be ordered separately. Also requires optional Horizontal Supply and Return Air Kit for duct connection	EMDH16M-09 - 120 lbs. (54 kg)
Economizer Damper Hood (Horizontal) - For use with EMD16M economizer dampers (see above). Must be ordered separately.	68G80 No. and size of filters (2) 16 x 25 x 1 in. (406 x 635 x 25 mm)
Economizer Gravity Exhaust Dampers (Horizontal) - For use with EMDH16 horizontal economizer damper sections, two neoprene coated fiberglass dampers furnished, rain-hoods furnished, bird screen furnished	GED16-09/12 - 5 lbs. (2 kg) Net face area - 0.43 sq. ft. (0.04 m ²) used with EMDH16M
Economizer Differential Enthalpy Control - For use with economizer dampers, solid-state return air sensor allows selection between outdoor air and return air (whichever has lowest enthalpy)	54G44
Electric Heat - Field installed, helix wound nichrome elements, time delay for element staging, individual element limit controls, may be two-stage controlled, requires optional Fuse Block	See Electric Heat Data Tables, page 7
Unit Fuse Block - Required for electric heat installation, wiring harness and mounting screws furnished	208/230 volt - 50L22 (50 amp) 460 volt - 50L24 (25 amp)
Hail Guards - Heavy duty field installed coil guard protects coils from damage. Not used with Coil Guards.	60L33
Horizontal Supply and Return Air Kit - Provides duct connection to unit, flanges furnished, hardware furnished, two filler panels furnished for unused air openings, filter access panel furnished	LB-55756BA (34G71) 30 lbs. (14 kg)
Low Ambient Controls - Allows unit operation down to 0°F (-17.7°C)	LB-57113BG (15J80)
Outdoor Air Damper/Hood Section - Linked mechanical dampers, interchangeable unit panel furnished (down-flow applications), two-piece cabinet (control access), cleanable polyurethane frame type filter furnished, 0 to 25% (fixed) outdoor air adjustable, manual or automatic operation (kit required for automatic operation), installs on unit for down-flow applications, installs in return air duct for horizontal applications	OAD16-09 - 41 lbs. (19 kg) No. and size of filters (1) 16 x 20 x 1 in. (406 x 508 x 25 mm)
Outdoor Air Damper Panel Kit - Required with OAD16 Damper/Hood for down-flow applications. Interchangeable unit panel.	35G22
Outdoor Air Damper Motorized Damper Kit - 3 position damper actuator, plug-in connection	35G21 - 7 lbs. (3 kg)
Roof Mounting Frame - Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down	RMF16-09 - 107 lbs. (49 kg)

SPECIFICATIONS

		Model No.	CHP16-072
Heating/ Cooling Performance		Nominal Tonnage (kW)	6 (21.1)
	★ARI Cooling Ratings	Cooling Capacity — Btuh (kW)	72,000 (21.1)
		Total unit kW	7.1
		EER (Btuh/Watts)	10.1
	★ARI High Temperature Heating Ratings	Total Capacity — Btuh (kW)	69,000 (20.2)
		Total unit kW	6.3
		C.O.P (Coefficient of Performance)	3.2
	★ARI Low Temperature Heating Ratings	Total Capacity — Btuh (kW)	37,000 (10.8)
		Total unit kW	5.4
		C.O.P (Coefficient of Performance)	2.0
	*Sound Rating Number (db)	83	
	Refrigerant Charge (HCFC-22)	11 lbs. 4 oz. (5.1 kg)	
Outdoor Coil	Net face area - sq. ft. (m ²)	15.67 (1.46)	
	Tube diameter - in. (mm)	3/8 (9.5)	
	No. of rows	2	
	Fins per inch (m)	20 (787)	
Outdoor Coil Fan	Motor horsepower (W)	1/2 (373)	
	Motor watts	500	
	Diameter - in. (mm) & No. of blades	24 (610) - 4	
	Air Volume - cfm (L/s)	5150 (2430)	
Indoor Coil	Net face area - sq. ft. (m ²)	7.75 (0.72)	
	Tube diameter - in. (mm)	3/8 (9.5)	
	No. of rows	3	
	Expansion device type	Thermostatic Expansion Valve	
	Fins per inch (m)	14 (552)	
	Condensate drain connection size	1 in. - 11-1/2 npt pipe nipple	
Indoor Blower	Nominal motor hp (kW)	2 (1.5)	
	Maximum usable hp (kW)	2.30 (1.7)	
	RPM range	845 - 1130	
	Blower wheel nominal diameter x width - in. (mm)	12 x 12 (305 x 305)	
Filters (furnished)	Filter type	Disposable, MERV 7 rated, commercial grade, pleated	
	No. & size of filters - in. (mm)	(4) 16 x 20 x 2 (406 x 508 x 51)	
Shipping Data	Net weight of basic unit - lbs. (kg)	660 (299)	
	Shipping weight of basic unit - lbs. (kg)	800 (363)	
Electrical characteristics		208/230v or 460v - 60 hertz - 3 phase	

★Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360;

Cooling Ratings - 95°F (35°F) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering indoor coil air

High Temperature Heating Ratings - 47 °F (8°C) db/43°F(6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air

Low Temperature Heating Ratings - 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

*Sound Rating Number in accordance with test conditions included in ARI Standard 270.

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

COOLING AND HEATING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

CHP16-072 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
	Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)				
				Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb				
cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1920	905	70.8	20.7	5.11	.70	.84	.96	68.4	20.0	5.73	.71	.85	.97	65.9	19.3	6.43	.72	.86	.98	63.1	18.5	7.22	.73	.88	1.00
	2400	1135	73.4	21.5	5.17	.75	.90	1.00	71.0	20.8	5.78	.76	.92	1.00	68.4	20.0	6.48	.78	.94	1.00	65.6	19.2	7.27	.79	.95	1.00
	2880	1360	75.6	22.2	5.21	.80	.96	1.00	73.2	21.5	5.82	.81	.97	1.00	70.5	20.7	6.53	.83	.99	1.00	67.8	19.9	7.32	.85	1.00	1.00
67°F (19°C)	1920	905	75.3	22.1	5.20	.55	.68	.80	72.7	21.3	5.81	.56	.69	.82	70.0	20.5	6.51	.56	.70	.83	67.1	19.7	7.32	.57	.71	.85
	2400	1135	77.7	22.8	5.25	.58	.73	.87	75.0	22.0	5.87	.59	.74	.89	72.1	21.1	6.57	.59	.75	.91	69.1	20.3	7.36	.61	.77	.93
	2880	1360	79.4	23.3	5.30	.61	.78	.93	76.6	22.4	5.91	.62	.79	.95	73.7	21.6	6.61	.63	.81	.96	70.6	20.7	7.40	.64	.83	.98
71°F (22°C)	1920	905	80.2	23.5	5.31	.42	.54	.65	77.5	22.7	5.92	.42	.54	.66	74.7	21.9	6.63	.42	.55	.67	71.6	21.0	7.43	.42	.55	.68
	2400	1135	82.6	24.2	5.36	.43	.57	.70	79.8	23.4	5.98	.43	.57	.71	76.7	22.5	6.69	.43	.58	.73	73.5	21.5	7.48	.44	.59	.75
	2880	1360	84.2	24.7	5.40	.44	.60	.76	81.3	23.8	6.02	.44	.61	.77	78.2	22.9	6.72	.45	.62	.79	74.9	22.0	7.52	.45	.63	.81

CHP16-072 - HEATING CAPACITY

Indoor Coil Air Volume 70°F db (21°C db)	Air Temperature Entering Outdoor Coil															
	65°F (18°C)			45°F (7°C)			25°F (-4°C)			5°F (-15°C)			-15°F (-26°C)			
	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	Total Heating Capacity		Comp. Motor kW Input	
cfm	L/s	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh		kW	kBtuh		kW
1920	905	88.0	25.8	5.81	65.7	19.3	5.22	42.8	12.5	4.61	26.0	7.6	4.02	13.8	4.0	3.04
2400	1135	88.4	25.9	5.51	66.1	19.4	4.92	43.2	12.7	4.31	26.4	7.7	3.72	14.2	4.2	2.74
2880	1360	88.7	26.0	5.31	66.4	19.5	4.72	43.5	12.7	4.11	26.7	7.8	3.52	14.5	4.2	2.54

CHP16-072 - HEATING PERFORMANCE at 2400 cfm (1135 L/s) Indoor Coil Air Volume

*Outdoor Temperature		Compressor Motor kW Input	Total Output		*Outdoor Temperature		Compressor Motor kW Input	Total Output	
°F	°C		kBtuh	kW	°F	°C		kBtuh	kW
65	18	5.51	88.4	25.9	20	-7	4.22	39.3	11.5
60	16	5.37	83.0	24.3	17	-8	4.16	37.0	10.8
55	13	5.23	77.7	22.8	15	-9	4.10	34.9	10.2
50	10	5.09	72.3	21.2	10	-12	3.96	29.5	8.6
47	8	5.00	69.1	20.3	5	-15	3.72	26.4	7.7
45	7	4.92	66.1	19.4	0	-18	3.47	23.4	6.9
40	4	4.71	58.5	17.1	-5	-21	3.23	20.3	5.9
35	2	4.50	51.0	14.9	-10	-23	2.98	17.2	5.0
30	-1	4.41	47.1	13.8	-15	-26	2.74	14.2	4.2
25	-4	4.31	43.2	12.7	-20	-29	2.50	11.1	3.3

BLOWER DATA

BOLD DATA INDICATES FIELD FURNISHED DRIVE

Air Volume cfm (L/s)	STATIC PRESSURE EXTERNAL TO UNIT — Inches Water Gauge (Pa)																								
	.20 (50)		.30 (75)		.40 (100)		.50 (125)		.60 (150)		.70 (175)		.80 (200)		.90 (225)		1.00 (250)		1.10 (275)		1.20 (300)		1.30 (325)		
	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM
2000 (945)	585	0.35 (0.26)	630	0.40 (0.30)	680	0.45 (0.34)	725	0.50 (0.37)	775	0.60 (0.45)	820	0.65 (0.48)	865	0.75 (0.56)	910	0.80 (0.60)	955	0.90 (0.67)	1000	0.95 (0.71)	1045	1.05 (0.78)	1090	1.15 (0.86)	
2200 (1040)	625	0.45 (0.34)	670	0.50 (0.37)	710	0.55 (0.41)	755	0.65 (0.48)	795	0.70 (0.52)	840	0.75 (0.56)	880	0.85 (0.63)	925	0.90 (0.67)	965	1.00 (0.75)	1005	1.05 (0.78)	1050	1.15 (0.86)	1090	1.25 (0.93)	
2400 (1135)	665	0.55 (0.41)	705	0.60 (0.45)	745	0.70 (0.52)	785	0.75 (0.56)	825	0.80 (0.60)	865	0.90 (0.67)	905	0.95 (0.71)	940	1.05 (0.78)	980	1.10 (0.82)	1020	1.20 (0.90)	1055	1.30 (0.97)	1095	1.40 (1.04)	
2600 (1225)	710	0.70 (0.52)	745	0.75 (0.56)	780	0.80 (0.60)	820	0.90 (0.67)	855	0.95 (0.71)	890	1.05 (0.78)	930	1.10 (0.82)	965	1.20 (0.90)	1000	1.30 (0.97)	1035	1.35 (1.01)	1070	1.45 (1.08)	1105	1.55 (1.16)	
2800 (1320)	750	0.85 (0.63)	785	0.90 (0.67)	820	0.95 (0.71)	855	1.05 (0.78)	890	1.10 (0.82)	925	1.20 (0.90)	955	1.30 (0.97)	990	1.35 (1.01)	1025	1.45 (1.08)	1055	1.55 (1.16)	1090	1.65 (1.23)	1125	1.75 (1.31)	
3000 (1415)	795	1.00 (0.75)	830	1.05 (0.78)	860	1.15 (0.86)	890	1.20 (0.90)	925	1.30 (0.97)	955	1.40 (1.04)	985	1.45 (1.08)	1020	1.55 (1.16)	1050	1.65 (1.23)	1080	1.75 (1.31)	1115	1.85 (1.38)	1145	1.95 (1.45)	
3200 (1510)	840	1.20 (0.90)	870	1.25 (0.93)	900	1.35 (1.01)	930	1.40 (1.04)	960	1.50 (1.12)	990	1.60 (1.19)	1020	1.70 (1.27)	1050	1.75 (1.31)	1080	1.85 (1.38)	1110	1.95 (1.45)	1140	2.05 (1.53)	1170	2.15 (1.60)	
3400 (1605)	885	1.40 (1.04)	915	1.50 (1.12)	940	1.55 (1.16)	970	1.65 (1.23)	1000	1.75 (1.31)	1025	1.80 (1.34)	1055	1.90 (1.42)	1085	2.00 (1.49)	1110	2.10 (1.57)	1140	2.20 (1.64)	1165	2.30 (1.72)	1195	2.40 (1.79)	
3600 (1700)	930	1.65 (1.23)	960	1.75 (1.31)	985	1.80 (1.34)	1010	1.90 (1.42)	1040	2.00 (1.49)	1065	2.10 (1.57)	1090	2.20 (1.64)	1120	2.30 (1.72)	1145	2.40 (1.79)	1170	2.50 (1.87)	1200	2.60 (1.94)	1225	2.70 (2.01)	
3800 (1795)	975	1.90 (1.42)	1005	2.00 (1.49)	1030	2.10 (1.57)	1055	2.20 (1.64)	1080	2.30 (1.72)	1105	2.40 (1.79)	1130	2.50 (1.87)	1155	2.60 (1.94)	1180	2.70 (2.01)	1205	2.80 (2.09)	1230	2.90 (2.16)	1255	3.00 (2.24)	

NOTE — All data is measured external to the unit with dry coil and with the air filters in place. See below for Accessory Air Resistance data.
NOTE — In Canada, maximum usable motor output is 2 hp (1.5 kW).

ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume		Total Resistance													
			Wet Evaporator Coil		REMD16M Down-Flow Economizer		EMDH16M Horizontal Economizer		RTD11 Step-Down Diffuser						FD11 Flush Diffuser	
									2 Ends Open		1 Side 2 Ends Open		All Ends & Sides Open			
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	
CHP16-072	2000	945	0.10	25	0.11	27	0.02	5	0.15	37	0.12	30	0.11	27	0.08	20
	2200	1040	0.11	27	0.15	37	0.03	7	0.18	45	0.15	37	0.13	32	0.11	27
	2400	1185	0.12	30	0.19	47	0.03	7	0.21	52	0.18	45	0.15	37	0.14	35
	2600	1225	0.13	32	0.23	57	0.04	10	0.24	60	0.21	52	0.18	45	0.17	42
	2800	1320	0.14	35	0.27	67	0.04	10	0.27	67	0.24	60	0.21	52	0.20	50
	3000	1415	0.16	40	0.31	77	0.05	12	0.32	80	0.29	72	0.25	62	0.25	62
	3200	1510	0.18	45	0.35	87	0.05	12	0.41	102	0.37	92	0.32	80	0.31	77
	3400	1605	0.19	47	0.41	102	0.06	15	0.50	124	0.45	112	0.39	97	0.37	92
	3600	1700	0.21	52	0.47	117	0.06	15	0.61	152	0.54	134	0.48	119	0.44	109
	3800	1795	0.23	57	0.57	142	0.07	17	0.73	182	0.63	157	0.57	142	0.51	127

NOTE — Electric heat has no appreciable air resistance.

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
			cfm	L/s	ft.	m
CHP16-072	2625	1240	24 - 29	7 - 9	22 - 26	7 - 8
	3000	1415	27 - 33	8 - 10	25 - 30	8 - 9
	3375	1595	30 - 37	9 - 11	28 - 34	9 - 10
	3750	1770	34 - 41	10 - 12	31 - 38	9 - 12

Effective Throw Range is the horizontal or vertical distance an air stream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 50 ft. (15 m) per minute. Four sides open.

ELECTRICAL DATA

General Data		Model No.	CHP16-072	
Line voltage data - 60 Hz - 3 phase			208/230v	460v
Recommended maximum fuse size (amps)			50	25
†Minimum Circuit Ampacity			34	17
Compressor	Rated load amps		18.6	9.0
	Locked rotor amps		156.0	75.0
Outdoor Fan Motor	Full load amps		3.0	1.5
	Locked rotor amps		6	3.0
Indoor Blower Motor	Motor Output - hp (Kw)		2 (1.5)	2 (1.5)
	Full load amps		7.5	3.4
	Locked rotor amps		41	20.4

†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.

ELECTRIC HEAT DATA - FUSE BLOCK REQUIRED

CHA16-072 MODELS

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kw Input	Btuh Output	†Total Unit + Electric Heat Minimum Circuit Ampacity	Total Unit + Electric Heat Maximum Fuse Size
10kW ECH16-82/95-10 208/230v (61H68) 460v (61H73) 38 lbs. (17 kg)	1	208	7.5	25,600	②64	70
	1	220	8.4	28,700	②64	70
	1	230	9.2	31,400	②64	70
	1	240	10.0	34,100	②64	70
	1	440	8.4	28,700	②32	35
	1	460	9.2	31,400	②32	35
	1	480	10.0	34,100	②32	35
15 kW ECH16-82/95-15 208/230v (61H69) 460v (61H74) 38 lbs. (17 kg)	1	208	11.3	38,600	②79	80
	1	220	12.6	43,000	②79	80
	1	230	13.5	46,100	②79	80
	1	240	15.0	51,200	②79	80
	1	440	12.6	43,000	②39	40
	1	460	13.8	46,100	②39	40
	1	480	15.0	51,200	②39	40
20 kW ECH16-82/95-20 208/230v (61H70) 460v (61H75) 42 lbs. (19 kg)	①2	208	15.0	51,200	②94	100
	①2	220	16.8	57,300	②94	100
	①2	230	18.4	62,800	②94	100
	①2	240	20.0	68,300	②94	100
	1	440	16.8	57,300	②47	50
	1	460	18.4	62,800	②47	50
	1	480	20.0	68,300	②47	50
30 kW ECH16-82/95-30 208/230v (19M34) 460v (19M35) 42 lbs. (19 kg)	①2	208	22.5	76,800	③124	125
	①2	220	25.2	86,000	③124	125
	①2	230	27.5	93,900	③124	125
	①2	240	30.0	102,400	③124	125
	1	440	25.2	86,000	③62	70
	1	460	27.6	93,900	③62	70
	1	480	30.0	102,400	③62	70
40 kW ECH16-82/95-40 208/230v (61H72) 460v (61H77) 53 lbs. (24 kg)	①3	208	30.0	102,400	②154	175
	①3	220	33.6	114,700	②154	175
	①3	230	36.8	125,600	②154	175
	①3	240	40.0	136,500	②154	175
	①2	440	33.6	114,700	②77	80
	①2	460	36.8	125,600	②77	80
	①2	480	40.0	136,500	②77	80

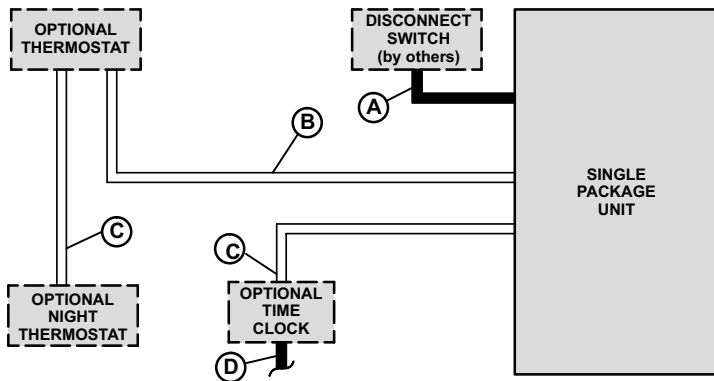
†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

① May be used with two stage control.

② Use wires suitable for at least 167°F (75°C).

③ Use wires suitable for at least 194°F (90°C).

ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM

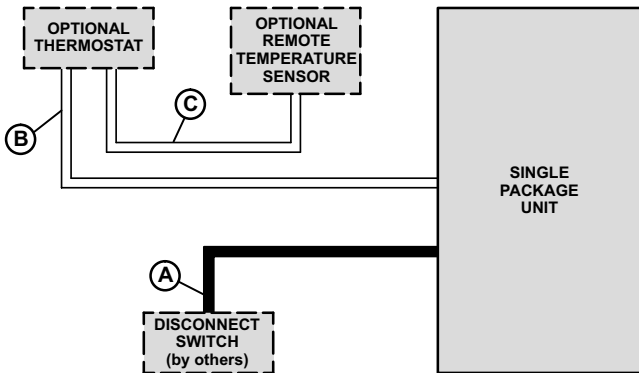


- A - Three wire power (See Electrical Data Table)
- B - Six wire low voltage
Eight wire low voltage - with Emergency Heat Switching Subbase
- C - Two wire low voltage
- D - Two wire low voltage

- Field wiring not furnished -

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

T7300/T8611 THERMOSTAT CONTROL SYSTEM



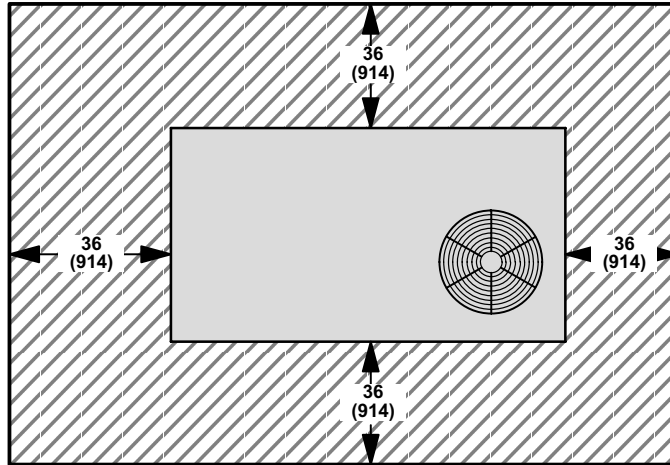
- A - Three wire power (See Electrical Data Table)
- B - Nine wire low voltage
- C - Two wire low voltage
- Seven wire low voltage (T7300 Room Sensor with Override)

- Field wiring not furnished -

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

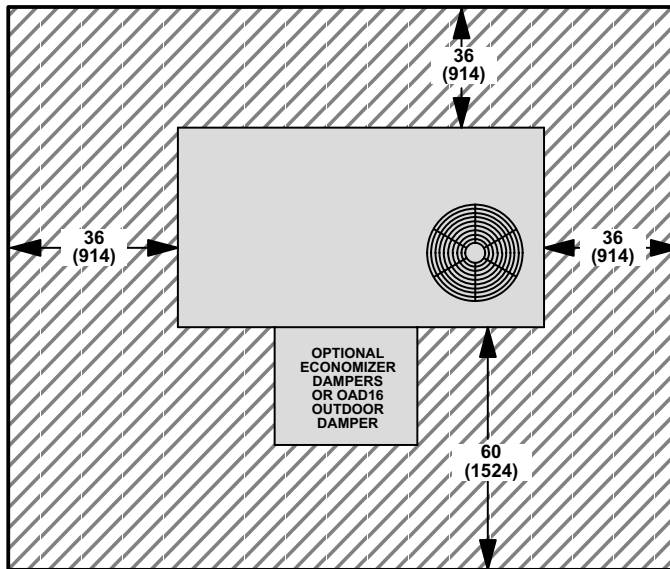
INSTALLATION CLEARANCES - INCHES (MM)

CHP16 BASIC UNIT



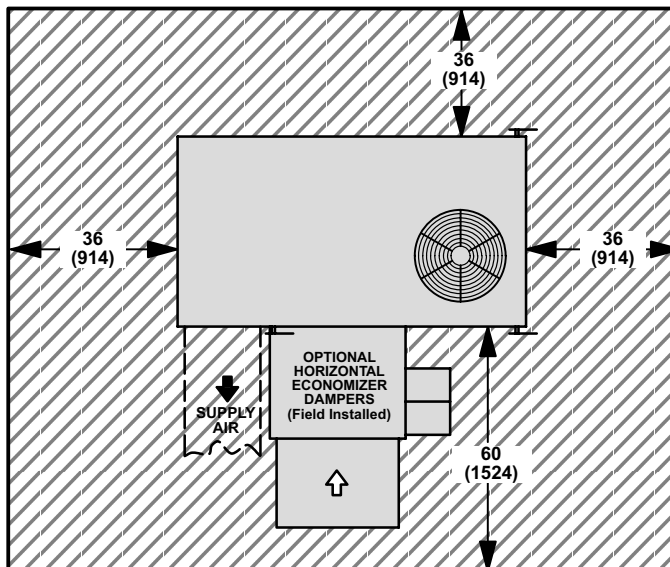
NOTE - Top Clearance Unobstructed.
NOTE - Entire perimeter of unit requires support when elevated above mounting surface.

CHP16 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION OR OAD16 OUTDOOR AIR DAMPER SECTION



NOTE - Top Clearance Unobstructed.

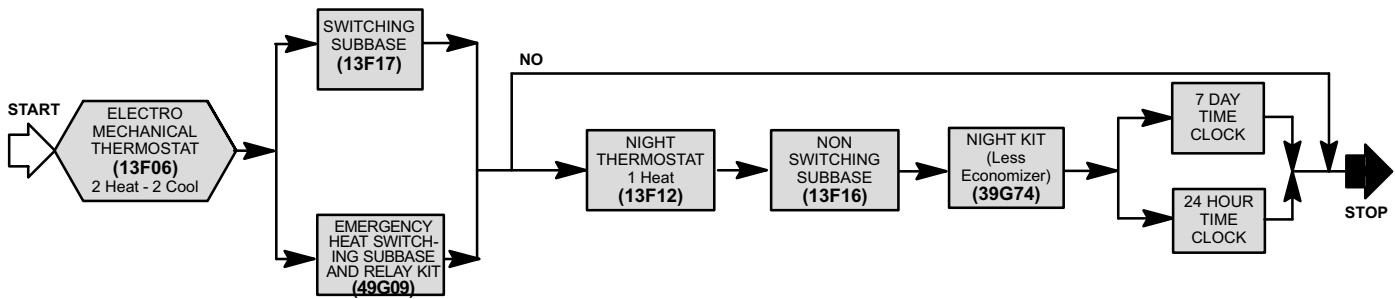
CHP16 UNIT WITH EMDH16M HORIZONTAL ECONOMIZER DAMPER SECTION



NOTE - Top Clearance Unobstructed.

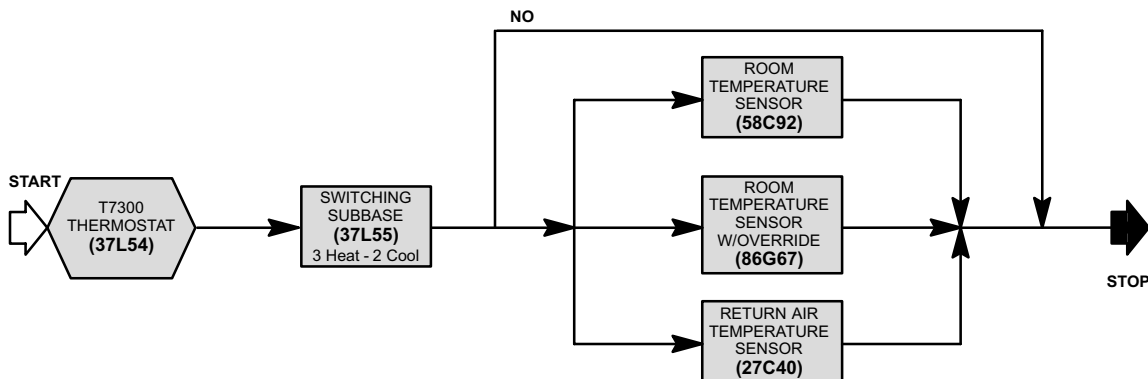
OPTIONAL TEMPERATURE CONTROL SYSTEMS

System and Component Description	Catalog No.
ELECTRO-MECHANICAL THERMOSTAT	
Thermostat — Two stage heat & two stage cool with dual temperature levers, subbase choice	13F06
Subbase — Manual system switch (Off-Heat-Auto-Cool), fan switch (Auto-On)	13F17
Emergency Heat Subbase and Relay Kit — Manual system switch (Off-Emergency Heat-Heat-Auto-Cool), fan switch (Auto-On) and red emergency heat indicator	49G09
Night Setback Operation — Order components below	—
Heating Thermostat — Single stage heat	13F12
Subbase — Non-switching	13F16
Night Kit — For non-economizer applications	39G74
Time Clock — 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	See Price Book for Selection
Time Clock — 24 hour night setback operation, 15 minute increments, battery back-up	See Price Book for Selection



HONEYWELL T7300 THERMOSTAT

Thermostat — Programmable, internal or optional remote temperature sensing (sensor required), touch sensitive keyboard, automatic switching, °F or °C readout, no anticipator, droop/no droop selection, indicator LED's, hour/day programming, override capabilities, time and operational mode readout, stage status indicators, battery back-up, subbase choice	37L54
Subbase — Selectable staging up to three stage heat & two stage cool, manual system switch (Heat-Off-Auto-Cool), fan switch (Auto-On), indicator LED's, auxiliary relay output for economizer operation	37L55
Room Temperature Sensor — May be ordered extra	58C92
Room Temperature Sensor with Override — May be ordered extra	86G67
Return Air Temperature Sensor — May be ordered extra	27C40



HONEYWELL T8611G THERMOSTAT

Thermostat — Programmable, touch sensitive keypad, automatic heat/cool switching, °F or °C readout, indicator LED's, four temperature settings per daily schedule, override capabilities, time and operational mode readout, battery back-up (batteries included)	—
T8611G Thermostat — 2 heat/1 cool, 7 day programming, switching subbase included	37L60

DIMENSIONS - INCHES (MM)

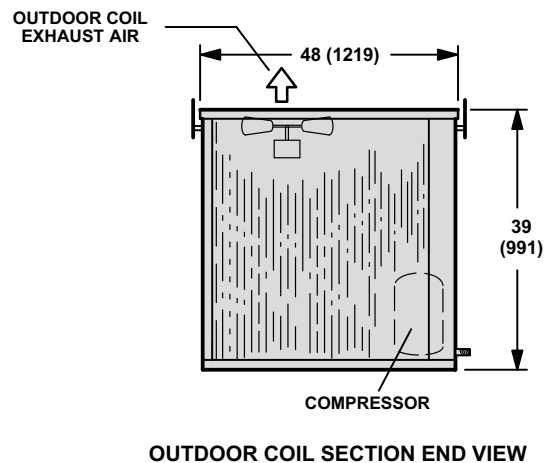
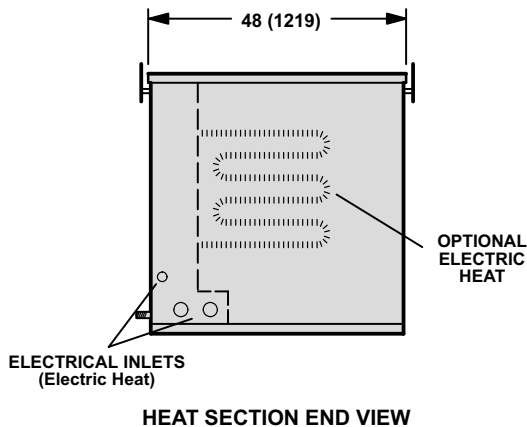
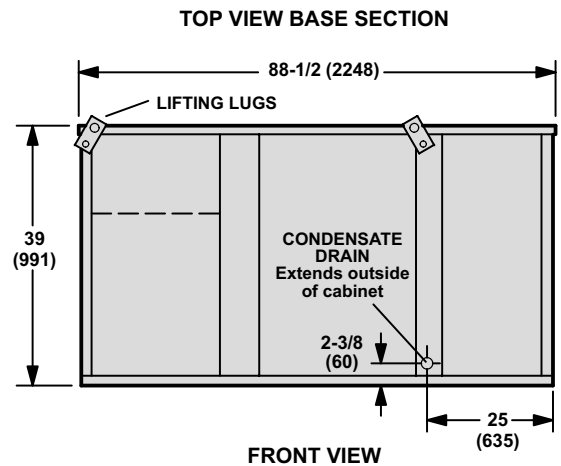
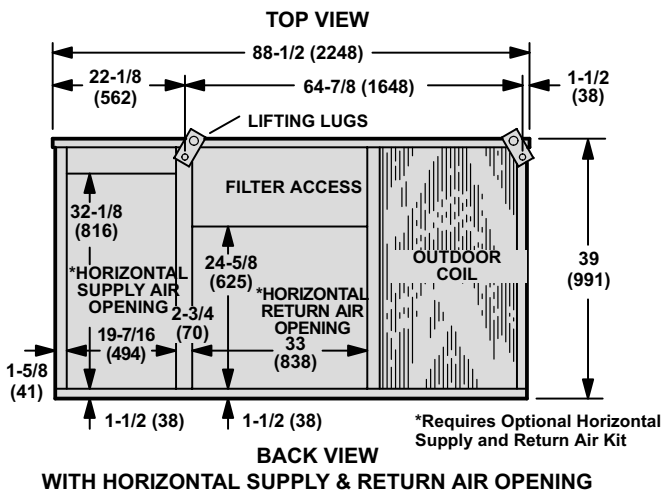
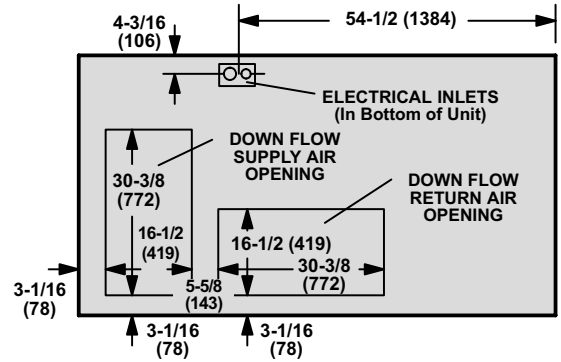
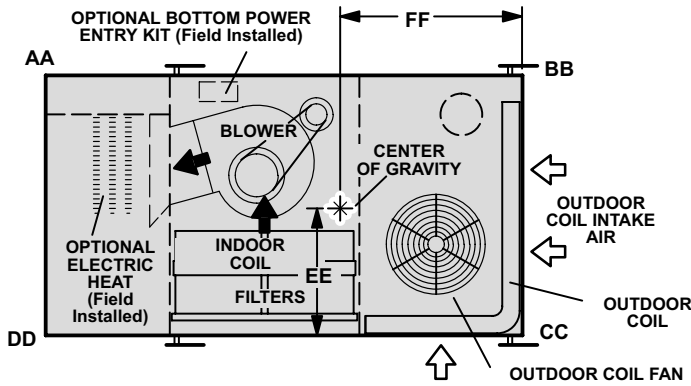
Basic Unit

CORNER WEIGHTS

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-072	156	71	186	84	172	78	147	67

CENTER OF GRAVITY

Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-072	27-1/2	699	39-1/2	1003

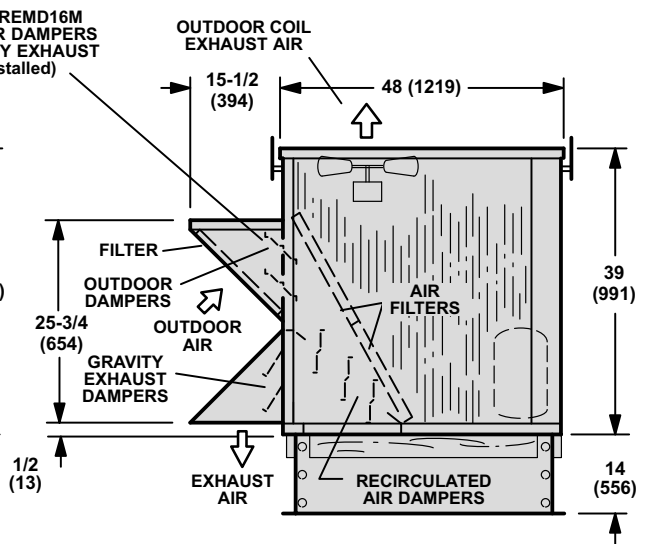
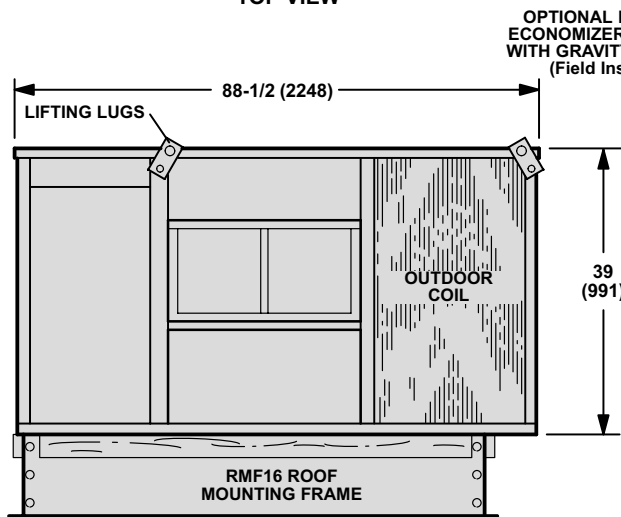
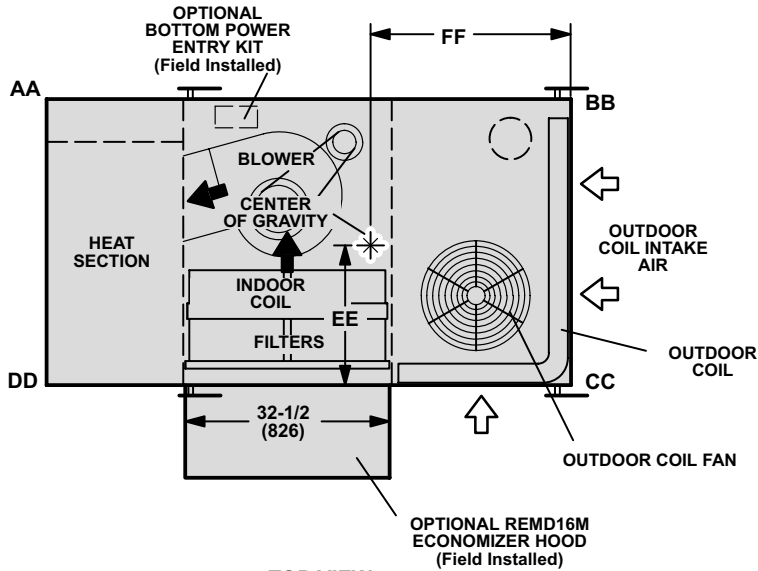


ACCESSORY DIMENSIONS - INCHES (MM)

Basic Unit with REMD16M (Down-Flow) Economizer Damper Section and RMF16 Roof Mounting Frame

CORNER WEIGHTS								
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-072	197	89	217	98	210	95	181	82

CENTER OF GRAVITY				
Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-072	24-1/2	622	39-1/2	1003



ACCESSORY DIMENSIONS - INCHES (MM)

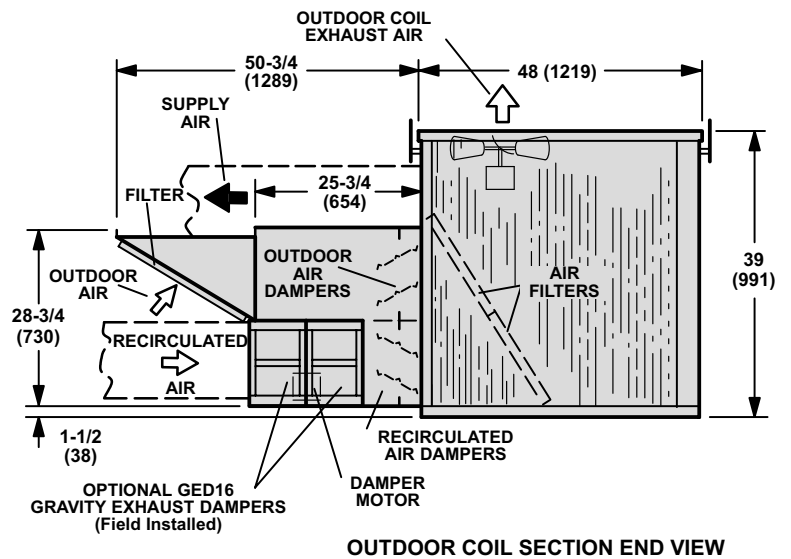
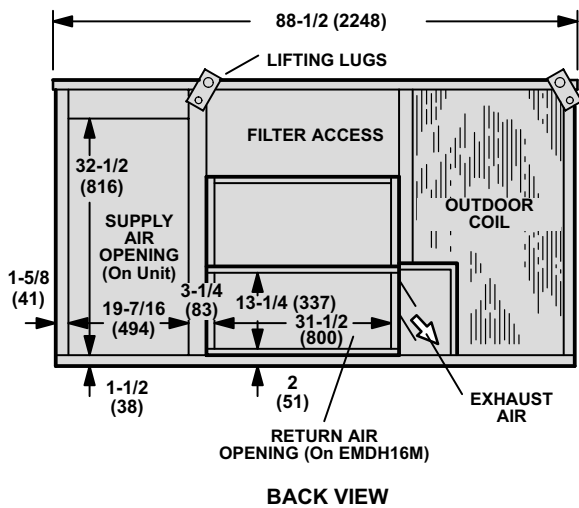
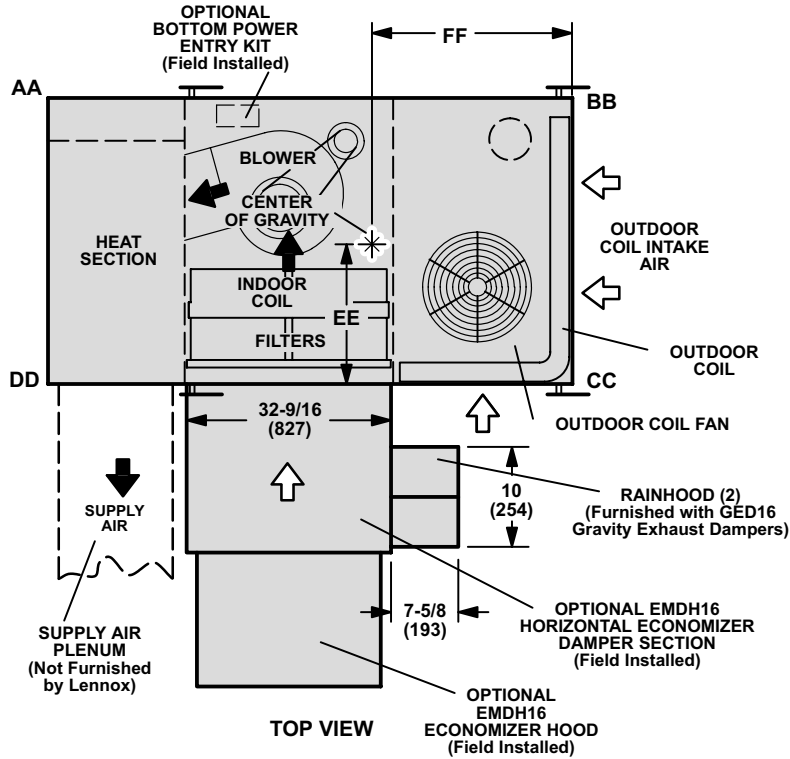
Basic Unit with EMDH16M (Horizontal) Economizer Damper Section

CORNER WEIGHTS

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-072	173	78	204	93	202	92	171	78

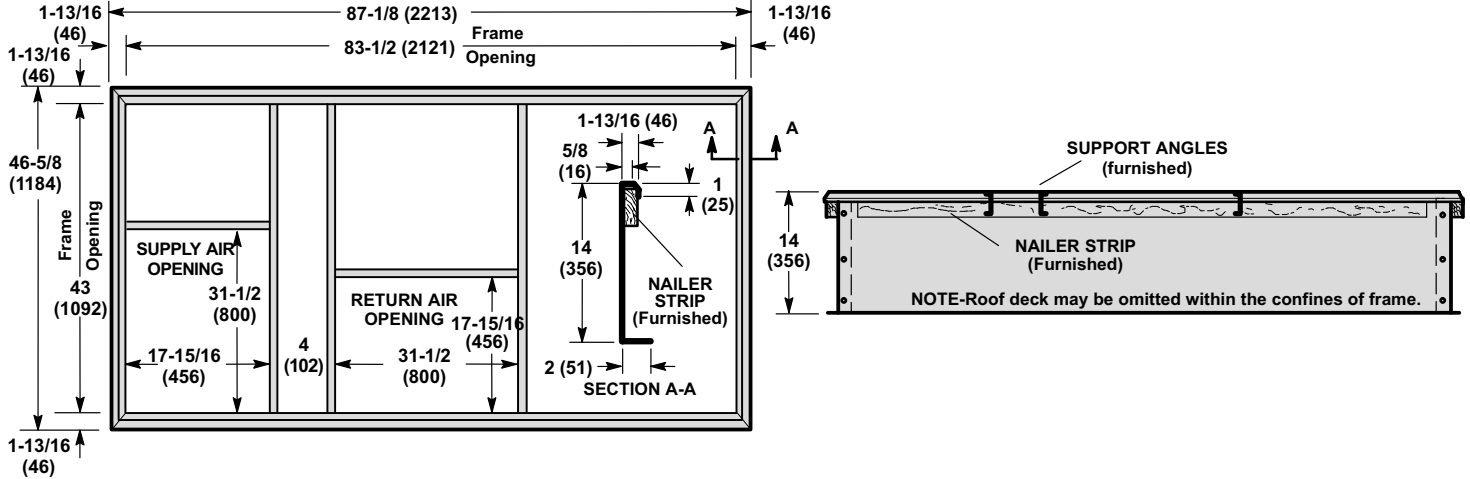
CENTER OF GRAVITY

Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-072	24-1/2	622	39-1/2	1003

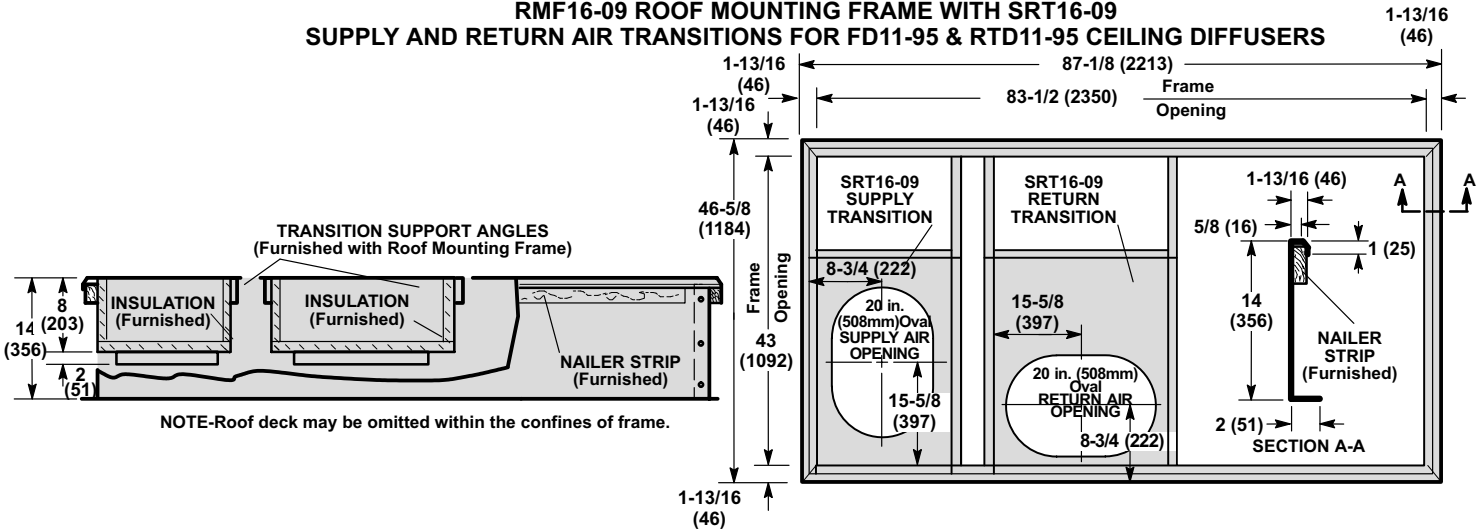


ACCESSORY DIMENSIONS - INCHES (MM)

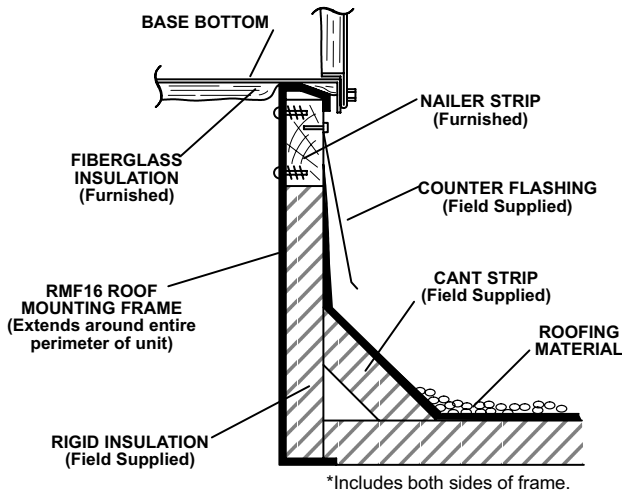
RMF16 SERIES ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING



RMF16-09 ROOF MOUNTING FRAME WITH SRT16-09 SUPPLY AND RETURN AIR TRANSITIONS FOR FD11-95 & RTD11-95 CEILING DIFFUSERS



TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME



ROOF MOUNTING FRAME SPECIFICATIONS

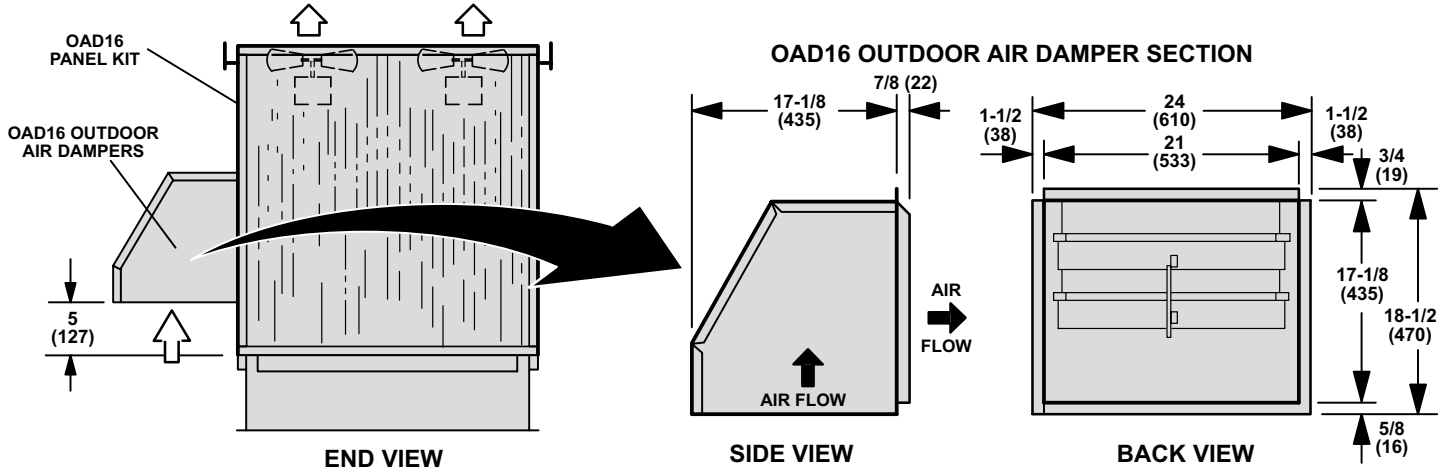
Roof Mounting frame is rigid enough to be spanned over its entire length or cantilevered if supported on both sides of center of gravity.

Roof Mounting Frames	RMF16
*Moment of inertia (I) (in. ⁴) (cm ⁴)	42 (1748)
*Section modulus $\frac{I}{C}$ (in. ³) (cm ³)	5.8 (95)
Maximum weight (lb/ft.) (kg/m) of length	5.5 (8.2)
Design strength (psi) (kPa)	20,000 (137,900)

ACCESSORY DIMENSIONS - INCHES (MM)

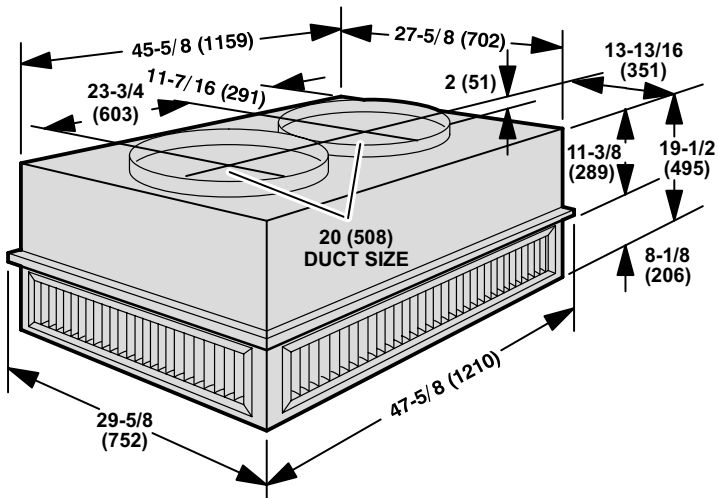
**CHP16 UNIT WITH OAD16 OUTDOOR AIR DAMPER SECTION
DOWN-FLOW SUPPLY AND RETURN AIR**

NOTE - For Horizontal (Side) Supply And Return Air, OAD16 Field Installs on Return Air Duct

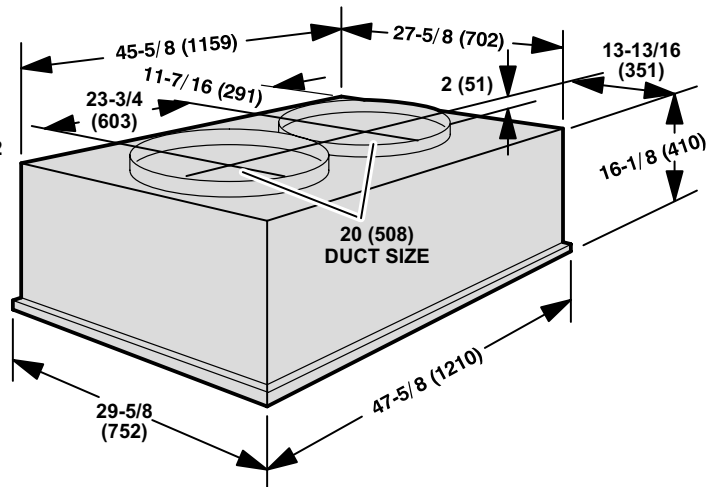


COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

RTD11-95 STEP-DOWN CEILING DIFFUSER



FD11-95 FLUSH CEILING DIFFUSER



GUIDE SPECIFICATIONS

General

- Furnish and install a single package heat pump system, complete with automatic controls.
- The single package unit shall be a standard product of a firm regularly engaged in the manufacture of heating-cooling equipment. The manufacturer shall have parts and service available throughout the US and Canada.
- The manufacturer shall test operate system at the factory before shipment.

Air Distribution

- Equipment shall be capable of bottom (down-flow) or side (horizontal) handling of conditioned air.

Air Filters

- Disposable 2 inch (51 mm) pleated MERV 7 rated filters (Minimum Efficiency Reporting Value based on ASHRAE 52.2) shall be furnished.

Approvals

- All electrical components shall have UL and CSA Listing. All wiring shall be in compliance with NEC and CEC.
- Shall be rated and certified in accordance with the ULE certification program, which is based on ARI Standard 340/360-2000.

Cabinet

- Shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal.
- Cabinet panels where conditioned air is handled shall be fully insulated to prevent sweating and minimize sound. Openings shall be provided for power connection entry.
- Indoor coil condensate drain shall extend outside of unit.
- Lifting brackets shall be factory installed.

Equipment Warranty

- Compressor has a limited warranty for a full five years.
- All other covered components have a limited warranty for one year.
- Refer to the Lennox Equipment Limited Warranty certificate for details.

Outdoor Coil Fan

- Direct drive propeller type outdoor fan shall discharge vertically.
- Fan motor shall be permanently lubricated and inherently protected.
- Fans shall have a safety guard.

Refrigeration System

- The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested.
- Outdoor coil shall be formed coil construction.
- Compressor shall be resiliently mounted, have overload protection and compressor crankcase heater. The refrigeration system shall have reversing valve, check/expansion valve, high capacity drier, high pressure switch, freestat, and full refrigerant charge.
- Control options available shall consist of low ambient controls and thermostats.

Service Access

- All components, wiring and inspection areas shall be completely accessible through removable panels.

Supply Air Blowers

- Belt drive supply air blower shall be direct driven by a multi-speed motor.
- Blower shall be statically and dynamically balanced.

OPTIONAL ACCESSORIES

Ceiling Diffusers

- Furnish and install a (flush or stepdown) optional combination ceiling supply and return air diffuser.

Ceiling Supply and Return Air Transitions

- Supply and return transitions shall be available, for field installation in the roof mounting frame, to facilitate duct connection to the diffuser.

Coil Guards

- PVC (polyvinyl chloride) coil guards shall be available for field installation to protect outdoor coils from damage.

Control Systems

- Shall provide a selection of thermostats and related controls to automatically operate the mechanical equipment through the heating or cooling and ventilating cycles as required.

Electric Heaters

- Shall be available for field installation.
- Heating elements shall be nichrome bare wire exposed directly to the air stream. Time delays shall bring the elements on and off in sequence with a time delay between each element.
- Safety devices shall consist of limit controls and fuse block.
- Heaters shall be CSA listed.
- Optional unit fuse box shall be available.

Economizer Dampers

- Furnish and install complete with recirculated air dampers, outside air dampers, air filters, damper actuator and controls.
- The assembly shall provide for the introduction of outside air for minimum ventilation and free cooling.
- Low leakage dampers shall ride in nylon bearings.
- Down-flow models shall include Gravity Exhaust Dampers.
- Horizontal models shall require optional Gravity Exhaust Dampers.
- Damper actuator shall be 24 volt, fully modulating spring return.
- Controls shall include electronic discharge air sensor, minimum position switch, and solid-state adjustable enthalpy control.
- Outdoor Air Hood shall be ordered separately.
- Control option shall consist of differential enthalpy control (return air sensor).

Economizer Horizontal Gravity Exhaust Dampers

- Pressure operated dampers shall install in return air duct for horizontal applications with EMDH16 horizontal economizer dampers.
- Damper blades shall ride in nylon bearings and be gasketed for tight seal and quiet operation.

Horizontal Supply & Return Air Kit

- Optional kit shall provide necessary cabinet parts to field convert unit for side (horizontal) supply and return air duct connections.

Outdoor Air Damper Section

- Optional manual outdoor dampers shall be available to provide outdoor air requirements of up to 25%.
- Damper section field installs external to the unit.
- Shall be equipped with outdoor air hood filter for extra air filtering and bird screen protection.

Roof Mounting Frame

- Mechanical contractor shall install a steel roof mounting frame for bottom discharge and return air duct connection.
- It shall mate to the bottom perimeter of the equipment.
- When flashed into the roof it shall make a unit mounting curb and provide weatherproof duct connection and entry into the conditioned area.
- Flashing shall be the responsibility of a roofing contractor.
- Frame shall be approved by US National Roofing Contractors Association.