

**LENNOX**<sup>®</sup>

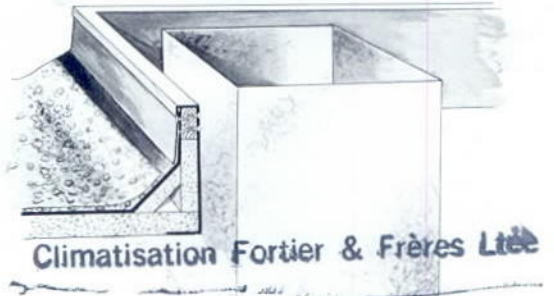
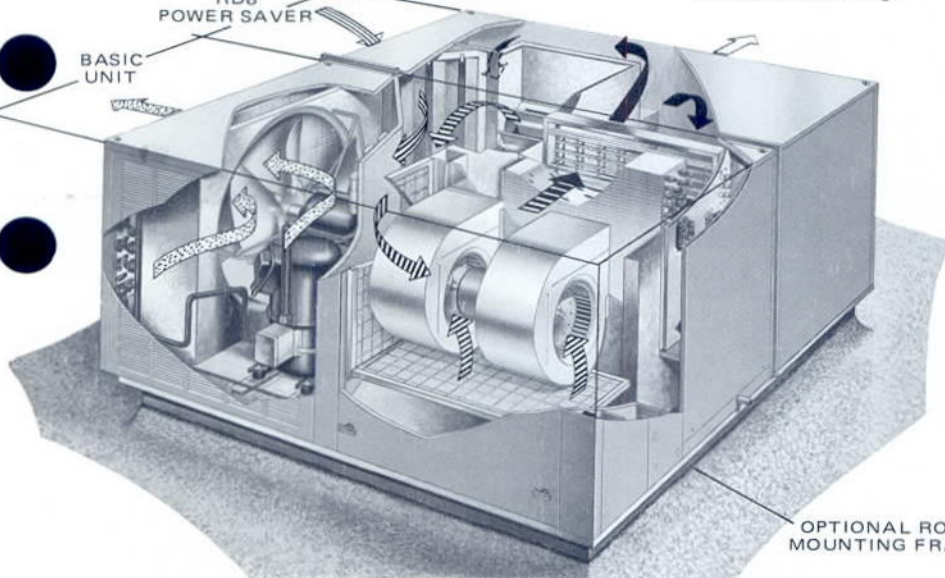
**SINGLE PACKAGE AIR CONDITIONER  
 CHA8-511-513 AND CHA8-651-653  
 HORIZONTAL AND DOWN-FLO**

**\*49,000 to 59,000 Btuh Total Cooling Capacity  
 21,000 to 112,500 Btuh Optional Electric Heat**

\*ARI Certified Ratings

OPTIONAL  
 RD8  
 POWER SAVER

BASIC  
 UNIT



**Climatisation Fortier & Frères Ltée**

OPTIONAL ROOF  
 MOUNTING FRAME

**Optional Roof Mounting Frame Detail**

Weatherproof frame (RMF3-65) is used whenever RT8 duct enclosure or RD8 POWER SAVER™ 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 frame.

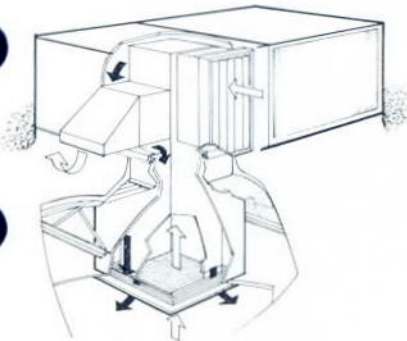
**CHA8-651-653**  
 (With optional POWER SAVER™, electric heat and roof mounting frame)

**Installation Flexibility Featured in Single Package Air Conditioning Unit**

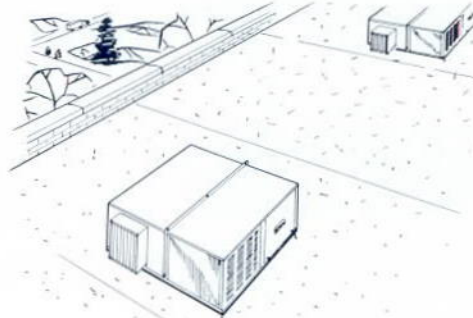
The CHA8 series DX cooling units are designed primarily for rooftop installation with the RT8 duct enclosure or RD8 POWER SAVER and RMF3 roof mounting frame. The separate roof frame mates to the bottom of the CHA8 and RT8 or RD8 and when flashed into the roof permits weatherproof duct connection and entry into the conditioned area. No additional roof curbing or flashing is required. The assembled CHA8 and RT8 or RD8 are easily hoisted to rooftop level by lifting lugs factory installed on the equipment. 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 direct drive blowers, air filters and optional electric heat. 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 consists of high and low pressure switches, compressor relay and overload protection. Optional POWER SAVER (RD8) and controls reduce cooling costs. Externally mounted fresh air damper (manual) is also available. Units are shipped completely assembled, wired and piped ready to install. Installer has only to set unit, connect ductwork, power supply and thermostat field wiring connections.

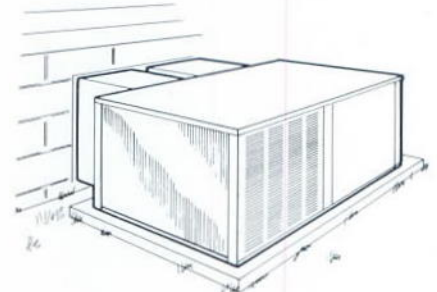
**Typical Applications**



Combination ceiling supply and return air application. Step-down or flush diffuser available.



Rooftop installation with optional RD8 POWER SAVER. Use of optional RD8 POWER SAVER or RT8 duct enclosure allows bottom handling of conditioned air.



Basic unit on a slab at grade level with end delivery of conditioned air.

NOTE—Specifications, ratings and dimensions subject to change without notice.

**Thoroughly Tested and Approved**—Air conditioning system has been tested and rated in the Lennox environmental test room according to ARI Standard 210 and listed by C.S.A. as certified. 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 Btuh or less) carry the ARI certification seal. Air conditioning equipment and optional electric heating are U.L. Listed. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L. and NEC. Units are test operated at the factory before shipment.

**Dependable Compressor**—Resiliently mounted in the unit and in addition the entire running gear assembly is spring mounted within the sealed can. It is suction cooled and equipped with suction and discharge pressure test ports. Overload protected and equipped with effective slugging protection.

**Lennox Coils**—Extra large coils (evaporator and condenser) are constructed of ripple-edged aluminum fins machine fitted to seamless copper tubes. This provides more contact area and excellent heat transfer. Coils are pressure leak tested at 450 to 500 psi.

**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 Interior Insulation**—All of the interior panels where conditioned air is handled are lined with thick fiberglass insulation. In addition the entire bottom of unit is also insulated with thick fiberglass insulation.

**Efficient Condenser Fan**—Direct drive 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-4186.

**Powerful Blowers**—Twin direct drive blowers deliver large air volumes with low power consumption. Equipped with a transformer speed controller giving a choice of three blower speeds, high-medium-low.

**Cleanable Air Filter**—One inch frame filters are furnished as standard. Media is washable or vacuum cleanable polyurethane. It is easily accessible for cleaning and is coated with oil for increased efficiency. Use RP products filter coating No. 418 when reoilng.

**Optional Thermostat**—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. For two stage electric heat an additional relay (P-8-3250) is required and must be ordered extra.

**Optional Electric Heat**—Available for field installation in 9.4 thru 33.0 kw sizes. See electric heat table. 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 RMF3-65 mounting frame is available for mounting the RT8 or RD8 duct enclosure and CHA8 unit. Frame provides an automatic weather sealed rooftop installation. Approved by National Roofing Contractors Association. A securing bolt kit (BM-6908), containing bolts to secure unit to frame, is available as optional equipment and must be ordered extra.

**Combination Supply and Return Diffusers (Optional)**—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.

**Optional Supply and Return Duct**—Provides connection of combination supply and return 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 Specification table for order no. and mounting detail drawings for dimensions.

**Optional Minimum Fresh Air Damper**—Externally mounted in RT8-65 duct enclosure. Equipped with manually operated damper and necessary fittings for installing.

**Optional Nite Setback Controls**—A nite thermostat (P-8-8899), subbase (P-8-8890) and adaptor plate (P-8-8954) (to adapt to vertical outlet box) is available. Two nite setback kits are available. BM-4762 includes a manual nite setback switch and stainless steel mounting plate. Plate mounts to two standard electrical outlet boxes, furnished by installer, located within the wall. Kit BM-4761 includes a manual set 12 hour nite setback timer and a stainless steel mounting plate. Plate mounts to two standard electrical outlet boxes, furnished by installer, located within the wall. In order to receive the plate, sufficient clearance should be provided between outlet 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 Remote Readout Panel**—Readout panel (BM2-5358) and Rough-In Box (BM1-5358) must be ordered extra. See bulletin in Accessories Section for complete data. When panel is used for nite setback operation the following controls must be used and ordered extra; nite thermostat (P-8-8899), subbase (P-8-8890), adaptor plate (P-8-8954) and skip-day clock (P-8-3744).

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

1—Completely assembled RD8-65 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 RT8-65 duct enclosure:

A—Without Power Saver (Power Saver cannot be added to RT8, if Power Saver is required order RD8-65)

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. The thermostat commands the aforementioned heating, cooling, cooling with outdoor air and ventilation cycles.

## SPECIFICATIONS

| Model No.  |                                | CHA8-511-513                                       | CHA8-651-653                                       |
|--|--------------------------------|--|--|
| † Cooling Capacity<br>ARI Certified                                  | Total capacity (Btuh)          | 49,000   | 59,000   |
|  | Total unit watts               | 7400   | 8800   |
|  | Dehumidifying capacity         | 23%  | 26%  |
| Blower wheel nom. diam. x wid. (in.)                                 |                                | (2) 10 x 6   | (2) 10 x 6   |
| Blower Motor hp.   |                                | 1/2  | 1/2  |
| Refrigerant (R-22) charge  |                                | 8 lbs. 12 oz.                                      | 8 lbs. 11 oz.                                      |
| Condenser<br>Coil  | Net face area (sq. ft.)        | 6.95   | 8.33   |
|  | Tube diam. (in.) & No. of rows | 1/2-3  | 1/2-3  |
|  | Fins per inch                  | 13   | 13   |
| Condenser<br>Fan   | Diam. (in.) & No. of blades    | 26-5   | 26-5   |
|  | Air volume (factory setting)   | 4100   | 4320   |
|  | Motor hp                       | 1/2  | 1/2  |
|  | Motor watts (factory setting)  | 670  | 670  |
| Evaporator<br>Coil   | Net face area (sq. ft.)        | 3.75   | 4.58   |
|  | Tube diam. (in.) & No. of rows | 1/2-4  | 1/2-4  |
|  | Fins per inch                  | 10   | 10   |
| ††No. & size of filters (in.)  |                                | (1) 16-1/2 x 31-1/2 x 1<br>(1) 16-1/2 x 27-7/8 x 1 | (1) 16-1/2 x 31-1/2 x 1<br>(1) 16-1/2 x 27-7/8 x 1 |
| Condensate drain size MPT (in.)                                      |                                | 3/4  | 3/4  |
| Net weight of basic units (lbs) (1-Pkg.)                             |                                | 770  | 800  |
| Optional Duct Enclosure<br>(Without Power Saver)                     |                                | RT8-65 - *229 lbs.                                 |  |
| Optional Duct Enclosure with Power<br>Saver & Controls installed     |                                | RD8-65 - *350 lbs.                                 |  |
| Optional Roof Mounting Frame   |                                | RMF3-65 - *100 lbs.                                |  |
| Optional Minimum Fresh Air Damper                                    |                                | OAD3-65 - *7 lbs.                                  |  |
| Optional Combination Ceiling Supply<br>And Return Step Down Diffuser |                                | RTD-65 - *52 lbs.                                  |  |
| Optional Combination Ceiling Supply<br>And Return Flush Diffuser     |                                | FD-65 - *26 lbs.                                   |  |
|  |                                | **FD-65-D - *33 lbs.                               |  |
| Combination Supply &<br>Return Air Duct                              | RTD Diffuser                   | P-8-9592- *36 lbs.                                 |  |
|  | FD Diffuser                    |  |  |

†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 baffle blades.

## RATINGS

| Unit<br>Model<br>No. | Evaporator Air<br>80F Dry Bulb            |                                 | Outdoor Air Temperature Entering Condenser (F) |  |                                  |  |  |                                  |  |  |                                  |  |  |                                  |
|----------------------|---|---------------------------------|--|--|----------------------------------|--|--|----------------------------------|--|--|----------------------------------|--|--|----------------------------------|
|                      |   |                                 | 85   |  |                                  | 95                                     |  |                                  | 105                                    |  |                                  | 115                                    |  |                                  |
|                      | Entering<br>Wet<br>Bulb<br>Degrees<br>(F) | Total<br>Air<br>Volume<br>(Cfm) | Total<br>Cooling<br>Capacity<br>(Btuh)         | Sensible<br>To Total<br>Ratio<br>(S/T) | Comp.<br>Motor<br>Input<br>Watts | Total<br>Cooling<br>Capacity<br>(Btuh) | Sensible<br>To Total<br>Ratio<br>(S/T) | Comp.<br>Motor<br>Input<br>Watts | Total<br>Cooling<br>Capacity<br>(Btuh) | Sensible<br>To Total<br>Ratio<br>(S/T) | Comp.<br>Motor<br>Input<br>Watts | Total<br>Cooling<br>Capacity<br>(Btuh) | Sensible<br>To Total<br>Ratio<br>(S/T) | Comp.<br>Motor<br>Input<br>Watts |
| CHA8-511-513         | 63  | 1600                            | 51,200   | .87                                    | 5430                             | 46,800                                 | .91                                    | 5690                             | 43,000                                 | .94                                    | 6100                             | 38,900                                 | .97                                    | 6430                             |
|                      |   | 1800                            | 52,700   | .88                                    | 5510                             | 48,700                                 | .92                                    | 5820                             | 44,800                                 | .96                                    | 6230                             | 40,400                                 | .99                                    | 6560                             |
|                      |   | 2000                            | 54,000   | .89                                    | 5590                             | 49,800                                 | .94                                    | 5890                             | 46,000                                 | .98                                    | 6320                             | 41,500                                 | 1.00                                   | 6650                             |
|                      | 67  | 1600                            | 54,300   | .69                                    | 5600                             | 50,200                                 | .73                                    | 5920                             | 46,100                                 | .76                                    | 6330                             | 41,500                                 | .84                                    | 6650                             |
|                      |   | 1800                            | 55,500   | .72                                    | 5670                             | 51,300                                 | .76                                    | 5990                             | 47,200                                 | .79                                    | 6420                             | 42,500                                 | .85                                    | 6750                             |
|                      |   | 2000                            | 56,600   | .76                                    | 5730                             | 52,300                                 | .79                                    | 6060                             | 48,000                                 | .82                                    | 6480                             | 43,500                                 | .86                                    | 6820                             |
|                      | 71  | 1600                            | 57,800   | .54                                    | 5800                             | 54,000                                 | .56                                    | 6170                             | 50,500                                 | .57                                    | 6660                             | 46,500                                 | .59                                    | 7080                             |
|                      |   | 1800                            | 58,900   | .55                                    | 5860                             | 55,100                                 | .57                                    | 6250                             | 51,500                                 | .59                                    | 6740                             | 47,500                                 | .61                                    | 7160                             |
|                      |   | 2000                            | 59,800   | .56                                    | 5910                             | 56,400                                 | .59                                    | 6330                             | 52,800                                 | .61                                    | 6830                             | 48,400                                 | .63                                    | 7240                             |
| CHA8-651-653         | 63  | 2000                            | 58,500   | .85                                    | 6570                             | 55,000                                 | .88                                    | 6950                             | 49,800                                 | .92                                    | 7240                             | 44,200                                 | .96                                    | 7670                             |
|                      |   | 2250                            | 60,300   | .87                                    | 6670                             | 57,200                                 | .90                                    | 7080                             | 52,000                                 | .94                                    | 7380                             | 46,500                                 | .98                                    | 7830                             |
|                      |   | 2500                            | 61,700   | .90                                    | 6740                             | 58,700                                 | .92                                    | 7170                             | 54,100                                 | .96                                    | 7520                             | 48,800                                 | 1.00                                   | 8000                             |
|                      | 67  | 2000                            | 61,800   | .71                                    | 6750                             | 59,100                                 | .73                                    | 7190                             | 54,200                                 | .75                                    | 7520                             | 48,900                                 | .78                                    | 8000                             |
|                      |   | 2250                            | 63,500   | .72                                    | 6830                             | 60,800                                 | .74                                    | 7290                             | 56,100                                 | .77                                    | 7660                             | 51,100                                 | .79                                    | 8170                             |
|                      |   | 2500                            | 64,700   | .73                                    | 6900                             | 62,200                                 | .75                                    | 7370                             | 57,700                                 | .78                                    | 7760                             | 52,800                                 | .81                                    | 8300                             |
|                      | 71  | 2000                            | 64,800   | .53                                    | 6900                             | 62,200                                 | .54                                    | 7370                             | 57,600                                 | .56                                    | 7760                             | 52,800                                 | .57                                    | 8300                             |
|                      |   | 2250                            | 66,100   | .55                                    | 6970                             | 63,500                                 | .56                                    | 7450                             | 59,200                                 | .57                                    | 7860                             | 54,300                                 | .58                                    | 8410                             |
|                      |   | 2500                            | 67,300   | .56                                    | 7040                             | 64,900                                 | .57                                    | 7530                             | 61,000                                 | .58                                    | 7980                             | 56,200                                 | .60                                    | 8520                             |

## ELECTRIC HEAT

### CHA8-511-513 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 |
|----------------|-----------------------------------|--------------|-------------|------------------------|---------------------------|--------------------|-------------------|---------------|---------------------------------|----------------------|
| CHA8-511       | ECH8-65-321<br>(55 lbs.)          | 2            | 208         | 7.1                    | 24,000                    | 34.0               | 38.0              | 6             | 50                              | 7-1/2                |
|                |                                   |              | 220         | 7.9                    | 27,000                    | 35.9               | 39.9              | 6             | 50                              | 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                   |
|                | ECH8-65-641<br>(59 lbs.)          | 4            | 208         | 14.1                   | 48,000                    | 68.0               | 72.0              | 2             | 90                              | 20                   |
|                |                                   |              | 220         | 15.8                   | 54,000                    | 71.8               | 75.8              | 1             | 100                             | 20                   |
|                |                                   |              | 230         | 17.3                   | 59,000                    | 75.2               | 79.2              | 1             | 100                             | 20                   |
|                |                                   |              | 240         | 18.8                   | 64,000                    | 78.4               | 82.4              | 1             | 110                             | 20                   |
|                | ECH8-65-961<br>(63 lbs.)          | 6            | 208         | 21.2                   | 72,000                    | 102.0              | 106.0             | 00            | 150                             | 25                   |
|                |                                   |              | 220         | 23.8                   | 81,000                    | 107.8              | 111.8             | 000           | 150                             | 30                   |
|                |                                   |              | 230         | 26.0                   | 88,500                    | 112.8              | 116.8             | 000           | 150                             | 30                   |
|                |                                   |              | 240         | 28.2                   | 96,000                    | 117.6              | 121.6             | 000           | 175                             | 30                   |
| CHA8-513       | ECH8-65-293<br>(65 lbs.)          | 1            | 208         | 6.2                    | 21,000                    | 17.2               | 25.6              | 8             | 35                              | 15                   |
|                |                                   |              | 220         | 6.9                    | 23,600                    | 18.2               | 25.6              | 8             | 35                              | 15                   |
|                |                                   |              | 230         | 7.6                    | 25,900                    | 19.1               | 25.6              | 8             | 35                              | 15                   |
|                |                                   |              | 240         | 8.3                    | 28,200                    | 19.9               | 25.6              | 8             | 35                              | 15                   |
|                | ECH8-65-593<br>(69 lbs.)          | 2            | 208         | 12.4                   | 42,200                    | 34.5               | 38.5              | 6             | 50                              | 15                   |
|                |                                   |              | 220         | 13.9                   | 47,200                    | 36.6               | 40.6              | 6             | 50                              | 15                   |
|                |                                   |              | 230         | 15.2                   | 51,800                    | 38.3               | 42.3              | 6             | 60                              | 20                   |
|                |                                   |              | 240         | 16.6                   | 56,400                    | 39.9               | 43.9              | 6             | 60                              | 20                   |
|                | ECH8-65-883<br>(73 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                   |
|                | ECH8-65-373-480<br>(63 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                   |
|                | ECH8-65-753-480<br>(65 lbs.)      | 2            | 440         | 18.5                   | 63,000                    | 24.3               | 26.3              | 8             | 35                              | 20                   |
|                |                                   |              | 480         | 22.0                   | 75,000                    | 26.5               | 28.5              | 8             | 35                              | 20                   |
|                | ECH8-65-1123-480<br>(67 lbs.)     | 3            | 440         | 27.7                   | 94,500                    | 36.4               | 38.4              | 6             | 50                              | 30                   |
|                |                                   |              | 480         | 33.0                   | 112,500                   | 39.7               | 41.7              | 6             | 60                              | 40                   |

\*Includes net weight of electric units.

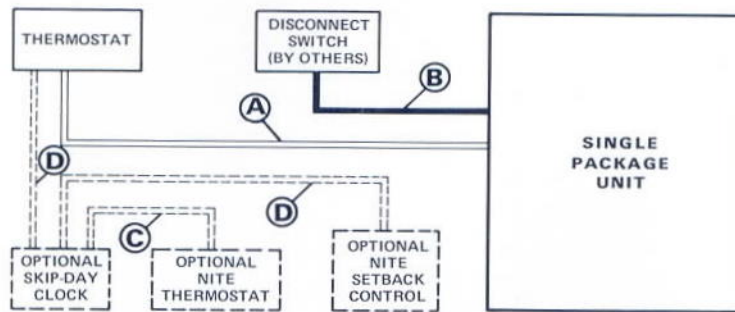
## ELECTRIC HEAT

### CHA8-651-653 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 |
|----------------|-----------------------------------|--------------|-------------|------------------------|---------------------------|--------------------|-------------------|---------------|---------------------------------|----------------------|
| CHA8-651       | ECH8-65-321<br>(55 lbs.)          | 2            | 208         | 7.1                    | 24,000                    | 34.0               | 40.4              | 6             | 50                              | 7-1/2                |
|                |                                   |              | 220         | 7.9                    | 27,000                    | 35.9               | 40.4              | 6             | 50                              | 10                   |
|                |                                   |              | 230         | 8.6                    | 29,500                    | 37.6               | 40.4              | 6             | 60                              | 10                   |
|                |                                   |              | 240         | 9.4                    | 32,000                    | 39.2               | 40.4              | 6             | 60                              | 10                   |
|                | ECH8-65-641<br>(59 lbs.)          | 4            | 208         | 14.1                   | 48,000                    | 68.0               | 72.0              | 2             | 90                              | 20                   |
|                |                                   |              | 220         | 15.8                   | 54,000                    | 71.8               | 75.8              | 1             | 100                             | 20                   |
|                |                                   |              | 230         | 17.3                   | 59,000                    | 75.2               | 79.2              | 1             | 100                             | 20                   |
|                |                                   |              | 240         | 18.8                   | 64,000                    | 78.4               | 82.4              | 1             | 110                             | 20                   |
|                | ECH8-65-961<br>(63 lbs.)          | 6            | 208         | 21.2                   | 72,000                    | 102.0              | 106.0             | 00            | 125                             | 25                   |
|                |                                   |              | 220         | 23.8                   | 81,000                    | 107.8              | 111.8             | 000           | 150                             | 30                   |
|                |                                   |              | 230         | 26.0                   | 88,500                    | 112.8              | 116.8             | 000           | 150                             | 30                   |
|                |                                   |              | 240         | 28.2                   | 96,000                    | 117.6              | 121.6             | 000           | 150                             | 30                   |
|                | ECH8-65-1121<br>(65 lbs.)         | 7            | 208         | 24.7                   | 84,000                    | 119.0              | 123.0             | 000           | 175                             | 25                   |
|                |                                   |              | 220         | 27.7                   | 94,500                    | 125.7              | 129.7             | 0000          | 175                             | 30                   |
|                |                                   |              | 230         | 30.3                   | 103,250                   | 131.6              | 135.6             | 0000          | 175                             | 30                   |
|                |                                   |              | 240         | 32.9                   | 112,000                   | 137.2              | 141.2             | 0000          | 200                             | 30                   |
| CHA8-653       | ECH8-65-293<br>(65 lbs.)          | 1            | 208         | 6.2                    | 21,100                    | 17.2               | 28.7              | 8             | 35                              | 15                   |
|                |                                   |              | 220         | 6.9                    | 23,600                    | 18.2               | 28.7              | 8             | 35                              | 15                   |
|                |                                   |              | 230         | 7.6                    | 25,900                    | 19.1               | 28.7              | 8             | 35                              | 15                   |
|                |                                   |              | 240         | 8.3                    | 28,200                    | 19.9               | 28.7              | 8             | 35                              | 15                   |
|                | ECH8-65-593<br>(69 lbs.)          | 2            | 208         | 12.4                   | 42,200                    | 34.5               | 38.5              | 6             | 50                              | 15                   |
|                |                                   |              | 220         | 13.9                   | 47,200                    | 36.6               | 40.6              | 6             | 50                              | 15                   |
|                |                                   |              | 230         | 15.2                   | 51,800                    | 38.3               | 42.3              | 6             | 60                              | 20                   |
|                |                                   |              | 240         | 16.6                   | 56,400                    | 39.9               | 43.9              | 6             | 60                              | 20                   |
|                | ECH8-65-883<br>(73 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                   |
|                | ECH8-65-373-480<br>(63 lbs.)      | 1            | 440         | 9.2                    | 31,500                    | 12.1               | 14.4              | 12            | 20                              | 15                   |
|                |                                   |              | 480         | 11.0                   | 37,500                    | 13.2               | 15.2              | 12            | 20                              | 15                   |
|                | ECH8-65-753-480<br>(65 lbs.)      | 2            | 440         | 18.5                   | 63,000                    | 24.3               | 26.3              | 8             | 35                              | 20                   |
|                |                                   |              | 480         | 22.0                   | 75,000                    | 26.5               | 28.5              | 8             | 35                              | 20                   |
|                | ECH8-65-1123-480<br>(67 lbs.)     | 3            | 440         | 27.7                   | 94,500                    | 36.4               | 38.4              | 6             | 50                              | 30                   |
|                |                                   |              | 480         | 33.0                   | 112,500                   | 39.7               | 41.7              | 6             | 60                              | 40                   |

\*Includes net weight of electric units.

## FIELD WIRING



A—\*Three wire low voltage (Single Stage Cool Only)

\*Four wire low voltage (Single Stage Cool and Single Stage Heat)

\*Five wire low voltage (Single Stage Cool and Two Stage Heat)

\*If POWER SAVER and Nite Setback controls are used one additional wire is required.

B—Two or 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)

All wiring must conform to NEC and local electrical codes.

If local electrical code permits may be class 2 wiring.

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

## ELECTRICAL DATA

### AIR CONDITIONER ONLY

| Model No.                        | CHA8-511              | CHA8-513              |                       | CHA8-651          | CHA8-653          |                       |                       |                   |      |
|----------------------------------|-----------------------|-----------------------|-----------------------|-------------------|-------------------|-----------------------|-----------------------|-------------------|------|
| Line voltage data                | 208/230v<br>60cy, 1ph | 208/240v<br>60cy, 3ph | 440/480v<br>60cy, 3ph | 550v<br>60cy, 3ph | 230v<br>60cy, 1ph | 208/240v<br>60cy, 3ph | 440/480v<br>60cy, 3ph | 550v<br>60cy, 3ph |      |
| Compressor                       | Full load amps        | 27.2                  | 18.2                  | 9.1               | 7.3               | 33.0                  | 21.3                  | 10.7              | 8.6  |
|                                  | Power factor          | .92                   | .85                   | .85               | .85               | .92                   | .85                   | .85               | .85  |
|                                  | Locked rotor amps     | 125.0                 | 100.0                 | 45.0              | 35.0              | 135.0                 | 110.0                 | 56.0              | 41.0 |
| Condenser Coil Fan               | Full load amps        | 3.4                   | 3.4                   | *1.7              | *1.5              | 3.4                   | 3.4                   | *1.7              | *1.5 |
|                                  | Locked rotor amps     | 7.1                   | 7.1                   | 7.1               | 7.1               | 7.1                   | 7.1                   | 7.1               | 7.1  |
| Evaporator Coil Blower           | Full load amps        | 4.0                   | 4.0                   | *2.0              | *1.6              | 4.0                   | 4.0                   | *2.0              | *1.6 |
|                                  | Locked rotor amps     | 9.6                   | 9.6                   | 9.6               | 9.6               | 9.6                   | 9.6                   | 9.6               | 9.6  |
| Maximum unit amps                | 34.6                  | 25.6                  | 12.8                  | 10.4              | 40.4              | 28.7                  | 14.4                  | 11.7              |      |
| AWG wire size                    | 1' to 100' run        | 6                     | 8                     | 12                | 14                | 6                     | 8                     | 12                | 14   |
|                                  | 101' to 200' run      | 4                     | 6                     | 10                | 12                | 4                     | 6                     | 10                | 12   |
| Time delay fuse, fusetron (amps) | 45                    | 35                    | 20                    | 15                | 50                | 35                    | 20                    | 15                |      |
| Maximum allowable fuse (amps)    | 70                    | 45                    | 20                    | 15                | 80                | 50                    | 25                    | 20                |      |
| Disconnect rating (hp)           | 7-1/2                 | 15                    | 15                    | 15                | 10                | 15                    | 15                    | 15                |      |

\* Motors are rated at 230v, F.L.A. shown is for step down transformer.

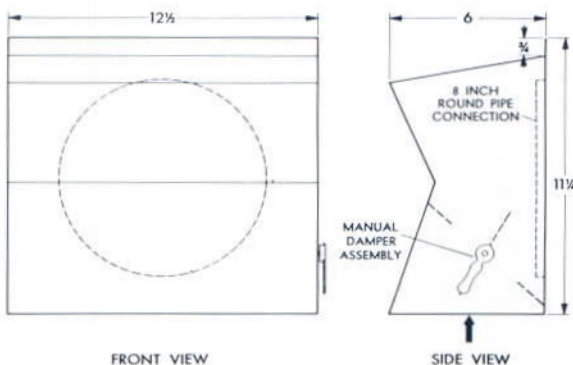
NOTE—If other than time delay fuses are used the next larger amp rating may be required.

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

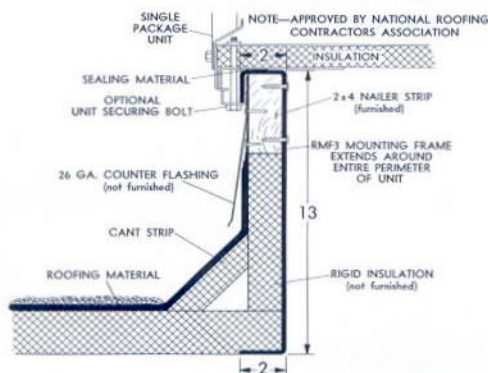
NOTE—Extremes of operating range are plus and minus 10% of line voltage.

*Climatisation Fortier & Frères Ltée*

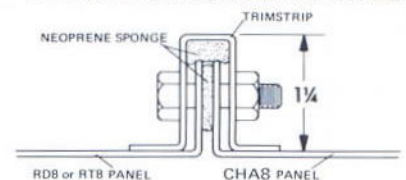
### OPTIONAL OAD3-65 MINIMUM FRESH AIR DAMPER



### RECOMMENDED FLASHING FOR RMF3 ROOF MOUNTING FRAME

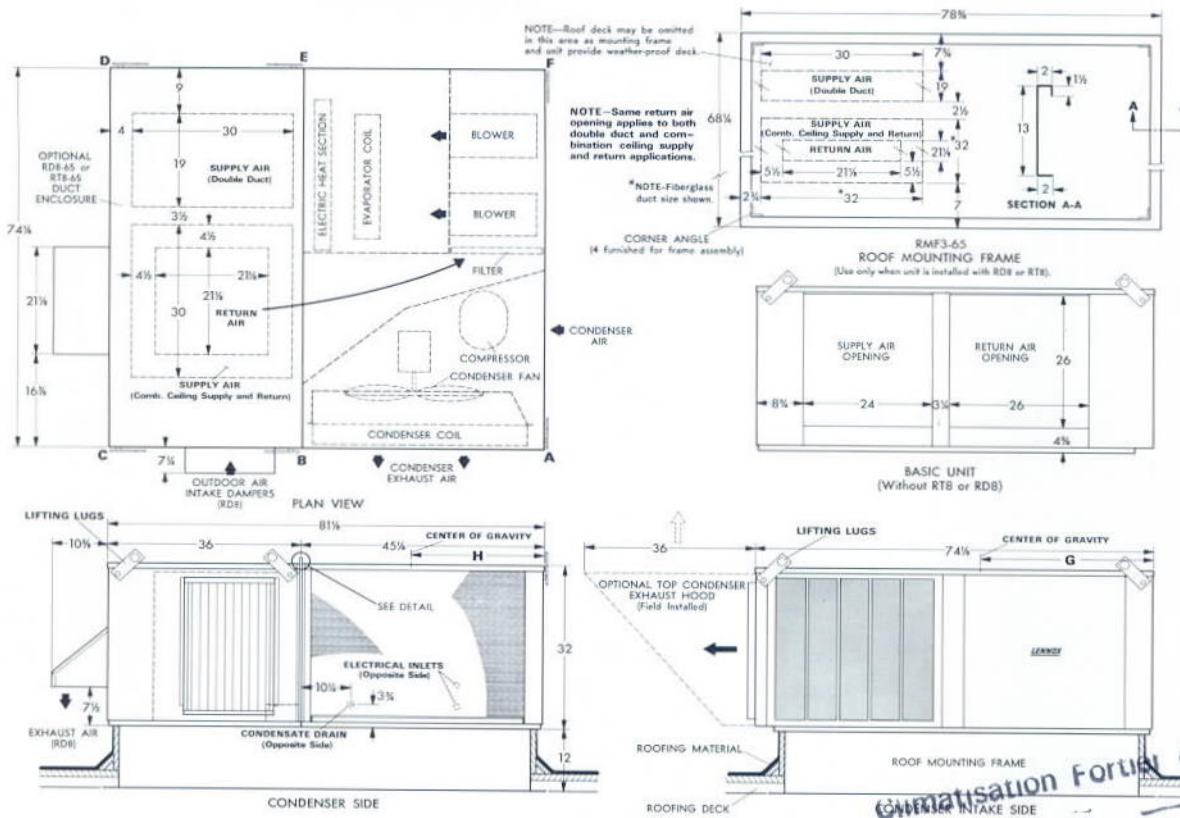


### RD8 or RT8 MOUNTING DETAIL



RD8 or RT8 is attached to the CHA8 unit with a minimum amount of time and labor. Trim strips and five bolts, in pre-punched holes, provide a weatherproof seal between the cabinets.

# DIMENSIONS (inches)



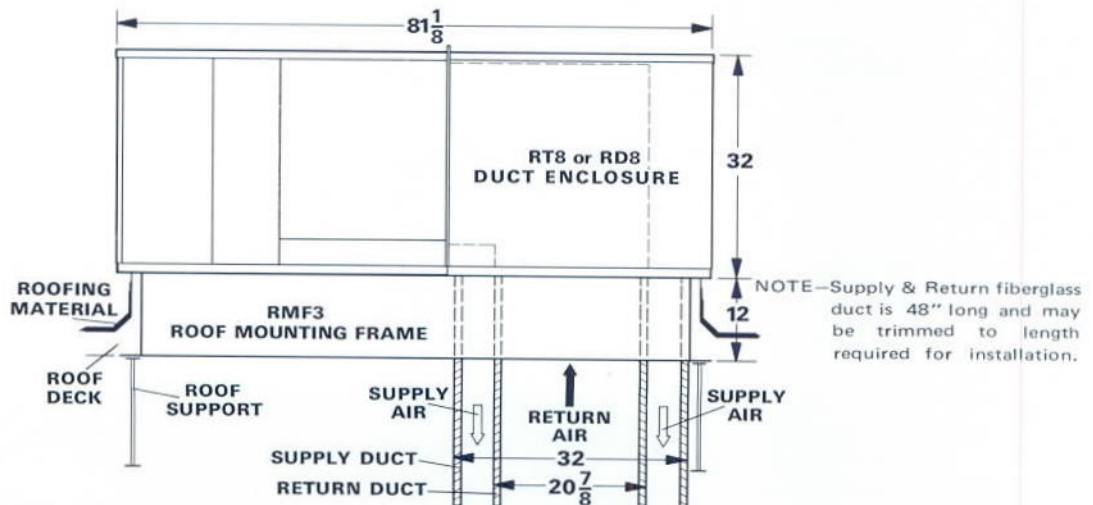
**CORNER WEIGHTS (lbs.)**

| Unit       | A   | B   | C   | D   | E   | F   |
|------------|-----|-----|-----|-----|-----|-----|
| Basic unit | 232 | 170 | --- | --- | 168 | 230 |
| With RT8   | 332 | --- | 160 | 153 | --- | 315 |
| With RD8   | 360 | --- | 204 | 176 | --- | 310 |

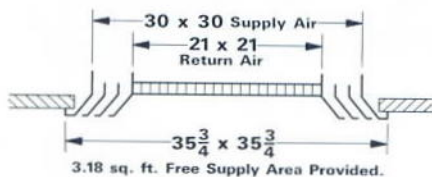
**CENTER OF GRAVITY**

| Unit       | G      | H      |
|------------|--------|--------|
| Basic unit | 37-1/4 | 19     |
| With RT8   | 38     | 26-1/2 |
| With RD8   | 40     | 29-1/2 |

## COMBINATION CEILING SUPPLY & RETURN AIR DISTRIBUTION SYSTEM Rooftop Unit With Optional Fiberglass Duct

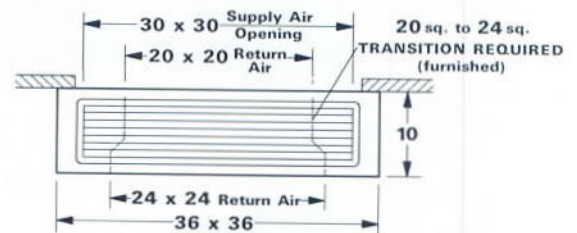


### FD-65 & FD-65-D Flush Ceiling Diffuser



**NOTE**—FD-65-D model has adjustable baffle blades.

### RTD-65 Step-down Diffuser



## BLOWER DATA

### CHA8-511-513 BLOWER PERFORMANCE

| External Static Pressure (in. wg) | Air Volume (cfm) @ Various Controller Speeds |        |      |
|-----------------------------------|--|--------|------|
|                                   | High   | Medium | Low  |
| 0                                 | 2165   | 1810   | 1490 |
| .05                               | 2120   | 1775   | 1465 |
| .10                               | 2070   | 1745   | 1440 |
| .15                               | 2025   | 1710   | 1420 |
| .20                               | 1980   | 1675   | 1390 |
| .25                               | 1930   | 1640   | 1365 |
| .30                               | 1880   | 1605   | 1335 |
| .40                               | 1780   | 1550   | 1270 |
| .50                               | 1680   | 1435   | 1180 |
| .60                               | 1570   | 1340   | 1050 |
| .70                               | 1450   | 1230   | ---  |

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

### CHA8-511-513 BLOWER PERFORMANCE WITH RD8-65 AND DUCT DISTRIBUTION

| External Static Pressure (in. wg) | Air Volume (cfm) @ Various Controller Speeds |        |      |
|-----------------------------------|--|--------|------|
|                                   | High   | Medium | Low  |
| 0                                 | 2065   | 1755   | 1470 |
| .05                               | 2025   | 1720   | 1440 |
| .10                               | 1980   | 1685   | 1415 |
| .15                               | 1930   | 1655   | 1390 |
| .20                               | 1890   | 1620   | 1355 |
| .25                               | 1840   | 1585   | 1325 |
| .30                               | 1795   | 1545   | 1290 |
| .40                               | 1695   | 1470   | 1215 |
| .50                               | 1595   | 1380   | 1110 |
| .60                               | 1485   | 1285   | ---  |
| .70                               | 1370   | 1175   | ---  |

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

### CHA8-651-653 BLOWER PERFORMANCE

| External Static Pressure (in. wg) | Air Volume (cfm) @ Various Controller Speeds |        |      |
|-----------------------------------|--|--------|------|
|                                   | High   | Medium | Low  |
| 0                                 | 2380   | 1960   | 1590 |
| .05                               | 2320   | 1925   | 1570 |
| .10                               | 2270   | 1885   | 1545 |
| .15                               | 2220   | 1850   | 1520 |
| .20                               | 2165   | 1810   | 1490 |
| .25                               | 1110   | 1770   | 1460 |
| .30                               | 2060   | 1730   | 1430 |
| .40                               | 1950   | 1640   | 1360 |
| .50                               | 1840   | 1550   | 1280 |
| .60                               | 1715   | 1450   | ---  |
| .70                               | 1585   | ---    | ---  |

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

### CHA8-651-653 BLOWER PERFORMANCE WITH RD8-65 AND DUCT DISTRIBUTION

| External Static Pressure (in. wg) | Air Volume (cfm) @ Various Controller Speeds |        |      |
|-----------------------------------|--|--------|------|
|                                   | High   | Medium | Low  |
| 0                                 | 2235   | 1885   | 1560 |
| .05                               | 2190   | 1850   | 1535 |
| .10                               | 2145   | 1815   | 1510 |
| .15                               | 2100   | 1775   | 1480 |
| .20                               | 2055   | 1740   | 1450 |
| .25                               | 2005   | 1700   | 1410 |
| .30                               | 1955   | 1660   | 1380 |
| .40                               | 1850   | 1575   | 1300 |
| .50                               | 1735   | 1485   | 1225 |
| .60                               | 1615   | 1390   | ---  |
| .70                               | 1490   | ---    | ---  |

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

### RTD-65 CEILING DIFFUSER AIR THROW DATA

| RTD-65 Step Down Model | Air Volume (cfm) | *Effective Throw (ft)          |                           |                           |
|------------------------|------------------|--------------------------------|---------------------------|---------------------------|
|                        |                  | Horizontal Vanes 180° Straight | Horizontal Vanes 22° Down | Horizontal Vanes 45° Down |
| Two Sides Open         | 2000             | 51                             | 45                        | 31                        |
|                        | 2250             | 56                             | 50                        | 34                        |
|                        | 2500             | 61                             | 54                        | 37                        |
| Three Sides Open       | 2000             | 35                             | 31                        | 22                        |
|                        | 2250             | 40                             | 35                        | 25                        |
|                        | 2500             | 44                             | 39                        | 28                        |
| Four Sides Open        | 2000             | 28                             | 25                        | 17                        |
|                        | 2250             | 30                             | 27                        | 18                        |
|                        | 2500             | 33                             | 29                        | 20                        |

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

### FD-65 AND FD-65-D CEILING DIFFUSER AIR THROW DATA

| Air Volume (cfm) | *Effective Throw (ft) |
|------------------|-----------------------|
| 800              | 7                     |
| 900              | 8                     |
| 1000             | 9                     |
| 1200             | 11                    |
| 1350             | 12                    |
| 1500             | 14                    |
| 2000             | 18                    |
| 2250             | 20                    |
| 2500             | 22                    |

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

### CHA8-511-513 WITH RD8-65 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-65 Step-Down Model |              |              |
|                                 |  | 2 Sides Open           | 3 Sides Open | 4 Sides Open |
| High                            | 1790   | 1850                   | 1895         | 1930         |
| Medium                          | 1590   | 1640                   | 1650         | 1670         |
| Low                             | 1395   | 1395                   | 1420         | 1435         |

### CHA8-651-653 WITH RD8-65 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-65 Step-Down Model |              |              |
|                                 |  | 2 Sides Open           | 3 Sides Open | 4 Sides Open |
| High                            | 1900   | 1970                   | 2025         | 2060         |
| Medium                          | 1700   | 1725                   | 1765         | 1790         |
| Low                             | 1480   | 1480                   | 1510         | 1520         |