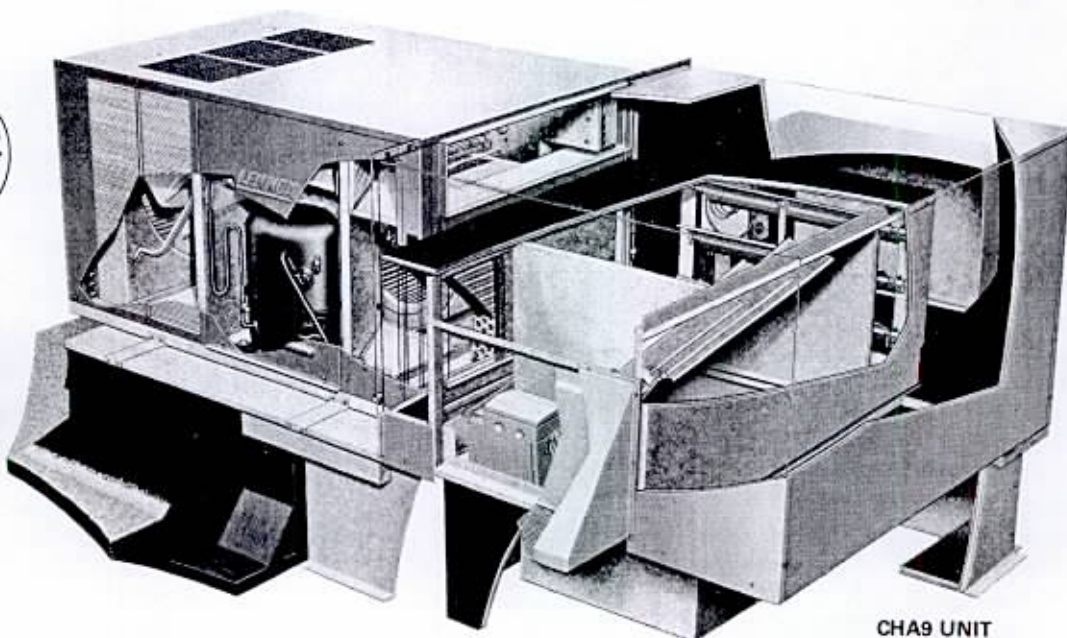


LENNOX®

**SINGLE PACKAGE AIR CONDITIONERS
 CHA9 SERIES — HORIZONTAL**

***24,000 to 58,000 Btuh Total Cooling Capacity
 11,900 to 112,700 Btuh Optional Electric Heat**

*ARI Certified Ratings



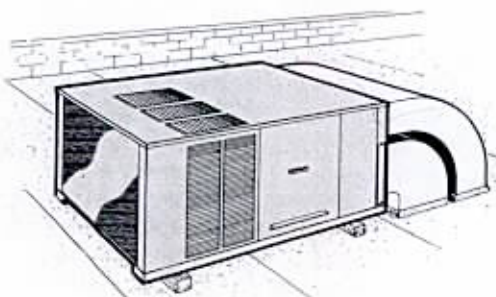
CHA9 UNIT
 (With optional POWER SAVER®,
 duct enclosure and mounting frame)

Reliability And High Efficiency Featured In Compact Single Package Air Conditioning Units

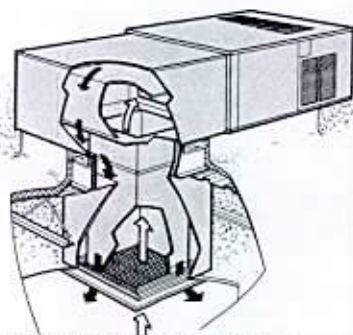
Lennox single package CHA9 series air conditioning units are designed for residential or small commercial installations. Five models are available with a wide and varied cooling capacity range. Units can be installed with ducts extended through a wall in a crawl space, basement, utility room or attic. Installation on a slab at grade level or on a rooftop will save valuable interior floor space. Optional accessories available for rooftop installations include a duct enclosure and roof mounting frame. The mounting frame mates to the bottom of the CHA9 and duct enclosure and when flashed into the roof permits weatherproof duct connection and entry into the conditioned area. Optional POWER SAVER® and controls field install in duct enclosure to reduce cooling operating costs and satisfy any local code fresh air requirements. Externally mounted optional minimum fresh air damper (manual) is also available. In addition, a supply and return plenum, fiberglass duct kit and choice of flush or step-down diffusers are available for a complete combina-

tion ceiling supply and return air distribution system. The CHA9 units contain all refrigeration components (evaporator and condensing unit), air movers, air filters and optional additive electric heat in one complete package. Optional electric heaters are available in several sizes for all season applications, space is provided in the unit for field installation. Evaporator supply and return air openings are both at the same end of the cabinet. Condenser air enters unit through louvered top panel and both side panels. Powerful direct drive fan(s) discharges air through condenser coil quietly and efficiently. Multispeed evaporator blower provides a choice of supply air flow. Large evaporator and condenser coils ensure maximum air contact and heat transfer. Cabinet is constructed of heavy gauge galvanized steel with a baked-on enamel finish. Units are shipped completely assembled and ready to install. In addition, units are test operated at the factory. Installer has only to locate unit, connect duct work and power supply to complete the installation.

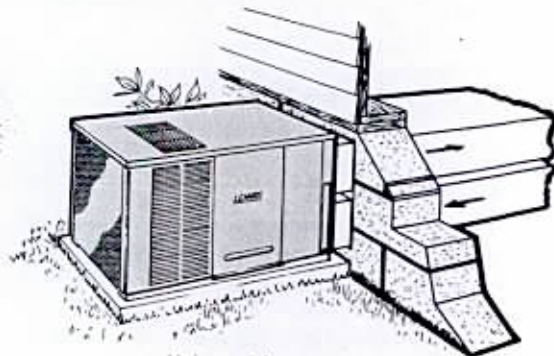
Typical Applications



Rooftop installation



Rooftop installation with optional RT9 duct enclosure and combination ceiling supply and return air system.



Unit on slab at grade level

NOTE — Specifications, Ratings and Dimensions subject to change without notice.

FEATURES

Rugged Cabinet — Constructed of heavy gauge galvanized hot dipped steel. A five station wash metal preparation assures a perfect bonding surface for the finish coat of baked-on outdoor enamel. Removable panels permit complete service access to interior of cabinet. Heavy gauge steel support rails under base elevates unit above mounting surface. Drainage holes are provided in condenser coil section of the base for moisture removal. Durable steel condenser coil grille guard is furnished as standard equipment. Grille protects coil from damage and permits quiet discharge of air with minimum resistance. Electrical inlets are furnished in cabinet for wiring entry. See dimension drawing.

Thick Interior Insulation — Evaporator section of the cabinet is lined with thick fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass.

Duct Connection — Conditioned supply and return air openings are located one above the other on one end of the cabinet. Return air enters in the lower opening through the evaporator coil and is discharged out of the top opening. Both openings have flanges for ease of connecting duct work.

Refrigeration System — Complete factory sealed refrigeration system consists of: compressor, condenser coil and fan(s), evaporator coil and blower, suction and discharge line service gauge ports, liquid line strainer, low pressure switch-automatic reset (CHA9-510 and 650 models), refrigerant lines connected and a full operating charge of refrigerant.

Compressor and Controls Compartment — Compressor and control box are located in a separate compartment of the cabinet, isolating them from the weather and also keeping the sound level at a minimum. Control box is conveniently located for service access with all controls factory installed and wired. Cabinet access panel removal permits complete access to the compartment.

Dependable and Quiet Compressor — Rugged and reliable compressor is hermetically sealed. Suction cooled, overload protected, and equipped with internal pressure relief valve. Internally protected from excessive current and temperature. The entire running gear is spring mounted within the sealed can. In addition, the compressor is installed on resilient rubber mounts in the unit, assuring quiet and vibration free operation.

Large Evaporator and Condenser Coils — Lennox designed and fabricated coils are constructed of precisely spaced ripple-edged aluminum fins machine fitted to copper tubes. Design of coil provides large surface and contact area for maximum efficiency. Fins are strengthened to resist bending which can restrict air flow and reduce efficiency. Fins are equipped with collars that grip tubing for maximum contact area resulting in excellent heat transfer. Flared shoulder tubing joints and silver soldering provide tight leak proof joints. Coil is thoroughly tested under pressure to insure leak proof construction.

Drain Pan — Evaporator coil drain pan is constructed of heavy gauge galvanized steel. Equipped with a galvanized pipe (mpt) drain outlet extended outside of the cabinet. See dimension drawing for location.

Efficient Condenser Fan(s) — Direct drive fan(s) moves large air volumes uniformly through the entire coil resulting in high refrigerant cooling capacity. CHA9-261 thru 410 models are equipped with a single fan. CHA9-510 and 650 models employ dual fans. Air enters unit through louvered top and both side panels and is discharged out through the coil. See dimension drawing for air pattern.

Powerful Evaporator Blower — Units are equipped with quiet operating direct drive blowers that deliver large air volumes with low power consumption. Each blower is statically and dynamically balanced as an assembly before it is installed in the unit. Multispeed motor is isolated on rubber mounts. A choice of blower speeds is available on each blower. See blower performance charts. Change in blower speed is easily accomplished by a simple change in wiring.

Cleanable Air Filter — One inch frame filters are furnished as standard equipment. Media is washable or vacuum cleanable polyurethane, coated with oil for increased efficiency. Use RP products filter coating No. 418 (P-8-5069) when reoiling is required after cleaning. Separate filter access cabinet panel provides quick and easy removal of filter(s) for servicing.

Thermostat (Optional) — Thermostat is not furnished and must be ordered extra. For cooling only applications a single stage cooling thermostat is required. When optional additive electric heat is ordered a heating-cooling thermostat will be required.

Additive Electric Heat (Optional) — Available for field installation in 3.5 thru 33.0 kw sizes. See Electric Heat tables. The helix wound nichrome heating elements are exposed directly in the air stream resulting in instant heat transfer, lower coil temperatures and long service life. The elements are accurately located and insulated from the heavy gauge steel support frame by high quality insulators. Heaters are equipped with circuit breakers to provide overload and short circuit protection. Circuit breakers are current sensitive and temperature compensated to shutoff heater if current draw is excessive. Must be reset manually. Each set of heating elements is equipped with an accurately located limit control with fixed temperature off setting and automatic reset. In addition, elements have supplemental thermal cutoff safety fuses providing positive protection in case of hazardous overheating. Cutoff fuses are mounted external to the element face plate for quick and easy replacement. Thermal time delay relay brings the heating elements on and off the line in sequence and equal increments with a time delay between each element. Control box and access cover are constructed of heavy gauge galvanized steel. Electrical inlet holes are provided in the box. Electric heaters are completely factory assembled with all controls installed and wired.



Timed-Off Control (Optional) — Timed-off control (P-8-10238) is available as optional equipment for field installation. Prevents compressor short-cycling and also allows time for suction and discharge pressure to equalize, permitting the compressor to start in an unloaded condition. Automatic reset control will shut the compressor off and hold it off for 5 minutes.

Low Ambient Control (Optional) — Units will operate satisfactorily down to 50°F-55° outdoor air temperature without any additional controls. For cases where operation below 55°F-55°F is required a Low Ambient Control Kit (BM-3434) can be added in the field, enabling the unit to operate properly down to 0°F.

Crankcase Heaters (Optional) — Compressor crankcase heaters (P-8-8852) are available as optional equipment.

Thoroughly Tested And Approved — Units have been tested and rated in the Lennox Research Laboratory environmental test room according to ARI Standard 210 conditions and Certified under the ARI Certification Program. In addition, units have been sound tested in the Lennox reverberant sound test room and rated according to ARI Standard 270 conditions. Units coming within the scope of this standard (135,000 Btu/h or less) carry the ARI Certification Seal. Air conditioning equipment and optional electric heaters are U.L. Listed and listed by CSA as Certified. U.L. Listing is pending on 460 volt models. CSA Certification is pending on 460 and 575 volt models. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L. and CEC. Blower data is from tests conducted in the Lennox Laboratory air test chamber.

ROOFTOP ACCESSORY EQUIPMENT

Optional Duct Enclosure — The RT9-65 duct enclosure is required for installation of CHA9 units with RMF9-65 roof mounting frame. For CHA9-261, 311 and 410 models an adapter kit (LB-29475B) is required to mate the units to the RT9-65. Duct enclosure is completely insulated and has a baked-on enamel finish. The enclosure is field assembled and secures to roof mounting frame and CHA9 unit. A mounting frame deck enclosure, included with RT9, provides a weatherproof deck for mounting the single package unit on the roof mounting frame. Securing brackets are provided to secure CHA9 unit to roof mounting frame. Supply and return air openings with flanges are provided in bottom of enclosure for connection of supply and return air ductwork in double duct applications. For combination ceiling supply and return applications the SRP9-65 plenum must be added to bottom of duct enclosure. Plenum facilitates connection of the supply and return air duct to the ceiling diffuser. Application flexibility is possible with the following options:

RT9-65 Duct Enclosure:

With or Without PSD9-65 POWER SAVER®

- a — With SRP9-65 Combination Supply & Return Plenum
- b — With double duct distribution system

Optional POWER SAVER® — The entire PSD9-65 POWER SAVER control system is factory assembled and wired. The assembly field installs in the RT9-65 enclosure. The Lennox POWER SAVER system consists of: mechanically linked outdoor air and recirculated air dampers with pressure operated exhaust air dampers. The positioning of these dampers is accomplished by a 24 volt modulating spring return damper motor with adjustable minimum damper positioner and controlled by the room thermostat, adjustable mixed air controller, adjustable compressor monitor and adjustable enthalpy control. The enthalpy control senses the total heat content of the outdoor air. This unique control prevents excessive moisture laden outdoor air

that will add to the cooling load from entering the unit and yet permits cool dry air capable of cooling to enter, thus taking full advantage of free outdoor air for cooling. Fresh air intake section is furnished with cleanable polyurethane air filter.

Optional Roof Mounting Frame — The RMF9-65 roof mounting frame is available for mounting the RT9-65 duct enclosure and CHA9 units. Frame provides an automatic weather sealed rooftop installation. Approved by National Roofing Contractors Association.

Optional Combination Supply And Return Plenum — The SRP9-65 combination supply and return plenum adapts the RT9-65 duct enclosure to combination ceiling supply and return applications. The insulated plenum is field assembled and installs to bottom of the duct enclosure.

Optional Combination Supply And Return Diffusers — Lennox offers two different styles of air diffusers. The RTD stepdown model extends below ceiling level when installed. The FD model is almost flush with the ceiling when installed. Supply air is discharged through the outside grilles and return air enters through the center grille on both models. Adjustable supply air vanes are available, on both models, for air distribution.

Optional Supply And Return Duct — Supply and return fiberglass duct kit (BM-7820) provides connection of combination supply and return ceiling diffuser. Furnished in nominal 4 ft. lengths and constructed of 1" thick fiberglass duct board with an aluminum exterior. Shipped knocked down with the tape, staples and installing instructions for field assembly. See dimension drawings.

Optional Minimum Fresh Air Damper — Minimum fresh air damper mounts external to the RT9-65 duct enclosure. Equipped with manually operated damper and necessary fittings for installing.

SPECIFICATIONS

Model No.		CHA9-261	CHA9-311	CHA9-411 CHA9-413	CHA9-511 CHA9-513	CHA9-651 CHA9-653
★ARI Standard 270 SRN		19	20	20	21	21
*ARI Standard 210 Ratings	Total cooling capacity (Btuh)	24,000	30,000	35,500	**48,000	58,000
	Total unit watts	3600	4300	5700	7400	9700
	EER (Btuh/Watt)	6.7	7.0	6.2	6.5	6.0
	Dehumidifying capacity	33%	30%	32%	28%	28%
Refrigerant (R-22) charge		2 lbs. 10 oz.	4 lbs. 2 oz.	3 lbs. 14 oz.	6 lbs. 14 oz.	7 lbs. 7 oz.
Evaporator Coil	Net face area (sq. ft.)	3.0	3.0	3.0	4.5	4.5
	Tube diameter (in.)	3/8	3/8	3/8	3/8	3/8
	Number of rows of tubes	2	3	3	3	4
	Fins per inch	16	16	16	16	14
Evaporator Blower	Wheel nominal diam. x width (in.)	9 x 9	10 x 9	11 x 9	12 x 12	10 x 10
	Motor horsepower	1/4	1/3	1/2	3/4	1
Condenser Coil	Net face area (sq. ft.)	4.5	4.5	4.5	6.75	6.57
	Tube diameter (in.)	3/8	3/8	3/8	3/8	3/8
	Number of rows of tubes	2	3	3	3	4
	Fins per inch	16	15	15	15	16
Condenser Fan	Diameter (in.) and No. of blades	(1) 20 — 4	(1) 20 — 4	(1) 20 — 4	(2) 18 — 5	(2) 18 — 5
	Air volume (factory setting)	2300	2500	2500	3200	3300
	Rpm (factory setting)	1040	1080	1080	1050	1080
	Motor horsepower	(1) 1/6	(1) 1/4	(1) 1/4	(2) 1/6	(2) 1/4
	Motor watts (factory setting)	290	420	420	570	720
Condensate drain size mpt (in.)		3/4	3/4	3/4	3/4	3/4
No. & size of filters (in.)		(1)16 x 25 x 1	(1)16 x 25 x 1	(1)16 x 25 x 1	(2)16 x 20 x 1	(2)16 x 20 x 1
Net weight (lbs.) (1 package)		280	310	312	460	490
Optional Supply & Return Fiberglass Duct Kit		BM-7820 (†36 lbs.)			BM-7820 (†36 lbs.)	
Optional Combination Ceiling Supply And Return Step-Down Diffuser		RTD-41 (†32 lbs.)			RTD-65 (†52 lbs.)	
Optional Combination Ceiling Supply And Return Flush Diffuser		FD-41 (†24 lbs.), ***FD-41-D (†30 lbs.)			FD-65 (†26 lbs.), ***FD-65-D (†33 lbs.)	
Optional Combination Supply & Return Plenum		SRP9-65 (†39 lbs.)				
Optional Roof Mounting Frame		RMF9-65 (†83 lbs.)				
Optional Duct Enclosure		RT9-65 (†134 lbs.)				
Optional POWER SAVER		PSD9-65 (†80 lbs.)				
Optional Minimum Fresh Air Damper		OAD3-65 (†7 lbs.)				

★Rated in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210; 450 cfm (maximum) evaporator air volume per ton of cooling capacity, 95F outdoor air temperature and 80F db67F wb entering evaporator air.

**Derate 1000 Btuh for 208 volt operation.

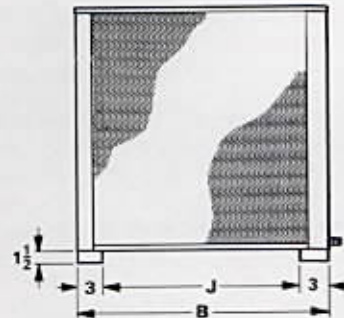
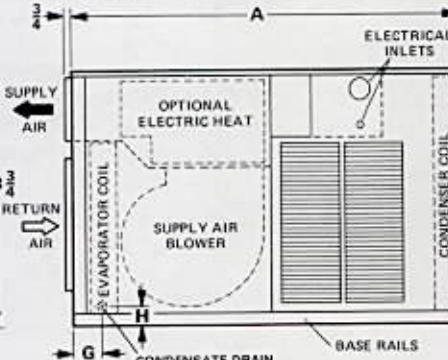
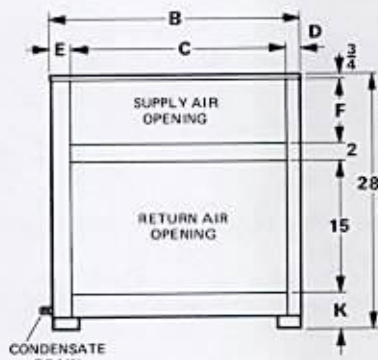
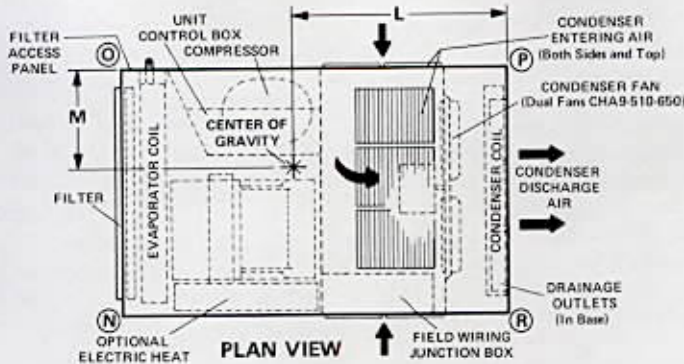
***Flush diffuser with adjustable baffle blades.

†Net weight.

DIMENSIONS (inches)

CORNER WEIGHTS (lbs.)

Model No.	N	O	P	R
CHA9-261	61	85	78	56
CHA9-311	68	93	86	63
CHA9-411				
CHA9-413	68	94	87	63
CHA9-511	120	148	106	86
CHA9-513				
CHA9-651	128	158	113	91
CHA9-653				



EVAPORATOR COIL END VIEW

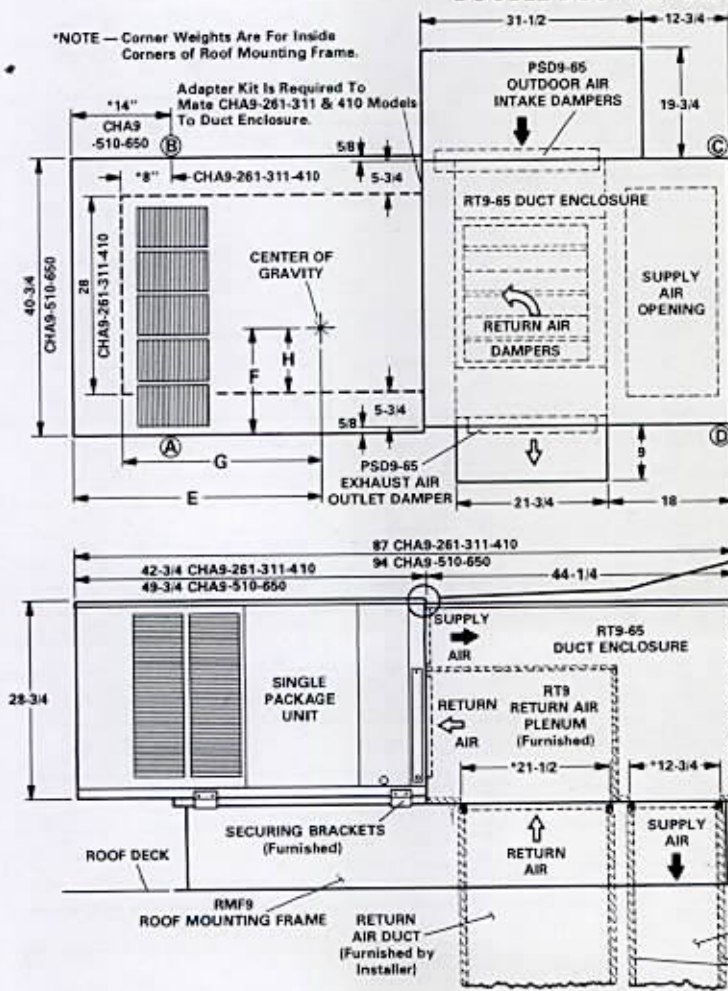
SIDE VIEW

CONDENSER COIL END VIEW

Model No.	A	B	C	D	E	F	G	H	J	K	L	M
CHA9-261, 311, 411 & 413	42-3/4	28	24	1-13/16	2-3/16	7	4-7/8	2-3/8	22	4	22-1/4	11-3/4
CHA9-511, 513, 651 & 653	49-3/4	40-3/4	34	2-3/4	4	8	6	2-1/2	34-3/4	3	29	18-1/4

OPTIONAL ROOFTOP ACCESSORIES — DIMENSIONS (inches)

DOUBLE DUCT AIR DISTRIBUTION SYSTEM



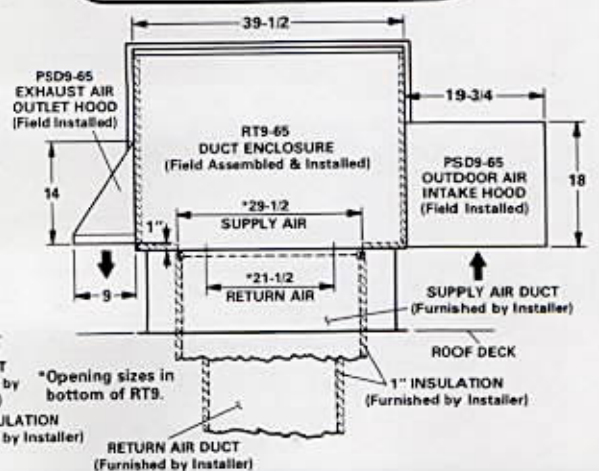
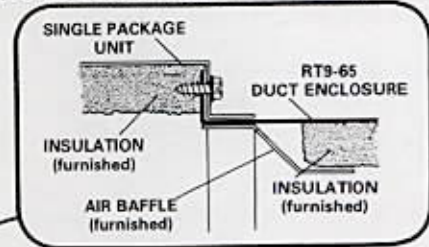
CORNER WEIGHTS (lbs.)

Model No.	A	B	C	D
CHA9-261-311-410	210	193	122	133
CHA9-510-650	343	230	101	152

CENTER OF GRAVITY

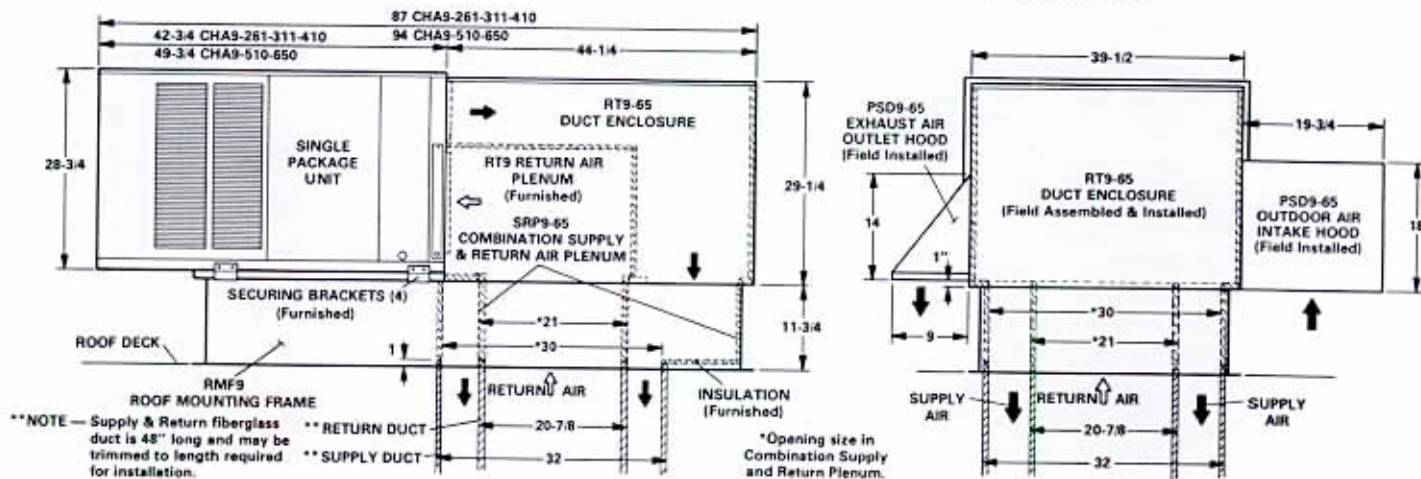
Model No.	E	F	G	H
CHA9-261-311-410	---	---	37-1/2	13-1/4
CHA9-510-650	38	17	---	---

RT9-65 Duct Enclosure Mounting Detail

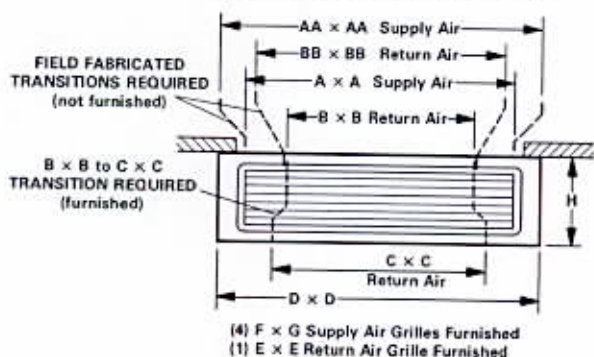


DIMENSIONS (inches)

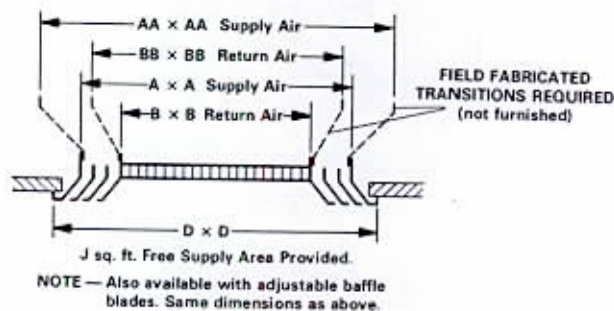
COMBINATION CEILING SUPPLY AND RETURN AIR DISTRIBUTION SYSTEM



RTD STEP-DOWN DIFFUSERS



FD FLUSH CEILING DIFFUSERS

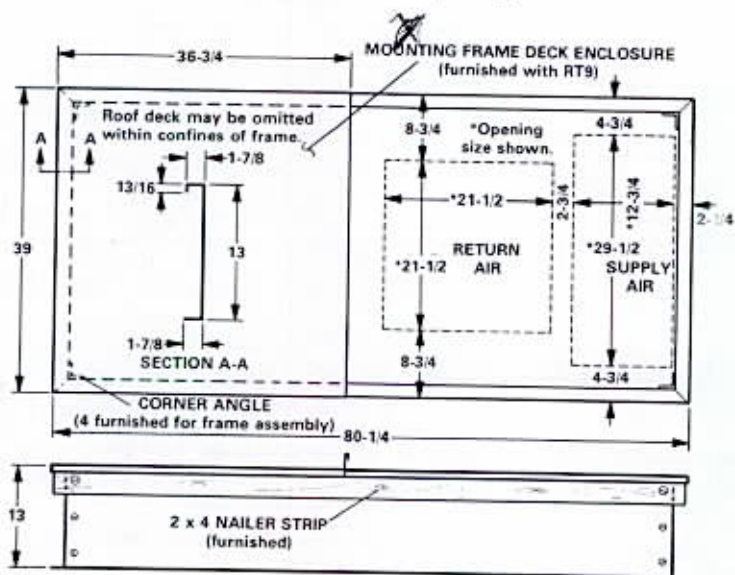


Unit Model No.	Supply & Return Air Grille Model No.	A	AA	B	BB	C	D	E	F	G	H	J
CHA9-261-311-410	RTD-41 Step-down	22	30	16	21	20	24	20	5	20	8	----
	FD-41 Flush	24	30	18	21	----	29-3/4	----	----	----	----	1.75
	*FD-41-D Flush	24	30	18	21	----	29-3/4	----	----	----	----	1.75
CHA9-510-650	RTD-65 Step-down	30	----	20	----	24	36	24	6	30	10	----
	FD-65 Flush	30	----	21	----	----	35-3/4	----	----	----	----	3.18
	*FD-65-D Flush	30	----	21	----	----	35-3/4	----	----	----	----	3.18

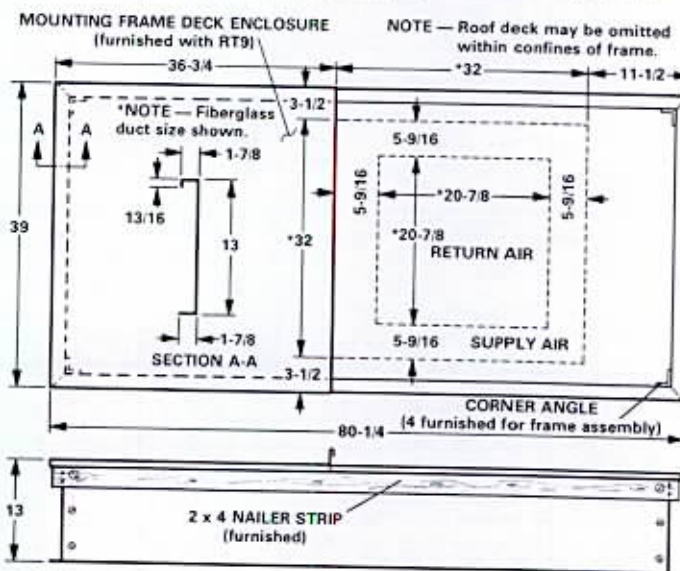
*Equipped with adjustable baffle blades.

RMF9-65 ROOF MOUNTING FRAME

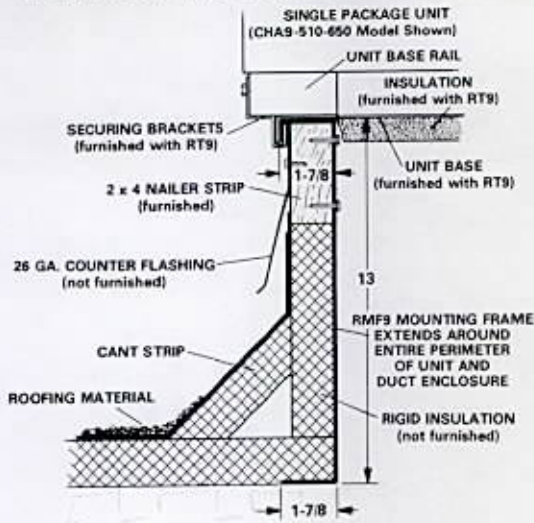
With Double Duct Openings



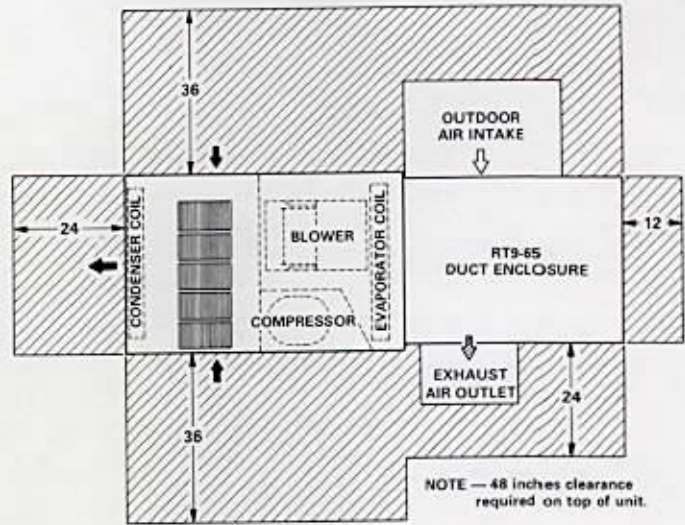
With Combination Ceiling Supply & Return Openings



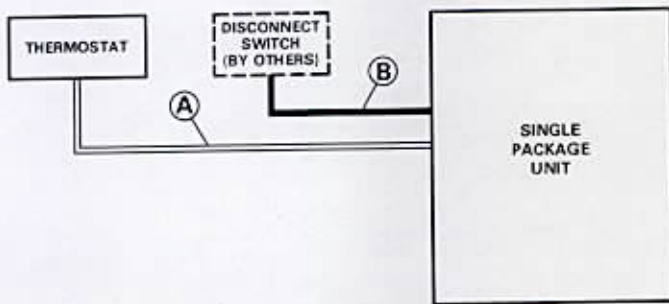
ROOF MOUNTING FRAME FLASHING DETAIL



INSTALLATION CLEARANCES (inches)



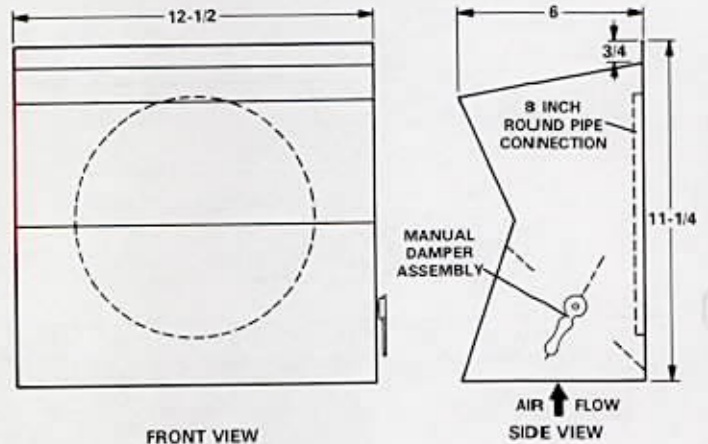
FIELD WIRING



- † A — Three wire low voltage (cooling only installation)
Four wire low voltage (all-season installation)
- B — Two or three wire power (see electrical data table)

All wiring must conform to CEC and local electrical codes.
† If local electrical code permits may be class 2 wiring.

OPTIONAL OAD3-65 MINIMUM FRESH AIR DAMPER



ELECTRICAL DATA

Model No.		CHA9-261	CHA9-311	CHA9-411	CHA9-413
Line voltage data		208/230v 60hz — 1ph	208/230v 60hz — 1ph	208/230v 60hz — 1ph	208/240v 60hz — 3ph
Compressor	Rated load amps	15.6	18.2	23.6	13.2
	Power factor	.92	.92	.92	.85
	Locked rotor amps	74.0	85.0	111.0	77.0
Condenser Coil Fan	Full load amps	1.4	2.6	2.6	2.6
	Locked rotor amps	2.9	5.4	5.4	5.4
Evaporator Coil Blower	Full load amps	2.2	2.3	3.9	3.9
	Locked rotor amps	4.5	5.4	9.5	9.5
*Minimum circuit ampacity		23.1	27.7	36.0	23.0

*Refer to CEC manual to determine wire, fuse and disconnect size requirements.

NOTE — Extremes of operating range are plus 10% and minus 5% of line voltage. 208-240v model is plus and minus 10% of line voltage.

Model No.		CHA9-511	CHA9-513		CHA9-651	CHA9-653			
Line voltage data		208/230v 60hz — 1ph	208/240v 60hz — 3ph	460v 60hz — 3ph	575v 60hz — 3ph	208/230v 60hz — 1ph	208/240v 60hz — 3ph	460v 60hz — 3ph	575v 60hz — 3ph
Compressor	Rated load amps	29.9	16.8	9.0	7.0	40.0	22.2	10.5	9.0
	Power factor	.92	.85	.85	.85	.92	.85	.85	.85
	Locked rotor amps	140.0	104.0	50.0	35.0	175.0	132.0	62	41
Condenser Coil Fan	Full load amps	2.8	2.8	12.8	12.8	5.2	5.2	110.8	110.8
	Locked rotor amps	5.8	5.8	15.8	15.8	10.8	10.8	110.8	110.8
Evaporator Coil Blower	Full load amps	6.0	6.0	16.0	16.0	5.6	5.6	16.5	16.5
	Locked rotor amps	14.7	14.7	114.7	114.7	13.6	13.6	113.6	113.6
*Minimum circuit ampacity		49.8	33.4	17.3	13.6	60.8	38.6	19.0	16.0

*Refer to CEC manual to determine wire, fuse and disconnect size requirements.

NOTE — Extremes of operating range are plus 10% and minus 5% of line voltage. 208-240v, 460v and 575v models are plus and minus 10% of line voltage.
† Motors are rated at 230 volts, FLA shown is for step-down transformer output.

COOLING RATINGS

Unit Model No.	Evaporator Air 80F Dry Bulb		Outdoor Air Temperature Entering Condenser (F)											
	Entering Wet Bulb Degrees (F)	Total Air Volume (Cfm)	85			95			105			115		
			Total Cooling Capacity (Btuh)	Sensible to Total Ratio (S/T)	Comp. Motor Watts Input	Total Cooling Capacity (Btuh)	Sensible to Total Ratio (S/T)	Comp. Motor Watts Input	Total Cooling Capacity (Btuh)	Sensible to Total Ratio (S/T)	Comp. Motor Watts Input	Total Cooling Capacity (Btuh)	Sensible to Total Ratio (S/T)	Comp. Motor Watts Input
CHA9-261	63	800	24,500	.79	2700	23,100	.82	2810	21,700	.84	2970	20,300	.87	3130
		900	24,800	.82	2720	23,500	.85	2840	22,100	.88	2990	20,700	.91	3170
		1000	25,300	.86	2740	23,900	.88	2860	22,500	.91	3010	21,100	.94	3190
	67	800	26,000	.62	2760	24,500	.64	2900	23,100	.66	3060	21,600	.68	3230
		900	26,500	.65	2770	25,000	.67	2910	23,500	.69	3070	22,000	.71	3250
		1000	26,800	.67	2790	25,300	.69	2930	23,700	.72	3080	22,200	.74	3270
	71	800	27,800	.47	2830	26,300	.48	2970	24,700	.49	3140	23,100	.51	3340
		900	28,200	.49	2850	26,600	.50	3000	25,000	.52	3160	23,500	.53	3550
		1000	28,600	.50	2860	27,000	.51	3010	25,200	.53	3170	24,200	.55	3570
CHA9-311	63	1000	30,800	.82	3100	29,000	.85	3250	27,300	.88	3450	25,500	.91	3680
		1125	31,400	.84	3130	29,600	.89	3290	27,900	.92	3490	26,100	.95	3730
		1250	32,000	.90	3160	30,200	.93	3320	28,500	.96	3530	26,700	1.00	3790
	67	1000	32,700	.65	3180	30,900	.67	3350	29,100	.70	3560	27,200	.72	3800
		1125	33,300	.68	3200	31,400	.70	3370	29,500	.73	3580	27,600	.75	3830
		1250	33,700	.71	3220	31,800	.74	3390	29,900	.76	3600	28,000	.79	3850
	71	1000	34,900	.49	3250	32,800	.50	3440	30,800	.52	3660	28,700	.53	3930
		1125	35,400	.51	3270	33,200	.53	3460	31,100	.54	3690	29,100	.56	3950
		1250	35,700	.53	3280	33,600	.54	3480	31,500	.56	3700	29,400	.57	3970
CHA9-411 CHA9-413	63	1200	37,200	.81	4230	35,300	.84	4410	33,300	.86	4640	31,400	.89	4890
		1350	38,000	.86	4280	36,000	.89	4460	34,100	.91	4700	32,000	.94	4970
		1500	38,700	.88	4320	36,700	.91	4510	34,800	.94	4760	32,800	.97	5060
	67	1200	39,500	.64	4370	37,400	.66	4570	35,300	.68	4810	33,000	.70	5080
		1350	40,200	.67	4400	38,000	.69	4610	35,800	.72	4850	33,600	.74	5140
		1500	40,600	.70	4430	38,400	.72	4650	36,200	.75	4900	34,000	.77	5190
	71	1200	42,100	.49	4530	39,800	.50	4760	37,500	.52	5030	35,200	.53	5330
		1350	42,600	.51	4570	40,300	.51	4810	37,900	.53	5070	35,600	.55	5380
		1500	43,200	.53	4610	40,700	.54	4840	38,300	.55	5110	35,900	.57	5420
CHA9-511 CHA9-513	63	1600	50,300	.84	5330	47,700	.87	5630	45,100	.90	5900	42,200	.93	6130
		1800	51,300	.89	5390	48,800	.92	5700	46,000	.95	5990	43,200	.98	6250
		2000	51,900	.94	5430	49,600	.97	5750	46,900	1.00	6060	44,400	1.00	6360
	67	1600	53,300	.66	5510	50,400	.68	5830	47,400	.70	6110	44,500	.73	6370
		1800	54,000	.70	5560	51,200	.72	5880	48,200	.74	6170	45,100	.77	6420
		2000	54,700	.73	5610	51,700	.75	5930	48,800	.78	6230	45,600	.81	6480
	71	1600	56,700	.50	5730	53,700	.51	6060	50,600	.52	6370	47,300	.54	6660
		1800	57,400	.52	5780	54,300	.53	6120	51,100	.55	6430	47,700	.57	6710
		2000	58,100	.54	5820	55,000	.55	6160	51,700	.57	6480	48,300	.60	6750
CHA9-651 CHA9-653	63	2000	63,100	.86	7000	60,200	.89	7200	57,500	.92	7680	54,800	.95	8050
		2250	63,800	.91	7070	61,000	.93	7280	58,300	.96	7800	55,500	1.00	8150
		2500	64,500	.95	7140	61,400	.98	7410	58,900	1.00	7890	56,100	1.00	8270
	67	2000	65,200	.70	7220	62,000	.71	7490	59,400	.71	7980	56,500	.72	8400
		2250	65,800	.72	7290	62,500	.73	7640	60,000	.73	8080	57,100	.74	8510
		2500	66,300	.75	7350	63,000	.75	7750	60,500	.75	8160	57,600	.76	8630
	71	2000	68,400	.52	7480	64,800	.52	7860	62,300	.52	8310	59,400	.53	8730
		2250	69,000	.53	7580	65,400	.53	7930	62,900	.53	8410	59,900	.54	8830
		2500	69,500	.54	7680	65,800	.54	7980	63,400	.54	8540	60,400	.55	8950

ELECTRIC HEAT DATA

CHA9-261 ELECTRIC HEAT DATA

CHA9 Model No.	Optional Electric Unit Model No. & Net Weight	No. of Steps	Volts Input	Electric Heat Kw Input	Electric Heat Btuh Output	*Minimum Circuit Ampacity
CHA9-261	ECH9-41-161 (14 lbs)	1	208	3.5	11,900	24
			220	3.9	13,300	27
			230	4.2	14,300	
			240	4.6	15,700	
	ECH9-41-261 (14 lbs)	2	208	5.7	19,500	37
			220	6.4	21,900	42
			230	7.0	23,900	
			240	7.6	25,900	
	ECH9-41-311 (14 lbs)	2	208	6.9	23,600	44
			220	7.7	26,300	51
			230	8.4	28,700	
			240	9.2	31,400	
ECH9-41-471 (15 lbs)	3	208	10.4	35,500	65	
		220	11.6	39,600	75	
		230	12.7	43,400		
		240	13.8	47,100		

CHA9-311 ELECTRIC HEAT DATA

CHA9 Model No.	Optional Electric Unit Model No. & Net Weight	No. of Steps	Volts Input	Electric Heat Kw Input	Electric Heat Btuh Output	*Minimum Circuit Ampacity
CHA9-311	ECH9-41-161 (14 lbs)	1	208	3.5	11,900	28
			220	3.9	13,300	28
			230	4.2	14,300	
			240	4.6	15,700	
	ECH9-41-261 (14 lbs)	2	208	5.7	19,500	37
			220	6.4	21,900	43
			230	7.0	23,900	
			240	7.6	25,900	
	ECH9-41-311 (14 lbs)	2	208	6.9	23,600	44
			220	7.7	26,300	51
			230	8.4	28,700	
			240	9.2	31,400	
ECH9-41-471 (15 lbs)	3	208	10.4	35,500	65	
		220	11.6	39,600	75	
		230	12.7	43,400		
		240	13.8	47,100		

*Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

*Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

CHA9-411-413 ELECTRIC HEAT DATA

CHA9 Model No.	Optional Electric Unit Model No. & Net Weight	No. of Steps	Volts Input	Electric Heat Kw Input	Electric Heat Btuh Output	*Minimum Circuit Ampacity
CHA9-411	ECH9-41-261 (14 lbs)	2	208	5.7	19,500	39
			220	6.4	21,900	45
			230	7.0	23,900	
			240	7.6	25,900	
	ECH9-41-311 (14 lbs)	2	208	6.9	23,600	46
			220	7.7	26,300	53
			230	8.4	28,700	
			240	9.2	31,400	
	ECH9-41-471 (15 lbs)	3	208	10.4	35,500	67
			220	11.6	39,600	77
			230	12.7	43,400	
			240	13.8	47,100	
ECH9-41-631 (16 lbs)	4	208	13.8	47,100	88	
		220	15.5	52,900	101	
		230	16.9	57,700		
		240	18.4	62,800		
CHA9-413	ECH9-41-313 (15 lbs)	3	208	6.8	23,200	29
			220	7.6	25,900	32
			230	8.3	28,300	
			240	9.0	30,700	
	ECH9-41-473 (15 lbs)	3	208	10.4	35,500	41
			220	11.6	39,600	46
			230	12.7	43,400	
			240	13.8	47,100	
	ECH9-41-563 (15 lbs)	3	208	12.4	42,300	48
			220	13.9	47,500	55
			230	15.2	51,900	
			240	16.5	56,300	

*Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT DATA

CHA9-511-513 ELECTRIC HEAT DATA

CHA9 Model No.	Optional Electric Unit Model No. & Net Weight	No. of Steps	Volts Input	Electric Heat Kw Input	Electric Heat Btuh Output	*Minimum Circuit Ampacity
CHA9-511	ECH9-46-381 (20 lbs)	2	208	8.3	28,300	59
			220	9.2	31,400	66
			230	10.1	34,500	
			240	11.0	37,600	
	ECH9-46-561 (23 lbs)	3	208	12.4	42,300	84
			220	13.9	47,500	95
			230	15.2	52,000	
			240	16.5	56,300	
	ECH9-46-751 (24 lbs)	4	208	16.5	56,300	109
			220	18.5	63,200	123
			230	20.2	69,000	
			240	22.0	75,100	
ECH9-46-941 (26 lbs)	5	208	20.7	70,700	134	
		220	23.1	78,900	152	
		230	25.3	86,400		
		240	27.5	93,900		
CHA9-513	ECH9-46-313 (23 lbs)	3	208	6.8	23,200	33
			220	7.6	26,000	36
			230	8.3	28,300	
			240	9.0	30,700	
	ECH9-46-313-460 (23 lbs)	3	440	7.6	26,000	17.3
			460	8.3	28,300	
			480	9.0	30,700	
	ECH9-46-313-575 (23 lbs)	3	550	7.6	26,000	13.9
			575	8.3	28,300	
			600	9.0	30,700	
	ECH9-46-563 (23 lbs)	3	208	12.4	42,300	52
			220	13.9	47,500	58
			230	15.2	51,900	
			240	16.5	56,300	
	ECH9-46-563-460 (23 lbs)	3	440	13.9	47,500	28.5
			460	15.2	51,900	
			480	16.5	56,300	
	ECH9-46-563-575 (23 lbs)	3	550	13.9	47,500	22.9
			575	15.2	51,900	
			600	16.5	56,300	
	ECH9-46-783 (28 lbs)	6	208	17.1	58,400	69
			220	19.2	65,600	77
			230	20.9	71,400	
			240	22.8	77,900	
	ECH9-46-783-460 (28 lbs)	6	440	19.2	65,600	38.0
			460	20.9	71,400	
			480	22.8	77,900	
	ECH9-46-783-575 (28 lbs)	6	550	19.2	65,600	30.5
			575	20.9	71,400	
			600	22.8	77,900	
ECH9-46-943 (28 lbs)	6	208	20.7	70,700	81	
		220	23.2	79,200	92	
		230	25.3	86,400		
		240	27.6	94,200		
ECH9-46-943-460 (28 lbs)	6	440	23.2	79,200	45.3	
		460	25.3	86,400		
		480	27.6	94,200		
ECH9-46-953-575 (28 lbs)	6	550	23.2	79,200	36.3	
		575	25.3	86,400		
		600	27.6	94,200		

*Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wire suitable for at least 75°C (167°F).

CHA9-651-653 ELECTRIC HEAT DATA

CHA9 Model No.	Optional Electric Unit Model No. & Net Weight	No. of Steps	Volts Input	Electric Heat Kw Input	Electric Heat Btuh Output	*Minimum Circuit Ampacity
CHA9-651	ECH9-65-381 (20 lbs)	2	208	8.3	28,300	61
			220	9.2	31,400	64
			230	10.1	34,500	
			240	11.0	37,600	
	ECH9-65-561 (23 lbs)	3	208	12.4	42,300	82
			220	13.9	47,500	93
			230	15.2	52,000	
			240	16.5	56,300	
	ECH9-65-751 (24 lbs)	4	208	16.5	56,300	106
			220	18.5	63,200	122
			230	20.2	69,000	
			240	22.0	75,100	
ECH9-65-941 (26 lbs)	5	208	20.7	70,700	131	
		220	23.1	78,900	150	
		230	25.3	86,400		
ECH9-65-1131 (28 lbs)	6	208	24.8	84,700	156	
		220	27.7	94,600	179	
		230	30.3	103,500		
		240	33.0	112,700		
CHA9-653	ECH9-65-313 (23 lbs)	3	208	6.8	23,200	39
			220	7.6	26,000	39
			230	8.3	28,300	
			240	9.0	30,700	
	ECH9-65-313-460 (23 lbs)	3	440	7.6	26,000	19
			460	8.3	28,300	
			480	9.0	30,700	
	ECH9-65-313-575 (23 lbs)	3	550	7.6	26,000	16
			575	8.3	28,300	
			600	9.0	30,700	
	ECH9-65-563 (23 lbs)	3	208	12.4	42,300	50
			220	13.9	47,500	57
			230	15.2	51,900	
			240	16.5	56,300	
	ECH9-65-563-460 (23 lbs)	3	440	13.9	47,500	29
			460	15.2	51,900	
			480	16.5	56,300	
	ECH9-65-563-575 (23 lbs)	3	550	13.9	47,500	23
			575	15.2	51,900	
			600	16.5	56,300	
	ECH9-65-783 (28 lbs)	6	208	17.1	58,400	66
			220	19.2	65,600	76
			230	20.9	71,400	
			240	22.8	77,900	
	ECH9-65-783-460 (28 lbs)	6	440	19.2	65,600	38
			460	20.9	71,400	
			480	22.8	77,900	
	ECH9-65-783-575 (28 lbs)	6	550	19.2	65,600	31
			575	20.9	71,400	
			600	22.8	77,900	
ECH9-65-943 (28 lbs)	6	208	20.7	70,700	79	
		220	23.2	79,200	90	
		230	25.3	86,400		
		240	27.6	94,200		
ECH9-65-943-460 (28 lbs)	6	440	23.2	79,200	46	
		460	25.3	86,400		
		480	27.6	94,200		
ECH9-65-953-575 (28 lbs)	6	550	23.2	79,200	36	
		575	25.3	86,400		
		600	27.6	94,200		
ECH9-65-1133 (28 lbs)	6	208	24.8	84,700	93	
		220	27.7	94,600	106	
		230	30.3	103,500		
		240	33.0	112,700		
ECH9-65-1133-460 (28 lbs)	6	440	27.7	94,600	54	
		460	30.3	103,500		
		480	33.0	112,700		
ECH9-65-1133-575 (28 lbs)	6	550	27.7	94,600	43	
		575	30.3	103,500		
		600	33.0	112,700		

*Refer to Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wire suitable for at least 75°C (167°F).

BLOWER DATA

CHA9-261 BLOWER PERFORMANCE

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium-Low	Low
0	1175	960	770
.05	1150	930	750
.10	1120	900	725
.15	1085	865	700
.20	1050	830	675
.25	1000	800	650
.30	950	760	625
.40	850	680	570
.50	740	595	500
.60	620	505	----

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-261 BLOWER PERFORMANCE WITH ELECTRIC HEAT

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium-Low	Low
0	1070	890	725
.05	1035	865	705
.10	1000	830	680
.15	960	800	655
.20	920	765	635
.25	880	730	605
.30	840	695	570
.40	750	620	520
.50	645	535	----
.60	540	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-261 BLOWER PERFORMANCE WITH RT9-65, PSD9-65 AND DUCT DISTRIBUTION

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium-Low	Low
0	1170	940	705
.05	1110	870	670
.10	1050	805	625
.15	990	750	585
.20	925	700	540
.25	865	650	500
.30	800	600	----
.40	665	----	----
.50	510	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-261 BLOWER PERFORMANCE WITH ELECTRIC HEAT RT9-65, PSD9-65 AND DUCT DISTRIBUTION

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium-Low	Low
0	1010	800	630
.05	960	755	595
.10	900	710	555
.15	840	670	515
.20	780	625	----
.25	720	580	----
.30	650	530	----
.40	520	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-311 BLOWER PERFORMANCE

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1390	1325	1175	1040
.05	1355	1295	1150	1015
.10	1325	1265	1125	995
.15	1295	1235	1100	970
.20	1265	1205	1075	950
.25	1235	1175	1050	925
.30	1200	1145	1025	905
.40	1140	1085	970	860
.50	1070	1020	895	----

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-311 BLOWER PERFORMANCE WITH ELECTRIC HEAT

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1310	1240	1120	990
.05	1280	1215	1095	970
.10	1255	1190	1065	950
.15	1225	1165	1040	925
.20	1195	1140	1015	905
.25	1165	1110	990	880
.30	1135	1080	960	850
.40	1070	1015	900	795
.50	1005	990	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

BLOWER DATA

**CHA9-311 BLOWER PERFORMANCE
WITH RT9-65, PSD9-65 AND DUCT DISTRIBUTION**

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1352	1275	1130	980
.05	1287	1210	1060	920
.10	1215	1145	990	855
.15	1150	1080	930	800
.20	1087	1020	880	755
.25	1025	965	840	725
.30	970	915	795	680
.40	865	820	705	585
.50	755	715	590	----

NOTE — All cfm is measured external to the unit with the air filter in place.

**CHA9-311 BLOWER PERFORMANCE
WITH ELECTRIC HEAT
RT9-65, PSD9-65 AND DUCT DISTRIBUTION**

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1245	1155	960	840
.05	1210	1075	910	795
.10	1165	1010	865	755
.15	1080	955	820	715
.20	1025	890	785	675
.25	965	845	740	595
.30	915	800	695	----
.40	820	705	----	----
.50	715	590	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-411-413 BLOWER PERFORMANCE

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	1630	1365	1080
.05	1600	1345	1070
.10	1570	1320	1060
.15	1540	1300	1050
.20	1510	1275	1035
.25	1475	1250	1020
.30	1440	1230	1005
.40	1360	1175	965
.50	1265	1115	925
.60	1170	1050	----
.70	1050	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

**CHA9-411-413 BLOWER PERFORMANCE
WITH ELECTRIC HEAT**

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	1440	1290	1060
.05	1415	1270	1050
.10	1395	1245	1035
.15	1370	1220	1020
.20	1340	1195	1000
.25	1315	1165	980
.30	1285	1140	960
.40	1220	1085	915
.50	1160	1030	870
.60	1100	975	----

NOTE — All cfm is measured external to the unit with the air filter in place.

**CHA9-411-413 BLOWER PERFORMANCE
WITH RT9-65, PSD9-65 AND DUCT DISTRIBUTION**

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	1510	1300	1050
.05	1425	1235	990
.10	1350	1175	940
.15	1285	1120	890
.20	1225	1000	845
.25	1170	945	805
.30	1115	900	----
.40	1005	805	----
.50	905	----	----

NOTE — All cfm is measured external to the unit with the air filter in place.

**CHA9-411-413 BLOWER PERFORMANCE
WITH ELECTRIC HEAT
RT9-65, PSD9-65 AND DUCT DISTRIBUTION**

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	1340	1225	1020
.05	1270	1160	975
.10	1205	1095	925
.15	1105	1040	875
.20	1080	995	835
.25	1020	950	----
.30	970	910	----
.40	875	820	----

NOTE — All cfm is measured external to the unit with the air filter in place.

BLOWER DATA

CHA9-511-513 BLOWER PERFORMANCE

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Medium	Med-Low	Low
0	2480	2340	2150	1885	1630
.05	2435	2300	2120	1850	1600
.10	2395	2265	2085	1820	1570
.15	2355	2225	2045	1785	1535
.20	2315	2190	2010	1755	1500
.25	2275	2150	1975	1720	1470
.30	2235	2110	1940	1685	1435
.40	2155	2035	1860	1620	1360
.50	2055	1955	1785	1545	1290
.60	1955	1865	1705	1470	1215
.70	1860	1770	1620	1380	1135

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-511-513 BLOWER PERFORMANCE WITH ELECTRIC HEAT

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Medium	Med-Low	Low
0	2045	1965	1820	1605	1375
.05	2005	1925	1785	1575	1345
.10	1970	1890	1750	1540	1315
.15	1930	1850	1710	1510	1285
.20	1890	1815	1675	1475	1255
.25	1850	1775	1640	1440	1220
.30	1815	1735	1600	1410	1190
.40	1735	1655	1515	1335	1120
.50	1650	1570	1425	1260	---
.60	1555	1475	1335	1180	---
.70	1450	1380	1230	1095	---

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-511-513 BLOWER PERFORMANCE WITH RT9-65, PSD9-65 AND DUCT DISTRIBUTION

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Medium	Med-Low	Low
0	2280	2185	2010	1800	1560
.05	2210	2120	1950	1745	1505
.10	2150	2060	1900	1690	1460
.15	2100	2005	1850	1640	1410
.20	2045	1950	1800	1590	1360
.25	1995	1900	1745	1550	1320
.30	1945	1850	1700	1505	1270
.40	1840	1755	1620	1415	1180
.50	1735	1660	1535	1335	1100
.60	1620	1560	1445	1260	---
.70	1510	1455	1355	1185	---

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-511-513 BLOWER PERFORMANCE WITH ELECTRIC HEAT RT9-65, PSD9-65 AND DUCT DISTRIBUTION

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Medium	Med-Low	Low
0	1880	1830	1740	1590	1360
.05	1815	1760	1670	1520	1335
.10	1740	1690	1605	1435	1305
.15	1690	1630	1540	1365	1245
.20	1630	1570	1475	1300	1180
.25	1570	1515	1410	1250	1125
.30	1520	1460	1350	1200	---
.40	1420	1350	1220	1105	---
.50	1320	1245	1135	---	---
.60	1210	1135	---	---	---

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-651-653 BLOWER PERFORMANCE

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2350	2070	1805
.05	2325	2050	1785
.10	2305	2030	1765
.15	2285	2015	1750
.20	2265	1995	1730
.25	2245	1975	1715
.30	2220	1955	1700
.40	2180	1920	1660
.50	2140	1880	1625
.60	2095	1840	1590
.70	2050	1800	1555
.80	2010	1760	1520
.90	1960	1675	1480

NOTE — Unit cfm is measured external to the unit with the air filter in place.

CHA9-651-653 BLOWER PERFORMANCE WITH RT9-65, PSD9-65 AND DUCT DISTRIBUTION

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2240	2010	1760
.05	2225	1990	1745
.10	2205	1970	1730
.15	2185	1950	1715
.20	2165	1930	1700
.25	2140	1910	1680
.30	2120	1890	1660
.40	2075	1855	1620
.50	2020	1810	1590
.60	1980	1770	1545
.70	1935	1720	1505
.80	1885	1670	1465

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-651-653 BLOWER PERFORMANCE WITH ELECTRIC HEAT

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2075	1870	1660
.05	2045	1850	1640
.10	2020	1830	1620
.15	1995	1810	1600
.20	1975	1790	1580
.25	1950	1765	1560
.30	1930	1740	1540
.40	1880	1690	1500
.50	1845	1640	1460
.60	1810	1590	1420

NOTE — All cfm is measured external to the unit with the air filter in place.

CHA9-651-653 BLOWER PERFORMANCE WITH ELECTRIC HEAT RT9-65, PSD9-65 AND DUCT DISTRIBUTION

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2025	1840	1640
.05	2000	1820	1620
.10	1980	1795	1600
.15	1955	1775	1580
.20	1935	1750	1560
.25	1910	1725	1540
.30	1885	1700	1520
.40	1830	1650	1480
.50	1760	1600	1435

NOTE — All cfm is measured external to the unit with the air filter in place.

BLOWER DATA

**CHA9-261 WITH RT9-65, PSD9-65 AND
CEILING SUPPLY & RETURN
(With and Less Electric Heat)**

Blower Speed Setting	Cfm @ Various Speeds With Various Discharge Grille Arrangements							
	FD-41 or FD-41-D Flush Model		RTD-41 Step-Down Model					
			2 Sides Open		3 Sides Open		4 Sides Open	
	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.
High	893	1000	815	915	835	940	860	965
Medium-Low	770	815	735	785	745	795	755	805
Low	630	670	602	640	615	650	620	660

**CHA9-311 WITH RT9-65, PSD9-65 AND
CEILING SUPPLY & RETURN
(With and Less Electric Heat)**

Blower Speed Setting	Cfm @ Various Speeds With Various Discharge Grille Arrangements							
	FD-41 or FD-41-D Flush Model		RTD-41 Step-Down Model					
			2 Sides Open		3 Sides Open		4 Sides Open	
	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.	Elec.	Less Elec.
High	1055	1170	1000	1110	1050	1160	1055	1175
Medium-High	1015	1115	990	1070	1010	1100	1020	1120
Medium-Low	890	1000	870	965	885	985	895	1000
Low	800	890	780	850	795	880	805	895

**CHA9-411-413 WITH RT9-65, PSD9-65 AND
CEILING SUPPLY & RETURN
(With and Less Electric Heat)**

Blower Speed Setting	Cfm @ Various Speeds With Various Discharge Grille Arrangements							
	FD-41 or FD-41-D Flush Model		RTD-41 Step-Down Model					
			2 Sides Open		3 Sides Open		4 Sides Open	
	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.
High	1175	1290	1130	1250	1160	1270	1170	1280
Medium	1055	1140	1045	1110	1050	1120	1055	1135
Low	905	945	890	925	900	935	909	945

**CHA9-511-513 WITH RT9-65, PSD9-65 AND
CEILING SUPPLY & RETURN
(With and Less Electric Heat)**

Blower Speed Setting	Cfm @ Various Speeds With Various Discharge Grille Arrangements							
	FD-65 or FD-65-D Flush Model		RTD-65 Step-Down Model					
			2 Sides Open		3 Sides Open		4 Sides Open	
	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.
High	1680	2060	1725	2020	1730	2040	1745	2055
Medium-High	1665	1970	1670	1930	1685	1950	1690	1965
Medium	1555	1840	1580	1820	1590	1830	1615	1845
Medium-Low	1455	1670	1455	1625	1460	1635	1470	1665
Low	1360	1465	1365	1460	1370	1470	1385	1475

**CHA9-651-653 WITH RT9-65, PSD9-65 AND
CEILING SUPPLY & RETURN
(With and Less Electric Heat)**

Blower Speed Setting	Cfm @ Various Speeds With Various Discharge Grille Arrangements							
	FD-65 or FD-65-D Flush Model		RTD-65 Step-Down Model					
			2 Sides Open		3 Sides Open		4 Sides Open	
	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.	With Elec.	Less Elec.
High	1915	2070	1930	2100	1965	2185	1980	2215
Medium	1770	1870	1780	1897	1800	1960	1810	1985
Low	1590	1660	1600	1670	1610	1730	1615	1745

BLOWER DATA

FD FLUSH CEILING DIFFUSER AIR THROW DATA

FD Model No.	Air Volume (cfm)	*Effective Throw (feet)
FD-41 and FD-41-D	800	12
	900	13
	1000	14
	1200	16
	1400	18
FD-65 and FD-65-D	1000	9
	1200	11
	1350	12
	1500	14
	2000	18
	2250	20

*Effective throw is terminated at a point where conditioned air velocity has decreased to 50 fpm.

RTD STEP DOWN CEILING DIFFUSER AIR THROW DATA

RTD Model No.	Air Volume (cfm)	*Effective Throw (ft.)			
		Horizontal Vanes 180° Straight	Horizontal Vanes 22° Down	Horizontal Vanes 45° Down	
RTD-41	Two Sides Open	800	39	34	23
		1000	43	38	26
		1200	48	42	29
		1400	54	48	33
	Three Sides Open	800	27	24	17
		1000	30	27	19
		1200	34	30	21
		1400	39	34	24
	Four Sides Open	800	22	20	14
		1000	24	22	15
		1200	27	24	17
		1400	30	26	19
RTD-65	Two Sides Open	1200	41	37	27
		1600	45	41	29
		2000	51	45	31
		2250	56	50	34
	Three Sides Open	1200	29	27	18
		1600	31	29	20
		2000	35	31	22
		2250	40	35	25
	Four Sides Open	1200	22	20	15
		1600	25	22	16
		2000	28	25	17
		2250	30	27	18

*Effective throw is terminated at a point where conditioned air velocity has decreased to 50 fpm.