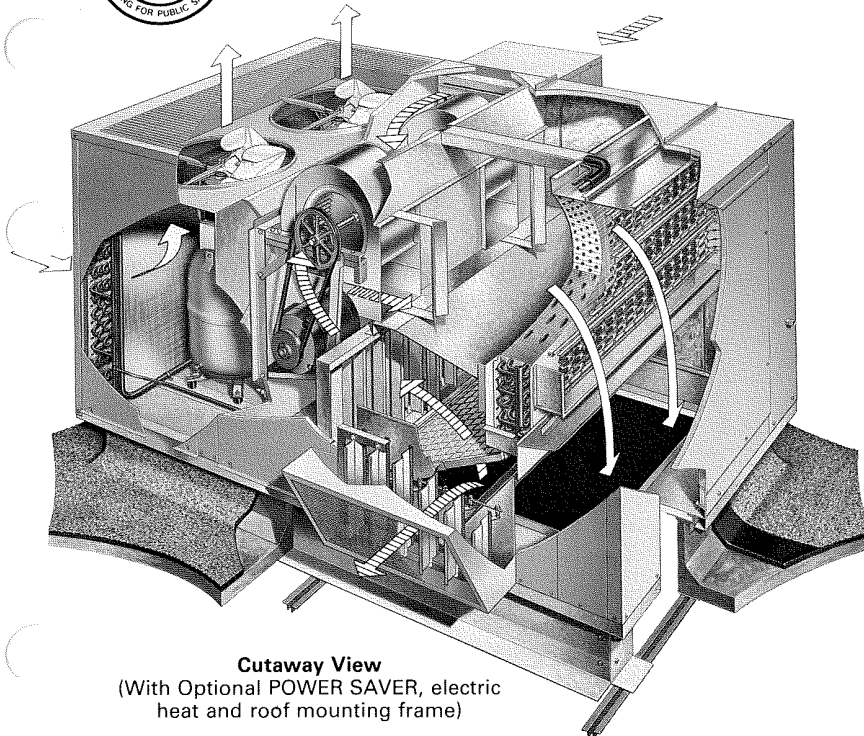




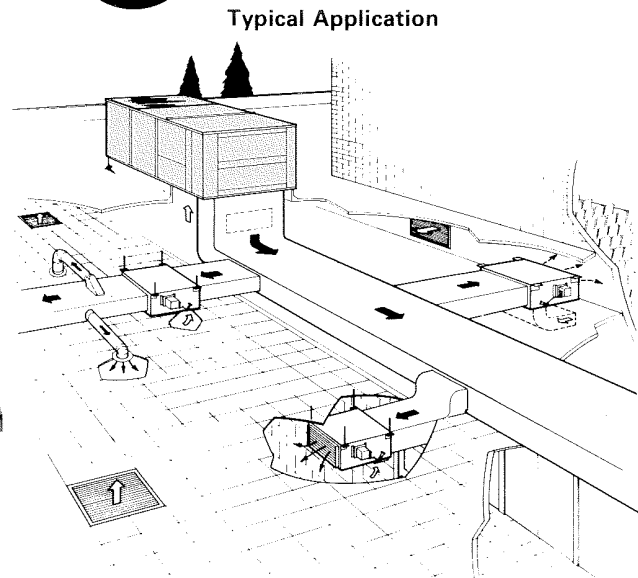
**CHA8-1853 & CHA8-2753
 SINGLE PACKAGE AIR CONDITIONERS
 HORIZONTAL & DOWN-FLO**

***200,000 to 273,000 Btuh (58.6 to 80.0 kW) Cooling Capacity
 71,700 to 300,300 Btuh (21.0 to 88.0 kW) Optional Electric Heat**

*At ARI Standard test conditions



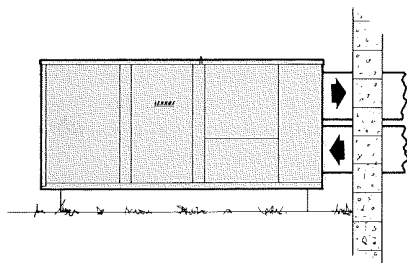
Cutaway View
 (With Optional POWER SAVER, electric heat and roof mounting frame)



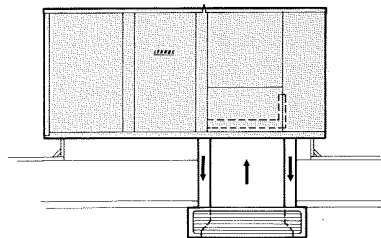
Typical Application

Rooftop Installation with Optional ZDB1 Blower Powered Mixing Damper Boxes.

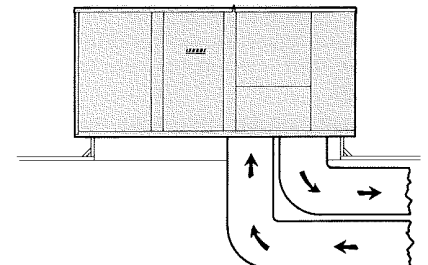
Three Air Patterns Possible
 End panels fit bottom openings to give air pattern choice. Separate adapter required for combination ceiling supply and return application.



Installation thru the wall — Slab or Roof



Combination Supply and Return Air Ceiling Diffuser
 Step-down or Flush Diffuser



Separate Supply and Return (Double) Duct

Single Package Rooftop Air Conditioner & Mounting Frame Saves Installation Costs & Floor Space

The CHA8 series DX air conditioning units, with bottom handling of conditioned air, are designed primarily for rooftop installation with the optional POWER SAVER™ and RMF3 roof mounting frame. The separate roof frame mates to the bottom of the CHA8 unit and when flashed into the roof it permits weatherproof duct connection and entry into the conditioned area. No additional roof curbing or flashing is required. The single package unit can also be installed on a slab at grade level with end handling of conditioned air. The insulated single cabinet houses highly efficient air cooled DX cooling, powerful belt drive blowers, air filters, optional electric heat and the optional POWER SAVER dampers which are shipped complete with all controls wired. Complete factory sealed refrigeration system consists of compressors, con-

denser coil and fans, evaporator coil and twin blowers, refrigerant drier, refrigerant lines connected and a full charge of refrigerant. Controls furnished consist of pressure switches, compressor relay, overload protection and timed-off cycle. Optional POWER SAVER equipment and controls reduce cooling operating costs and satisfy any local code fresh air requirements. An externally mounted OAD3 minimum fresh air damper (manual or auto) is also available. In addition optional ZDB1 series blower powered mixing damper boxes are available for zone control system installations. Units are shipped completely assembled wired and piped ready to install. Each unit is test operated at the factory insuring proper operation. Installer has only to set unit, connect ductwork, power supply and thermostat field wiring connections.

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

FEATURES

Thoroughly Tested And Approved — Units have been thoroughly tested in the Lennox environmental test room and rated at ARI Standard test conditions. In addition units have been sound tested in the Lennox reverberant sound test room and rated according to ARI Standard 270. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L. and CEC. Units and optional electric heaters are U.L. Listed. Units are also CSA Approved.

Dependable Lennox Compressors — Equipped with two Lennox L2 compressors in separate refrigeration systems and two stage operation is controlled by the two stage cooling thermostat. The large casing, spring loaded discharge valve, high suction intake ports and crankcase heater result in effective "slugging" protection. Crankshaft is statically and dynamically balanced and has patented 3 mode oil pumping for positive pressure lubrication. Contoured piston for increased volumetric efficiency. 17 strategically located discharge mufflers result in extremely quiet operation. Motor is located within refrigerant flow pattern resulting in low motor winding temperatures. Twin internally mounted motor in-winding temperature sensing thermostats and a discharge gas temperature sensing thermostat provide safe operation. High and low pressure controls (automatic reset) are provided and factory installed in compressor terminal box. A low ambient cut-out thermostat prevents compressor operation below 22°F (-6°C). The entire running gear assembly is spring mounted within the sealed housing and the compressor is installed in the unit on resilient rubber mounts assuring quiet and vibration free operation.

Lennox Coils — Extra large coils (condenser and evaporator) are constructed of ripple-edged aluminum fins machine fitted to copper tubes for maximum strength and heat transfer. Copper tubing construction provides maximum coil life and ease of service. Coils are thoroughly tested under pressure to insure leak proof construction.

Efficient Condensing Section — Direct drive fans draw large air volumes through the extra large condenser coils and discharges the air out the top. Condenser coils have sub-cooling rows for increased efficiency. Condenser discharge grille is furnished.

Powerful Blowers — Twin resiliently mounted blowers deliver large air volumes with low power consumption. Rugged blower motor support allows quick belt adjustment and motor changeover.

Cleanable Air Filters — Washable, vacuum cleanable polyurethane filter media is furnished as standard. Filters are easily accessible for cleaning and are coated with oil for increased efficiency. Use RP products filter coating No. 418 (P-8-5069) when reoiling. 1 in. (25mm) frame filter is standard, filter rack will receive up to 2 in. (51mm) filters.

Rugged Cabinet — Heavy gauge galvanized hot dipped steel cabinet panels. A five station wash metal preparation assures a perfect bonding surface for the finish coat of baked-on enamel. Large removable panels provide complete service access.

Thick Interior Insulation — All of the interior panels where conditioned air is handled and the entire bottom of unit is insulated with thick fiberglass insulation.

Optional POWER SAVER (Fresh Air) — Available as optional equipment for field installation. The Lennox POWER SAVER system consists of: mechanically linked outdoor air, recirculated air and exhaust air dampers. The positioning of these dampers is accomplished by a 24 volt modulating spring return damper motor and controlled by the room thermostat, adjustable mixed air controller, adjustable compressor monitor and 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. For installation the two damper sections simply slide in cavities provided in the unit cabinet. Equipment is shipped factory wired and only requires simple plug-in connection for operation. Fresh air intake section is furnished with cleanable polyurethane air filters. Power Saver may be ordered with or less exhaust hood. See Accessories table for ordering data.

Optional Low Ambient Controls — System will operate satisfactory down to 35°F (2°C) outdoor air temperature without additional controls. If air conditioning operation is required at outdoor air temperatures colder than 35°F (2°C) a field or factory installed low ambient control kit is required. See Specification table for ordering.

Optional End Supply & Return Air Discharge Kit — Available for field conversion from bottom supply and return air handling to end supply and return air pattern. Kit contains divider panel(s), fasteners and instructions. See Specification table for ordering data.

Optional Thermostat — Thermostat is not furnished and must be ordered extra. For cooling only applications a two stage cooling thermostat is required. When optional electric heat is ordered a heating-cooling thermostat is required. The heating portion may be two stage on most models. For two stage electric heat operation an additional relay (order no. P-8-3251) is required and must be ordered extra.

Optional Minimum Fresh Air Damper — Externally mounted OAD3 fresh air damper section complete with cleanable polyurethane air filters is available. See Specification table for ordering. It can be either manually or automatically controlled with a damper motor.

Optional Electric Heat — Available as a factory installed option. See Electric Heat table for capacities and models available. Electric heat section is installed upstream from evaporator coil. The heating elements are helix wound nichrome wire exposed to the air stream for instant heat transfer, lower coil temperatures and longer heater life. The elements are accurately located and insulated from the plated supporting frame by high quality insulators.

Optional Combination Supply and Return Diffusers — Lennox offers two different styles of air diffusers. The RTD step-down model extends below the ceiling level and discharges conditioned air out through grilles on all four sides. The FD model installs almost flush with the ceiling and discharges air down and out through the outside vanes. Both models are equipped with adjustable vanes for distribution and diffusion of conditioned air. Return air enters through the center grille on both models.

Optional Nite Setback Controls — A nite thermostat (P-8-8899°F or P-8-8894°C) and subbase (P-8-8889) is available. Two nite setback kits are provided: BM-4762 includes a manual nite setback switch and stainless steel mounting plate. Kit BM-4761 includes a manual set 12 hour nite setback timer and a stainless steel mounting plate. Mounting plate mounts to two standard electrical outlet boxes furnished by installer. An optional 24 hour skip-day clock (P-8-3744 with carryover or P-8-4168 less carryover) to program the unit automatically is available. Clock is recommended to be used with the BM-4761 kit and is optional for use with kit BM-4762. In addition, a 7 day clock (P-8-6858 less carryover or P-8-10213 with carryover) is also available as an option.

Optional Roof Mounting Frame — Durable and serviceable frame is 13 in. (330mm) high. It sets on the roof support members and is actually built into the roof structure. The top mates to the CHA8 base.

Optional Remote Readout Panel — Readout Panel (BM2-5358) and Rough-in Box (BM1-5358) must be ordered extra. See bulletin (page 71) in Accessories Section. When panel is used for nite setback operation the following controls must be used and ordered extra; nite thermostat (P-8-8899°F or P-8-8894°C), subbase (P-8-8889), and 24 hour skip-day clock (P-8-3744 with carryover or P-8-4168 less carryover). A 7 day time clock (P-8-6858 less carryover or P-8-10213 with carryover) is also available as an option.

Optional Blower Powered Mixing Damper Boxes — ZDB1 series mixing air boxes are available for zone control system applications. Units install in the duct system within the structure. For data see Accessories section, page 7.

SPECIFICATIONS

Model No.		CHA8-1853	CHA8-2753	
ARI Standard 270 SRN		23	23	
*Cooling Capacity @ARI Standard 210 Conditions	Total capacity — Btuh (kW)	200,000 (58.6)	273,000 (80.0)	
	Total unit watts	25,000	35,500	
	EER (Btuh/Watt)	8.0	7.7	
	Dehumidifying capacity	29%	26%	
Refrigerant charge (R-22)		40 lbs. (18.1 kg)	48 lbs. (21.8 kg)	
Blower wheel nominal diameter x width — in. (mm)		(2) — 15 x 11 (381 x 279)	(2) — 15 x 15 (381 x 381)	
Blower Motor Hp (kW) See Drive Table	Minimum	3 (2.2)	5 (3.7)	
	Maximum	5 (3.7)	7-1/2 (5.6)	
Condenser Coil	Net face area — sq. ft. (m ²)	(2) 10.75 (1.00) each	(2) 12.15 (1.13) each	
	Tube diameter — in. (mm) & No. of rows	1/2 (13) — 4	1/2 (13) — 6	
	Fins per inch (m)	13 (512)	13 (512)	
Condenser Fan	Diameter — in. (mm) & No. of blades	(2) 25-1/2 (660) — 6	(2) 25-1/2 (660) — 6	
	Air volume — cfm (m ³ /s)	13,500 (6.4)	13,250 (6.2)	
	Motor horsepower (kW)	(2) 1 (0.75)	(2) 1 (0.75)	
	Motor watts	2820	2500	
Evaporator Coil	Net face area — sq. ft. (m ²)	(2) 7.67 (0.71) each	(2) 8.75 (0.81) each	
	Tube diameter — in. (mm) & No. of rows	1/2 (13) — 4	12 (13) — 4	
	Fins per inch (m)	13 (512)	13 (512)	
No. & size of filters	inches	(4) 20 x 20 x 1 (4) 16 x 20 x 1	(8) 20 x 20 x 1	
	mm	(4) 508 x 508 x 25 (4) 406 x 508 x 25	(8) 508 x 508 x 25	
	Condensate drain size MPT — in. (mm)		1-1/4 (32)	1-1/4 (32)
	Net weight of basic unit — lbs. (kg) 1 package		2785 (1265)	3280 (1490)
POWER SAVER	Model No. (net weight)		RD3-185 — 510 lbs. (231 kg)	RD3-185 — 606 lbs. (275 kg)
	No. & Size of Filters	inches	(3) 20 x 36 x 1	(4) 20 x 36 x 1
		mm	(3) 508 x 914 x 25	(4) 508 x 914 x 25
Minimum Fresh Air Damper	Model No. (net weight)		OAD3-185 — 101 lbs. (46 kg)	OAD3-275 — 107 lbs. (49 kg)
	No. & Size of Filters	inches	(1) 25 x 27 x 1	(1) 26 x 31 x 1
		mm	(1) 635 x 686 x 25	(1) 660 x 787 x 25
Automatic Kit for OAD3 Damper		BM-5563 (9 lbs.) (4 kg)	BM-5563 (9 lbs.) (4 kg)	
RP2-1 Remote Readout Panel		BM2-5358 (5 lbs.) (2 kg)	BM2-5358 (5 lbs.) (2 kg)	
RP2-00-1 Rough-in Box		BM1-5358 (3 lbs.) (1 kg)	BM1-5358 (3 lbs.) (1 kg)	
Remote Readout Panel Kit		BM-5893 (5 lbs.) (2 kg)	BM-5893 (5 lbs.) (2 kg)	
Low Ambient Control Kit		LB-80249BA (8 lbs.) (4 kg)	LB-80249BA (8 lbs.) (4 kg)	
Roof Mounting Frame		RMF3-185/275 (200 lbs.) (91 kg)	RMF3-185/275 (200 lbs.) (91 kg)	
Combination Ceiling Supply and Return Kit		BM-3566 (40 lbs.) (18 kg)	BM-3567 (43 lbs.) (20 kg)	
Combination Ceiling Supply And Return Step Down Diffuser		RTD-185/275 (172 lbs.) (78 kg)	RTD-185/275 (172 lbs.) (78 kg)	
Combination Ceiling Supply And Return Flush Diffuser		FD-185 (64 lbs.) (29 kg) **FD-185-D (64 lbs.) (29 kg)	FD-275 (69 lbs.) (31 kg) **FD-275-D (69 lbs.) (31 kg)	
End Supply & Return Air Discharge Kit		LB-44878CA (20 lbs.) (9 kg)	LB-44877CA (25 lbs.) (11 kg)	
†Blower powered mixing damper boxes		ZDB1-400 (52 lbs.) (24 kg), ZDB1-800 (74 lbs.) (34 kg) ZDB1-1200 (103 lbs.) (47 kg), ZDB1-1600 (114 lbs.) (52 kg)		

*Rated in accordance with ARI Standard 210; 450 cfm (60 L/s) (maximum) evaporator air volume per ton (kW) of cooling, 95°F (35°C) outdoor air temperature and 80 db/67 wb (26.7°C db/19.4°C wb) entering evaporator air.

**Flush diffuser with adjustable baffle blades.

†See bulletin (Page 7) in Accessories Section for complete data.

RATINGS

Unit Model No.	Evaporator Air 80°F (27°C) Dry Bulb		Outdoor Air Temperature Entering Condenser Coil												
			85°F (29°C)				95°F (35°C)				105°F (41°C)				
	Entering Wet Bulb Temper- ature	Total Air Volume	Total Cooling Capacity		Sensible to Total Ratio (S/T)	Comp. Motor Watts Input	Total Cooling Capacity		Sensible to Total Ratio (S/T)	Comp. Motor Watts Input	Total Cooling Capacity		Sensible to Total Ratio (S/T)	Comp. Motor Watts Input	
kW			(Btuh)	kW			(Btuh)	kW			(Btuh)				
CHA8-1853	63°F (17.2°C)	2830	6000	56.1	191,600	.84	17,000	53.2	181,400	.86	18,400	50.0	170,800	.90	19,900
		3185	6750	57.3	195,500	.87	17,100	54.2	185,000	.90	18,600	51.0	174,000	.93	20,100
		3540	7500	58.3	199,100	.89	17,300	55.2	188,300	.92	18,800	51.9	177,100	.95	20,300
	67°F (19.4°C)	2830	6000	60.5	206,600	.67	17,800	57.4	195,800	.69	19,300	54.1	184,600	.71	20,800
		3185	6750	61.8	210,900	.69	18,000	58.5	199,800	.71	19,500	55.1	188,200	.73	21,000
		3540	7500	63.0	214,900	.71	18,200	59.6	203,400	.72	19,700	56.1	191,300	.74	21,200
	71°F (21.7°C)	2830	6000	65.1	222,200	.52	18,600	61.7	210,600	.53	20,200	58.1	198,300	.54	21,600
		3185	6750	66.3	226,400	.53	18,900	62.8	214,500	.54	20,400	59.1	201,800	.55	22,000
		3540	7500	67.5	230,400	.54	19,100	63.9	218,100	.55	20,600	60.1	205,000	.56	22,000
CHA8-2753	63°F (21.7°C)	4155	8800	76.5	261,000	.89	25,100	72.7	248,000	.92	26,600	68.9	235,000	.94	28,100
		4670	9900	78.1	266,500	.92	25,300	74.0	252,500	.95	26,800	70.1	239,200	.97	28,400
	67°F (21.7°C)	4155	8800	82.8	282,600	.70	26,000	78.5	268,000	.72	27,700	74.4	254,000	.74	29,400
		4670	9900	84.5	288,500	.73	26,400	80.0	273,000	.75	28,000	75.6	258,000	.76	29,700
	71°F (21.7°C)	4155	8800	89.2	304,500	.54	27,300	84.4	288,000	.55	29,000	79.7	272,000	.56	30,800
		4670	9900	90.8	309,800	.55	27,600	85.7	292,600	.56	29,300	80.9	276,000	.58	31,200

ELECTRICAL DATA

Model No.		CHA8-1853						CHA8-2753						
Line voltage (60 Hz — 3 ph)		208/240		440/480		550/600		208/240		440/480		550/600		
Compressors (2)	Rated load amps (total)	64.6		29.2		23.8		85.6		41.2		33.0		
	Locked rotor amps (total)	370.0		186.0		152.0		480.0		256.0		184.0		
Condenser Fan motors (2)	Full load amps (total)	8.6		*4.3		*3.4		8.6		*4.3		*3.4		
	Locked rotor amps (total)	43.2		*21.6		*17.3		43.2		*21.6		*17.3		
Evaporator Blower Motor	Motor	hp	3	5	3	5	3	5	5	7½	5	7½	5	7½
	Output	kW	2.2	3.7	2.2	3.7	2.2	3.7	3.7	5.6	3.7	5.6	3.7	5.6
	Full load amps		9.4	14.6	4.7	7.3	3.8	5.7	14.6	21.0	7.3	10.5	5.7	8.4
Locked rotor amps			64.0	92.0	32.0	46.0	25.6	36.8	92.0	140.0	46.0	70.0	36.8	56.0
Rec. Max. Fuse Size (amps)			110	125	50	50	45	45	150	150	70	80	90	90
Unit Power Factor			.85	.85	.85	.85	.85	.85	.90	.90	.90	.90	.90	.90
†Minimum Circuit Ampacity			91.1	97.3	41.2	44.0	37.0	38.9	120.9	128.4	57.5	60.9	50.3	53.0

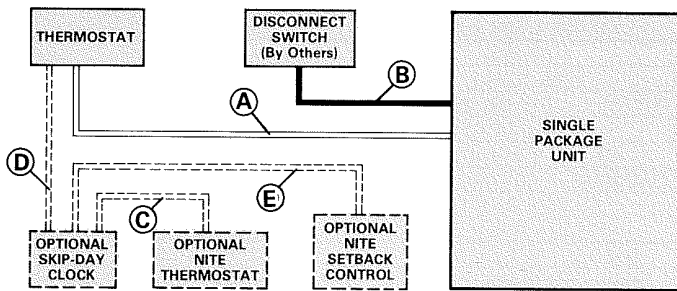
*Motors are rated at 230v, FLA shown is for step down transformer.

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

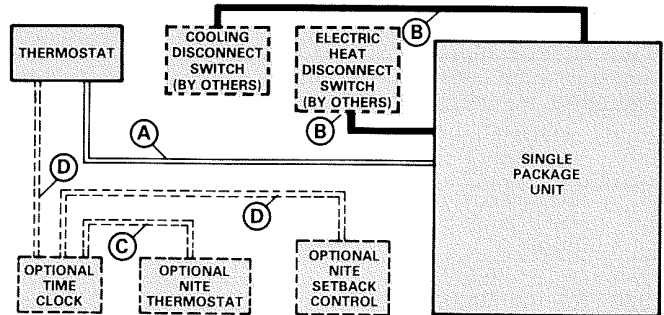
NOTE — Extremes of operating range are plus and minus 10% of line voltage.

FIELD WIRING

COOLING ONLY



COOLING AND ELECTRIC HEAT



NOTE — Connect main power supply to disconnect box with largest rating.

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

- A — *Four wire low voltage (Two Stage Cool Only)
 *Five wire low voltage (Two Stage Cool and Single Stage Heat)
 *Six wire low voltage (Two Stage Cool and Two Stage Heat)
 *If POWER SAVER and Nite Setback controls are used one additional wire is required.

- B — Three wire power (See Electrical Data Table)
 C — Two wire low voltage
 D — Two wire low voltage (Without POWER SAVER)
 Three wire low voltage (With POWER SAVER)

Additional field wiring is not required when POWER SAVER is used. All wiring is provided in CHA8 and in POWER SAVER, simply make plug-on connections to complete job for field installations.

OPTIONAL ELECTRIC HEAT DATA

CHA8-1853 AND CHA8-2753

Electric Heat Model No. & Net Weight lbs. (kg)	No. of Steps	Volts Input	kW Input	Btuh Output	†Minimum Circuit Ampacity
*TECH8-275-25 180 lbs. (82)	2	550	21.0	71,700	30.1
		600	25.0	85,300	
ECH8-275-963 200 lbs. (91)	1	208	21.1	72,400	85.0
		220	23.7	80,900	
		230	25.9	88,400	
ECH8-275-963-480 196 lbs. (89)	1	240	28.2	96,300	42.5
		440	23.7	80,900	
*TECH8-275-40 185 lbs. (84)	2	480	28.2	96,300	48.1
		550	33.6	114,700	
*TECH8-275-55 190 lbs. (86)	2	600	40.0	136,500	66.3
		550	46.2	157,700	
		600	55.0	187,700	

CHA8-1853 AND CHA8-2753

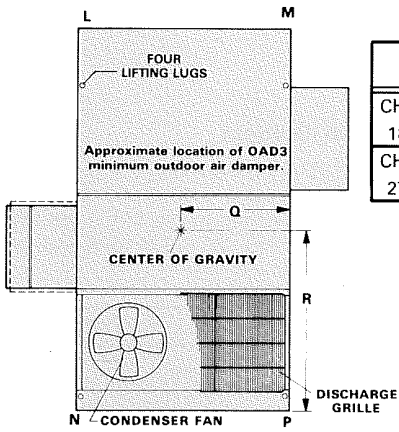
Electric Heat Model No. & Net Weight lbs. (kg)	No. of Steps	Volts Input	kW Input	Btuh Output	†Minimum Circuit Ampacity
*ECH8-275-1923 196 lbs. (89)	2	208	42.4	144,700	170.0
		220	47.4	161,800	
		230	51.8	176,800	
		240	56.4	192,500	
*ECH8-275-1923-480 195 lbs. (89)	2	440	47.4	161,800	85.0
		480	56.4	192,500	
*TECH8-275-70 195 lbs. (89)	3	550	58.8	200,700	84.3
		600	70.0	238,900	
*ECH8-275-2883 196 lbs. (89)	3	208	63.6	217,700	255.0
		220	71.1	242,700	
		230	77.7	265,200	
*ECH8-275-2883-480 195 lbs. (89)	3	240	84.6	288,700	127.5
		440	71.1	242,700	
*TECH8-275-88 200 lbs. (91)	4	480	84.6	288,700	106.0
		550	73.9	252,300	
		600	88.0	300,300	

NOTE — Cooling only applications require one disconnect switch. Heating-cooling applications require two disconnect switches, connect main power supply to switch with the largest rating. See field wiring diagrams.

†Refer to Canadian Electric Code manual to determine wire, fuse and disconnect size requirements.

*May be two-stage controlled.

DIMENSIONS — mm (inches)



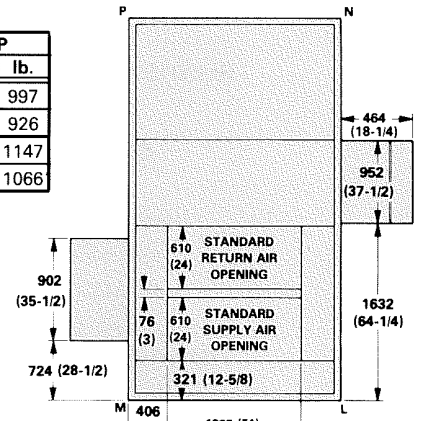
TOP VIEW

CORNER WEIGHTS

Model Number	L		M		N		P	
	kg	lb.	kg	lb.	kg	lb.	kg	lb.
CHA8-1853	221	487	249	550	373	822	420	926
CHA8-2753	267	588	287	633	450	993	484	1066

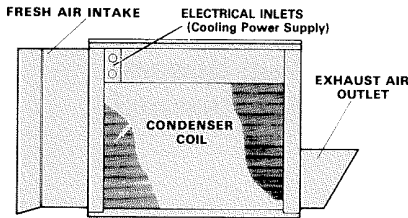
CENTER OF GRAVITY

Model Number	Q		R	
	mm	in.	mm	in.
CHA8-1853	1080	42-1/2	1321	52
CHA8-2753	1016	40	1295	51

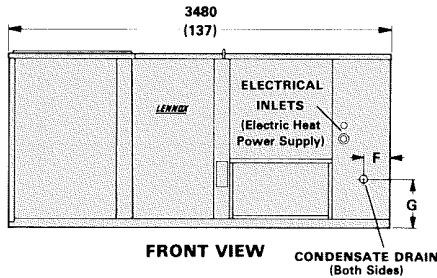


BOTTOM VIEW (Looking Down)

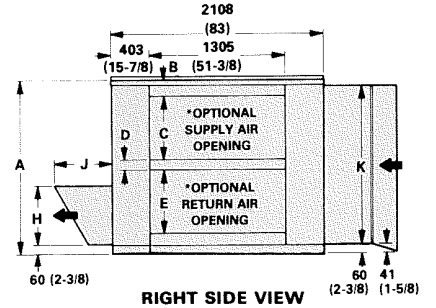
Optional End Supply and Return Air Discharge kit is required to convert from bottom air handling to end supply and return air pattern. See specifications table for ordering information.



LEFT SIDE VIEW



FRONT VIEW

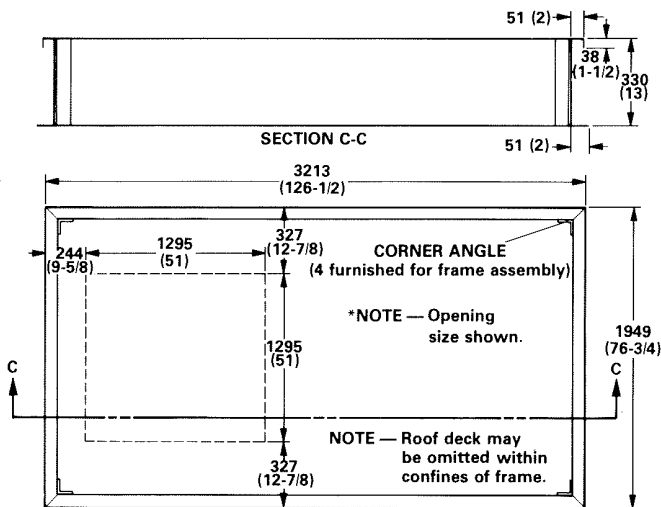


RIGHT SIDE VIEW

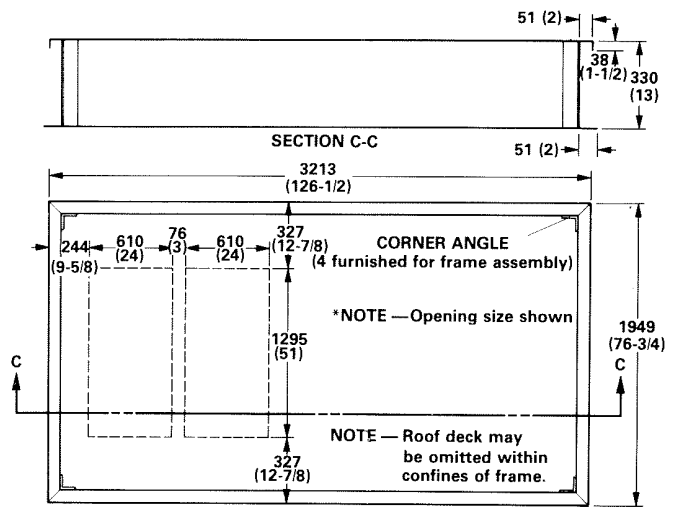
Model Number	A		B		C		D		E		F		G		H		J		K	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
CHA8-1853	1337	52-5/8	38	1-1/2	594	23-3/8	25	1	594	23-3/8	394	15-1/2	432	17	400	15-3/4	389	15-5/16	1238	48-3/4
CHA8-2753	1591	62-5/8	60	2-3/8	619	24-3/8	162	6-3/8	619	24-3/8	411	16-3/16	567	22-5/16	613	24-1/8	511	20-1/8	1492	58-3/4

RMF3-185/275 ROOF MOUNTING FRAME

COMBINATION CEILING SUPPLY AND RETURN APPLICATIONS



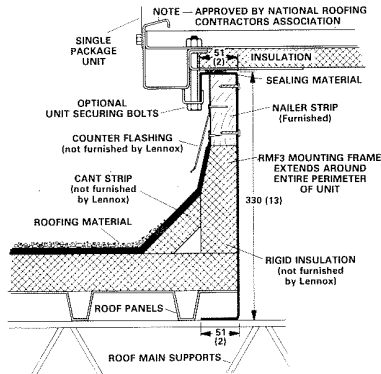
DOUBLE DUCT APPLICATIONS



DIMENSIONS — mm (inches)

RMF3 ROOF MOUNTING FRAME

RECOMMENDED FLASHING DETAIL

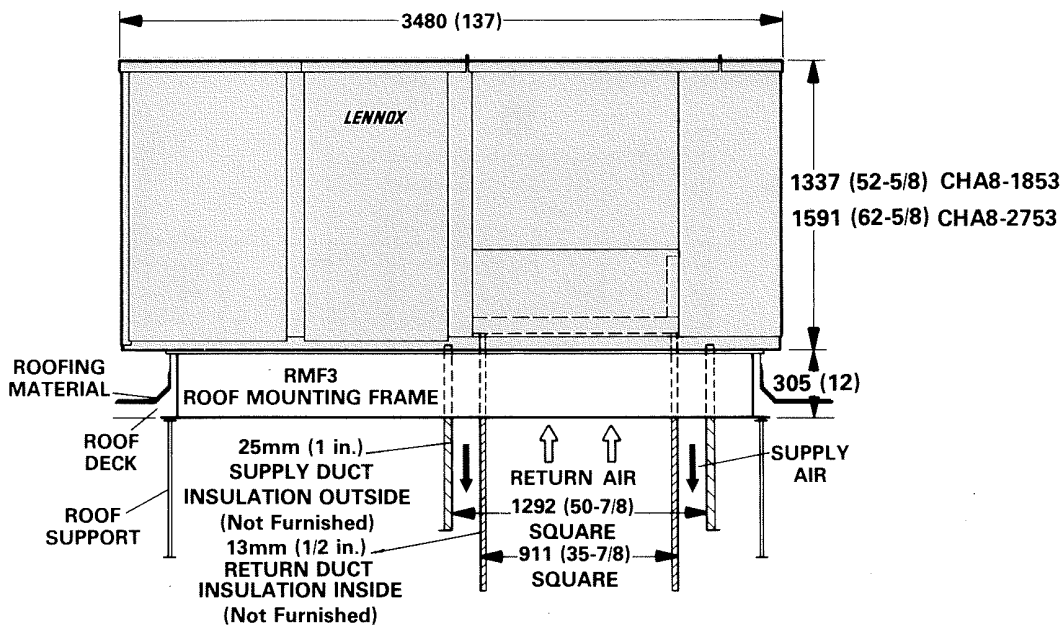


Frame Specifications

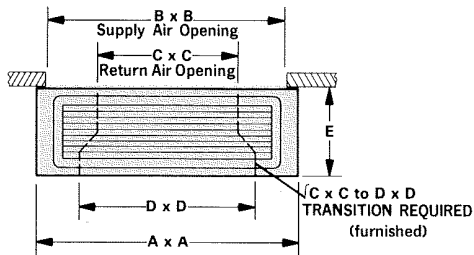
Roof Mounting Frame is rigid enough to be spanned over its entire length or cantilevered if supported on either side of the center of gravity. The side joint plate must be welded to the RMF3-185/275 frame if it is spanned more than 2032 mm (80 in.) or cantilevered more than 1016 mm (40 in.).

Mounting Frame Height	330 mm (13 inches)
Frame moment of inertia (I)	$2.91 \times 10^7 \text{ mm}^4$ (70 in. ⁴)
Frame section modulus $\frac{I}{c}$	$1.77 \times 10^5 \text{ mm}^3$ (10.8 in. ³)
Mounting frame weight	7.7 kg/m (5.3 lb./ft.)
Mounting frame design strength	138 MPa (20 000 psi)

COMBINATION CEILING SUPPLY AND RETURN AIR DISTRIBUTION SYSTEM



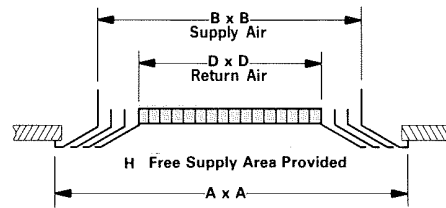
RTD Step-down



- (4) F x G Supply Air Grilles Furnished
- (1) D x D Return Air Grille Furnished

CEILING DIFFUSERS

FD Flush



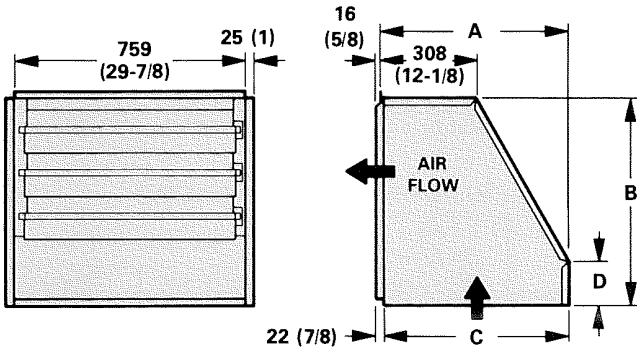
NOTE — Also available with adjustable baffle blades. Same dimensions as above.

Unit Model Number	Supply and Return Air Grille Model Number		A	B	C	D	E	F	G	H
CHA8-1853	RTD-185/275 step-down	mm	1524	1435	914	1067	381	1219	305	----
		in.	60	56-1/2	36	42	15	48	12	----
CHA8-2753	FD-185 Flush	mm	1441	1295	----	914	----	----	----	0.84 m ²
	*FD-185-D Flush	in.	56-3/4	51	----	36	----	----	----	9.06 sq. ft.
CHA8-2753	RTD-185/275 step-down	mm	1524	1435	914	1067	381	1219	305	----
		in.	60	56-1/2	36	42	15	48	12	----
CHA8-2753	FD-275 Flush	mm	1746	1600	----	1143	----	----	----	1.25 m ²
	*FD-275-D Flush	in.	68-3/4	63	----	45	----	----	----	13.50 sq. ft.

*Equipped with adjustable baffle blades.

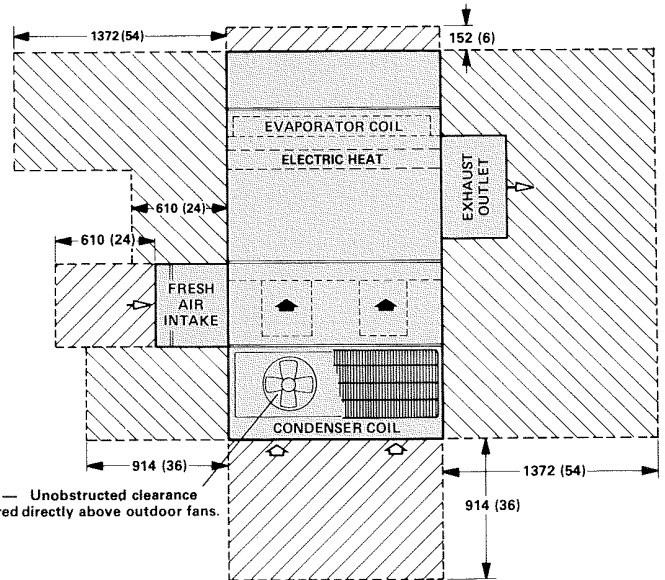
DIMENSIONS — mm (inches)

OAD3 SERIES DAMPER ASSEMBLY (Optional)



Unit	A		B		C		D	
	mm	in.	mm	in.	mm	in.	mm	in.
OAD3-185	565	22-1/4	698	27-1/2	559	22	273	10-3/4
OAD3-275	616	24-1/4	845	33-1/4	610	24	311	12-1/4

INSTALLATION CLEARANCES



BLOWER DATA

CHA8-1853 BLOWER PERFORMANCE CHART

Air Volume cfm (L/s)	STATIC PRESSURE EXTERNAL TO UNIT — Inches Water Gauge (Pascals)																					
	0		.10 (25)		.20 (50)		.30 (75)		.40 (100)		.50 (125)		.60 (150)		.70 (175)		.80 (200)		.90 (225)		1.0 (250)	
	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)
5000 (2360)	490	.95 (0.71)	530	1.15 (0.55)	570	1.30 (0.62)	605	1.40 (0.67)	635	1.55 (0.74)	670	1.70 (0.81)	700	1.85 (0.88)	730	2.00 (0.95)	760	2.15 (1.02)	785	2.30 (1.09)	815	2.50 (1.19)
5500 (2591)	540	1.30 (0.97)	575	1.45 (0.69)	615	1.65 (0.79)	645	1.80 (0.86)	675	1.95 (0.93)	705	2.10 (1.00)	735	2.25 (1.07)	765	2.40 (1.14)	790	2.60 (1.24)	820	2.80 (1.33)	840	2.95 (1.40)
6000 (2826)	590	1.70 (0.81)	620	1.85 (0.88)	650	2.00 (0.96)	685	2.20 (1.05)	715	2.40 (1.14)	740	2.60 (1.24)	775	2.80 (1.33)	800	3.00 (1.43)	825	3.15 (1.50)	850	3.30 (1.57)	875	3.50 (1.67)
6500 (3062)	640	2.15 (1.02)	670	2.35 (1.12)	700	2.55 (1.21)	725	2.70 (1.29)	750	2.85 (1.36)	780	3.05 (1.45)	810	3.30 (1.57)	835	3.50 (1.67)	860	3.65 (1.74)	885	3.85 (1.83)	910	4.10 (1.95)
7000 (3297)	685	2.65 (1.26)	715	2.90 (1.38)	740	3.10 (1.48)	770	3.30 (1.57)	800	3.50 (1.67)	825	3.70 (1.76)	850	3.90 (1.86)	875	4.15 (1.98)	900	4.35 (2.07)	920	4.55 (2.17)	940	4.75 (2.26)
7500 (3533)	735	3.25 (1.55)	765	3.45 (1.64)	790	3.70 (1.76)	815	3.95 (1.88)	840	4.15 (1.98)	865	4.35 (2.07)	890	4.60 (2.19)	910	4.80 (2.28)	930	5.00 (2.38)	955	5.25 (2.50)	980	5.55 (2.64)

NOTE — All cfm data is measured external to the unit using standard return air opening and with filters in place.

CHA8-2753 BLOWER PERFORMANCE CHART

Air Volume cfm (L/s)	STATIC PRESSURE EXTERNAL TO UNIT — Inches Water Gauge (Pascals)																					
	0		.10 (25)		.20 (50)		.30 (75)		.40 (100)		.50 (125)		.60 (150)		.70 (175)		.80 (200)		.90 (225)		1.0 (250)	
	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)
6500 (3062)	530	1.40 (0.67)	570	1.60 (0.76)	605	1.80 (0.86)	640	1.95 (0.93)	675	2.15 (1.02)	705	2.35 (1.12)	730	2.55 (1.21)	760	2.75 (1.31)	785	2.95 (1.40)	810	3.10 (1.48)	835	3.30 (1.57)
7000 (3297)	570	1.80 (0.86)	605	1.95 (0.93)	640	2.15 (1.02)	675	2.35 (1.12)	705	2.55 (1.21)	735	2.75 (1.31)	760	2.95 (1.40)	790	3.15 (1.50)	815	3.35 (1.59)	840	3.55 (1.69)	865	3.85 (1.83)
7500 (3533)	615	2.20 (1.05)	645	2.40 (1.14)	675	2.60 (1.24)	705	2.80 (1.33)	735	3.00 (1.43)	765	3.20 (1.52)	795	3.45 (1.64)	820	3.65 (1.74)	845	3.90 (1.86)	870	4.10 (1.95)	895	4.35 (2.07)
8000 (3768)	650	2.65 (1.26)	680	2.85 (1.36)	715	3.10 (1.48)	745	3.30 (1.57)	770	3.50 (1.67)	800	3.75 (1.79)	825	3.95 (1.88)	850	4.20 (2.00)	875	4.45 (2.12)	900	4.70 (2.24)	920	4.90 (2.33)
8500 (4004)	690	3.15 (1.50)	720	3.40 (1.62)	750	3.65 (1.74)	780	3.85 (1.83)	805	4.10 (1.95)	830	4.30 (2.05)	855	4.55 (2.17)	880	4.80 (2.28)	905	5.10 (2.43)	930	5.35 (2.55)	950	5.55 (2.64)
9000 (4239)	730	3.80 (1.81)	760	4.05 (1.93)	790	4.30 (2.05)	815	4.50 (2.14)	840	4.75 (2.26)	865	5.05 (2.40)	890	5.25 (2.50)	915	5.50 (2.62)	940	5.80 (2.76)	960	6.05 (2.88)	980	6.25 (2.98)
9500 (4475)	775	4.55 (2.17)	800	4.75 (2.26)	800	4.75 (2.26)	850	5.20 (2.48)	875	5.45 (2.59)	900	5.75 (2.74)	925	6.05 (2.88)	950	6.30 (3.00)	970	6.55 (3.12)	990	6.80 (3.24)	1015	7.15 (3.40)
10,000 (4710)	815	5.25 (2.50)	840	5.50 (2.62)	840	5.50 (2.62)	885	6.00 (2.86)	915	6.30 (3.00)	935	6.55 (3.12)	960	6.85 (3.26)	980	7.15 (3.40)	1000	7.40 (3.52)	1020	7.65 (3.64)	1040	7.95 (3.78)

NOTE — All cfm data is measured external to the unit using standard return air opening and with filters in place.

ACCESSORY PRESSURE DROP

Model No.	Air Volume		Total Pressure Drop — Inches Water Gauge (Pa.)				
			Power Saver	RTD Combination Supply and Return			FD Ceiling Supply & Return
	cfm	(L/s)		2 Sides Open	3 Sides Open	4 Sides Open	
CHA8-1853	5000	(2360)	.02 (5)	.55 (139)	.46 (116)	.42 (106)	.22 (55)
	5500	(2591)	.02 (5)	.64 (162)	.53 (134)	.47 (119)	.27 (68)
	6000	(2826)	.03 (7)	.73 (185)	.60 (152)	.54 (137)	.32 (81)
	6500	(3062)	.03 (7)	.84 (213)	.68 (172)	.60 (152)	.37 (93)
	7000	(3297)	.04 (10)	.95 (241)	.78 (198)	.67 (170)	.42 (106)
	75000	(3533)	.04 (10)	1.06 (269)	.86 (218)	.74 (187)	.47 (119)
CHA8-2753	6500	(3062)	.00 .00	.45 (114)	.39 (99)	.35 (88)	.17 (43)
	7000	(3297)	.00 .00	.53 (134)	.44 (111)	.39 (99)	.20 (50)
	7500	(3533)	.00 .00	.64 (162)	.50 (127)	.44 (111)	.24 (60)
	8000	(3768)	.00 .00	.79 (200)	.58 (147)	.51 (129)	.29 (73)
	8500	(4004)	.00 .00	----	.69 (175)	.60 (152)	.24 (60)
	9000	(4239)	.00 .00	----	.85 (215)	.70 (177)	.38 (9.6)
	9500	(4475)	.00 .00	----	----	.81 (205)	.43 (109)
	10,000	(4710)	.00 .00	----	----	.94 (238)	.49 (124)

NOTE — ECH8 electric heaters have no appreciable pressure drop.
 NOTE — Pressure drop includes grille and 3' (0.912m) of ductwork.
 NOTE — POWER SAVER has no appreciable pressure drop with CHA8-2753.

FD CEILING DIFFUSER RECOMMENDED MAX. AIR FLOW

Ceiling Height	ft.	8	9	10	12	15	20
		m	2.4	2.7	3.0	3.6	4.6
Air Flow per side	cfm	200	350	550	900	1500	4000
	L/s	94	165	259	424	707	1884

NOTE — This data is based on differentials between 15 and 25 degrees.

GUIDE SPECIFICATIONS

Prepared for the guidance of architects, consulting engineers and mechanical contractors.

General — Furnish and install a single package air to air DX mechanical cooling 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 Canada.

The installed weight shall not be more than lbs. (kg). Entire unit shall have a width of not more than inches (mm), a depth of not more than inches (mm) and an overall height of not more than inches (mm). The equipment shall be shipped completely factory assembled, precharged, piped and wired internally ready for field connections. In addition, manufacturer shall test operate system at the factory before shipment.

Approvals — Single package unit shall be listed by a certified agency. All wiring shall be in compliance with CEC.

Roof Mounting Frame — Furnish and 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. 13 inch (330mm) high frame shall be approved by National Roofing Contractors Association.

Air Distribution — Equipment shall be capable of bottom or end handling of conditioned air. All air distribution ducts shall be fiberglass or ga. galvanized steel insulated with inch (mm) thick lb. (kg) density fiberglass or equivalent.

Furnish and install a (flush or stepdown) optional combination ceiling supply and return air grille. It shall be capable of not less than ft. (m) radius of effective throw.

Cooling System — The total certified cooling capacity shall not be less than Btuh (kw) with an evaporator air volume of cfm (L/s), an entering wet bulb air temperature of °F (°C), an entering dry bulb air temperature of °F (°C) and a condenser entering temperature of °F (°C). The compressor power input shall not exceed kw at these conditions.

The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested. Coil face area shall be not less than sq. ft. (m²) (evaporator) and sq. ft. (m²) (condenser). Condenser coils shall have sub-cooling rows.

The compressor shall be resiliently mounted, have built-in 3 mode crankshaft lubrication, crankcase heater, discharge temperature limiter, current and temperature sensing motor overloads.

The cooling system shall be protected by high and low pressure switches and a five minute compressor timed off cycle controller.

DRIVE SELECTION

Model No.	Nominal Motor Hp (kW)	*Rpm Range of All Available Drive Setups @ 1720 Rpm Motor Speed
CHA8-1853	3 (2.2)	720-875
	5 (37)	815-970
CHA8-2753	5 (37)	740-890
	7-1/2 (55)	830-980

*Specify Bhp (kW), Rpm and power characteristics required when ordering.

CEILING SUPPLY AIR THROW DATA

Model No.	Air Volume cfm (L/s)	Radius of Diffusion — ft. (m)	
		*RTD Step Down	**Flush
CHA8-1853	6000 (2826)	40 (12)	30 (9)
	6750 (3179)	44 (13)	34 (10)
	7500 (3532)	47 (14)	38 (11)
CHA8-2753	8800 (4144)	51 (15)	33 (10)
	9900 (4662)	55 (16)	37 (11)

*Four sides open and terminates at a point where conditioned air reaches a velocity of 50 fpm (.25 m/s) at the ceiling.
 **Four sides open and terminates at a point where conditioned air reaches a velocity of 35 fpm (.175 m/s) at the ceiling.

Additive Electric Heaters — The certified total heating capacity output shall be Btuh (kw) with kw input at volts power supply.

Optional electric heaters shall be available. Heating elements shall be nichrome bare wired exposed directly to the air stream. They shall be equipped with fusible links. Time delays shall bring the elements on and off in sequence with a time delay between each element.

Cabinet — Shall be galvanized steel with a baked-on outdoor enamel paint finish. 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. Lifting lugs shall be provided for rigging.

Service Access — All components, wiring and inspection areas shall be completely accessible through removable panels.

Supply Air Blowers — Twin centrifugal blowers shall have permanently lubricated ball bearings, adjustable belt drive and motor mount where belt tension can be easily adjusted. The entire assembly shall be floated on resilient rubber mounts. Blower wheel shall be statically and dynamically balanced. Blower shall be capable of delivering cfm (L/s) at an external static pressure of inches water gauge (Pa) requiring bhp (kw) and rpm.

Condenser Fans — Twin propeller type condenser fans shall discharge vertically and be direct driven by a hp (kw) motor. Fan motor shall be totally enclosed with sleeve bearings, permanently lubricated, inherently protected and equipped with rain shield. Fan shall be protected by a steel guard.

Air Filters — Cleanable filters furnished shall have not less than sq. ft. (m²) of free area.

Power Saver (Fresh Air Dampers) — Furnish and install complete with all controls an air mixing damper assembly including fresh air, recirculated air and exhaust air dampers. The fresh air section shall be equipped with cleanable air filters. The assembly shall mount within the confines of the CHA8 casing. Damper motor shall be 24 volt, modulating spring return.

Night Setback Controls — Complete controls shall be available to program the equipment for day-night operation.

Remote Readout Panel — Shall be available for installation within the conditioned area to control and observe equipment operation. The panel shall include signal lights to indicate: system on, combustion lockout, condensing unit inoperative and dirty filter. 7 day time clock, factory installed in the unit, shall provide night setback.

Blower Powered Mixing Damper Boxes — Shall be available for zone control system applications. Furnish and install complete with controls an air mixing blower powered unit including conditioned air dampers, recirculated air dampers and direct drive blower(s). Capable of delivering Cfm (L/s), at an external static pressure of inches (Pa) water gauge. The blower powered unit shall install in the duct system within the structure.