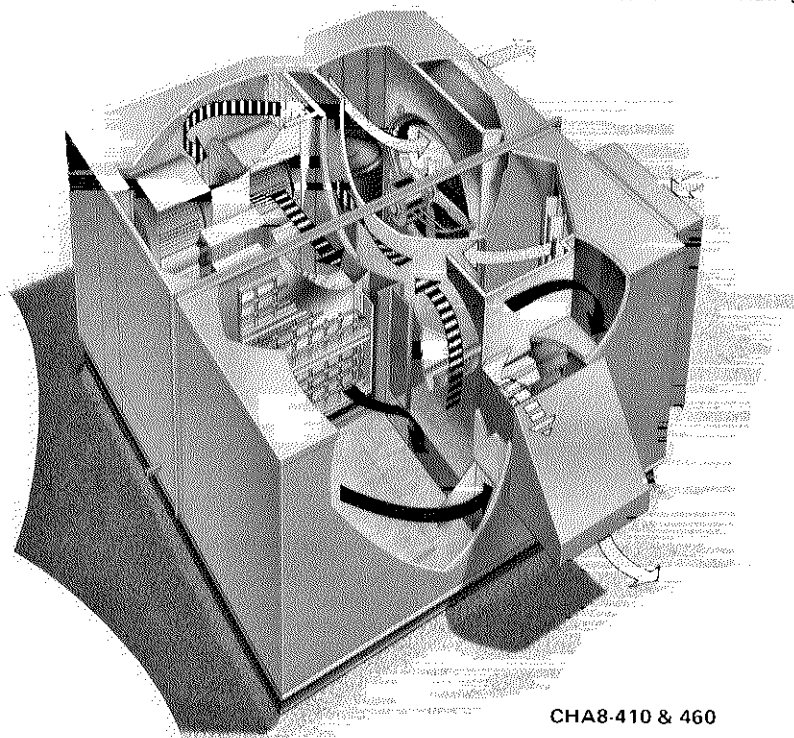




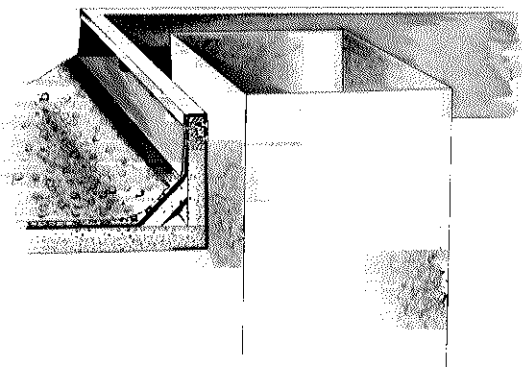
**SINGLE PACKAGE AIR CONDITIONER
 CHA8-411-413 AND CHA8-461-463
 HORIZONTAL AND DOWN-FLO**
 *37,000 to 42,000 Btuh Total Cooling Capacity
 24,000 to 112,500 Btuh Optional Electric Heat

*ARI Certified Ratings



CHA8-410 & 460

(With optional POWER SAVER, electric heat and roof mounting frame)



Roof Mounting Frame Detail

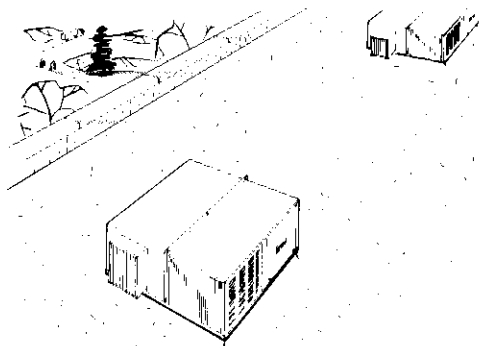
Optional roofmounting frame (RMF3-46) is used whenever RT8 duct enclosure or RD8 POWER SAVER^{T.M.} is used. The frame extends around the entire perimeter of the CHA8 and RT8 or RD8. Duct connection and entry into the conditioned area are accomplished within the confines of the weatherproof frame.

Installation Flexibility Featured in Single Package Air Conditioning Unit

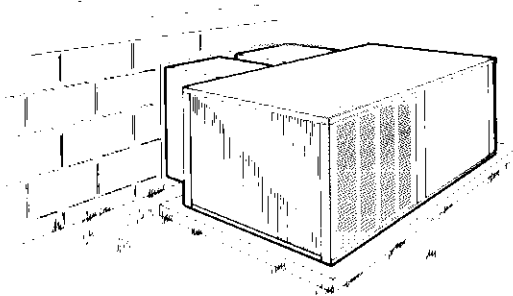
Single package concept and optional roof mounting frame are Lennox exclusive features and give Lennox rooftop equipment a big edge over competition both in appearance and installation procedures. Primarily designed for installation on a rooftop with the optional RT8 duct enclosure or RD8 POWER SAVER^{T.M.}, it can also be installed on a slab at grade level with end handling of conditioned air. The single package unit contains all refrigeration components (evaporator and condenser units) air movers, air filters, and optional electrical heat in one complete package. The optional RT8 or RD8 duct

enclosure and RMF3 mounting frame easily adapt to the CHA8 unit. The mounting frame mates to the bottom of the CHA8 and duct enclosure and when flashed into the roof permits weatherproof duct connection and entry to the conditioned area. No additional roof curbing or flashing is required. Optional POWER SAVER and controls (RD8) reduce cooling costs and satisfy any local code fresh air requirements. Externally mounted optional minimum fresh air damper (manual) is also available. A choice of 208V and 230V single phase or 208V thru 480V three phase models is available.

Applications



Rooftop Installation with Optional POWER SAVER



Unit on slab at grade level

FEATURES

Thoroughly Test and Approved—Air conditioning system has been completely tested in the Lennox calorimeter room and the ratings are ARI certified. U.L. Listing is pending on air conditioning equipment and optional electric heat. Units are factory test operated.

Refrigeration System—Complete factory sealed refrigeration system consists of compressor, evaporator coil and twin blowers, condenser coil and fan, refrigerant drier, refrigerant lines connected, and a full charge of refrigerant. Controls consist of pressure switches, compressor relay and overload protection.

No Refrigerant Charging On The Job—Refrigeration system is completely charged. No expensive and time consuming charging procedures are necessary.

Dependable Compressor—Resiliently mounted compressor carries a full five year warranty. Suction cooled. CHA8 461 463 compressor only is equipped with suction and liquid line valves. Overload protected and equipped with effective slugging protection.

Lennox Coils—Extra large coils (evaporator and condenser) are constructed of ripple-edge aluminum fins machine "flat" fitted to seamless copper tubes. This provides more contact area and excellent heat transfer. Coils are pressure leak tested at 450 to 500 psi. Condenser coil has sub-cooling rows for increased efficiency.

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 to interior of cabinet.

Thick Insulation Interior—All of the interior panels where conditioned air is handled are lined with 1-1/2" thick fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass. In addition the bottom of unit is insulated with 1" thick fiberglass insulation.

Efficient Condenser Fan—Direct drive axial flow fan moves large air volumes through the entire condenser coil resulting in high refrigerant cooling capacity. Air enters unit through louvered panel and is discharged through coil at side of unit. An optional top exhaust hood is available for top discharge of condenser coil air. Order No. BM-4513.

Powerful Blowers—Twin direct drive blowers deliver large air volumes with low power consumption. A transformer speed controller provides a choice of four blower speeds, high (1)—high (2)—medium—low.

Cleanable Air Filter—Washable or vacuum cleanable polyurethane one inch thick media is furnished as standard. It is easily accessible for cleaning and is coated with oil for increased efficiency. Use RP products filter coating No. 418 when reoiling.

Thermostat (Optional)—Due to the many types of applications possible a thermostat is not furnished as standard, it must be ordered extra. For cooling only applications a single stage cooling thermostat is required. When optional electric heat is ordered a heating-cooling thermostat is required.

Assembled Unit—Equipment is shipped completely assembled, wired and piped ready to install. Installer has only to set unit, connect ductwork, power supply and thermostat wire. Completely assembled CHA8 unit and optional RD8 or RT8 duct enclosures are easily hoisted to rooftop level by hoisting lugs provided in top of units.

Electric Heat (Optional)—Available for field installation. The heating elements are helix wound Nichrome wire exposed to the air stream resulting in rapid heat transfer, lower coil temperatures and a long life. The elements are accurately located and insulated from the plated supporting frame by high quality insulators.

Optional Mounting Frame—The RMF3-46 mounting frame is available for mounting the RT8 or RD8 duct enclosure and CHA8 unit. Frame provides an automatic weather sealed rooftop installation. The frame is actually built into and flashed to the roof structure. Approved by National Roofing Contractors Association.

Optional Minimum Fresh Air Damper—Externally mounted in RT8-46 duct enclosure. See dimension drawing. Equipped with manually operated damper.

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

Nite Setback Controls (Optional)—A nite thermostat (P-8-3403) and sub-base (P-8-3404) is available. Two nite setback kits are provided: BM-4762 includes a manual nite setback switch and a stainless steel mounting plate. Plate mounts to one standard electrical switch box, furnished by installer, located within the wall. Kit BM-4761 includes a manual set 12 hour clock nite setback timer and a stainless steel mounting plate. Plate mounts to two electrical switch boxes, furnished by installer, located within the wall. In order to receive the plate, sufficient clearance should be provided between the electrical switch box and any door or window. A skip-day clock (P-8-3744) to program this unit automatically is also available. Clock is required with kit (BM-4761) and is optional with kit (BM-4762).

Optional RD8 POWER SAVER And RT8 Duct Enclosure—Application flexibility is possible with the options available as follows:

- 1—Completely assembled RD8-46 Power Saver and Duct Enclosure:
 - A—With wired and linked Power Saver Installed.
 - a—With hole cut for combination ceiling supply and return distribution.
 - b—With holes cut for distribution ducts.
 - 2—Completely assembled RT8-46 duct enclosure.
 - A—Without Power Saver (Power Saver cannot be added to RT8, if Power Saver is required order RD8-46).
 - a—With hole cut for combination ceiling supply and return distribution.
 - b—With holes cut for distribution ducts.

POWER SAVER Operation—The entire Power Saver control system is factory installed and wired, simply make plug-in connections to complete the job. The only field wiring required is when the optional night setback thermostat is used. The basic control system consists of:

1—**LENNOX DO-3-S** 24 volt, spring return multi-position damper motor with motor and gear train sealed in non-temperature sensitive oil. It controls the position of the outdoor air, recirculated air and pressure relief dampers as dictated by the room thermostat and controlled by the following:

2—**Mixed Air Temperature Controller**—This adjustable highly sensitive device controls the damper motor to position the dampers to give the selected mixed air temperature. The inherent quick sensing of this control coupled with the fast acting Lennox damper motor gives in effect modulated control of the entering mixed air temperature.

3—**Compressor Monitor**—An outdoor thermostat switch (adjustable) which locks out compressor operation below approximately 58F outdoor air temperature. This allows the outdoor air to handle the entire cooling load below 58F.

4—**Outdoor Air Monitor**—A temperature sensing control (adjustable) which returns the outdoor air dampers to minimum when the outdoor air has more heat than recirculated room air; usually set at 70F.

5—**Climate Selection Switch**—A manually operated toggle switch with one position labeled "Dry Climate—Maximum Power Saving" and the other labeled "Humid Climate—Maximum De-humidification." In the "Dry Climate" position, above the Compressor Monitor temperature setting (usually 58F) and below the Outdoor Air Monitor setting (usually 70F) the outdoor air damper can open 100% as dictated by the mixed air temperature controller. This provides the maximum "Free Cooling" benefits from the outdoor air. In the "Humid Climate" position above 58F and below 70F, the outdoor air damper can open 100% (controlled by mixed air temperature controller) only when the compressor is operating. This gives maximum dehumidification because in moist climates the humid outdoor air enters the structure in maximum quantity only when the compressor is operating, thus "drying out" the air.

6—**Room Thermostat**—The Lennox Power Saver will co-operate perfectly with any heating-cooling thermostat. It is the brain center that commands the aforementioned heating, cooling, cooling with outdoor air and ventilation cycles.

SPECIFICATIONS

Model No.		CHA8-411-413	CHA8-461-463
Cooling Capacity ARI Certified	Total capacity Btuh	37,000	1142,000
	Total unit watts	5600	116300
	Dehumidifying capacity	26%	25%
Blower wheel nom. diam. x wid. (in.)		(2) 9 x 7	(2) 9 x 7
Blower Motor hp.		1/2	1/2
Refrigerant (R-22) charge		8 lbs.	8 lbs. 5 oz.
Condenser Coil	Net face area (sq ft)	5.73	6.88
	Tube diam. (in.) & No. of rows	1/2-3	1/2-3
	Fins per inch	13	13
Condenser Fan	Diam. (in.) & No. of blades	20-4	20-4
	Air volume (factory setting)	2600	2600
	Motor hp	1/4	1/4
Evaporator Coil	Net face area (sq ft)	3.75	4.58
	Tube diam. (in.) & No. of rows	1/2-3	1/2-3
	Fins per inch	10	10
†No. & size of filters (in.)		(1) 28 x 28 x 1	(1) 28 x 28 x 1
Condensate drain size (FPT in.)		3/4	3/4
Net weight of basic unit (lbs.) (1-Pkg.)		570	600
Optional Combination Ceiling Supply And Return Step Down Diffuser		RTD-41 -- *35 lbs.	RTD-41 -- *35 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.	FD-65 -- *26 lbs. **FD-65-D -- *33 lbs.
Optional Duct Enclosure (Without Power Saver)		RT8-46 -- *100 lbs.	
Optional Duct Enclosure with Power Saver & Controls installed		RD8-46 -- *225 lbs.	
Optional Roof Mounting Frame		RMF3-46 -- *100 lbs.	
Optional Minimum Fresh Air Damper		OAD3-46 -- *7 lbs.	

NOTE--Rated in accordance with ARI Standard 210; 450 cfm evaporator air volume per ton of cooling capacity, 95F outdoor air temperature and 80db/67wb entering evaporator air.

†Cleanable polyurethane filter media.

*Net weight

**Flush diffuser with adjustable dampers.

††At 230v, single phase. 41,000 Btuh and 6300 total unit watts at 208v, single phase.

RATINGS

Unit Model No.	Evaporator Air 80 F 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
CHA8- 411-413	63	1200	35,900	.89	4120	32,800	.92	4400	29,500	.94	4680	26,700	.99	5050
		1350	37,400	.92	4170	34,600	.96	4460	31,000	.97	4740	28,000	.99	5100
		1500	38,800	.93	4220	36,000	.98	4520	32,500	.99	4800	29,400	1.00	5140
	67	1200	39,300	.67	4240	36,500	.72	4540	32,700	.75	4810	29,500	.79	5150
		1350	40,400	.71	4280	38,000	.74	4600	34,300	.78	4870	30,800	.81	5200
		1500	41,500	.73	4310	39,500	.75	4650	35,800	.80	4930	32,200	.83	5250
	71	1200	41,600	.53	4320	40,000	.54	4670	36,200	.56	4950	33,000	.58	5280
		1350	42,200	.55	4340	41,200	.56	4710	38,600	.59	5030	34,300	.61	5330
		1500	43,000	.57	4360	43,800	.58	4800	39,400	.60	5060	35,500	.62	5370
CHA8- 461-463	63	1400	41,200	.90	4700	37,500	.94	5000	34,500	.96	5400	30,200	.98	5720
		1575	42,900	.92	4880	40,000	.96	5120	36,100	.97	5470	31,600	.99	5800
		1750	44,200	.94	4900	41,200	.98	5180	37,200	.99	5530	32,600	1.00	5850
	67	1400	44,900	.70	4980	41,900	.72	5220	37,500	.77	5550	32,500	.81	5860
		1575	46,100	.73	5040	43,500	.75	5300	38,900	.80	5620	34,000	.85	5970
		1750	47,500	.76	5110	44,700	.78	5370	40,200	.83	5680	35,900	.88	6020
	71	1400	47,800	.54	5130	44,800	.56	5380	40,600	.58	5700	36,200	.59	6030
		1575	48,600	.56	5160	46,000	.58	5430	42,100	.60	5780	37,800	.61	6120
		1750	49,500	.58	5200	47,400	.59	5500	43,500	.61	5850	39,400	.62	6200

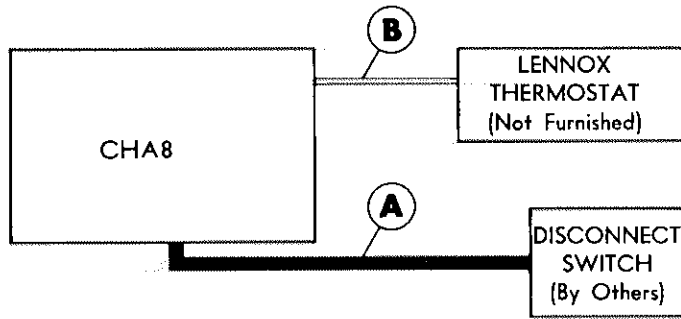
ELECTRIC HEAT RATINGS

CHA8-411-413 AND CHA8-461-463 ELECTRIC HEAT DATA

CHA8 Model No.	*Optional Electric Unit Model No.	No. of Steps	Volts Input	Electric Heat Kw Input	Electric Heat Btuh Output	Electric Heat Amps	Maximum Unit Amps	AWG Wire Size	Time Delay Fuse Fusetron (Amps)	Disconnect Rating	
										Hp	Amps
CHA8-411 CHA8-461	ECH8-46-321 (50 lbs.)	2	208	7.1	24,000	34.0	38.0	6	50	10	----
			220	7.9	27,000	35.9	39.9	6	60	10	----
			230	8.6	29,500	37.6	41.6	6	60	10	----
			240	9.4	32,000	39.2	43.2	6	60	10	----
	ECH8-46-641 (54 lbs.)	4	208	14.1	48,000	68.0	72.0	2	100	----	100
			220	15.8	54,000	71.8	75.8	1	100	----	100
			230	17.3	59,000	75.2	79.2	1	110	----	200
			240	18.8	64,000	78.4	82.4	1	110	----	200
CHA8-411	ECH8-46-801 (56 lbs.)	5	208	17.7	60,000	85.0	89.0	2	125	----	200
			220	19.8	67,500	89.8	93.8	1	125	----	200
			230	21.6	73,750	94.0	98.0	1	125	----	200
			240	23.5	80,000	98.0	102.0	1	150	----	200
CHA8-461	ECH8-46-961 (58 lbs.)	6	208	21.2	72,000	102.0	106.0	2	125	----	200
			220	23.8	81,000	107.8	111.8	1	125	----	200
			230	26.0	88,500	112.8	116.8	1	125	----	200
			240	28.2	96,000	117.6	121.6	1	150	----	200
CHA8-413 CHA8-463	ECH8-46-293 (60 lbs.)	1	208	6.2	21,000	17.2	21.2	10	30	10	----
			220	6.9	23,600	18.2	22.2	10	30	10	----
			230	7.6	25,900	19.1	23.1	10	30	10	----
			240	8.3	28,200	19.9	23.9	8	35	10	----
	ECH8-46-593 (64 lbs.)	2	208	12.4	42,200	34.5	38.5	6	50	20	----
			220	13.9	47,200	36.6	40.6	6	60	20	----
			230	15.2	51,800	38.3	42.3	6	60	20	----
			240	16.6	56,400	39.9	43.9	6	60	20	----
	ECH8-46-883 (68 lbs.)	3	208	18.6	63,300	51.6	55.6	3	80	25	----
			220	20.8	70,800	54.7	58.7	3	80	25	----
			230	22.7	77,700	57.1	61.1	3	80	25	----
			240	24.8	84,800	59.7	63.7	3	80	25	----
	ECH8-46-373-480 (58 lbs.)	1	440	9.2	31,500	12.1	14.1	12	20	15	----
			480	11.0	37,500	13.2	15.2	12	20	15	----
	ECH8-46-753-480 (60 lbs.)	2	440	18.5	63,000	24.3	26.3	8	35	25	----
			480	22.0	75,000	26.5	28.5	8	40	25	----
ECH8-46-1123-480 (62 lbs.)	3	440	27.7	94,500	36.4	38.4	6	50	40	----	
		480	33.0	112,500	39.7	41.7	6	60	40	----	

*Includes net weight of electric unit.

FIELD WIRING



A—Two or three wire power—see electrical data table

All wiring must conform to NEC and local electrical codes.

B—Three wire low voltage—18 ga. minimum (cooling only installation)
Four wire low voltage—18 ga. minimum (all-season installation)

If local electrical code permits may be class 2 wiring.

No additional field wiring is required when POWER SAVER is used. All wiring is provided in CHA8 and in POWER SAVER, simply make plug-in connections to complete job. If optional night set-back control is desired six wire thermostat wire is required in place of standard 5 wire cable. Simple jumper connections must be made at the thermostat panel. If clock timer is used, field wiring from timer to thermostat panel must be furnished by the installer, see installation instructions.

ELECTRICAL DATA

Model No.	CHA8-411		CHA8-413		CHA8-461	CHA8-463		
	208v 60 cy-1 ph	230v 60 cy-1 ph	208/240v 60 cy-3 ph	440/480v 60 cy-3 ph	208/230v 60 cy-1 ph	208/240v 60 cy-3 ph	440/480v 60 cy-3 ph	
Compressor	Full load amps	24.3	22.0	14.7	7.4	25.0	16.6	8.3
	Power factor	.92	.92	.85	.85	.92	.85	.85
	Locked rotor amps	110.0	100.0	72.0	35.0	107.0	87.0	45.0
Condenser Coil Fan	Full load amps	2.6	2.6	2.6	*1.3	2.6	2.6	*1.3
	Locked rotor amps	5.4	5.4	5.4	2.7	5.4	5.4	2.7
Evaporator Coil Blower	Full load amps	4.0	4.0	4.0	*2.0	4.0	4.0	*2.0
	Locked rotor amps	6.9	6.9	6.9	3.5	6.9	6.9	3.5
Maximum unit amps	30.9	28.6	21.3	10.7	31.6	23.2	11.6	
AWG wire size	1' to 100' run	8	8	10	14	8	10	14
	101' to 200' run	6	6	8	12	6	8	12
Time delay fuse, fusetron (amps)	40	40	30	15	40	30	15	
Maximum allowable fuse (amps)	60	50	35	20	60	40	20	
Disconnect rating (hp)	7-1/2	7-1/2	10	10	7-1/2	10	10	

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

NOTE—If other than time delay fuses are used the next larger amp rating may be required.

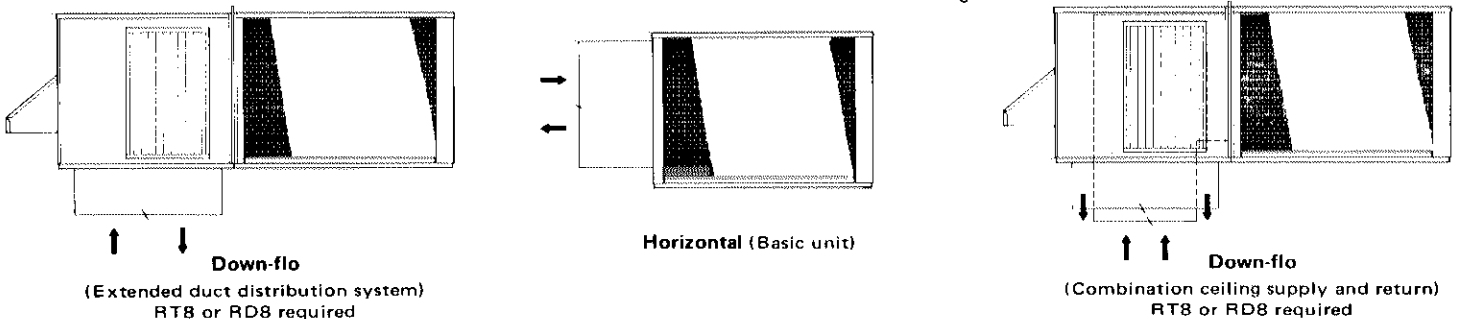
NOTE—All fuses, disconnect and wiring must conform to NEC and local codes. Wire sizes are according to NEC for copper conductors.

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

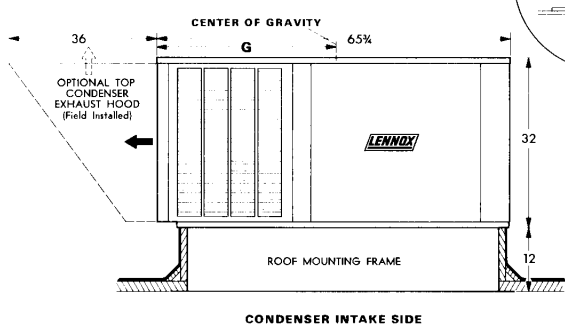
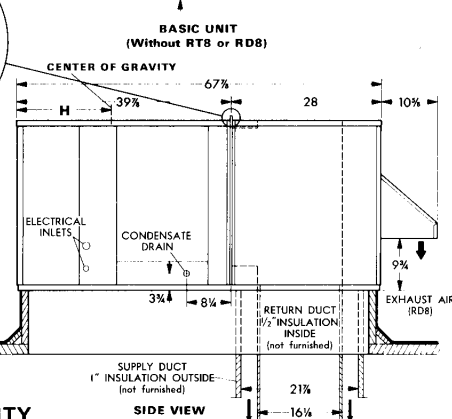
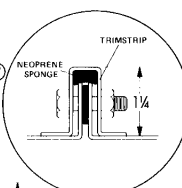
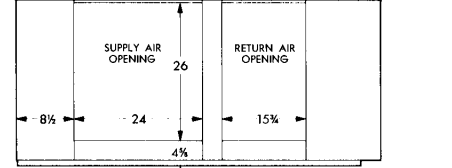
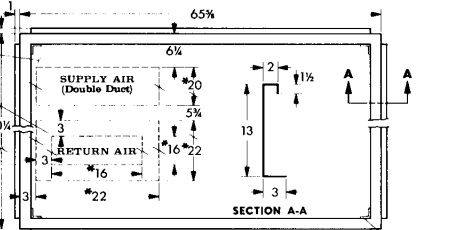
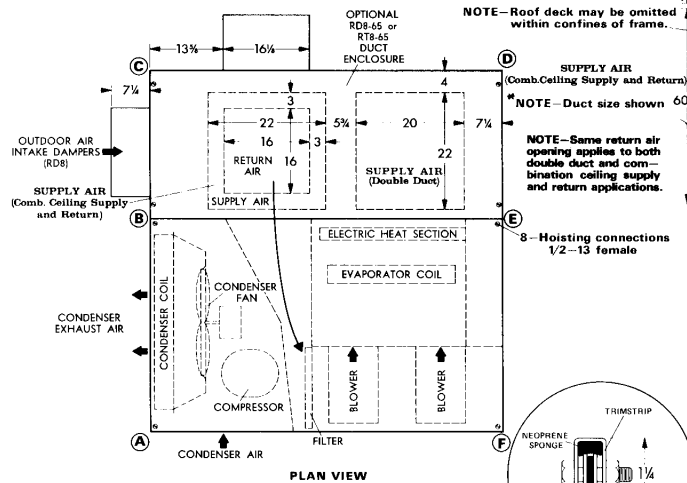
AIR PATTERN

Three Air Patterns Possible

Basic unit is horizontal with end delivery of conditioned air. Use of optional RT8 duct enclosure or RD8 POWER SAVER allows bottom handling of conditioned air.



DIMENSIONS (in.)



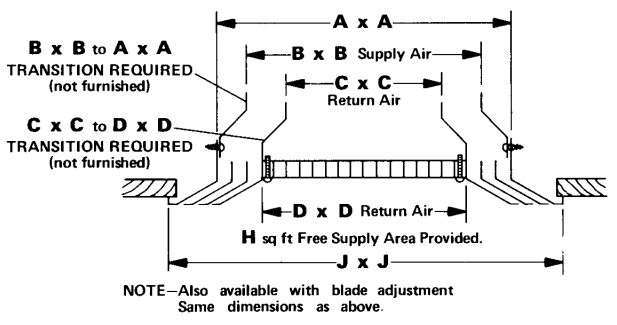
CORNER WEIGHTS (lbs.)

Unit	A	B	C	D	E	F
Basic Unit	164	130	----	----	136	170
With RT8	230	----	122	120	----	228
With RD8	258	----	178	159	----	230

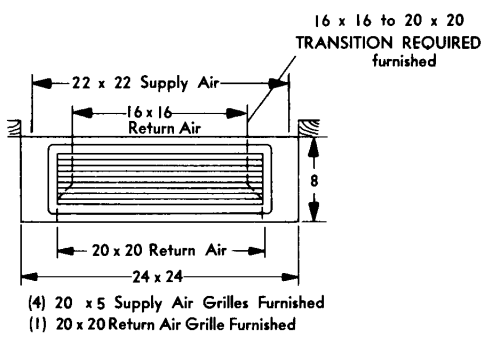
CENTER OF GRAVITY

Unit	G	H
Basic Unit	33-1/2	17-3/4
With RT8	32-3/4	23-1/2
With RD8	31	27-3/4

FLUSH CEILING GRILLE

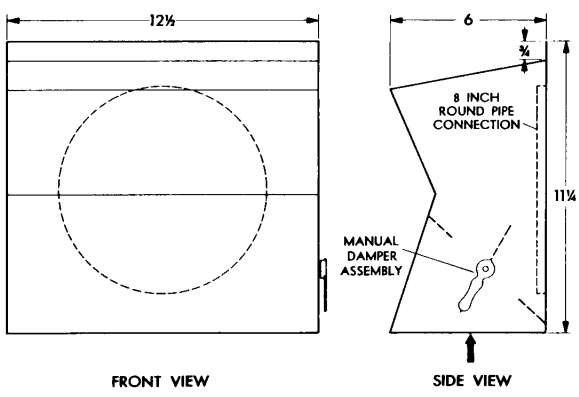


RTD-41 STEP DOWN GRILLE

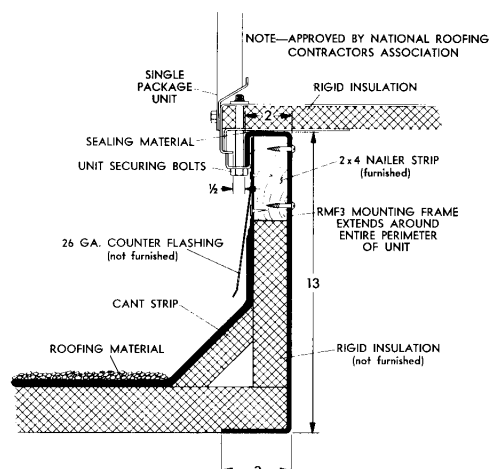


Unit Model No.	Supply and Return Air Grille Model No.	A	B	C	D	H	J
CHA8-411-413	FD-41	24	22	16	18	1.75 sq. ft.	29-3/4
CHA8-411-413	FD-41-D (Adj. Baffle Blades)	24	22	16	18	1.75 sq. ft.	29-3/4
CHA8-411-413	FD-65	30	22	16	21	3.18 sq. ft.	35-3/4
CHA8-461-463	FD-65-D (Adj. Baffle Blades)	30	22	16	21	3.18 sq. ft.	35-3/4

OPTIONAL OAD3-46 MINIMUM FRESH AIR DAMPER



RECOMMENDED FLASHING FOR RMF3 ROOF MOUNTING FRAME



BLOWER DATA

CHA8-411-413 BLOWER PERFORMANCE

External S. P. In. Wg.	Air Volume at Various Controller Speeds (cfm)			
	High (1)	High (2)	Medium	Low
0	2100	1960	1815	1620
.05	2055	1920	1780	1610
.10	2000	1875	1740	1590
.15	1940	1820	1700	1565
.20	1870	1765	1650	1535
.25	1800	1705	1600	1500
.30	1735	1640	1550	1455
.40	1590	1500	1430	1350
.50	1435	1430	1290	1220
.60	1265	1185	1130	1070
.70	1090	1000	950	900

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

CHA8-461-463 BLOWER PERFORMANCE

External S. P. In. Wg.	Air Volume at Various Controller Speeds (cfm)			
	High (1)	High (2)	Medium	Low
0	2115	1970	1825	1625
.05	2070	1940	1805	1610
.10	2020	1905	1775	1595
.15	1975	1860	1740	1575
.20	1915	1805	1690	1550
.25	1860	1750	1640	1515
.30	1800	1685	1580	1475
.40	1670	1545	1455	1375
.50	1510	1395	1310	1250
.60	1330	1215	1150	1090
.70	1125	1030	975	915

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

CHA8-411-413 BLOWER PERFORMANCE WITH RD8-46 AND DUCT DISTRIBUTION

External S. P. In. Wg.	Air Volume at Various Controller Speeds (cfm)			
	High (1)	High (2)	Medium	Low
0	1785	1680	1605	1495
.05	1730	1630	1555	1455
.10	1680	1575	1505	1415
.15	1625	1515	1450	1370
.20	1565	1460	1400	1320
.25	1500	1400	1340	1270
.30	1435	1340	1280	1220
.40	1290	1205	1160	1105
.50	1135	1065	1025	980
.60	960	910	880	---

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

CHA8-461-463 BLOWER PERFORMANCE WITH RD8-46 AND DUCT DISTRIBUTION

External S. P. In. Wg.	Air Volume at Various Controller Speeds (cfm)			
	High (1)	High (2)	Medium	Low
0	1800	1705	1620	1510
.05	1755	1655	1570	1470
.10	1705	1605	1525	1430
.15	1655	1545	1470	1380
.20	1595	1485	1415	1340
.25	1535	1425	1355	1285
.30	1470	1360	1300	1230
.40	1325	1230	1175	1120
.50	1165	1085	1035	990

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

CHA8-411-413 WITH RD8-46 AND CEILING SUPPLY & RETURN

Blower Speed Controller Setting	Cfm @ various controller speeds With Various Discharge Grille Arrangements				
	FD-41 or FD-41-D Flush Model	FD-65 or FD-65-D Flush Model	RTD-41 Step-Down Model		
			2 Sides Open	3 Sides Open	4 Sides Open
	High (1)	1240	1395	1370	1440
High (2)	1215	1360	1330	1400	1425
Medium	1195	1330	1305	1365	1390
Low	1170	1290	1270	1325	1340

CHA8-461-463 WITH RD8-46 AND CEILING SUPPLY & RETURN

Blower Speed Controller Setting	Cfm @ Various Controller Speeds With Various Discharge Grille Arrangements			
	FD-65 or FD-65-D Flush Model	RTD-41 Step-Down Model		
		2 Sides Open	3 Sides Open	4 Sides Open
	High (1)	1420	1410	1470
High (2)	1370	1360	1415	1440
Medium	1335	1325	1370	1395
Low	1300	1290	1335	1355

RTD-41 CEILING GRILLE AIR THROW DATA

RTD-41 Step Down Model	Air Volume (cfm)	*Effective Throw (ft.)		
		Horiz. Vanes 180° straight	Horiz. Vanes 22° down	Horiz. Vanes 45° down
Two Sides Open	1200	48	42	29
	1400	54	48	33
	1600	60	54	37
Three Sides Open	1200	34	30	26
	1400	39	34	24
	1600	44	33	27
Four Sides Open	1200	27	24	17
	1400	30	26	19
	1600	34	29	21

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

FLUSH CEILING GRILLE AIR THROW DATA

Grille Model No.	Air Volume (cfm)	*Effective Throw (ft.)
FD-41 and FD-41-D	1000	14
	1200	16
	1400	18
	1600	21
FD-65 and FD-65-D	1200	11
	1350	12
	1500	14
	2000	18
	2250	20

*Terminated at a point where conditioned air velocity has decreased to 50 fpm.