

# OUTDOOR AIR HANDLERS

## Application Manual





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## General Information

### STERLING QUALITY

Sterling HVAC Products, a division of Mestek, has been a leading producer of quality engineered and manufactured HVAC equipment for over 50 years. This experience has allowed us to design and manufacture a complete line of outdoor air handlers suitable for commercial, institutional and industrial applications. Our wide range of modular mechanical and electrical components allow custom unit selection in a standard package, providing outstanding versatility, performance and reliability you've come to expect from Sterling. Our expert engineering staff is always available to provide professional assistance in any phase of your project from preliminary planning to installation and operation.

Sterling Engineered Products Rooftop Units have incorporated a multi digit "Model Number" in order to more comprehensively describe the product. With the Sterling Engineered Products "Model Number" we can offer the vast array of features found in this catalog to meet your ever demanding applications as "Standard Equipment for Sterling".

## Sterling Specifier

The STERLING SPECIFIER is a computer program developed to assist the HVAC industry in design and application of Sterling rooftop and indoor make-up air equipment.

This automated selection program is capable of selecting a unit by direct model number input or design data (i.e.: Required Output, Air Flow or Temperature Rise). When utilizing design data, the Sterling Specifier is programmed to adapt the remaining selection fields to only allow functional combinations of unit features.

The Sterling Specifier is designed to produce and print model number specific certification and specification sheets that include customer information, submittal sheet attachment listing and model number description. These files are in common, user-friendly formats for inclusion with complete project submittals.

To obtain access to the Sterling Specifier, contact your Sterling Representative at 1-800-490-2290.

# Outdoor Air Handler Product Description

## STERLING OUTDOOR AIR HANDLER UNITS

The Sterling Packaged Rooftop Air Handlers are designed to perform with heating, cooling and ventilating systems, and are suitable for commercial, institutional and industrial applications where external system pressure losses are as high as 3" W.C. Air Handler units are available in 8 standard arrangements and are divided into two classifications: "Standard" and "High-CFM" blower types. The "Standard" Air Handler units have a CFM range of 1,500 – 8,000 CFM (0.7 – 4.0 m<sup>3</sup>/s), and the "High-CFM" units have a range of 3,000 – 14,000 CFM (1.4 – 6.6 m<sup>3</sup>/s). All arrangements are ETL certified for safety and performance and are in compliance with the UL-1995 Standard for HVAC Equipment.

Air Handler units in the "Standard" arrangements consist of a blower cabinet that houses dampers, filters and blower in one cabinet. An optional Evaporative Cooling unit with 8 or 12" media may also be included with "Standard" blower type arrangements. The "High-CFM" arrangements utilize separate cabinet sections: a Damper/Filter cabinet with a "V" bank filter layout and a blower cabinet. An additional Cooling Coil cabinet capable of up to 20 tons and a CFM range of 1,600 – 6,300 (0.8 – 3.0 m<sup>3</sup>/s) is available to be added to certain "High-CFM" type units. This coil cabinet may also be suitable for installations of heating coils.

Both "Standard" and "High-CFM" Air Handle arrangements may also include a downturn Supply Air Plenum, Outside Air Intake Hood (with standard bird screen or optional moisture eliminators) and a Roof Curb. All arrangements are rail mounted.

Control and other electrical components are located in the main electrical cabinet. This cabinet is located out of the air stream as part of the blower transition at the discharge end of the unit (between the blower cabinet and Supply Air Plenum, if selected). For your safety and convenience, all Sterling Packaged Rooftop Air Handler Units include 24 Volt control circuit, 24 Volt in line Circuit Breaker, Blower Door Interlock Switch with Terminal Block Wiring.

All cabinets are constructed of rugged 18 ga. material and painted Cloud gray. Cabinet design includes hinged access doors, water tight sealed seams, insulated blower, filter and plenum sections and down-rolled (hat type) rails that mount tightly over roof curbs – all to ensure reliability and serviceability. In addition to standard convenience features, many accessory options such as Variable Frequency Drives, Remote Control Panel and Through the Base Utility Penetrations are available to increase application versatility.

## Features and Benefits

- ETL UL-1995 Certified Packaged Units.
- CFM Ranges from 1,500 - 14,000 CFM.
- Motor Sizes up to 15 Horse Power (EPACT compliant).
- Standard ODP Motors; with Premium Efficiency and Totally Enclosed optional.
- Standard Right Side Service Access, Left Optional.
- Draw-thru Heating and/or Cooling Coil Cabinet with Stainless Steel Drain Pan.
- Evaporative Cooling with standard 8 or optional 12" media (203 or 305 mm).
- Standard Insulated Roof Curbs (Optional Uninsulated Roof Curbs Available).
- Vibration Isolation Roof Curbs.
- Seismic Rated Roof Curbs.
- Adapter Roof Curbs.
- 18 ga. Cabinets, Painted Cloud Gray.
- 1 in. Washable Filters.
- Blower Door Safety Interlock Switch.
- Reverse Air Flow Safety Switch.
- 24 Volt Circuit Breaker.
- Printed Circuit Main Connection Board.
- Wiring Harnesses with Stamped Wire Numbers.
- Multiple Control Packages.

# Engineered Products Unit Number Description

| Digit | E      | X | X | — | 1  | 2 | 3  | 4 | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | + |
|-------|--------|---|---|---|----|---|----|---|----|----|----|----|----|----|----|----|----|----|----|----|---|
| Item  | Prefix |   |   |   | UT |   | CA |   | FT | FM | RA | CO | GT | GC | SV | MT | MS | AI | AC | AS |   |

(Internal Use Only)

## 1, 2 - Unit Type [UT]

AH - Air Handler

## 3, 4 - Capacity [CA]

20 - Size 20 Cabinet

40 - Size 40 Cabinet

## 5 - Furnace Type/Access Side [FT]

A - Right Hand

B - Left Hand

Note: Right or left hand access is determined by facing the air inlet end of the unit.

## 6 - Furnace Material [FM]

0 - None

## 7 - Rooftop Arrangement [RA]

M - Air Handler (Standard)

N - Air Handler (Standard) / Plenum

P - Air Handler (Standard) / Evap. Cooling

R - Air Handler (Standard) / Evap. Cooling / Plenum

S - Air Handler (High CFM)

T - Air Handler (High CFM) / Plenum

U - Air Handler (High CFM) / Coil Cabinet

W - Air Handler (High CFM) / Coil Cabinet / Plenum

Z - Other

## 8 - Coil Options [CO]

A - DX Coil, 4 Row Single Circuit

B - DX Coil, 4 Row Dual Circuit

C - DX Coil, 6 Row Single Circuit

D - DX Coil, 6 Row Dual Circuit

E - Chilled Water Coil, 4 Row

G - Chilled Water Coil, 6 Row

0 - None

Z - Other

## 9 - Gas Type [GT]

0 - None

## 10 - Gas Control [GC]

0 - None

## 11 - Supply Voltage [SV]

1 - 115/1/60

5 - 230/3/60

2 - 208/1/60

6 - 460/3/60

3 - 230/1/60

7 - 575/3/60

4 - 208/3/60

0 - None

Z - Other

## 12 - Motor Type [MT]

1 - Open Drip Proof (Standard)

2 - Totally Enclosed

3 - Premium Efficiency, Open Drip Proof

4 - Premium Efficiency, Totally Enclosed

0 - None

Z - Other

## 13 - Motor Sizes [MS]

A - 1/2 HP. w/Contactor

B - 3/4 HP. w/Contactor

C - 1 HP. w/Contactor

D - 1-1/2 HP. w/Contactor

E - 2 HP. w/Contactor

G - 3 HP. w/Contactor

H - 5 HP. w/Contactor

J - 1/2 HP. w/Magnetic Starter

K - 3/4 HP. w/Magnetic Starter

L - 1 HP. w/Magnetic Starter

M - 1-1/2 HP. w/Magnetic Starter

N - 2 HP. w/Magnetic Starter

P - 3 HP. w/Magnetic Starter

R - 5 HP. w/Magnetic Starter

S - 7-1/2 HP. w/Magnetic Starter

T - 10 HP. w/Magnetic Starter

U - 15 HP. w/Magnetic Starter

0 - None

Z - Other

1 - 1 HP. VFD

2 - 1-1/2 HP. VFD

3 - 2 HP. VFD

4 - 3 HP. VFD

5 - 5 HP. VFD

6 - 7-1/2 HP. VFD

7 - 10 HP. VFD

8 - 15 HP. VFD

## 14 - Air Inlet Configuration [AI]

1 - Outside Air (OA) (Horiz. Inlet)

2 - Outside Air w/Air Hood (Horiz. Inlet)

3 - Bottom Return Air (RA)

4 - Outside Air and Return Air (OA/RA)

5 - Outside and Return Air w/Air Hood

0 - None

Z - Other

## 15 - Air Control & Damper Arrangement [AC]

A - Outside Air 2 Pos. Motor / Spring Return

B - Return Air 2 Pos. Motor / Spring Return

C - OA/RA 2 Pos. / Spring Return

D - OA/RA Mod. Mtr. w/Mixed Air Control / Min. Pot.

E - OA/RA Mod. Mtr. w/Mixed Air Control / Min. Pot. / SR

G - OA/RA Mod. Mtr. w/Mixed Air Control

H - OA/RA Mod. Mtr. w/Mixed Air Control / SR

J - OA/RA Mod. Mtr. w/Min. Pot.

K - OA/RA Mod. Mtr. w/Min. Pot. / SR

L - OA/RA Mod. Mtr. w/Dry Bulb / Mixed Air Control / Min. Pot.

M - OA/RA Mod. Mtr. w/Dry Bulb / Mixed Air Control / Min. Pot. / SR

N - OA/RA Mod. Mtr. w/Enthalpy Controlled Economizer / SR

P - OA/RA Mod. Mtr. w/Pressure Control (Space Pressure)

Q - OA/RA Mod./Carbon Dioxide (CO<sub>2</sub>) R/A Monitor

R - OA/RA Mod. Mtr. w/S-350-P Proportional Mixed Air Control / SR

S - OA/RA Mod. Mtr. w/0-10 VDC & 4-20 mA Analog Input (External Input)

T - OA/RA Mod. Mtr. w/0-10 VDC & 4-20 mA Analog Input / SR (External Input)

U - ASHRAE Cycle I (OA/RA 2 Pos. Mtr. w/Warm-up Stat / SR)

W - ASHRAE Cycle II (OA/RA Mod. Mtr. w/Warm-up Stat / Mixed Air / Min. Pot. / SR)

X - ASHRAE Cycle III (OA/RA Mod. Mtr. w/Warm-up Stat / Mixed Air / SR)

Y - Manual Dampers

0 - None

Z - Other

MOD = Modulating Damper Motor

OA = Outside Air RA = Return Air SR = Spring Return

## 16 - Accessories [AS]

A1 - Moisture Eliminators

A2 - Horizontal Return

A3 - Low Leak Damper

H1 - Return Firestat

H2 - Supply Firestat

H3 - Time Delay Freezestat

H4 - Ambient Lockout

B1 - Filters - 1" WA (Standard)

B2 - Filters - 2" WA

B3 - Filters - 2" TA

B4 - Filters - 1" 30%

B5 - Filters - 2" 30%

J1 - Interlock Relay - 24V Coil DPDT 10A, Plug-in

J2 - Interlock Relay - 24/115V Coil SPDT 10A

J3 - Interlock Relay - 24/115/230V Coil DPDT 10A

J4 - Interlock Relay - 24V Coil 4PDT 10A

C1 - Evap. Cooler - Fill & Drain Kit

C2 - Evap. Cooler - 12" CELdek® Media

C3 - Evap. Cooler - Freezestat

C4 - 8" GLASdek® Media

C5 - 12" GLASdek® Media

K3 - Status Lamp (Elec. Cabinet)

K5 - Air Flow Prove Switch†

D1 - Time Clock - 7 Day†

D2 - Time Clock - 24 Hour†

L1 - 30 Amp, Fused Disconnect Switch†

L2 - 30 Amp, Non Fused Disconnect Switch†

L3 - 60 Amp, Fused Disconnect Switch†

L4 - 60 Amp, Non Fused Disconnect Switch†

N2 - Through the Base Utility Penetration

N3 - Service Convenience Package

N6 - Doublewall Construction

E1 - Clogged Filter Switch

E2 - G.F.I. Convenience Outlet 115VAC†

E3 - Remote Control Panel†

E4 - Manual Blower Switch

R1 - Field Installed VFD†

R2 - Factory Installed VFD

R3 - VFD Remote Keypad for use w/R1

R4 - CO<sub>2</sub> Sensor - 100% OA†

R5 - CO<sub>2</sub> Sensor - Mixed Air†

R6 - Pressure Sensor†

R7 - 2-Speed VFD Relays

R8 - 3-Speed VFD Relays

G1 - Thermostat - T87K w/Subbase†

G2 - Thermostat - T87K w/Subbase

& Guard†

G3 - Thermostat - T834N w/Subbase

(Sterling Stat)†

G4 - Thermostat - TB8220U - 7 Day

Programmable†

G5 - Thermostat - TH5220D (Two Stage)†

G6 - Locking Thermostat Cover†

Note: All thermostats are Mercury free.

0 - None

Z1 - Other (Specify)

† = Field Installed

## Air Handler [AH] Selection

The following section contains stand-alone "Air Handler" information. It is necessary to complete the first 7 digits of the model from this section then refer to page 16 - 25 for model digits 8 - 16+.

Model Number items that do not apply, such as Gas Type [GT] digit 9 and Gas Control [GC] digit 10, need to be filled in with a "0-none" selection.

### Select Unit Type

Unit Type [UT] Digits 1&2  
**AH** - Air Handler

### Select Capacity

Capacity [CA] Digit 3,4  
20 - Size 20 Cabinet  
40 - Size 40 Cabinet

### Furnace Type/Access Side

Furnace Type [FT] Digit 5  
A - Right Hand  
B - Left Hand

### Select Furnace Material

Furnace Material [FM] Digit 6  
0 - None

### Select Rooftop Arrangement

Rooftop Arrangement [RA] Digit 7

See below for Rooftop  
**Arrangement [RA] digit 7**  
**Air Handlers Information**

## Packaged Rooftop Arrangements

### Air Handler [AH]

#### Unit Type [UT] Model Digits 1&2

#### Rooftop Arrangement [RA] Model Digit 7

Sterling Packaged Rooftop Units are ETL certified to UL-1995 standard for heating cooling and ventilating equipment. Units are available in one of 8 standard arrangements (Rooftop Arrangements [RA], Model digit 7). Air Handler units (Unit Type [UT] "AH") are suitable for commercial, institutional and industrial applications where external system pressure losses are as high as 3" W.C.

Rooftop Arrangements are divided into two classifications "Standard" and "High-CFM" Blower types. The "Standard" Air Handler units (Rooftop Arrangement [RA] "M,N,P,R") have a CFM range of 1,500 - 8,000 CFM (0.7 - 4.0 m<sup>3</sup>/s). The Standard Air Handler arrangement consists of a blower cabinet that houses dampers, filters and blower in one cabinet; an optional Evaporative cooling unit with standard 8 or optional 12" media may also be included.

The "High-CFM" Air Handler Units (Rooftop Arrangement [RA] "S & T") have a range of 3,000-14,000 CFM (1.4 - 6.6 m<sup>3</sup>/s). High CFM Air Handler units utilize a separate Damper/Filter cabinet with a "V" bank filter arrangement and a blower cabinet. Rooftop Arrangements "U & W" include an additional Cooling Coil cabinet capable of up to 20 tons and a CFM range of 1,600 - 6,300 (0.8 - 3.0 m<sup>3</sup>/s). This coil cabinet may also be suitable for field installations of heating coils.

Both "Standard" and "High-CFM" Air Handler arrangements may also include a downturn Supply Air Plenum, Outside Air Intake Hood with standard bird screen or optional moisture eliminators and a Roof Curb. All arrangements are rail mounted.

For your safety and convenience all Sterling Packaged Air Handler Units include a 24 Volt control circuit, 24 Volt in line Circuit Breaker, Blower Door Interlock Switch with Terminal Block Wiring. All wiring is processed at our factory as harness assemblies and each wire is permanently stamped with it's wire number.

All Cabinets are constructed of rugged 18 ga. material and painted Cloud gray. The modular design of the cabinetry ensures reliability as well as serviceability with hinged access doors, water tight sealed seams, insulated blower filter and plenum cabinets and down-rolled (hat type) rails that mount tightly over the roof curb.

### Rooftop Arrangements [RA]

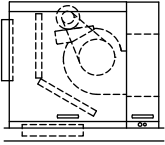
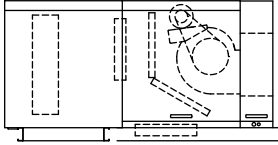
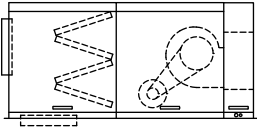
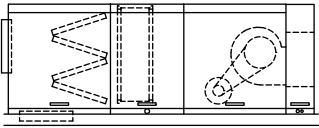
- M - Air Handler (STANDARD)
- N - Air Handler (STANDARD) / Plenum
- P - Air Handler (STANDARD) / Evap. Cooling
- R - Air Handler (STANDARD) / Evap. Cooling / Plenum
- S - Air Handler (HIGH-CFM)
- T - Air Handler (HIGH-CFM) / Plenum
- U - Air Handler (HIGH-CFM) / Coil Cabinet
- W - Air Handler (HIGH-CFM) / Coil Cabinet / Plenum



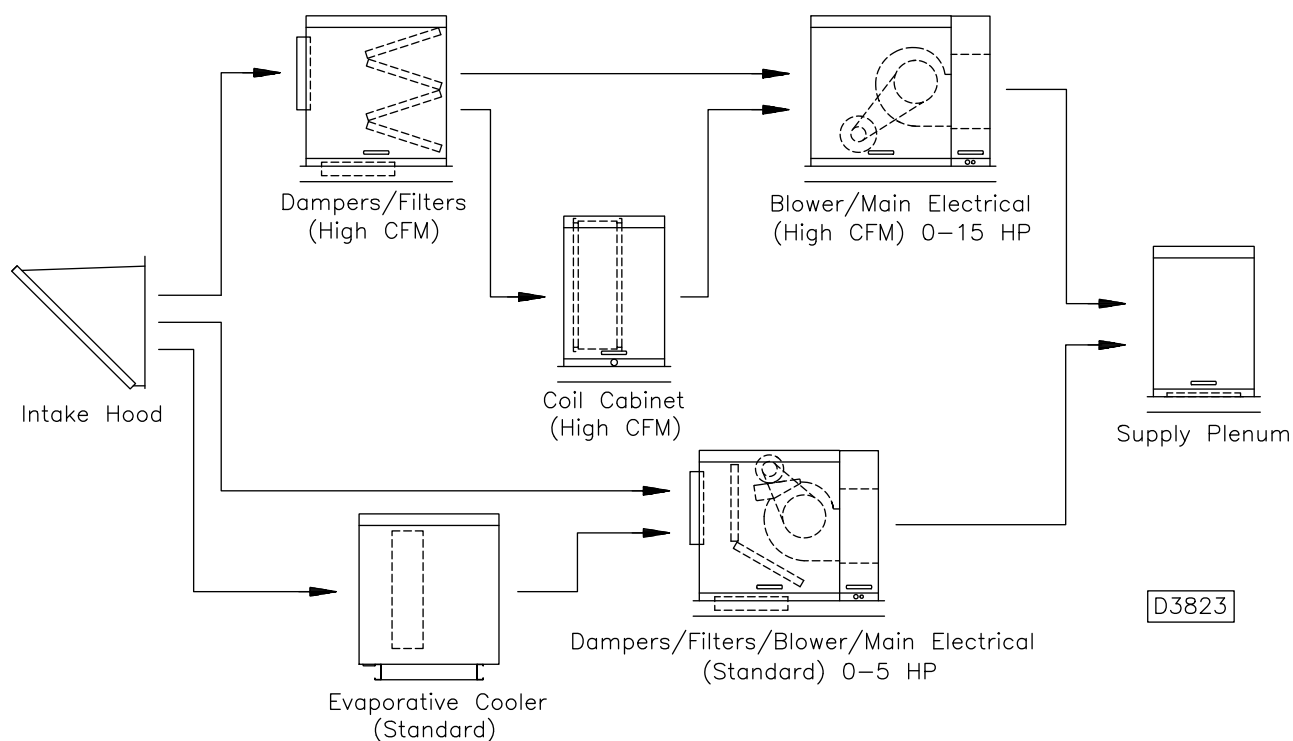
Air Handler

# Packaged Rooftop Arrangement Reference

## Air Handlers, Unit Type [UT] (AH)

|                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Standard Blower</b><br/>Rooftop Arrangements M, N</p>  <p><b>Capacity 20, 40</b><br/>20 - 1,500-6,000 CFM, 1/2-5 HP.<br/>40 - 4,000-8,000 CFM, 1/2-5 HP.</p> <p>ESP. 0.1 - 3.0 in. WC.<br/><b>Tables 1, 3</b></p> | <p><b>Standard Blower w/Evap.</b><br/>Rooftop Arrangements P, R</p>  <p><b>Capacity 20, 40</b><br/>20 - 1,500-6,000 CFM, 1/2-5 HP.<br/>40 - 4,000-8,000 CFM, 1/2-5 HP.</p> <p>ESP. 0.1 - 3.0 in. WC.<br/><b>Tables 1, 3</b></p> | <p><b>High CFM Blower</b><br/>Rooftop Arrangements S, T</p>  <p><b>Capacity 20, 40</b><br/>20 - 3,000-8,000 CFM, 3/4-10 HP.<br/>40 - 5,000-14,000 CFM, 3/4-15 HP.</p> <p>ESP. 0.1 - 3.0 in. WC.<br/><b>Tables 2, 4</b></p> | <p><b>High CFM Blower w/Cooling</b> *<br/>Rooftop Arrangements U, W</p>  <p><b>Capacity 20, 40</b><br/>20 - 1,600-4,400 CFM, 3/4-10 HP.<br/>40 - 2,100-6,300 CFM, 3/4-15 HP.</p> <p>ESP. 0.1 - 3.0 in. WC.<br/><b>Tables 2, 4</b></p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

\* The maximum CFM for Rooftop Arrangements U and W is 6,300 (3.0 m<sup>3</sup>/s). A variable frequency drive may be utilized for non-cooling air flow up to 14,000 CFM (6.6 m<sup>3</sup>/s).



## Accessory Pressure Loss — Table 1

### Rooftop Arrangements (M,N,P,R)

| B/F/D | E |
|-------|---|
|-------|---|

| PRESSURE LOSS (INCHES OF WATER) |       |          |            |              |             |             |            |                   |                   |     |                              |     |
|---------------------------------|-------|----------|------------|--------------|-------------|-------------|------------|-------------------|-------------------|-----|------------------------------|-----|
| Capacity                        | CFM   | Rainhood |            | Filters      |             |             |            | Supply Air Plenum | Evaporative Media |     | Return or Outside Air Damper |     |
|                                 |       | Screen   | Mstr.Elim. | Throwaway 2" | Washable 1" | Washable 2" | Pleated 1" |                   | 8"                | 12" |                              |     |
| 20                              | 1,600 | .02      | .02        | .05          | <.01        | .01         | .06        | .02               | .02               | .03 | .03                          | .03 |
|                                 | 1,800 | .02      | .03        | .06          | <.01        | .01         | .07        | .03               | .02               | .03 | .03                          | .03 |
|                                 | 2,000 | .02      | .03        | .07          | .01         | .02         | .08        | .03               | .03               | .04 | .04                          | .04 |
|                                 | 2,200 | .03      | .04        | .08          | .01         | .02         | .09        | .04               | .03               | .05 | .05                          | .05 |
|                                 | 2,400 | .03      | .05        | .09          | .02         | .02         | .11        | .05               | .04               | .06 | .05                          | .05 |
|                                 | 2,500 | .04      | .05        | .09          | .02         | .03         | .12        | .05               | .04               | .07 | .06                          | .06 |
|                                 | 3,000 | .05      | .07        | .12          | .03         | .04         | .16        | .07               | .06               | .10 | .08                          | .08 |
|                                 | 4,000 | .09      | .13        | .17          | .05         | .07         | .26        | .13               | .11               | .17 | .15                          | .15 |
|                                 | 5,000 | .15      | .20        | -            | .07         | .11         | .38        | .21               | .18               | .27 | .23                          | .23 |
|                                 | 5,500 | .18      | .25        | -            | .09         | .13         | .44        | .25               | .22               | .32 | .28                          | .28 |
| 40                              | 3,200 | .03      | .04        | .07          | .01         | .02         | .09        | .02               | .04               | .06 | .04                          | .04 |
|                                 | 3,600 | .04      | .05        | .09          | .02         | .02         | .11        | .03               | .05               | .07 | .05                          | .05 |
|                                 | 4,000 | .04      | .06        | .10          | .02         | .03         | .13        | .04               | .06               | .09 | .07                          | .07 |
|                                 | 4,400 | .05      | .07        | .11          | .03         | .04         | .15        | .05               | .07               | .11 | .08                          | .08 |
|                                 | 4,800 | .06      | .09        | .13          | .03         | .04         | .18        | .05               | .09               | .13 | .10                          | .10 |
|                                 | 5,000 | .07      | .10        | .13          | .03         | .05         | .19        | .06               | .09               | .14 | .10                          | .10 |
|                                 | 6,000 | .10      | .14        | .17          | .05         | .07         | .26        | .08               | .14               | .20 | .15                          | .15 |
|                                 | 7,000 | .13      | .19        | -            | .07         | .09         | .33        | .11               | .18               | .27 | .20                          | .20 |
|                                 | 8,000 | .17      | .24        | -            | .09         | .12         | .42        | .15               | .24               | .36 | .26                          | .26 |
|                                 | 8,500 | .20      | .28        | -            | .10         | .14         | -          | .17               | .27               | .41 | .30                          | .30 |

## Accessory Pressure Loss — Table 2

### Rooftop Arrangement (S,T,U,W)

| F/D | B | E |
|-----|---|---|
|-----|---|---|

| F/D | CC | B | E |
|-----|----|---|---|
|-----|----|---|---|

| PRESSURE LOSS (INCHES OF WATER) |        |          |            |              |             |             |            |                   |                              |     |
|---------------------------------|--------|----------|------------|--------------|-------------|-------------|------------|-------------------|------------------------------|-----|
| Capacity                        | CFM    | Rainhood |            | FILTERS      |             |             |            | Supply Air Plenum | Return or Outside Air Damper |     |
|                                 |        | Screen   | Mstr.Elim. | Throwaway 2" | Washable 1" | Washable 2" | Pleated 1" |                   |                              |     |
| 20                              | 1,600  | .02      | .02        | .03          | <.01        | <.01        | .03        | .01               | .02                          | .03 |
|                                 | 1,800  | .02      | .03        | .03          | <.01        | <.01        | .03        | .02               | .03                          | .03 |
|                                 | 2,000  | .02      | .03        | .04          | <.01        | <.01        | .04        | .02               | .03                          | .04 |
|                                 | 2,200  | .03      | .04        | .04          | <.01        | <.01        | .04        | .02               | .04                          | .05 |
|                                 | 2,400  | .03      | .05        | .05          | <.01        | <.01        | .05        | .03               | .05                          | .05 |
|                                 | 2,500  | .04      | .05        | .05          | <.01        | .01         | .05        | .03               | .05                          | .06 |
|                                 | 3,000  | .05      | .07        | .06          | .01         | .02         | .07        | .04               | .07                          | .08 |
|                                 | 4,000  | .09      | .13        | .09          | .02         | .03         | .12        | .07               | .13                          | .15 |
|                                 | 5,000  | .15      | .20        | .12          | .03         | .04         | .17        | .10               | .21                          | .23 |
|                                 | 6,000  | .21      | .29        | .16          | .04         | .06         | .23        | .14               | .30                          | .33 |
|                                 | 6,500  | .25      | .34        | .17          | .05         | .07         | .26        | .16               | .35                          | .39 |
|                                 | 7,000  | .29      | .40        | .19          | .06         | .08         | .30        | .18               | .40                          | .45 |
|                                 | 7,400  | .32      | .45        | -            | .06         | .09         | .33        | .20               | .45                          | .50 |
| 40                              | 3,300  | .03      | .04        | .03          | <.01        | <.01        | .03        | .02               | .03                          | .05 |
|                                 | 3,500  | .03      | .05        | .03          | <.01        | <.01        | .03        | .02               | .03                          | .05 |
|                                 | 4,000  | .04      | .06        | .04          | <.01        | <.01        | .04        | .02               | .04                          | .07 |
|                                 | 4,500  | .05      | .08        | .05          | <.01        | <.01        | .05        | .03               | .05                          | .08 |
|                                 | 5,000  | .07      | .10        | .05          | <.01        | .01         | .06        | .03               | .06                          | .10 |
|                                 | 6,000  | .10      | .14        | .07          | .01         | .02         | .08        | .04               | .08                          | .15 |
|                                 | 8,000  | .17      | .24        | .10          | .02         | .03         | .13        | .07               | .15                          | .26 |
|                                 | 10,000 | .27      | .38        | .13          | .03         | .05         | .19        | .11               | .23                          | .41 |
|                                 | 12,000 | .39      | .55        | .17          | .05         | .07         | .26        | .16               | .34                          | .59 |
|                                 | 14,000 | .53      | .75        | -            | .07         | .09         | .33        | .21               | .46                          | .80 |

Note: Refer to Table 5 for DX Cooling Coil and Table 6 for Chilled Water Coil Pressure Losses (Rooftop Arrangements U,W).

|            |   |    |
|------------|---|----|
| B/F/D E    | - | SP |
| EV B/F/D E | - | SP |

Total Static Pressure (Inches of Water)

[illegible]

NOTES: 1. Refer to Table 1, page 7 for Accessory Pressure Loss(es).

2. Brake horsepower (BHP) includes drive losses.

3. "Total External Pressure (TSP)" is the sum of the units' Internal Accessory pressure loss(es) from Table 1 **plus** the external static pressure.

## Air Handler Performance – Table 4

The maximum CFM for Rooftop Arrangements U and W Cooling Coil is 6,300 (3.0 m<sup>3</sup>/s). A variable frequency drive may be utilized for non-cooling air flow up to 14,000 CFM (6.6 m<sup>3</sup>/s).

$$\begin{array}{|c|c|c|} \hline \text{F/D} & \text{B} & \text{E} \\ \hline \end{array} - \begin{array}{|c|c|c|} \hline \text{F/D} & \text{CC} & \text{B} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{SP} \\ \hline \end{array}$$

Total Static Pressure (Inches of Water)

[illegible]

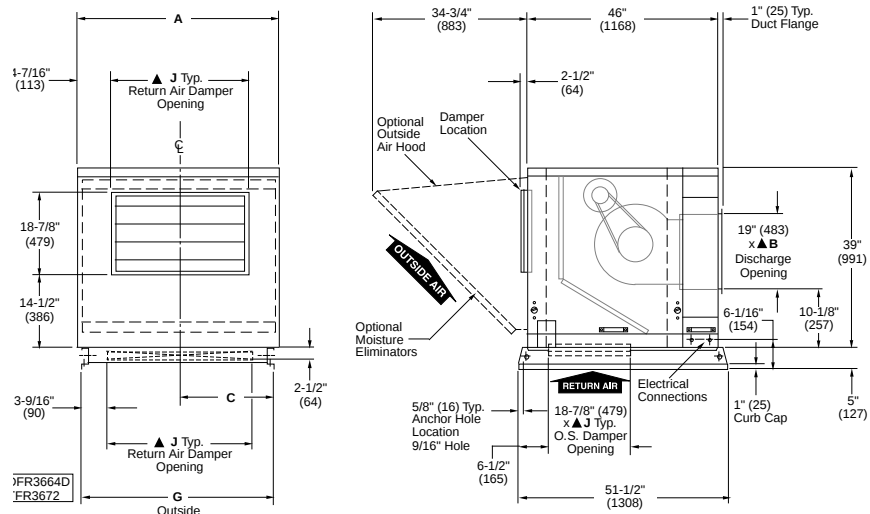
NOTES: 1. Refer to Table 2 page 7 for Accessory Pressure Loss(es).

2. Brake horsepower (BHP) includes drive losses.

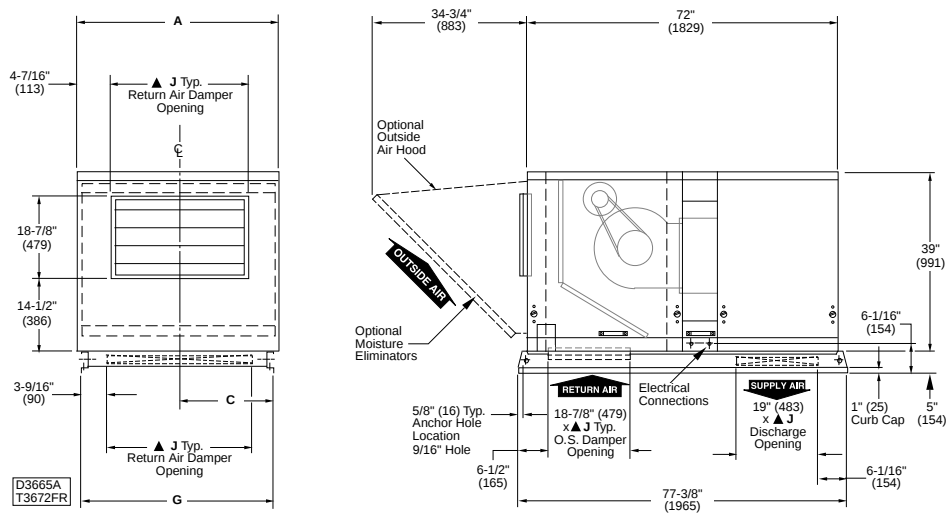
3. "Total External Pressure (TSP)" is the sum of the units' Internal Accessory pressure loss(es) from Table 2 **plus** the external static pressure.

# Dimensional Data — Air Handlers

## Rooftop Arrangement [RA] “M” Capacities [CA] 20 or 40 Unit Sizes (Right hand service access shown)



## Rooftop Arrangement [RA] “N” Capacities [CA] 20 or 40 Unit Sizes (Right hand service access shown)



| Capacity | A                 | B                  | C                 | G                  | ▲J                |
|----------|-------------------|--------------------|-------------------|--------------------|-------------------|
| 20       | 43- 7/8<br>(1114) | 23-13/16<br>(605)  | 21-15/16<br>(557) | 42- 1/16<br>(1068) | 35<br>(889)       |
| 40       | 60- 3/8<br>(1534) | 45-13/16<br>(1164) | 30- 3/16<br>(767) | 58- 9/16<br>(1487) | 51- 1/2<br>(1308) |

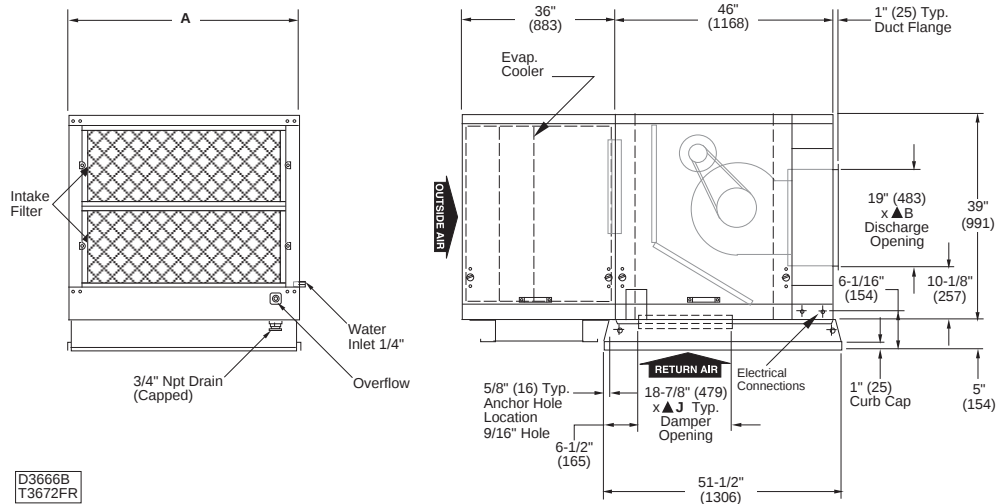
NOTES: Dimensions are in inches. Dimensions in parenthesis are in millimeters.

▲ “J” Dimension is an outside dimension for return air dampers.

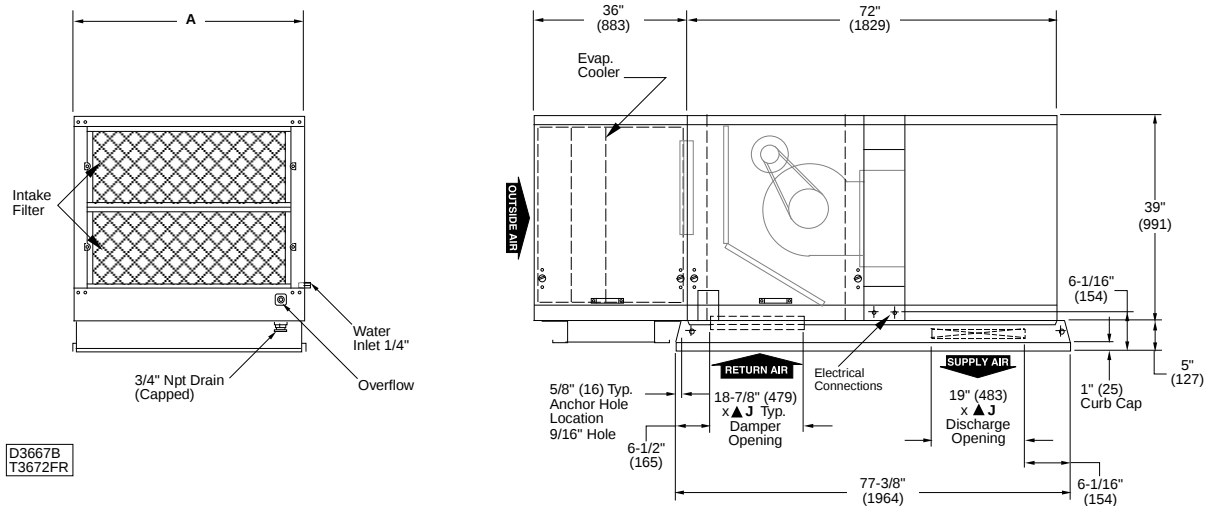
▲ “J” Dimension is also an inside dimension for the supply air opening (without damper).

# Dimensional Data — Air Handlers

## Rooftop Arrangement [RA] “P” Capacities [CA] 20 or 40 Unit Sizes (Right hand service access shown)



## Rooftop Arrangement [RA] “R” Capacities [CA] 20 or 40 Unit Sizes (Right hand service access shown)



| Capacity | A                 | B                  | C                 | G                  | ▲J                |
|----------|-------------------|--------------------|-------------------|--------------------|-------------------|
| 20       | 43- 7/8<br>(1114) | 23-13/16<br>(605)  | 21-15/16<br>(557) | 42- 1/16<br>(1068) | 35<br>(889)       |
| 40       | 60- 3/8<br>(1534) | 45-13/16<br>(1164) | 30- 3/16<br>(767) | 58- 9/16<br>(1487) | 51- 1/2<br>(1308) |

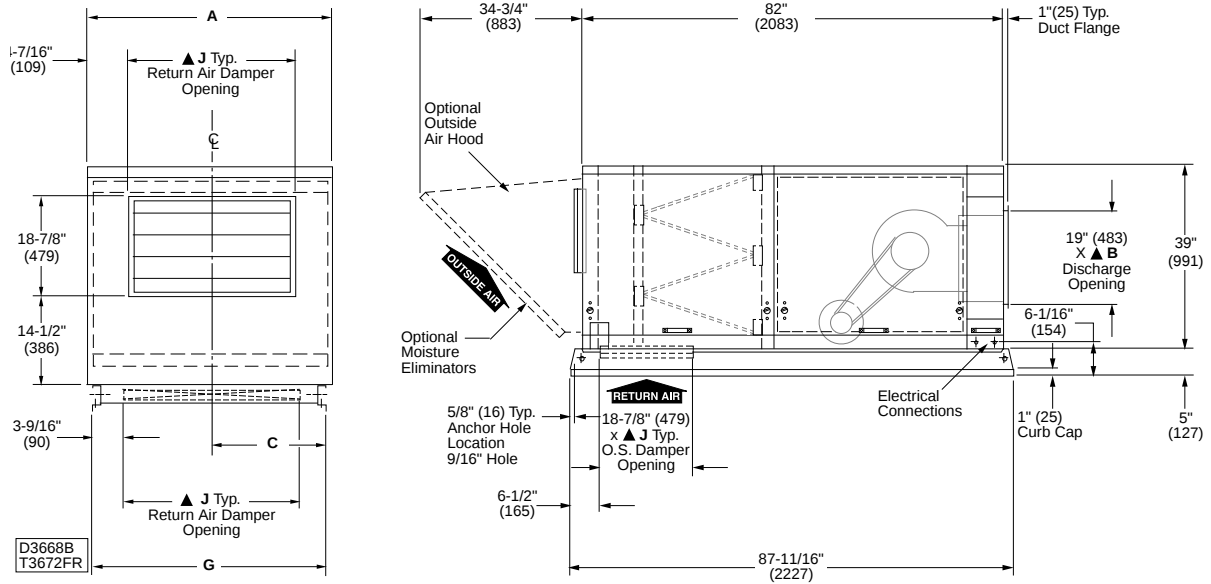
NOTES: Dimensions are in inches. Dimensions in parenthesis are in millimeters.

▲ “J” Dimension is an outside dimension for return air dampers.

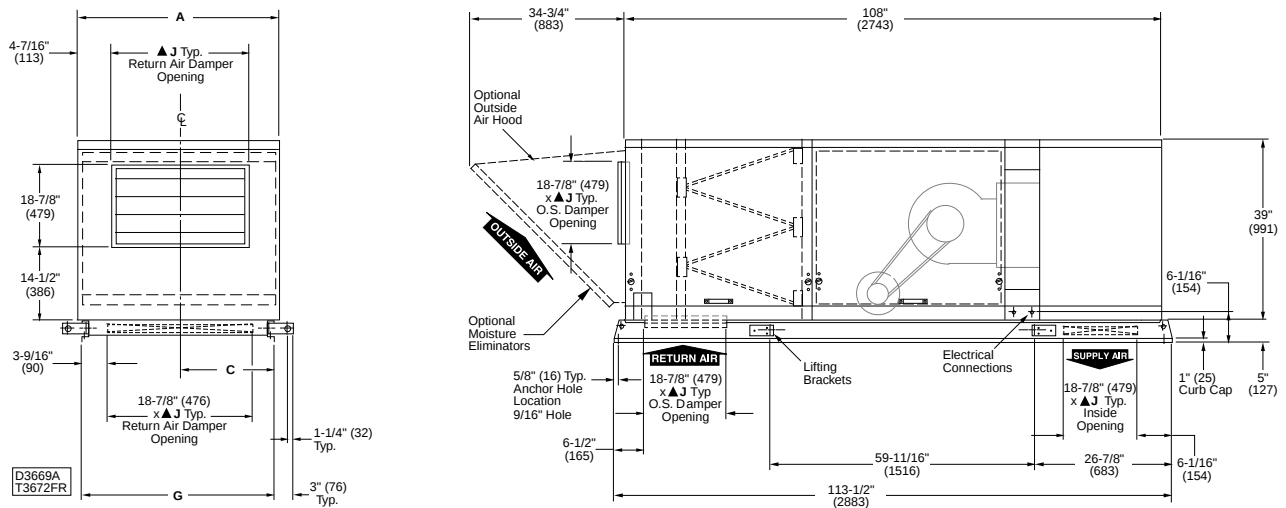
▲ “J” Dimension is also an inside dimension for the supply air opening (without damper).

# Dimensional Data — Air Handlers

## Rooftop Arrangement [RA] "S" Capacities [CA] 20 or 40 Unit Sizes (Right hand service access shown)



## Rooftop Arrangement [RA] "T" Capacities [CA] 20 or 40 Unit Sizes (Right hand service access shown)

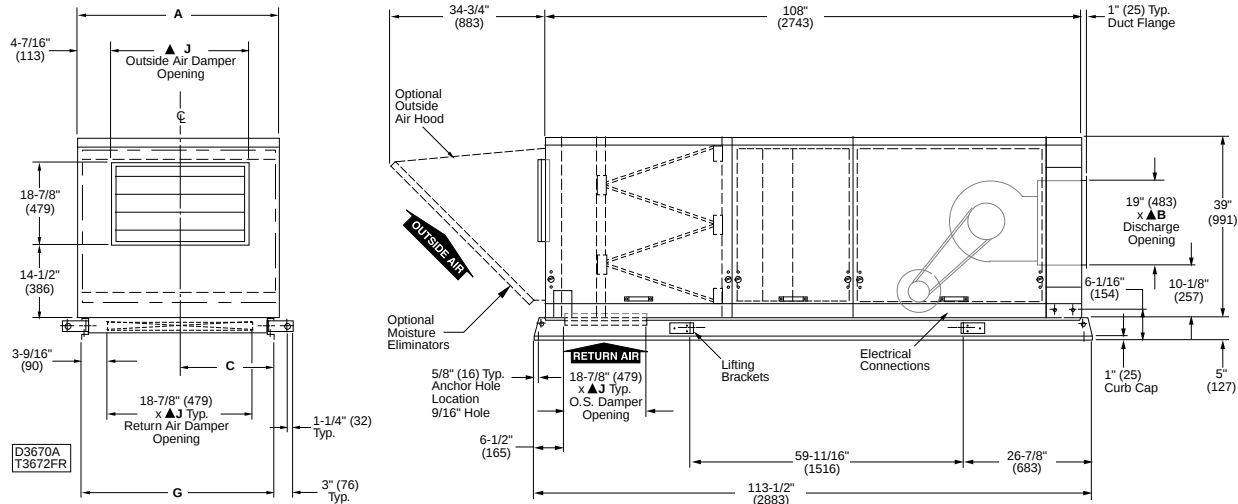


Refer to page 10 for tabulated dimensional data.

## Dimensional Data — Air Handlers

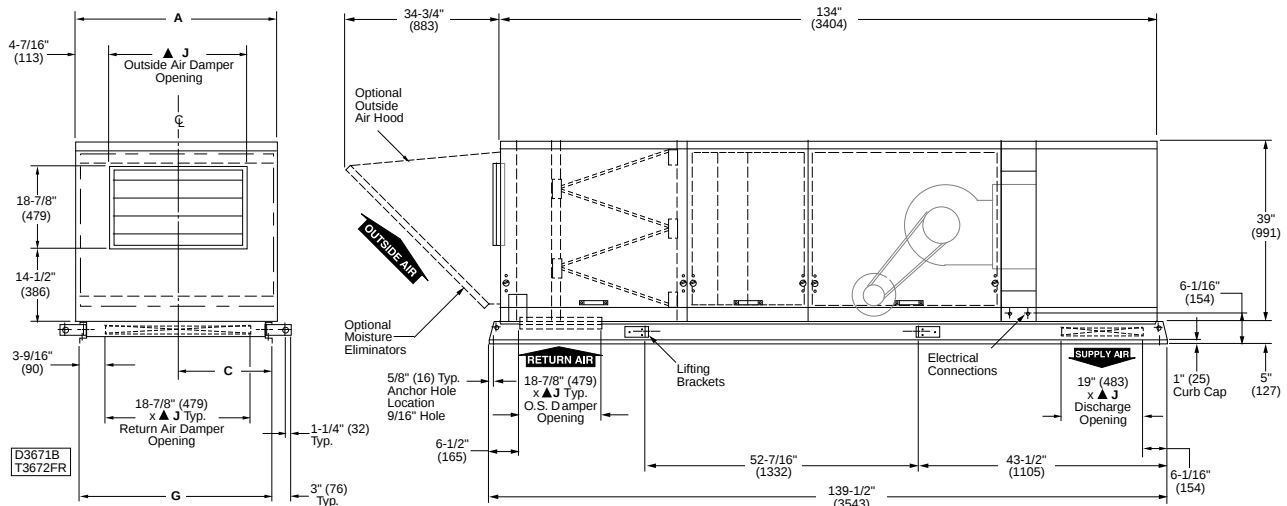
## Rooftop Arrangement [RA] “U”

Capacities [CA] 20 or 40 Unit Sizes  
(Right hand service access shown)



### Rooftop Arrangement [RA] “W”

Capacities [CA] 20 or 40 Unit Sizes  
(Right hand service access shown)



| Capacity | A                 | B                  | C                 | G                  | ▲J                |
|----------|-------------------|--------------------|-------------------|--------------------|-------------------|
| 20       | 43- 7/8<br>(1114) | 23-13/16<br>(605)  | 21-15/16<br>(557) | 42- 1/16<br>(1068) | 35<br>(889)       |
| 40       | 60- 3/8<br>(1534) | 45-13/16<br>(1164) | 30- 3/16<br>(767) | 58- 9/16<br>(1487) | 51- 1/2<br>(1308) |

NOTES: Dimensions are in inches. Dimensions in parenthesis are in millimeters.

▲ "J" Dimension is an outside dimension for return air dampers.

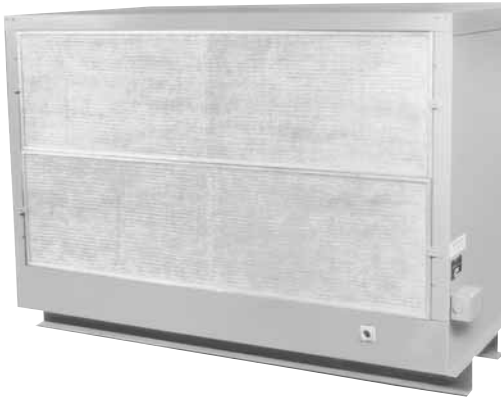
▲ “J” Dimension is also an inside dimension for the supply air opening (without damper).

# Evaporative Cooling

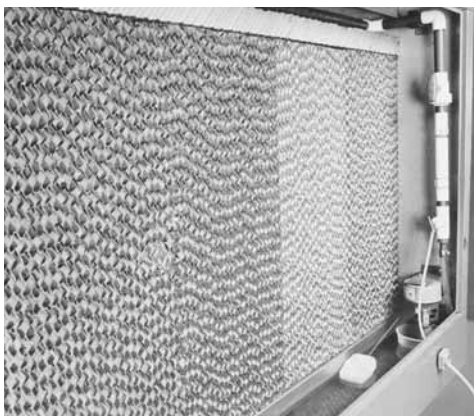
## Rooftop Arrangement [RA] (P,R)

Evaporative Cooling is the simplest and most-cost effective cooling method without the use of mechanical refrigeration. Sterling Evaporative Cooling systems meet a wide range of commercial, industrial, and institutional heating and ventilating requirements. The Evaporative Cooler saves up to 80% on utility charges, requires little maintenance, and replaces exhausted, stale, indoor air with cool, clean, filtered outdoor air.

Evaporative Coolers are also combined in Air Handler Unit Arrangements P and R. The Evaporative Cooler will replace the need for a 100% Outside Air Inlet Hood. If an Evaporative Cooler is to be installed upstream of a duct furnace, a 409 stainless steel heat exchanger is recommended.



Evaporative Cooler Module



Internal View Evaporative Cooler

### STANDARD FEATURES

- **High Cooling Efficiency** - Up to 88% saturation efficiency with standard 8" depth of CELdek® media, and up to 92% saturation efficiency with optional 12" depth media; a 2" distribution pad is included to disperse water evenly. CELdek® media is impregnated with insoluble anti-rot salts and rigidifying saturants. The unique design of the CELdek® pads optimizes air and water mixing for maximum cooling.
- **Optional 8" or 12" GLASdek® media** is also available. See Accessory [AS] Options C4 and C5.
- **Recirculating Pump** - Factory wired, sealed design, durable, thermally protected motor. Permanently lubricated bearings. Standard 115 Volt, 50/60 cycle. Optional 230V motor. Protective basket screen. U.L. recognized.
- **Heavy-Duty Stainless Steel Water Tank** - Stainless steel sump tank and water distributor designed to resist rust, corrosion, and scaling.
- **Ball Valve** - Single-entry ball valve regulates water flow using a 1/4 turn handle.
- **Bleed-Off** - Prevents excessive concentration of minerals in sump water.
- **Float Valve** - Brass float valve and rod with plastic float. Maintains proper water level in sump for most efficient operation. Factory installed in cabinet.
- **Drain and Overflow** - Drain is capped. Overflow controlled by float level allowing slight continued overflow. Optional automatic fill and drain kit is available for field installation.
- **Water Distribution** - Copper water distributor tube for corrosion-free operation and low maintenance.
- **Intake Filters** - Removable intake filters of easy-to-clean 1" aluminum mesh to remove insects, dust, and dirt from airflow.
- **Skid Rails** - With lifting and anchor holes. Optional adjustable platform curb assembly available, shipped separately (see Roof Curb Section).

# Evaporative Cooling Unit

## Performance

Evaporative Cooling is most commonly used in areas where the relative humidity is low and the dry bulb temperatures are high. However, cooling through evaporation can be used in most areas.

Evaporative cooling is best utilized whenever the wet bulb depression (difference between dry and wet bulb temperature) is a minimum of 15°.

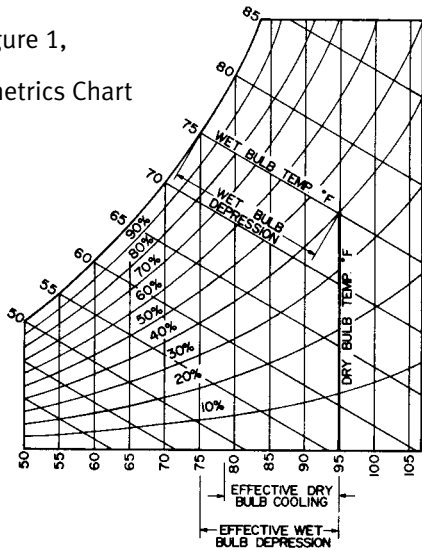
The efficiency of the Sterling Evaporative Cooler is determined by a variety of factors: geographical location, application, air change requirements, sufficient water supply, air flow, and maintenance. In most instances, efficiency is expected to be between 77% and 88%. Heat gains in the distribution system will effect the final output temperature.

Use the psychometrics chart (shown in Figure 1) or actual humidity temperature readings to estimate the leaving dry bulb temperature at the outlet of the Evaporative Cooler.

### Example:

1. Entering Dry Bulb: 95°F
2. Entering Wet Bulb: 75°F
3. Wet Bulb Depression (95°F - 75°F) = 20°F
4. Effective Wet Bulb Depression (20°F x .85) = 17°F
5. Leaving Dry Bulb Temperature (95°F - 17°F) = 78°F
6. Leaving Wet Bulb = Entering Wet Bulb = 75°F

Figure 1,  
Psychometrics Chart



## Selection Method

The easiest method for selecting an evaporative cooler, is to first determine the required number of air changes per minute.

- A. Using Figure 2, choose the geographical zone in which the unit is to be installed.
- B. Determine the internal load within the structure:

**Normal Load:** structures with normal people loads, and without high internal heat gains.

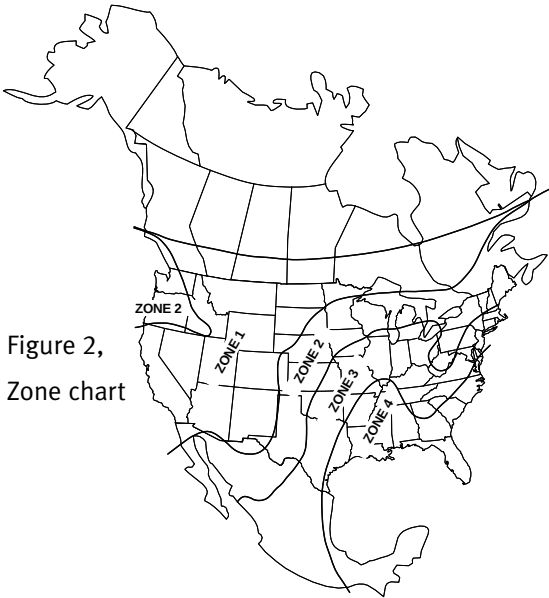


Figure 2,  
Zone chart

**High Load:** Structures with high equipment loads (i.e. factories, laundromats, beauty salons, restaurant kitchens, etc.), and structures with high occupancy (nightclubs, arenas, etc.)

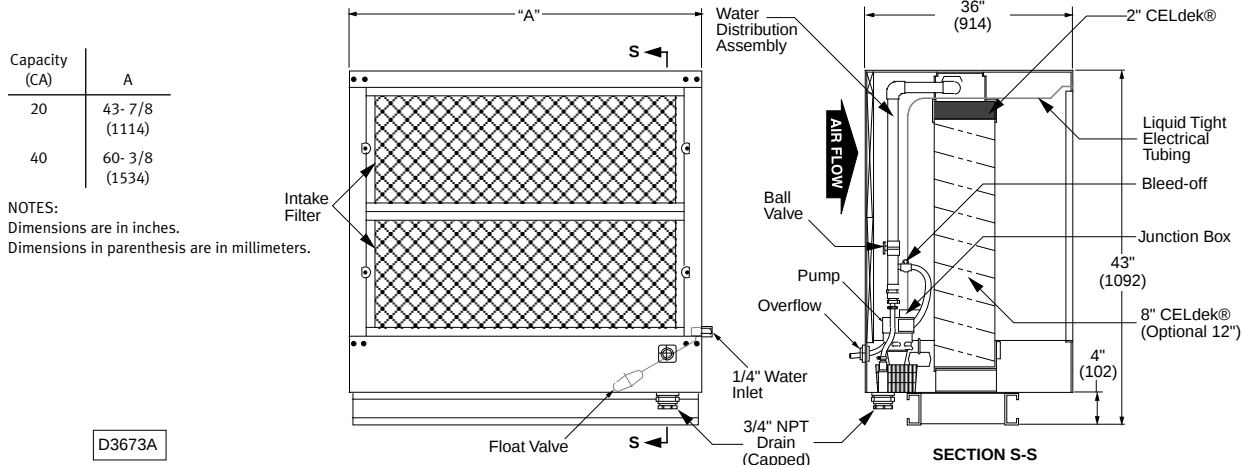
- C. Determine whether the structure has normal or high heat gains: **Normal Gain:** Structures that have insulated roofs, or are in shaded areas. Structures that have two or more stories, or facing directions with no sun. **High Gain:** Structures that have uninsulated roofs, unshaded areas, or rooms that are exposed to sun.
- D. Using table below, determine the required air changes per minute based on zone selection and the type of heat load.
- E. Finally, determine the air quantity for the space chosen, by calculating the volume (L x W x H). Multiply this volume by the air changes per minute.

### Example:

1. Structure Dimensions: 25 L x 24 W x 10 H = 6000 Ft<sup>3</sup>
2. Exterior Load Type: Normal
3. Interior Load Type: Normal
4. Location: Dallas, Texas- Zone 3
5. Air Changes Per Minute: 3/4
6. Evaporative Cooler Requirements:  
6000 Ft<sup>3</sup> x 3/4 Air Change / minute- 4500 CFM Required  
See Evaporative Cooler Performance Chart for unit size that would best apply.

| Air Changes Per Minute Table |      |     |       |       |
|------------------------------|------|-----|-------|-------|
| Type Heat Load               | Zone |     |       |       |
|                              | 1    | 2   | 3     | 4     |
| High Load/ High Gain         | 3/4  | 1   | 1-1/3 | 2     |
| High Load/Normal Gain        | 1/2  | 3/4 | 1     | 1-1/3 |
| Normal Load/High Gain        | 1/2  | 3/4 | 1     | 1-1/3 |
| Normal Load/Normal Gain      | 1/2  | 1/2 | 3/4   | 1     |

# Evaporative Cooling Unit



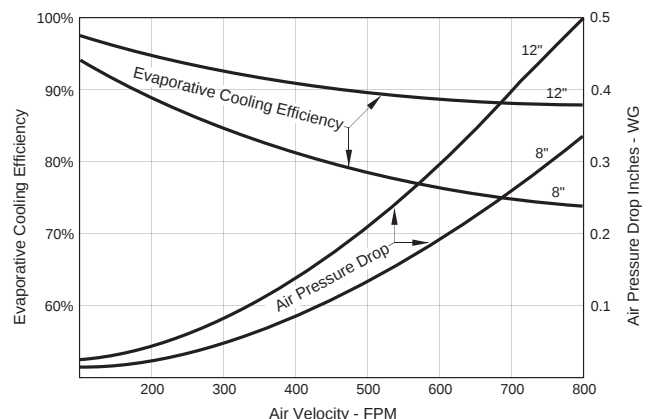
## Performance and Dimensional Data

| Capacity 20, 40 | CFM              |                  | 8" Saturation Efficiency Range |      | 12" Saturation Efficiency Range |      | 8" or 12" Media Face Area          |                              | Pressure Drop in. W.C. (KPa) |                | "A" Unit Width in. (mm) | Shipping Wt.* lb. (kg) | Operating Wt.* lb. (kg) |
|-----------------|------------------|------------------|--------------------------------|------|---------------------------------|------|------------------------------------|------------------------------|------------------------------|----------------|-------------------------|------------------------|-------------------------|
|                 | (cu. m/s) MIN.   | (cu. m/s) MAX.   | MIN.                           | MAX. | MIN.                            | MAX. | Ft. <sup>2</sup> (m <sup>2</sup> ) | Size In. (mm)                | MIN.                         | MAX.           |                         |                        |                         |
| 20              | 1,600<br>(0.755) | 5,500<br>(2.596) | 77                             | 88   | 88                              | 92   | 9.38<br>(0.87)                     | 31 x 43-9/16<br>(787) (1106) | 0.03<br>(0.01)               | 0.20<br>(0.05) | 43 3/4<br>(1111)        | 166<br>(75)            | 386<br>(175)            |
| 40              | 3,200<br>(1.510) | 8,500<br>(4.012) | 77                             | 86   | 87                              | 92   | 12.92<br>(1.20)                    | 31 x 60<br>(787) (1524)      | 0.07<br>(0.02)               | 0.28<br>(0.07) | 60 1/4<br>(1530)        | 206<br>(93)            | 509<br>(231)            |

\* These weights are for the Evaporative Cooler Module only.

## CELdek® EVAPORATIVE MEDIA

The Sterling Evaporative Cooler utilizes high efficiency CELdek® media. CELdek® is made from a special cellulose paper, impregnated with insoluble anti-rot salts and rigidifying saturants. The cross fluted design of the pads induces highly-turbulent mixing of air and water for optimum heat and moisture transfer. Sterling Evaporative coolers utilize 8" CELdek® as standard equipment. Optional 12" CELdek®, 8" and 12" GLASdek® are also available. A 2" distribution pad is used to disperse water evenly over the media.



EVAPORATIVE COOLER EFFICIENCY/A.P.D. CHART

# Cooling Coil Options

## Rooftop Arrangement [RA] (U,W) Coil Options [CO] Model Digit 8

Sterling Engineered Products also offers coil cabinets and factory installed coils with our Packaged Air Handlers. As standard equipment, we offer 4 or 6 row, single or dual circuit intertwine, DX (20 tons max.) or chilled water coils. Hot water and steam heating coils are also available. Sterling coil cabinets feature draw through design to ensure even air flow across the coil face and a one piece 409 stainless steel positive drain drip pan conforming to ASHRAE standard No. 62-1989. The positive drain pan is designed for side outlet drainage piping.



Please refer to tables 5 and 6 for Cooling Coil Performance Data. If a cooling coil is to be installed upstream of a duct furnace, a 409 stainless steel heat exchanger is recommended.

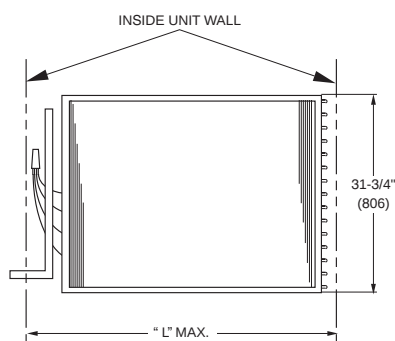
**Rooftop Arrangements (U,W) should not exceed 6,300 CFM (3.0 m³/s) or face velocities of 600 FPM.**

Please refer to “HVAC Engineered Products” Application Manual GEPC for detailed cooling coil selection procedure.

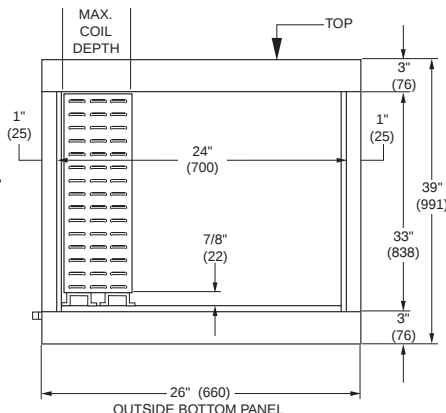
### Coil Options [CO] Digit 8

- A** - DX Coil, 4 Row, Single Circuit
- B** - DX Coil, 4 Row, Dual Circuit
- C** - DX Coil, 6 Row, Single Circuit
- D** - DX Coil, 6 Row, Dual Circuit
- E** - Chilled Water Coil, 4 Row
- G** - Chilled Water Coil, 6 Row
- 0** - None
- Z** - Other (Special)

### Maximum Coil Dimensions



### Side Opening Of Cooling Module



| Capacity (CA) | "L" Inside Max. Cabinet Openings |
|---------------|----------------------------------|
| 20            | 42- 1/4 (1073)                   |
| 40            | 58-3/4 (1492)                    |

NOTES:  
Dimensions are in inches.  
Dimensions in parenthesis are in millimeters.

# Cooling Coil Options [CO] – Table 5

## Rooftop Arrangements (U,W)

### DX Cooling Coil Performance Data (Ref. R-410A)

Capacity based on 80°F EDB, 67°F EWB, 45°F Sat. Suction, 100°F Liquid.

| Unit Capacity (CA) | Air Flow (SCFM) | Face Velocity (FPM) | 4 Row             |                     |                  |                 |            | 6 Row             |                     |                  |                 |            |
|--------------------|-----------------|---------------------|-------------------|---------------------|------------------|-----------------|------------|-------------------|---------------------|------------------|-----------------|------------|
|                    |                 |                     | Fin Spacing (FPF) | Coil Capacity (MBH) | L.A.T. (DB / WB) | A.P.D. IN. W.C. | WT. (LBS.) | Fin Spacing (FPF) | Coil Capacity (MBH) | L.A.T. (DB / WB) | A.P.D. IN. W.C. | WT. (LBS.) |
| 20                 | 1600            | 217                 | 72                | 58                  | 56/55            | 0.10            | 80         | 85                | 70                  | 53/52            | 0.18            | 113        |
|                    |                 |                     | 84                | 62                  | 55/54            | 0.11            | 82         | 104               | 74                  | 52/51            | 0.21            | 119        |
|                    |                 |                     | 104               | 67                  | 54/53            | 0.14            | 86         | 128               | 78                  | 50/50            | 0.23            | 126        |
|                    | 2100            | 271                 | 73                | 69                  | 57/56            | 0.15            | 80         | 78                | 82                  | 54/53            | 0.23            | 111        |
|                    |                 |                     | 88                | 74                  | 56/55            | 0.18            | 83         | 94                | 87                  | 53/52            | 0.28            | 116        |
|                    |                 |                     | 118               | 82                  | 56/54            | 0.21            | 89         | 119               | 93                  | 51/51            | 0.32            | 123        |
|                    | 3000            | 407                 | 72                | 88                  | 60/57            | 0.29            | 80         | 80                | 112                 | 55/54            | 0.45            | 111        |
|                    |                 |                     | 95                | 98                  | 58/56            | 0.36            | 84         | 102               | 122                 | 54/53            | 0.56            | 118        |
|                    |                 |                     | 117               | 106                 | 56/55            | 0.41            | 89         | 122               | 129                 | 53/52            | 0.61            | 124        |
|                    | 4000            | 542                 | 72                | 102                 | 62/59            | 0.45            | 80         | 80                | 135                 | 57/56            | 0.69            | 111        |
|                    |                 |                     | 99                | 116                 | 59/57            | 0.57            | 85         | 104               | 149                 | 56/55            | 0.86            | 119        |
|                    |                 |                     | 117               | 124                 | 58/57            | 0.62            | 89         | 121               | 157                 | 55/54            | 0.94            | 124        |
|                    | 4400            | 596                 | 85                | 106                 | 62/59            | 0.52            | 82         | 80                | 143                 | 57/56            | 0.79            | 111        |
|                    |                 |                     | 96                | 120                 | 60/58            | 0.64            | 85         | 106               | 159                 | 56/55            | 1.00            | 119        |
|                    |                 |                     | 129               | 130                 | 58/57            | 0.73            | 91         | 113               | 163                 | 55/55            | 1.03            | 121        |
| 40                 | 3200            | 295                 | 85                | 114                 | 56/55            | 0.20            | 115        | 72                | 134                 | 54/53            | 0.25            | 153        |
|                    |                 |                     | 122               | 127                 | 55/54            | 0.21            | 126        | 90                | 143                 | 52/52            | 0.32            | 161        |
|                    |                 |                     | 137               | 134                 | 54/53            | 0.26            | 131        | 125               | 155                 | 51/50            | 0.38            | 177        |
|                    | 4000            | 369                 | 82                | 128                 | 58/56            | 0.26            | 114        | 72                | 157                 | 55/54            | 0.37            | 153        |
|                    |                 |                     | 107               | 143                 | 56/55            | 0.33            | 122        | 90                | 168                 | 54/53            | 0.46            | 161        |
|                    |                 |                     | 131               | 154                 | 55/54            | 0.37            | 129        | 109               | 177                 | 52/52            | 0.51            | 170        |
|                    | 5000            | 464                 | 81                | 145                 | 60/58            | 0.37            | 114        | 87                | 179                 | 56/55            | 0.55            | 160        |
|                    |                 |                     | 107               | 164                 | 57/56            | 0.47            | 122        | 93                | 196                 | 55/54            | 0.66            | 163        |
|                    |                 |                     | 132               | 178                 | 56/55            | 0.52            | 129        | 109               | 206                 | 54/53            | 0.71            | 170        |
|                    | 6000            | 553                 | 81                | 160                 | 61/58            | 0.48            | 114        | 85                | 200                 | 57/56            | 0.72            | 159        |
|                    |                 |                     | 108               | 182                 | 58/57            | 0.61            | 122        | 100               | 224                 | 55/54            | 0.89            | 166        |
|                    |                 |                     | 126               | 194                 | 57/56            | 0.66            | 127        | 113               | 233                 | 55/54            | 0.94            | 172        |
|                    | 6500            | 599                 | 77                | 163                 | 62/59            | 0.53            | 112        | 80                | 205                 | 58/57            | 0.79            | 156        |
|                    |                 |                     | 105               | 187                 | 59/58            | 0.67            | 121        | 93                | 229                 | 56/55            | 0.96            | 163        |
|                    |                 |                     | 116               | 196                 | 58/57            | 0.71            | 124        | 105               | 238                 | 55/55            | 1.01            | 168        |

Capacity based on 95°F EDB, 74°F EWB, 45°F Sat. Suction, 100°F Liquid.

| Unit Capacity (CA) | Air Flow (SCFM) | Face Velocity (FPM) | 4 Row             |                     |                  |                 |            | 6 Row             |                     |                  |                 |            |
|--------------------|-----------------|---------------------|-------------------|---------------------|------------------|-----------------|------------|-------------------|---------------------|------------------|-----------------|------------|
|                    |                 |                     | Fin Spacing (FPF) | Coil Capacity (MBH) | L.A.T. (DB / WB) | A.P.D. IN. W.C. | WT. (LBS.) | Fin Spacing (FPF) | Coil Capacity (MBH) | L.A.T. (DB / WB) | A.P.D. IN. W.C. | WT. (LBS.) |
| 20                 | 1600            | 217                 | 76                | 91                  | 59/57            | 0.10            | 80         | 72                | 105                 | 55/54            | 0.15            | 109        |
|                    |                 |                     | 92                | 97                  | 57/56            | 0.13            | 84         | 92                | 112                 | 53/53            | 0.19            | 115        |
|                    |                 |                     | 116               | 104                 | 55/54            | 0.15            | 89         | 127               | 120                 | 51/50            | 0.23            | 126        |
|                    | 2100            | 271                 | 80                | 106                 | 62/59            | 0.17            | 81         | 72                | 130                 | 56/55            | 0.24            | 109        |
|                    |                 |                     | 91                | 116                 | 59/58            | 0.20            | 84         | 87                | 137                 | 55/54            | 0.27            | 113        |
|                    |                 |                     | 117               | 123                 | 57/56            | 0.23            | 89         | 104               | 144                 | 53/53            | 0.33            | 119        |
|                    | 3000            | 407                 | 80                | 136                 | 64/61            | 0.30            | 81         | 77                | 170                 | 57/57            | 0.45            | 110        |
|                    |                 |                     | 115               | 155                 | 60/59            | 0.40            | 88         | 93                | 181                 | 57/56            | 0.54            | 115        |
|                    |                 |                     | 144               | 169                 | 58/57            | 0.45            | 94         | 120               | 195                 | 55/54            | 0.61            | 124        |
|                    | 4000            | 542                 | 83                | 159                 | 67/63            | 0.47            | 82         | 94                | 205                 | 60/59            | 0.81            | 115        |
|                    |                 |                     | 115               | 184                 | 63/61            | 0.60            | 88         | 97                | 221                 | 59/58            | 0.84            | 117        |
|                    |                 |                     | 141               | 200                 | 61/59            | 0.68            | 94         | 112               | 232                 | 57/57            | 0.91            | 121        |
|                    | 4400            | 596                 | 82                | 165                 | 68/63            | 0.53            | 82         | 77                | 215                 | 62/60            | 0.79            | 110        |
|                    |                 |                     | 117               | 195                 | 63/61            | 0.70            | 89         | 97                | 234                 | 59/58            | 0.96            | 117        |
|                    |                 |                     | 130               | 204                 | 62/61            | 0.74            | 91         | 126               | 244                 | 58/57            | 1.09            | 125        |
| 40                 | 3200            | 295                 | 86                | 173                 | 60/58            | 0.19            | 115        | 89                | 206                 | 55/54            | 0.32            | 161        |
|                    |                 |                     | 132               | 189                 | 57/56            | 0.25            | 129        | 116               | 225                 | 52/52            | 0.37            | 173        |
|                    |                 |                     | 130               | 200                 | 56/55            | 0.26            | 129        | 147               | 235                 | 51/51            | 0.42            | 187        |
|                    | 4000            | 369                 | 82                | 195                 | 63/60            | 0.27            | 114        | 78                | 238                 | 57/56            | 0.38            | 156        |
|                    |                 |                     | 105               | 215                 | 60/58            | 0.33            | 121        | 108               | 260                 | 55/54            | 0.51            | 170        |
|                    |                 |                     | 122               | 227                 | 58/57            | 0.36            | 126        | 136               | 275                 | 53/53            | 0.56            | 182        |
|                    | 5000            | 464                 | 81                | 220                 | 65/61            | 0.37            | 114        | 84                | 279                 | 59/57            | 0.56            | 159        |
|                    |                 |                     | 119               | 245                 | 61/60            | 0.48            | 125        | 118               | 307                 | 56/55            | 0.74            | 174        |
|                    |                 |                     | 130               | 266                 | 59/58            | 0.52            | 129        | 141               | 328                 | 54/54            | 0.81            | 184        |
|                    | 6000            | 553                 | 92                | 242                 | 66/62            | 0.55            | 117        | 84                | 312                 | 60/59            | 0.81            | 156        |
|                    |                 |                     | 107               | 272                 | 63/61            | 0.61            | 122        | 126               | 348                 | 57/57            | 1.00            | 178        |
|                    |                 |                     | 129               | 293                 | 61/60            | 0.67            | 128        | 135               | 368                 | 56/55            | 1.04            | 182        |
|                    | 6500            | 599                 | 87                | 245                 | 67/63            | 0.60            | 115        | 81                | 322                 | 61/59            | 0.80            | 157        |
|                    |                 |                     | 104               | 280                 | 64/62            | 0.67            | 121        | 108               | 359                 | 59/58            | 1.01            | 169        |
|                    |                 |                     | 124               | 301                 | 62/61            | 0.74            | 127        | 123               | 376                 | 57/57            | 1.09            | 176        |

Conversions: 2119 SCFM = 1m<sup>3</sup>/s, 196.8FPM = 1m/s, 3.412 MBH = 1kW, (°F-32) 5/9 = °C, 1 IN.W.C. = 248.8 Pa, 0.4536 kg = 1 lb.

NOTES: 1) Data certified in accordance with ARI Standard 410.

2) Weight listed is the total weight of the dry coil.

3) Consult Customer Service Department for special coil requirements.

# Cooling Coil Options [CO] — Table 6

## Rooftop Arrangements (U,W)

## Chilled Water Cooling Coil Performance Data

Capacity based on 80°F EDB, 67°F EWB, 45°F EWT, 70 GPM.

| Capacity | Air Flow<br>SCFM | Face Velocity<br>FPM | 4 Row              |                      |                   |                    |             | 6 Row              |                      |                   |                    |             |
|----------|------------------|----------------------|--------------------|----------------------|-------------------|--------------------|-------------|--------------------|----------------------|-------------------|--------------------|-------------|
|          |                  |                      | Fin Spacing<br>FPF | Coil Capacity<br>MBH | L.A.T.<br>DB / WB | A.P.D.<br>IN. W.C. | WT.<br>LBS. | Fin Spacing<br>FPF | Coil Capacity<br>MBH | L.A.T.<br>DB / WB | A.P.D.<br>IN. W.C. | WT.<br>LBS. |
| 20       | 1800             | 243                  | 84                 | 78.8                 | 53/ 52            | 0.14               | 83          | 84                 | 93.5                 | 50/ 49            | 0.21               | 113         |
|          |                  |                      | 90                 | 84.0                 | 52/ 51            | 0.15               | 86          | 103                | 98.0                 | 49/ 48            | 0.24               | 119         |
|          |                  |                      | 111                | 90.0                 | 51/ 50            | 0.17               | 90          | 123                | 101.2                | 48/ 47            | 0.26               | 125         |
|          | 3000             | 406                  | 84                 | 107.2                | 57/ 55            | 0.32               | 83          | 84                 | 133.3                | 53/ 52            | 0.48               | 113         |
|          |                  |                      | 88                 | 116.0                | 56/ 54            | 0.33               | 86          | 102                | 141.2                | 52/ 51            | 0.53               | 119         |
|          |                  |                      | 104                | 124.0                | 54/ 53            | 0.36               | 89          | 123                | 148.6                | 51/ 50            | 0.59               | 125         |
|          | 4300             | 582                  | 84                 | 127.5                | 60/ 58            | 0.54               | 83          | 84                 | 163.3                | 55/ 54            | 0.82               | 113         |
|          |                  |                      | 102                | 138.0                | 58/ 56            | 0.60               | 86          | 103                | 175.0                | 54/ 53            | 0.91               | 119         |
|          |                  |                      | 124                | 149.0                | 57/ 56            | 0.67               | 91          | 125                | 186.0                | 53/ 52            | 1.00               | 126         |
| 40       | 2200             | 202                  | 84                 | 100.8                | 52/ 51            | 0.10               | 115         | 85                 | 118.0                | 49/ 48            | 0.15               | 160         |
|          |                  |                      | 95                 | 105.0                | 52/ 51            | 0.11               | 119         | 92                 | 120.0                | 48/ 48            | 0.16               | 163         |
|          |                  |                      | 111                | 110.0                | 51/ 50            | 0.12               | 123         | 100                | 122.0                | 48/ 47            | 0.17               | 167         |
|          | 3500             | 322                  | 84                 | 136.0                | 55/ 54            | 0.22               | 115         | 84                 | 165.4                | 52/ 51            | 0.33               | 159         |
|          |                  |                      | 102                | 146.0                | 54/ 53            | 0.25               | 121         | 101                | 174.0                | 50/ 50            | 0.37               | 167         |
|          |                  |                      | 122                | 155.0                | 53/ 52            | 0.27               | 127         | 125                | 183.0                | 49/ 49            | 0.41               | 178         |
|          | 4900             | 451                  | 84                 | 162.5                | 58/ 56            | 0.38               | 115         | 84                 | 203.2                | 54/ 53            | 0.56               | 159         |
|          |                  |                      | 102                | 175.2                | 56/ 55            | 0.42               | 121         | 102                | 216.0                | 53/ 52            | 0.63               | 168         |
|          |                  |                      | 124                | 188.1                | 55/ 54            | 0.46               | 127         | 124                | 228.0                | 52/ 51            | 0.69               | 178         |
|          | 6300             | 580                  | 84                 | 181.9                | 60/ 58            | 0.54               | 115         | 84                 | 231.0                | 56/ 55            | 0.81               | 159         |
|          |                  |                      | 104                | 198.0                | 58/ 57            | 0.60               | 121         | 104                | 249.0                | 54/ 54            | 0.89               | 168         |
|          |                  |                      | 103                | 213.0                | 57/ 56            | 0.60               | 213         | 125                | 264.0                | 53/ 53            | 0.98               | 178         |

Capacity based on 95°F EDB, 74°F EWB, 45°F EWT, 70 GPM.

| Capacity | Air Flow<br>SCFM | Face Velocity<br>FPM | 4 Row              |                      |                   |                    |             | 6 Row              |                      |                   |                    |             |
|----------|------------------|----------------------|--------------------|----------------------|-------------------|--------------------|-------------|--------------------|----------------------|-------------------|--------------------|-------------|
|          |                  |                      | Fin Spacing<br>FPF | Coil Capacity<br>MBH | L.A.T.<br>DB / WB | A.P.D.<br>IN. W.C. | WT.<br>LBS. | Fin Spacing<br>FPF | Coil Capacity<br>MBH | L.A.T.<br>DB / WB | A.P.D.<br>IN. W.C. | WT.<br>LBS. |
| 20       | 1800             | 243                  | 84                 | 111.8                | 57/ 55            | 0.14               | 83          | 84                 | 132.8                | 52/ 51            | 0.21               | 113         |
|          |                  |                      | 101                | 119.0                | 55/ 54            | 0.16               | 86          | 101                | 138.6                | 50/ 50            | 0.24               | 118         |
|          |                  |                      | 126                | 127.0                | 53/ 52            | 0.18               | 91          | 123                | 144.0                | 49/ 48            | 0.26               | 125         |
|          | 3000             | 406                  | 84                 | 151.3                | 62/ 59            | 0.32               | 83          | 84                 | 188.5                | 56/ 55            | 0.48               | 113         |
|          |                  |                      | 102                | 163.0                | 60/ 58            | 0.36               | 86          | 102                | 200.0                | 54/ 54            | 0.54               | 119         |
|          |                  |                      | 124                | 175.0                | 58/ 57            | 0.40               | 91          | 125                | 211.0                | 53/ 52            | 0.59               | 126         |
|          | 4300             | 582                  | 84                 | 179.2                | 66/ 62            | 0.54               | 83          | 84                 | 230.2                | 60/ 58            | 0.81               | 113         |
|          |                  |                      | 103                | 195.0                | 64/ 61            | 0.60               | 86          | 104                | 248.0                | 58/ 57            | 0.90               | 119         |
|          |                  |                      | 126                | 211.0                | 61/ 60            | 0.66               | 91          | 127                | 264.0                | 46/ 55            | 1.00               | 126         |
| 40       | 2200             | 202                  | 84                 | 143.1                | 56/ 54            | 0.10               | 115         | 84                 | 167.4                | 51/ 50            | 0.15               | 159         |
|          |                  |                      | 91                 | 147.0                | 55/ 53            | 0.11               | 117         | 93                 | 171.0                | 50/ 49            | 0.17               | 163         |
|          |                  |                      | 108                | 155.0                | 53/ 52            | 0.12               | 122         | 101                | 174.0                | 49/ 49            | 0.17               | 167         |
|          | 3500             | 322                  | 84                 | 192.1                | 60/ 58            | 0.22               | 115         | 84                 | 234.2                | 54/ 53            | 0.33               | 159         |
|          |                  |                      | 102                | 206.0                | 58/ 56            | 0.25               | 121         | 102                | 247.0                | 53/ 52            | 0.37               | 168         |
|          |                  |                      | 124                | 220.0                | 56/ 55            | 0.27               | 127         | 125                | 259.0                | 51/ 51            | 0.41               | 178         |
|          | 4900             | 451                  | 84                 | 228.6                | 64/ 60            | 0.38               | 115         | 84                 | 286.6                | 58/ 56            | 0.56               | 159         |
|          |                  |                      | 103                | 248.0                | 61/ 59            | 0.42               | 121         | 103                | 306.0                | 56/ 55            | 0.62               | 168         |
|          |                  |                      | 125                | 266.0                | 59/ 58            | 0.45               | 128         | 125                | 323.0                | 55/ 54            | 0.68               | 178         |
|          | 6300             | 580                  | 84                 | 255.4                | 66/ 62            | 0.53               | 115         | 84                 | 326.3                | 60/ 59            | 0.79               | 159         |
|          |                  |                      | 104                | 279.0                | 64/ 61            | 0.59               | 121         | 105                | 352.0                | 58/ 57            | 0.88               | 169         |
|          |                  |                      | 126                | 301.0                | 62/ 60            | 0.65               | 128         | 127                | 374.0                | 57/ 56            | 0.98               | 179         |

Conversions: 2119 SCFM = 1m<sup>3</sup>/s, 196.8FPM = 1m/s, 3.412 MBH = 1kW, (°F-32) 5/9 = °C, 1 IN.W.C. = 248.8 Pa, 0.4536 kg = 1 lb.

NOTES: 1) Data certified in accordance with ARI Standard 410.

2) Weight listed is the total weight of the dry coil.

3) Consult customer service department for special coil requirements.

## Supply Voltage [SV]

### Model Digit 11

The standard Supply Voltages for Sterling Engineered Products are listed below.

- |                                            |                                           |
|--------------------------------------------|-------------------------------------------|
| <b>1 - 115 VAC, Single Phase, 60 Cycle</b> | <b>4 - 208 VAC, Three Phase, 60 Cycle</b> |
| <b>2 - 208 VAC, Single Phase, 60 Cycle</b> | <b>5 - 230 VAC, Three Phase, 60 Cycle</b> |
| <b>3 - 230 VAC, Single Phase, 60 Cycle</b> | <b>6 - 460 VAC, Three Phase, 60 Cycle</b> |
|                                            | <b>7 - 575 VAC, Three Phase, 60 Cycle</b> |

## Motor Type [MT]

### Model Digit 12

Blower Motors are available in Open Drip Proof, Totally Enclosed, Premium Efficiency Open Drip Proof and Premium Efficiency Totally Enclosed. Motors are ball bearing type with a resilient base and NEMA frame sizes from 48 to 256T. Windings are Class “B”, 1800 RPM with service factors of 1/2—3/4 HP. = 1.25 and 1–15 HP. = 1.15. Motors are in compliance with the Energy Policy Act (EPACT) of 1992 and any of its latest editions.

- 1 - Open Drip Proof Motor (ODP)**
- 2 - Totally Enclosed (TE)**
- 3 - Premium Efficiency Open Drip Proof (PEODP)**
- 4 - Premium Efficiency Totally Enclosed (PETE)**

## Motor Size [MS]

### Model Digit 13

Motors are available from 1/2 to 15 HP. Thermal Protection is automatic for most motors up to 5 HP., a Magnetic Starter with IEC (International Electrotechnical Commission) type over current protection must be used for motors without automatic thermal protection and motors above 5 HP.

- |                                                                          |                                                                            |                                                    |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------|
| <b>A - 1/2 HP. with Contactor</b>                                        | <b>M- 1 1/2 HP. with Magnetic Starter and IEC over current protection</b>  | <b>1 - 1 HP. with Variable Frequency Drive</b>     |
| <b>B - 3/4 HP. with Contactor</b>                                        | <b>N - 2 HP. with Magnetic Starter and IEC over current protection</b>     | <b>2 - 1 1/2 HP. with Variable Frequency Drive</b> |
| <b>C - 1 HP. with Contactor</b>                                          | <b>P - 3 HP. with Magnetic Starter and IEC over current protection</b>     | <b>3 - 2 HP. with Variable Frequency Drive</b>     |
| <b>D - 1 1/2 HP. with Contactor</b>                                      | <b>R - 5 HP. with Magnetic Starter and IEC over current protection</b>     | <b>4 - 3 HP. with Variable Frequency Drive</b>     |
| <b>E - 2 HP. with Contactor</b>                                          | <b>S - 7 1/2 HP. with Magnetic Starter and IEC over current protection</b> | <b>5 - 5 HP. with Variable Frequency Drive</b>     |
| <b>G - 3 HP. with Contactor</b>                                          | <b>T - 10 HP. with Magnetic Starter and IEC over current protection</b>    | <b>6 - 7 1/2 HP. with Variable Frequency Drive</b> |
| <b>H - 5 HP. with Contactor</b>                                          | <b>U - 15 HP. with Magnetic Starter and IEC over current protection</b>    | <b>7 - 10 HP. with Variable Frequency Drive</b>    |
| <b>J - 1/2 HP. with Magnetic Starter and IEC over current protection</b> |                                                                            | <b>8 - 15 HP. with Variable Frequency Drive</b>    |
| <b>K - 3/4 HP. with Magnetic Starter and IEC over current protection</b> |                                                                            |                                                    |
| <b>L - 1 HP. with Magnetic Starter and IEC over current protection</b>   |                                                                            |                                                    |

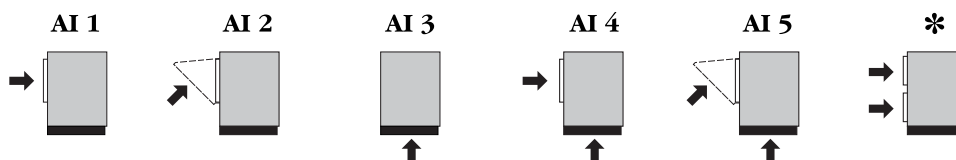
Note: Refer to Table 10, page 37 for Full Load Ampacity ratings for motors.

# Air Inlet Configuration [AI]

## Model Digit 14

The Air Inlet Configuration [AI] defines the entering air openings for Sterling Engineered Products. This item does not include dampers and must match the required opening

for Air Control and Damper Arrangement [AC]. A horizontal return air feature is offered on air inlet configurations 4 and 5. Refer to accessory [AS] No. A2.



**1 - Horizontal Inlet (100% Outside Air or 100% Return Air)**

**2 - Horizontal Inlet (100% Outside Air or 100% Return Air) with Intake Hood**

**3 - Bottom Return Air Opening**

**4 - Outside and Return Air Opening**

**5 - Outside and Return Air Opening with Intake Hood**

**\* Horizontal Outside and Return Air Openings. See Accessories Section [AS] Model Digit 16 [A2]**

# Air Control and Damper Arrangement [AC]

## Model Digit 15

**A - Outside air damper with 2 Position spring return damper motor** Outside air damper opens upon energizing the unit blower motor.

**B - Return air damper with 2 Position spring return damper motor** Return air damper opens upon energizing the unit blower motor.

**C - Outside and Return air interlocked dampers with 2 Position spring return damper motor** Outside air damper opens and return air damper closes upon energizing the unit blower motor.

**D - Outside and Return air interlocked dampers with Modulating damper motor, Mixed air temperature control and minimum position potentiometer** Outside and return air dampers modulate in response to the mixed air temperature setpoint and allow minimum outside air setting.

**E - Outside and Return air interlocked dampers with Modulating spring return damper motor, Mixed air temperature control and minimum position potentiometer** Outside and return air dampers modulate in response to the mixed air temperature setpoint and allow minimum outside air setting. When de-energized outside air dampers close and return air dampers open.

**G - Outside and Return air interlocked dampers with Modulating damper motor and Mixed air temperature control** Outside and return air dampers modulate in response to the mixed air temperature setpoint.

**H - Outside and Return air interlocked dampers with Modulating spring return damper motor and Mixed air temperature control** Outside and return air dampers modulate in response to the mixed air temperature setpoint. When de-energized outside air dampers close and return air dampers open.

**J - Outside and Return air interlocked dampers with Modulating damper motor and positioning potentiometer** Outside and return air dampers open and close with respect to the setting of the positioning potentiometer.

**K - Outside and Return air interlocked dampers with Modulating spring return damper motor and positioning potentiometer** Outside and return air dampers open and close with respect to the setting of the positioning potentiometer. When de-energized outside air dampers close and return air dampers open.

# Air Control and Damper Arrangement [AC] *continued*

- L - Outside and Return air interlocked dampers with Modulating damper motor. Mixed air temperature control, minimum position potentiometer and Dry Bulb Economizer** Outside and return air dampers modulate in response to the mixed air temperature set point and allow minimum outside air setting. Dampers respond to the economizer when the outside air temperature is within the set point range by opening the outside and closing the return air damper to achieve free cooling effect.
- M - Outside and Return air interlocked dampers with Modulating spring return damper motor. Mixed air temperature control, minimum position potentiometer and Dry Bulb Economizer** Outside and return air dampers modulate in response to the mixed air temperature setpoint and allow minimum outside air setting. Dampers respond to the economizer when the outside air temperature is within the set point range by opening the outside and closing the return air damper to achieve free cooling effect. When de-energized outside air dampers close and return air dampers open.
- N - Outside and Return air interlocked dampers with Modulating spring return damper motor and Enthalpy Controlled Economizer** Outside and return air dampers modulate in response to the heat content of sensed mixed air. The air mixture is optimized to provide inlet air with the lowest possible load characteristics in both heating and cooling modes. When de-energized outside air dampers close and return air dampers open.
- P - Outside and Return air interlocked dampers with Modulating damper motor and Atmospheric Pressure sensor** Outside and return air dampers modulate in response to sensed building pressure, typically maintaining a slightly positive building pressure in order to reduce heat loss due to infiltration.
- Q - Outside and Return air interlocked dampers with Modulating damper motor and CO<sub>2</sub> (Carbon Dioxide) Monitor** Outside and return air dampers modulate in response to the CO<sub>2</sub> monitor set point. Monitor is located in the return air stream. On a rise in CO<sub>2</sub> level, the outside damper modulates open and the return air damper closes. A decrease in CO<sub>2</sub> level modulates the outside air damper closed and opens the return air damper. When the unit is de-energized, the damper motor will close the outside air damper and open the return air damper. Equipped with one normally open contact for alarm light or bell to guard against times of sustained high CO<sub>2</sub> levels. CO<sub>2</sub> monitor is shipped loose for field installation.
- R - Outside and Return air interlocked dampers with Modulating spring return damper motor and S350 Proportional Mixed air control** Outside and return air dampers modulate in response to the mixed air temperature setpoint, and allow minimum outside air setting. When de-energized outside air dampers close and return air dampers open.
- S - Outside and Return air interlocked dampers with Modulating damper motor and 0-10VDC or 4-20mA input** Requires an external input signal from a Direct Digital Controller (DDC). Provides proportional control from a building management system or electronic controller based upon programmed parameters.
- T - Outside and Return air interlocked dampers with Modulating spring return damper motor and 0-10VDC or 4-20mA input** Requires an external input signal from a Direct Digital Controller (DDC). Provides proportional control from a building management system or electronic controller based on programmed parameters. When de-energized outside air dampers close and return air dampers open.
- U - ASHRAE Cycle I** Outside and Return dampers with 2 Position spring return damper motor and warm-up thermostat. When energized dampers open in response to the warm-up thermostat preventing cold air starts.
- W - ASHRAE Cycle II** Outside and Return air interlocked dampers with modulating spring return damper motor. Mixed air temperature control, minimum position potentiometer and warm-up thermostat. Outside and return air dampers modulate in response to the mixed air temperature setpoint and allow minimum outside air setting once the warm-up thermostat has been satisfied. When de-energized outside air dampers close and return air dampers open.
- X - ASHRAE Cycle III** Outside and Return air interlocked dampers with modulating spring return damper motor. Mixed air temperature control and warm-up thermostat. Outside and return air dampers modulate in response to the mixed air temperature setpoint once the warm-up thermostat has been satisfied. When de-energized outside air dampers close and return air dampers open.
- Y - Manual Outside and Return air dampers** Dampers are locked into position utilizing a manual quadrant for field adjustment.

# Accessories [AS]

Model Digit 16/+

## Mechanical Accessories

**A1- Moisture Eliminators** Use in place of the bird screen with an outside air hood. The metal wire filter is designed to collect water droplets/mists and drain them to the bottom of the filter. This item includes an electrically interlocked differential pressure switch with indicator lamp in case of blockage.

**A2- Horizontal Return** Locates the return air opening under the outside air opening location. For units with both outside air and return air openings [AI] Model Digit 14 (4 or 5). Includes moisture eliminators as standard when [AI]-5 is chosen.

**A3- Low Leak Damper** This item includes vinyl blade edge seals with a standard opposed blade galvanized steel damper and neoprene nylon bushings. For outside air inlet only.

## Filters

**B1- 1" Washable Filters** (Standard)

**B2- 2" Washable Filters**

**B3- 2" Throwaway Filters**

**B4- 1" High Efficiency 30% Filters (MERV 8)**

**B5- 2" High Efficiency 30% Filters (MERV 8)**

| Capacity [CA]                                      | 20         | 40          |
|----------------------------------------------------|------------|-------------|
| Rooftop Arrangement [RA] M,N,P,R (Qty.)Filter Size | (4)20 x 20 | (6)20 x 20  |
| Rooftop Arrangement [RA] S,T,U,W (Qty.)Filter Size | (8)20 x 20 | (12)20 x 20 |

## Evaporative Cooler Accessories

**C1- Fill & Drain Kit** Includes 3 way valve and relay for automatic fill and drain for Evaporative Cooling units. Field installed.

**C2- 12" CELdek® Media** Optional high efficiency 12" media replaces standard 8" media.

**C3- Freezestat** Automatic shutoff and drain upon meeting outside air setpoint when used with "Fill and Drain kit".

**C4 - 8" Glasdek®** Optional 8" GLASdek® evaporative cooler media is available in lieu of the standard 8" CELdek®. GLASdek® media is manufactured from a wettable fiberglass and is designed for applications requiring UL900 Class II fire rating.

**C5 - 12" Glasdek®** Optional 12" GLASdek® evaporative cooler media is available in lieu of the standard 8" CELdek®. GLASdek® media is manufactured from a wettable fiberglass and is designed for applications requiring UL900 Class II fire rating.

## Time Clocks

**D1- 7 Day Time Clock** Provides single pole double throw (SPDT) relay output at setpoint time with Maximum 6 set points per day, field installed.

**D2- 24 Hour Time Clock** Provides single pole double throw (SPDT) relay output at setting time with Maximum 12 set points per day, field installed.

## Accessories [AS] *continued*

### Electrical Accessories

- E1- Clogged Filter Switch** Factory installed differential pressure switch with clogged filter indicator lamp located in the main electrical cabinet.
- E2- Ground Fault Convenience Outlet 115VAC** G.F.I. outlet with manual reset in a weather resistant enclosure, field installed.
- E3- Remote Control Panel** Wall mounted and distinctively styled the "Sterling Remote Panel" offers 6 LED status lamps with System On/Off, Fan Auto/On, Heat Auto/Off, Cool Auto/Off, Auxiliary On/Off switching and Modulating damper potentiometer mounting. Designed for E-Z Installation with plug-in terminal block wiring and wall mounting bracket. Field installed. (Auxiliary On/OFF may be used with Evaporative Cooler Fill & Drain Kit or exhaust fan) [6-1/4" W x 3-3/4" H x 1-3/8" D]



AS - E3



AS - G3



AS - G4



AS - G5



AS - J2

AS - J3

- E4- Manual Blower Switch** Factory installed in the electrical cabinet to provide manual blower operation (On/Auto).

### Duct and Room Thermostats

- F1- One Stage Duct Thermostat** Field installed, single pole double throw switching. 55°-175°F set point range. [2" W x 5-5/8" H x 2-7/16" D]
- F2- Two Stage Duct Thermostat** Field installed, single pole double throw switching. 55°-175°F set point range. [2" W x 5-5/8" H x 2-7/16" D]
- G1- T87K Thermostat with Subbase** Single stage heating thermostat. Subbase includes fan switching relay. Standard round styling suitable for any decor. 40°-90°F range. Mercury free.
- G2- T87K Thermostat with Subbase & Guard** Same features as "G1" except a tamper proof guard is included.
- G3- T834N Sterling Thermostat with Subbase** Single stage heating thermostat with fan switch. Manufactured exclusively for Sterling with the "Sterling" logo embossed on the face plate. 50°-90°F range. [3-1/2" W x 4-3/4" H x 1-3/8" D] Mercury free.
- G4- TB8220U Programmable Commercial Touchscreen Thermostat** Provides 7 day programmability for up to two stages of heating and two stages of cooling. Includes a terminal to enable an economizer or control a lighting panel when used as a time of day relay. Temperature ranges: Heating 40°-95°F, Cooling 50-99°F [8" W x 4-5/8" H x 1-3/4" D] Mercury free.
- G5- TH5220D Two Stage Thermostat** Two stage heating and two stage cooling with system and fan switching and built in 10°F heating/cooling differential. Includes fan relay. Temperature ranges: Heating 40°-95°F, Cooling 50°-99°F [5-5/8" W x 3-1/2" H x 2-1/8" D] Mercury free.
- G6- TG511 Locking Thermostat Cover** Universal locking thermostat cover for use with all thermostats listed.

## Accessories [AS] *continued*

### Freeze and Fire Protection

**H1- Return Firestat** 130°-270°F setting range with single pole double throw (SPDT) output. The Return Firestat is electrically interlocked to shut down the unit upon reaching the set point with manual reset. Factory mounted in the return air stream and set at 130°. This item is utilized as a reverse air flow switch.

**H2- Supply Firestat** 130°-270°F setting range with single pole double throw (SPDT) output. The Supply Firestat is electrically interlocked to shut down the unit upon reaching the setpoint with manual reset. Factory mounted in the supply air stream on units with a downturn plenum and shipped loose for units with standard horizontal discharge.

**H3- Time Delay Freezestat** 30°-75°F setting range in 5°F increments with single pole double throw (SPDT) output. Time delay adjustment range – one minute to ten minutes in one minute increments. Manual reset by turning unit disconnect off then on. The freezestat is electrically interlocked to ensure minimum discharge air temperature. Factory mounted in the electrical compartment. Sensing bulb will be factory mounted in the supply air stream on units with a downturn plenum. Units with standard horizontal discharge will need to have the sensing bulb field installed in the supply duct work.

**H4- Ambient Lockout** Intake air temperature sensor factory mounted for application specific control based on ambient air temperature. Control range 0°-100°F fixed 1°F differential.

### Limits and Indicator Lamps

**K3- Status Lamps** Long life factory installed LED lamps located in the electrical cabinet. The status lamps are designed as a troubleshooting aid and setup for indicating Power On, Fan On, Heating energized at furnace one, two, three and cooling energized when applicable.

**Note:** Blocked inlet and Clogged filter indicator lamps are standard with “A1” and “E1”.

**K5- Air Flow Prove Switch** Field installed. A Dwyer 1910-0 pressure switch suitable for duct of plenum mounting, with a range of 0.15 - 0.5" W.C. is provided.

### Interlock Relays

**J1- 24 Volt DPDT Relay** Plug-in, Type 2, Form C relay with 24 volt coil and double pole double throw 10 amp. contacts. This relay plugs in to the Main Connection PC board in the electrical cabinet. Included with Packaged units including an evaporative cooler and outside return air dampers or may be utilized as an exhaust fan interlock. When energized at terminal “K2” of the main connection board, the blower is engaged and outside air dampers are opened to 100% position. Factory installed.

**J2- 24/115 Volt SPDT Relay** This relay has selectable coil voltage of 24 or 115 volts and single pole double throw 10 amp contacts with LED On indicator lamp. Relay is utilized as an auxiliary relay when “J1” does not apply for exhaust fan interlock or digital interface with an external control. Factory mounted and wired when applicable.

**J3 - 24/115/230 Volt DPDT Relay** This relay has selectable coil voltage of 24, 115 or 230 volts and double pole double throw 10 amp contacts. Relay is utilized as an auxiliary relay for general purpose duty. Factory mounted and wired when applicable.

**J4 - 24 Volt 4PDT Relay** This relay has a coil voltage of 24 volts and four pole double throw 10 amp contacts. Relay is included as standard for packaged units with an Evaporative Cooler or Coil Cabinet and may be utilized as an auxiliary relay for general purpose duty. Factory mounted and wired when applicable.

**Note:** Relays “J2”, “J3” and “J4” shipped loose unless otherwise specified.

## Accessories [AS] *continued*

### Disconnect Switches (NEMA-3R)

- L1- 30 Amp. Fuse Disconnect** Field installed.
- L2- 30 Amp. Non-Fuse Disconnect** Field installed.
- L3- 60 Amp. Fuse Disconnect** Field installed.
- L4- 60 Amp. Non-Fuse Disconnect** Field installed.

### Convenience Accessories

**N2- Through-The-Base Utility Penetrations** Through the base utility penetrations allows the electric and coil connections to be passed through base and curb of the unit. This results in a reduction in the number of roof penetrations, thus enhancing the integrity of the roofing materials. Electrical and coil connections will enter the unit in the blower cabinet.

**N3- Service Convenience Package** Includes a factory mounted switch type fused disconnect and GFI convenience outlet mounted behind a hinged access door on the units' blower section. Both items are accessible from the outside of the unit via a weather proof hinged access door. This accessory also includes option number N2.

**N6- Double wall cabinet construction** consists of a 24 gauge inner liner wall with 1" 1-1/2 LB density insulation. Available on the filter / damper, blower, coil and plenum cabinets only.

### VFD Options

**R1- Field Installed VFD** Replaces the Magnetic Starter and provides soft start operation, prolonging the life of blowers and bearings as well as reducing start up noise. All VFD's are UL approved and are manufactured with a NEMA 1 plenum rated enclosure. "R1" field installed VFD is standard for motor size [MS] selections 1-8. For a factory installed option, see "R2".

**R2- Factory Installed VFD** UL approved with a NEMA 1 plenum rated enclosure, is mounted in the unit blower cabinet with a remote programming keypad located in the electrical cabinet.

**R3- Remote Keypad** Allows operation of drive up to 100 ft. (30 Meters) from the drive and duplicates the functionality of the drive's local keypad. Shipped loose for field installation.

**R4- CO<sub>2</sub> Sensor 100% Outside Air** Factory supplied, field installed CO<sub>2</sub> monitor range 0 to 2,000 ppm, adjustable, for mounting in occupied space. Upon rise in CO<sub>2</sub> above field programmed set point, 0-10VDC or 4-20 mA signal will be sent from CO<sub>2</sub> sensor to VFD to modulate air flow between minimum set point and maximum CFM.

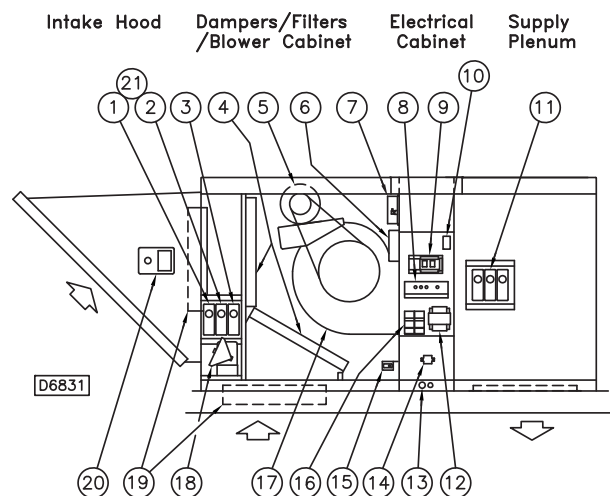
**R5- CO<sub>2</sub> Mixed Air** Factory supplied, field installed CO<sub>2</sub> monitor range 0 to 2,000 ppm, adjustable, for mounting in return air duct. Upon rise in CO<sub>2</sub> above field programmed set point, signal will drive return air damper to 100% closed and outside air damper to 100% open. 0-10VDC or 4-20 mA signal will be sent from CO<sub>2</sub> sensor to VFD to modulate air flow between minimum set point and maximum CFM.

**R6- Pressure Sensor** Factory supplied, field installed pressure control, range -0.1 to +0.1" W.C. VFD will modulate motor speed based on 4-20 mA signal from pressure control sensor mounted in space to maintain field programmed set point.

**R7- 2-Speed VFD Relays** Factory installed relays provided to energize second speed setting. Relay coil will accept 24V, 115V and 230V.

**R8- 3-Speed VFD Relays** Factory installed relays provided to energize second and third speed settings. Relay coil will accept 24V, 115V and 230V.

### Component Locations



- |                                                                  |                                    |
|------------------------------------------------------------------|------------------------------------|
| 1. Mixed Air Controller                                          | 10. Time Delay Freezestat          |
| 2. Return Firestat                                               | 11. Duct Thermostat                |
| 3. Economizer                                                    | 12. Transformer                    |
| 4. Filters                                                       | 13. Electrical Wiring Inlet        |
| 5. Blower Motor                                                  | 14. High Voltage Terminal Block    |
| 6. Reverse Air Flow Switch                                       | 15. Door Safety Switch             |
| 7. Clogged Filter Switch                                         | 16. Contactor                      |
| 8. High Voltage Barrier and Lamp and Circuit Breaker Mount       | 17. Centrifugal Blower             |
| 9. Main Connection Board with Fan Time Delay and Function Relays | 18. Damper Motor                   |
|                                                                  | 19. Outside and Return Dampers     |
|                                                                  | 20. Enthalpy Controlled Economizer |
|                                                                  | 21. Ambient Lockout                |

## Standard Roof Curb Kits<sup>†</sup>

**(RC001, RC002, RC005, RC006,  
RC011 - RC013)**

Sterling roof curbs are available in various types depending upon your application needs. All curbs kits are knocked down for field assembly and are shipped separately. Curbs are typically available on a short lead time basis allowing the installer to set the curb in place prior to receiving the rooftop unit.

Standard curbs are 12" high. Factoring in the 4" unit base rail, overall height to the bottom of the rooftop unit is actually 16". All standard curbs are fully factory insulated.

Standard Rooftop Curb Kits RC002 and RC012 include an evaporative cooler platform.

**†NOTE:** See page 36 for Standard Roof Curb Kit Weights and Curb Kit Selection.

## Uninsulated Roof Curb Kits

**(URC001, URC002, URC005, URC006,  
URC011 - URC013)**

Sterling uninsulated roof curb kits are identical to the standard kits, with the exception of the insulation.

## Roof Curb Ductwork Adapter Kits

**(RC016 - RC018)**

Allows field installed supply and/or return duct work to be terminated at the roofcurb instead of at the unit. Can be used with any Sterling insulated or uninsulated curb.

## Vibration Isolation and Seismic Curbs

Vibration isolation curbs are utilized in installations where slight rooftop vibration or noise is a concern. These curbs incorporate adjustable spring isolators into the roof curb which are specifically engineered and positioned to accommodate the rooftop unit.

Seismic curbs are designed to meet all local and federal building code seismic requirements by providing a reinforced curb constructed to allow rooftop units to be properly secured to the mounting structure and will withstand the regional seismic load.

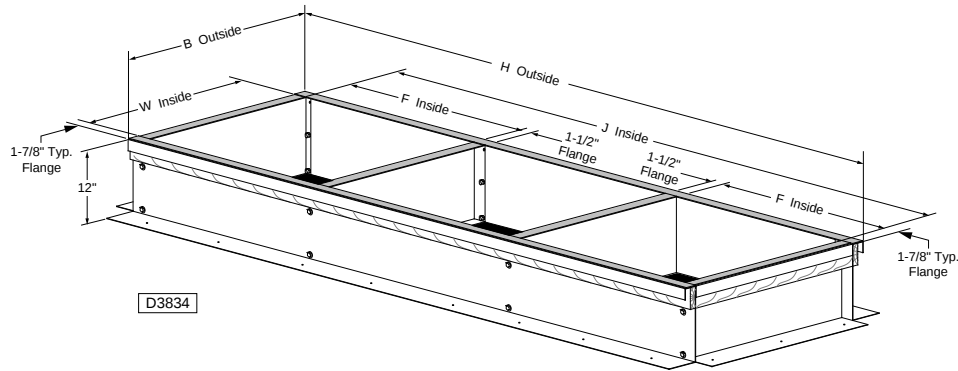
Contact Sterling for further information, including part numbers and pricing.

## Adaptor Curbs

Adaptor curbs are designed for retrofit installations. With the use of an adaptor curb it is not necessary to remove the existing curb, thus eliminating extensive rooftop work, time and associated construction costs.

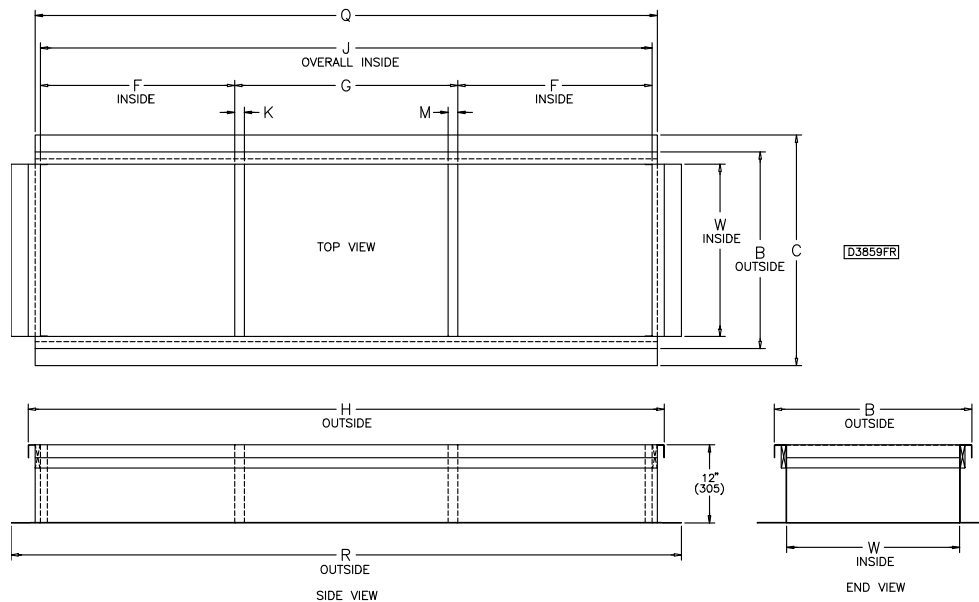
Provide us with the existing unit model number and curb dimensions and a custom adaptor curb will be supplied to accommodate the new rooftop unit.

# Dimensional Data — Roof Curb Kits

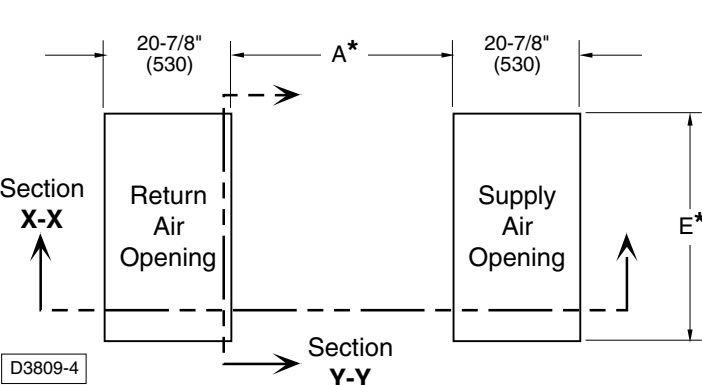


| †Kit Number     | Rooftop Arrangement [RA] | Capacity [CA]  | F                                           | G                                           | H                                           | J                                           | Q                                           | R                                           | K                                     | M                                     |
|-----------------|--------------------------|----------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------|---------------------------------------|
| RC011*          | M & P                    | 20 or 40       | N/A                                         | N/A                                         | 45 <sup>1</sup> / <sub>4</sub><br>(1,149)   | 41 <sup>1</sup> / <sub>2</sub><br>(1,054)   | 43 <sup>1</sup> / <sub>8</sub><br>(1,095)   | 50 <sup>1</sup> / <sub>2</sub><br>(1,283)   | N/A                                   | N/A                                   |
| RC012*          |                          |                | N/A                                         | N/A                                         | N/A                                         | N/A                                         | N/A                                         | N/A                                         | N/A                                   | N/A                                   |
| RC001*          | N & R                    | 20 or 40       | 29 <sup>5</sup> / <sub>8</sub><br>(752)     | 8 <sup>1</sup> / <sub>8</sub><br>(206)      | 71 <sup>1</sup> / <sub>8</sub><br>(1,806)   | 67 <sup>7</sup> / <sub>8</sub><br>(1,711)   | 69<br>(1,753)                               | 76 <sup>3</sup> / <sub>8</sub><br>(1,940)   | 1 <sup>1</sup> / <sub>2</sub><br>(38) | 1 <sup>1</sup> / <sub>2</sub><br>(38) |
| RC002*          |                          |                | N/A                                         | N/A                                         | N/A                                         | N/A                                         | N/A                                         | N/A                                         | N/A                                   | N/A                                   |
| RC013*          | S                        | 20 or 40       | 38 <sup>1</sup> / <sub>8</sub><br>(968)     | N/A                                         | 81 <sup>7</sup> / <sub>16</sub><br>(2,069)  | 77 <sup>11</sup> / <sub>16</sub><br>(1,973) | 79 <sup>5</sup> / <sub>16</sub><br>(2,015)  | 86 <sup>11</sup> / <sub>16</sub><br>(2,202) | 1 <sup>1</sup> / <sub>2</sub><br>(38) | N/A                                   |
| RC006*          | T & U                    | 20 or 40       | 37 <sup>3</sup> / <sub>16</sub><br>(944)    | 29 <sup>3</sup> / <sub>16</sub><br>(741)    | 107 <sup>9</sup> / <sub>16</sub><br>(2,726) | 103 <sup>9</sup> / <sub>16</sub><br>(2,630) | 105 <sup>3</sup> / <sub>16</sub><br>(2,672) | 112 <sup>9</sup> / <sub>16</sub><br>(2,859) | 1 <sup>1</sup> / <sub>2</sub><br>(38) | 1 <sup>1</sup> / <sub>2</sub><br>(38) |
| RC005*          | W                        | 20 or 40       | 37 <sup>1</sup> / <sub>8</sub><br>(943)     | 55 <sup>1</sup> / <sub>4</sub><br>(1,403)   | 133 <sup>3</sup> / <sub>4</sub><br>(3,385)  | 129 <sup>1</sup> / <sub>2</sub><br>(3,289)  | 131 <sup>1</sup> / <sub>8</sub><br>(3,331)  | 138 <sup>1</sup> / <sub>4</sub><br>(3,518)  | 1 <sup>1</sup> / <sub>2</sub><br>(38) | 1 <sup>1</sup> / <sub>2</sub><br>(38) |
| Curb Kit Number |                          |                | W                                           | B                                           | C                                           |                                             |                                             |                                             |                                       |                                       |
| * -1            | ALL                      | 10, 15         | 26 <sup>7</sup> / <sub>16</sub><br>(671)    | 30 <sup>3</sup> / <sub>16</sub><br>(767)    | 35 <sup>7</sup> / <sub>16</sub><br>(900)    |                                             |                                             |                                             |                                       |                                       |
| * -2            | ALL                      | 20, 25, 50     | 37 <sup>7</sup> / <sub>16</sub><br>(951)    | 41 <sup>3</sup> / <sub>16</sub><br>(1,046)  | 46 <sup>7</sup> / <sub>16</sub><br>(1,179)  |                                             |                                             |                                             |                                       |                                       |
| * -3            | ALL                      | 30, 35, 60, 70 | 48 <sup>7</sup> / <sub>16</sub><br>(1,203)  | 52 <sup>3</sup> / <sub>16</sub><br>(1,325)  | 57 <sup>7</sup> / <sub>16</sub><br>(1,459)  |                                             |                                             |                                             |                                       |                                       |
| * -4            | ALL                      | 40, 80, 12     | 53 <sup>15</sup> / <sub>16</sub><br>(1,370) | 57 <sup>11</sup> / <sub>16</sub><br>(1,465) | 62 <sup>15</sup> / <sub>16</sub><br>(1,599) |                                             |                                             |                                             |                                       |                                       |

| *Curb Kit Suffix Legend |        |
|-------------------------|--------|
| Capacity                | Suffix |
| 20                      | -2     |
| 40                      | -4     |



# Roof Curb Specifications



Unit Type [UT] "AH"

| Capacity (CA) | E*†            |
|---------------|----------------|
| 20            | 37 (940)       |
| 40            | 53- 1/2 (1359) |

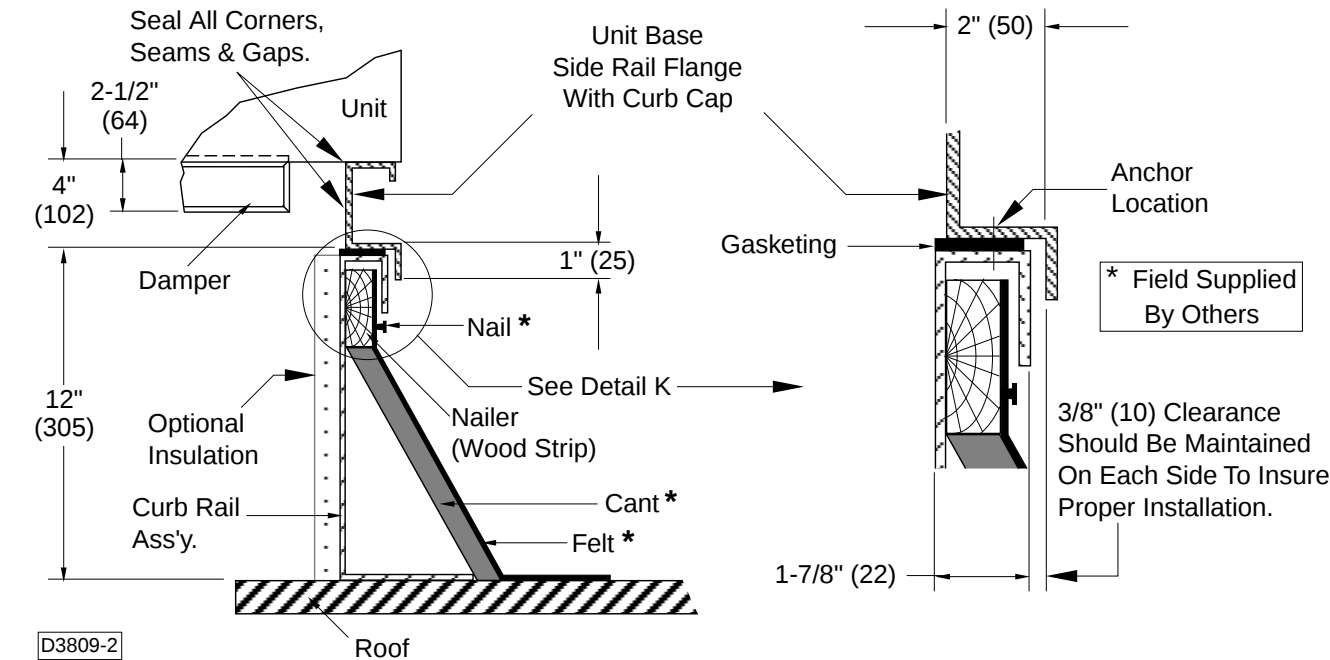
\* All dimensions shown have been calculated to include a one (1) inch clearance around return and supply ducts.  
† E dimension also applies to the return air opening.

NOTES:  
Dimensions are in inches.  
Dimensions in parenthesis are in millimeters.

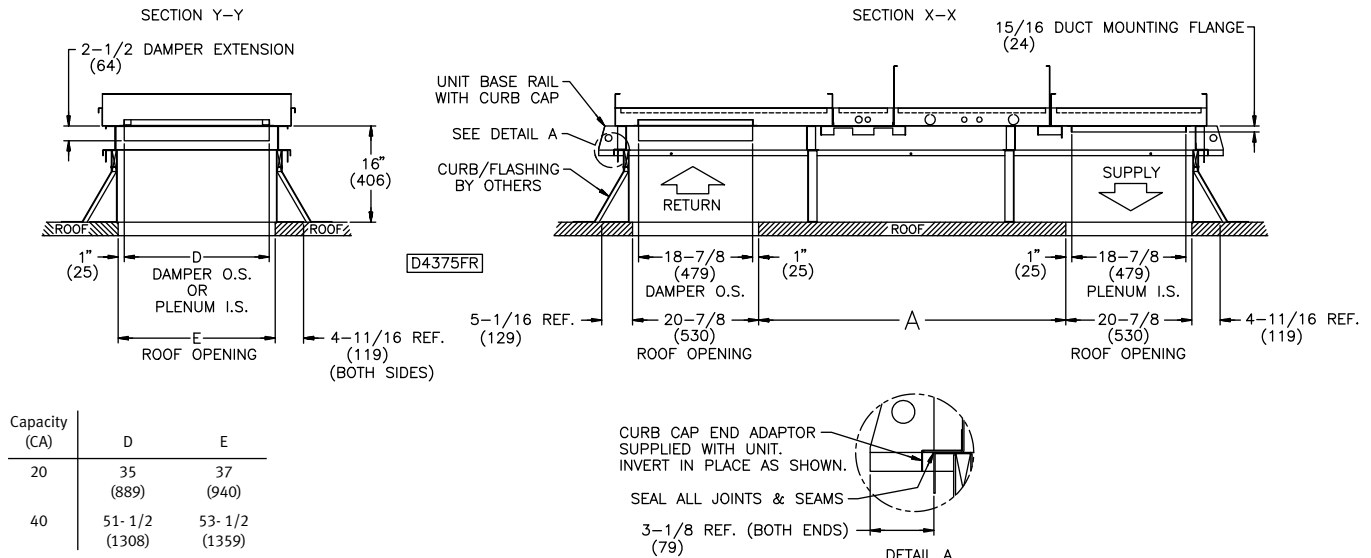
| Furnace             | **Rooftop Arrangement [RA] | Capacity [CA] | Unit Specifications (References) |          |      |               | * Dimension A                           |
|---------------------|----------------------------|---------------|----------------------------------|----------|------|---------------|-----------------------------------------|
|                     |                            |               | Blower                           |          | Coil | Supply Plenum |                                         |
|                     |                            |               | Standard                         | High CFM |      |               |                                         |
| Unit Type [UT] "AH" |                            |               |                                  |          |      |               |                                         |
|                     | N, R                       | 20 or 40      | ✓                                |          |      | ✓             | 24 <sup>7</sup> / <sub>8</sub> (631)    |
|                     | T                          | 20 or 40      |                                  | ✓        |      | ✓             | 61 <sup>1</sup> / <sub>16</sub> (1,551) |
|                     | W                          | 20 or 40      |                                  | ✓        | ✓    | ✓             | 87 <sup>7</sup> / <sub>16</sub> (2,211) |

\*\* Rooftop Arrangements [RA] M, P, S & U are without a supply plenum. Use the same return air dimensions for these units rooftop openings. Refer to unit submittals for more detail.

## Section Curb Side Rail - Detail K



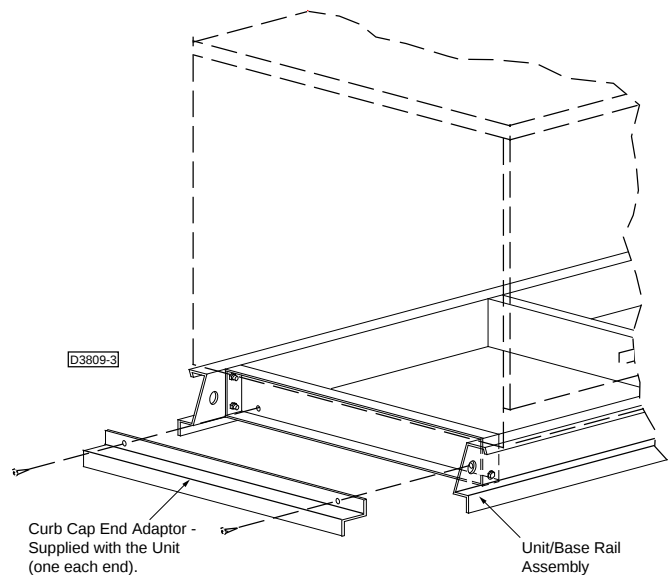
# Roof Curb Kit Assembly



See previous page for "A" dimensions and references to sections X-X and Y-Y.

## Unit/Curb End Rail Assembly

For Field Installations: These Crossbrace/Curb Adapters (2 adapters ship with each rooftop arrangement) must be repositioned in the field when the unit is mounted on a curb or a platform (one for each end). Simply remove the screws, turn the piece over (end for end) and secure in place using the holes/hardware provided. **All joints and seams must be sealed completely in the field to prevent leaks.**



# Engineered Products Specification Guide

## A. General

### A.1 Standards & Certifications

All units must be:

- A.1.a** ETL or UL Certified for electrical safety in compliance with UL 1995 safety standard for heating, ventilating and cooling equipment (see previous information).

### A.2 Mechanical Arrangement

Rooftop unit will consist of a:

- A.2.a** Blower Section containing supply blower(s) and blower motor. The blower motor will be inter-locked electrically and disengage the blower motor and control circuit upon opening the service panel.
- A.2.b** Electrical Cabinet that is isolated from the air stream with a non removable access panel interior to the outer service panel. Provision for component mounting, wire routing and high voltage isolation.
- A.2.c** Rooftop unit will be provided with:
  - (a) Outside air and Return air opposed blade dampers.
  - (b) Outside air opposed blade dampers.
  - (c) Return air opposed blade dampers.
  - (d) No dampers.
- A.2.d** Filter Section will accommodate 1 or 2" washable, pleated high-efficiency filters, or 2" throwaway; and be of a V-bank design for minimal pressure drop.
- A.2.e** Supply plenum will be provided with down flow discharge.
- A.2.f** Return air will enter through a bottom return air opening.
- A.2.f.1** (opt.) For units with both Outside and Return Air, Return air opening will be located horizontally on the rear of the unit under the outside air inlet.
- A.2.g** A Cooling Coil Section constructed of galvanized steel will be provided with the unit.
- A.2.g.1** Direct Expansion (DX) Evaporator Coil certified by ARI will be provided.
- A.2.g.2** Chilled Water Coil certified by ARI will be provided.
- A.2.h** An Evaporative Cooler with 8" CELdek® media will be provided. The Evaporative cooler will be of a self cleaning design with a stainless steel water tank, regulated water flow and overflow protection. The cooler will have a cabinet assembly of heavy-gauge aluminized steel with weatherproof finish, a U.L. recognized thermally protected sealed re-circulating pump motor, two inch distribution pad, and corrosion resistant PVC water distribution tubes.
- A.2.h.1** (opt.) An automatic Fill and Drain Kit will be provided for field installation.
- A.2.h.2** (opt.) A platform Mounting Curb will be provided.
- A.2.h.3** (opt.) High-Efficiency 12" deep CELdek® media will be provided.
- A.2.h.4** (opt.) UL900 Class II fire rated 8" GLASdek® media will be provided.
- A.2.h.5** (opt.) UL900 Class II fire rated 12" GLASdek® media will be provided.
- A.2.i** (opt.) The unit will mount on a factory supplied roof curb, that is shipped un-assembled with hardware package and gasket attached. Curb and rail will total 16 inches high and supplied with a cross-member which allows isolation of return and supply air streams. Curb will be:
  - (a) Insulated.
  - (b) (opt.) Spring Isolated.
  - (c) (opt.) Adapter Type.
  - (d) Seismic Rated.

### A.3 Electrical Systems

- A.3.a** All electrical components and fixtures will carry UL or ETL listing, certification and/or recognition.
- A.3.b** All wire will be rated to meet or exceed electrical requirements for voltage, ampacity, dielectric strength of sheathing and temperature rating per location.
- A.3.c** Standard control relays will be socket mounted with terminal block connections.
- A.3.d** All high voltage wiring will be enclosed in flexible metallic sheathed BX cable and include an identifying marker corresponding to the wiring diagram.
- A.3.e** All control wiring will terminate at terminal strips (single point connection) and include an identifying marker corresponding to the wiring diagram.

### A.4 Mounting

Rooftop unit will be mounted on metal rails with down-rolled outer edges with lifting and anchor holes and be suitable for slab or curb mounting.

### A.5 Standard Safety Provisions

- A.5.a** Rooftop unit will be provided with a low voltage circuit breaker rated for 150% of the units normal 24 volt operating load.
- A.5.b** An access interlock switch will be installed in the blower compartment and will disengage the blower upon opening the service panel. An override or cheat switch will be incorporated into the interlock switch for serviceability.
- A.5.c** Warning labels will be visible in accessible areas of the rooftop where unsafe conditions could occur.

### A.6 Optional Safety Provisions

- A.6.a** Rooftop unit will be provided with a Firestat located in the return air stream. If the return air temperature reaches the set point (typically 130°F) the unit will close all gas valves, return dampers to their normal position and shut down the blower.
- A.6.b** Rooftop unit will be provided with a Firestat located in the supply air stream. If the supply air temperature reaches the set point (typically 150°F) the unit will close all gas valves, return dampers to their normal position and shut down the blower.
- A.6.c** Rooftop unit will be provided with a Time Delay Freezestat with the sensing bulb located in the discharge air stream. Wired as an interlock to prevent cold air discharge.
- A.6.d** A Clogged Filter Pressure Switch with adjustable operating range and normally open switch will be installed to sense increased suction pressure by the blower due to filter obstruction. Provision for remote indication will be provided by terminal block connection points.

## B. Cabinetry

- B.1** Cabinetry will be die-formed, 18 gauge Galvanized steel and finished in air-dry enamel.
- B.2** Hinged Access Doors will be provided by the manufacturer on the blower and filter cabinet doors. Doors will be double wall construction and incorporate dual quick opening tool-less latches. Door stops will be included to prevent against closure while open.
- B.3** Supply Plenums and coil section (when provided) will be insulated with fire resistant, environmentally safe, odorless, one inch fiber material.

## C. Dampers

Dampers will be of the opposed blade type, constructed of galvanized steel with neoprene nylon bushings, blades to be mechanically interlocked.  
(opt.) Low Leak Damper (outside air only) will be of the opposed blade type, constructed of galvanized steel with neoprene nylon bushings and vinyl blade edge seals, blades to be mechanically interlocked.

# Engineered Products Specification Guide

## D. Filter Rack

Filter Rack will be constructed of galvanized steel with access through the side service panel.

## E. Intake Hood

Intake hood will be constructed of galvanized steel and include a:  
(std.) bird screen.  
(opt.) moisture eliminator.

## F. Supply Blower

Supply Blower will be belt driven, forward curved, centrifugal type blower assembly, statically and dynamically balanced with double inlet. The blower wheel will be fixed on a shaft, supported with super quiet rubber cartridges for vibration isolation, and ball bearing.

## G. Blower Motor

### G.1 Type

**G.1.a** Motor will be Single Speed, Ball Bearing Drive, Permanently Lubricated, EPACT Compliant, Standard NEMA Frame Size and Service Factor, with Resilient Base and Class B Windings:  
(a) Open Drip Proof  
(b) Totally Enclosed  
(c) Premium Efficiency, Open Drip Proof  
(d) Premium Efficiency, Totally Enclosed

**G.1.b** Motor will operate at:

- (a) 115V/1/60
- (b) 208V/1/60
- (c) 230V/1/60
- (d) 208V/3/60
- (e) 230V/3/60
- (f) 460V/3/60
- (g) 575V/3/60

**G.1.c** Motor will have a horse power rating of: (1/2 - 15 HP)

### G.2 Wiring

Motor wiring will be enclosed in flexible metallic sheathed BX conduit.

### G.3 Control

Motor will be activated through a:

- (a) Relay. (std. 1/2 - 1 HP)
- (b) Contactor. (std. 1-1/2 - 5 HP)
- (c) Magnetic starter. (std. 7-1/2 - 15 HP)
- (d) Variable frequency drive. (opt.)

**G.4** Motor Protection shall be provided with:

- (a) Internal thermal protection.  
(Relay/Contactor actuated)
- (b) IEC overload protection. (Magnetic starter)

## H. Damper Motor

### H.1 Type

**H.1.a** Damper motor will be:

- (a) Two position with spring return.
- (b) Modulating.
- (c) Modulating with spring return.

**H.1.b** Motor will operate at 24 volts.

### H.2 Wiring

Motor and control wiring will be harnessed with terminal block connections. Wire will have a temperature rating of at least 105°C.

## I. Damper Control

- (a) Two position spring return motor with outside air damper will be provided. The motor will power the outside air damper full open when the unit is on and full closed when the unit is off.
- (b) Two position spring return motor with return air damper will be provided. The motor will power the return air damper full open when the unit is on and full closed when the unit is off.

- (c) Two position spring return motor with interlocked outside and return air dampers will be provided. The motor will power either the outside air damper full open and the return air damper full closed or the outside air damper full closed and the return air damper full open in response to an outside air temperature sensor. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (d) Modulating motor with interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller located in the mixed air stream. Units will also be provided with a minimum position potentiometer for minimum outside air damper position.
- (e) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller located in the mixed air stream. Units will also be provided with a minimum position potentiometer for minimum outside air damper position. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (g) Modulating motor with interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller located in the mixed air stream.
- (h) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller located in the mixed air stream. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (j) Modulating motor with interlocked outside and return air dampers will be provided. The motor will position the outside and return air dampers in response to a manually set potentiometer.
- (k) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will position the outside and return air dampers in response to a manually set potentiometer. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (l) Modulating motor with interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller and dry bulb located in the mixed air stream. Units will also be provided with a minimum position potentiometer for minimum outside air damper position.
- (m) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller and dry bulb located in the mixed air stream. Units will also be provided with a minimum position potentiometer for minimum outside air damper position. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (n) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to an enthalpy controlled economizer. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.

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- (p) Modulating motor with interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a pressure sensor located in the building. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (q) Modulating motor with interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a carbon monoxide monitor located in the return air duct. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (r) Modulating motor with spring return and inter-locked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a solid state mixed air sensor and S-350 proportional controller. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (s) Modulating motor with interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a 4-20 mA or 0-10 VDC analog signal supplied by an external DDC controller.
- (t) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a 4-20 mA or 0-10 VDC analog signal supplied by an external DDC controller. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open.
- (u) Two position spring return motor with interlocked outside and return air dampers will be provided. The motor will power the outside air damper full open after a warm up period determined by a minimum supply air temperature sensor when the unit is on, and full closed when the unit is off (ASHRAE Cycle I).
- (w) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller located in the mixed air stream after a warm up period determined by a minimum supply air temperature sensor. Units will also be provided with a minimum position potentiometer for minimum outside air damper position (ASHRAE Cycle II).
- (x) Modulating motor with spring return and interlocked outside and return air dampers will be provided. The motor will modulate the position of the outside and return air dampers in response to a thermostatic controller located in the mixed air stream after a warm up period determined by a minimum supply air temperature sensor. Units will also be provided with a minimum position potentiometer for minimum outside air damper position. When the unit is off the motor will drive the outside air dampers full closed and the return air dampers full open (ASHRAE Cycle III).
- (y) Manual outside and return air dampers with manual quadrant will be provided.

## J. Accessories

- (a) **Moisture Eliminators** Moisture eliminators will be provided by the manufacturer to eliminate the possibility of moisture carryover entering the unit through the outside air hood. A differential pressure switch and indicator light will be provided in case of blockage
- (b) **Horizontal Rear Return** Return air will be located horizontally on the rear of the unit under the outside air inlet. Moisture eliminators will be provided by the manufacturer for the outside air hood.

- (c) **Low Leak Dampers** Low leak dampers with vinyl blade edge seams and neoprene nylon bushings will be provided by the manufacturer. Dampers will be of the galvanized steel opposed blade type.
- (d) **Filters** Will consist of
  - d.1 1" Washable (Standard)
  - d.2 2" Washable (Optional)
  - d.3 2" Throwaway (Optional)
  - d.4 1" 30% Pleated (Optional)
  - d.5 2" 30% Pleated (Optional)
- (e) **Evaporative Cooler Accessories** Will include:
  - e.1 **Fill and Drain Kit** Will consist of a 3 way valve and relay for automatic fill and drain operation of the Evaporative Cooler.
  - e.2 **12" Celdek® Media** High Efficiency 12" Celdek® Media will be utilized in the Evaporative cooler.
  - e.3 **Freezestat** An automatic reset freezestat will be provided by the manufacturer to control the operation of the fill and drain kit.
  - e.4 **8" Glasdek®** Will be provided by the manufacture to conform with UL900 Class II fire rating requirements
  - e.5 **12" Glasdek®** Will be provided by the manufacture to conform with UL900 Class II fire rating requirements
- (f) **7 Day Time Clock** A 7 day time clock will be provided by the manufacturer and offer SPDT relay output and a maximum of 6 set points per day.
- (g) **24 Hour Time Clock** A 24 hour time clock will be provided by the manufacturer and offer SPDT relay output and a maximum of 12 set points per day.
- (h) **Clogged Filter Switch** A factory installed clogged filter switch with indicator light located in the main electrical cabinet or remote control panel (when specified) will be provided by the manufacturer.
- (i) **Convenience Outlet** A GFI with manual reset convenience outlet in a weather proof enclosure will be provided by the manufacturer for field installation requiring separate 115 volt service.
- (j) **Remote Control Panel** A wall mounted "Sterling" design control panel will be provided by the manufacturer. The panel will consist of a non metallic enclosure and 6 LED status lamps. The lamps will indicate System on/off, Fan on/off, Heat on/off, Cool on/off, Auxiliary on/off (Evaporative cooler on/off or Exhaust fan operation) and modulating damper control (when specified)
- (k) **Manual Blower Switch** A factory installed manual blower switch located in the electrical cabinet will be provided by the manufacturer.
- (l) **Duct Thermostats**
  - l.1 single stage duct thermostat with an operating range of 55-175°F and SPDT operation will be provided by the manufacturer.
  - l.2 two stage duct thermostat with an operating range of 55-175°F and SPDT operation will be provided by the manufacturer.
- (m) **Room Thermostats (All Mercury Free)**
  - m.1 **T87K Honeywell Thermostat w/Subbase** A single stage heating and subbase for fan on operation will be provided by the manufacturer.
  - m.2 **T87K Honeywell Thermostat w/Subbase and Guard** A single stage heating thermostat including a subbase for fan operation and tamper proof guard will be provided by the manufacturer.
  - m.3 **T834N Thermostat with Subbase** A single stage heating thermostat with fan switch with a 50-90°F operating range will be provided by the manufacturer.

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- m.4 **TB8220U Programmable Commercial Thermostat**  
The manufacturer will provide a 7 day programmable thermostat capable of two stages of heating and two stages of cooling.
- m.5 **TH5220D Two Stage Thermostat** The manufacturer will provide a two stage heating and two stage cooling thermostat with system and fan switching and built in 10°F heating /cooling differential.
- m.6 **TG511 Locking Thermostat Cover** A Universal locking thermostat cover will be provided by the manufacturer.
- (n) **Return Firestat** A return firestat with a set point range of 130° - 270°F and SPDT switching capabilities will be provided by the manufacturer.
- (o) **Supply Firestat** A supply firestat with a setpoint range of 130° - 270°F and SPDT switching capabilities will be provided by the manufacturer.
- (p) **Time Delay Freezestat** A SPDT time delay freeze-stat with a set point range of 30° - 58°F and a 1 to 5 minute adjustable time delay will be provided by the manufacturer.
- (q) **Ambient Lockout** A factory mounted ambient lockout control for application specific control based on intake air temperature will be provided by the manufacturer.
- (r) **Interlock Relays**
  - r.1 **24 Volt DPDT Relay** A 24 volt type 2 Form C relay with 24 volt coil and DPDT 10 amp contacts will be provided by the manufacturer. The relay will be capable of plugging into the main connection PC board and will be utilized as an exhaust fan interlock.
  - r.2 **24/115 Volt SPDT Relay** A relay with selectable coils voltages of 24 or 115 and SPDT 10 amp contacts will be provided by the manufacturer.
  - r.3 **24/115/230 Volt DPDT Relay** A relay with selectable coils voltages of 24, 115 or 230 and DPDT 10 amp contacts will be provided by the manufacturer.
  - r.4 **24 Volt 4PDT Relay** A relay with a coil voltage of 24 and 4PDT 10 amp contacts will be provided by the manufacturer.
- (s) **Status Lamps** Long life factory installed LED lamps will be provided in the electrical cabinet by the manufacturer to aid in troubleshooting and equipment setup. Power on, Fan on, Heating energized at furnace one, two or three and cooling energized will be provided when applicable.
- (t) **Air Flow Prove Switch** Will be provided by the manufacturer to verify airflow through the unit. The switch will be a Dwyer 1910-0 pressure switch suitable for duct mounting with a range of .15 – .50" W.C.
- (u) **Field Installed Disconnect Switches**
  - u.1 30 amp Fused Disconnect Switch will be provided by the manufacturer to be field mounted.
  - u.2 30 amp Non Fused Disconnect Switch will be provided by the manufacturer to be field mounted.
  - u.3 60 amp Fused Disconnect Switch will be provided by the manufacturer to be field mounted.
  - u.4 60 amp Non Fused Disconnect Switch will be provided by the manufacturer to be field mounted.
- (v) **Variable Frequency Drive Options**
  - v.1 **Field Installed VFD** Will be provided by manufacturer to provide overload protection and soft start operation. VFD to be UL approved manufactured with a NEMA 1 plenum rated enclosure.
  - v.2 **Factory Installed VFD** Will be provided by manufacturer to provide overload protection and soft start operation manufactured with a NEMA 1 plenum rated enclosure. VFD to be factory mounted in the unit blower cabinet and factory wired with a remote programming keypad located in the electrical cabinet.
  - v.3 **Remote Keypad** Will be provided by manufacturer for field installation up to 100 ft. (30 Meters) from the drive. The remote keypad will duplicate the functionality of the drive's local keypad.
  - v.4 **CO<sub>2</sub> Sensor 100% Outside Air** Will be provided by manufacturer for field installation. CO<sub>2</sub> monitor range 0 to 2,000 ppm, adjustable, for mounting in occupied space. Upon rise in CO<sub>2</sub> above field programmed set point, 0-10VDC or 4-20 mA signal will be sent from CO<sub>2</sub> sensor to VFD to modulate air flow between minimum set point and maximum CFM.
  - v.5 **CO<sub>2</sub> Mixed Air** Will be provided by manufacturer for field installation. CO<sub>2</sub> monitor range 0 to 2,000 ppm, adjustable, for mounting in return air duct. Upon rise in CO<sub>2</sub> above field programmed set point, signal will drive return air damper to 100% closed and outside air damper to 100% open. 0-10VDC or 4-20 mA signal will be sent from CO<sub>2</sub> sensor to VFD to modulate air flow between minimum set point and maximum CFM.
  - v.6 **Pressure Sensor** Will be provided by manufacturer for field installation. Pressure control range - 0.1 to +0.1" W.C. VFD will modulate motor speed based on 4-20 mA signal from pressure control sensor mounted in space to maintain field programmed set point.
  - v.7 **2-Speed VFD Relays** Factory installed DPDT relays provided to energize second speed setting. Relay coil will accept 24V, 115V and 230V.
  - v.8 **3-Speed VFD Relays** Factory installed DPDT relays provided to energize second and third speed settings. Relay coil will accept 24V, 115V and 230V.
- (w) **Through – The – Base Utility Penetrations** Will be provided by the manufacturer. Electric and coil connections will enter the unit in the blower cabinet.
- (x) **Service Convenience Package** Will be factory installed by the manufacturer. The service convenience package will consist of a factory mounted switch type disconnect and GFI convenience outlet mounted on the hinged access door. Utility connections will be through-the-base. Through-the-base utility penetrations for the electric and coil connections will enter the unit in the blower cabinet.
- (y) **Double Wall Cabinet Construction** Will be factory installed and in accordance with the ASHRAE standard no. 62-1989. Double wall construction will be utilized in the Blower, Filtration, Coil and Down Discharge Plenum sections of the unit were applicable. 1" fiber material will be used between the cabinet walls for insulation purposes.

# Approximate Unit Net and Ship Weights (lbs.) — Table 7

## Air Handler Arrangements

NOTE: ALL UNIT WEIGHTS ARE LESS MOTOR, OUTSIDE AIR HOOD AND COOLING COILS W/DRAIN FAN.

## Outside Air Hood w/Bird Screen Weight Adder

Capacity [CA]

| ROOFTOP ARRANGEMENT [RA] "M" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 403     | 616      |
| 40                           | 513     | 744      |

| ROOFTOP ARRANGEMENT [RA] "S" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 635     | 847      |
| 40                           | 793     | 1023     |

|    |    |
|----|----|
| 20 | 51 |
| 40 | 63 |

| ROOFTOP ARRANGEMENT [RA] "N" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 529     | 705      |
| 40                           | 665     | 855      |

| ROOFTOP ARRANGEMENT [RA] "T" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 788     | 1012     |
| 40                           | 967     | 1207     |

| ROOFTOP ARRANGEMENT [RA] "P" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 609     | 822      |
| 40                           | 769     | 1000     |

| ROOFTOP ARRANGEMENT [RA] "U" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 797     | 1021     |
| 40                           | 987     | 1227     |

| ROOFTOP ARRANGEMENT [RA] "R" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 735     | 959      |
| 40                           | 921     | 1161     |

| ROOFTOP ARRANGEMENT [RA] "W" |         |          |
|------------------------------|---------|----------|
| Unit Size                    | NET WT. | SHIP.WT. |
| 20                           | 936     | 1198     |
| 40                           | 1152    | 1432     |

## Cooling Coil Weight Adder

Refer to coil weights in Tables 5 and 6.

## Double Wall Construction Adder

For units with double wall construction, add an additional 10% of the base unit weight.

## Motor Shipping Weights (Approximate) – Table 8

|          | 1 - (115/1/60) |         |            |           | 2 - (208/1/60) |         |            |           | 3 - (230/1/60) |         |            |           |
|----------|----------------|---------|------------|-----------|----------------|---------|------------|-----------|----------------|---------|------------|-----------|
|          | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE |
| 1/2 HP   | 20             | 24      | 32         | 30        | 21             | 24      | 32         |           | 21             | 24      | 32         | 30        |
| 3/4 HP   | 23             | 30      | 30         | 41        | 23             | 30      | 30         |           | 25             | 30      | 30         | 41        |
| 1 HP     | 32             | 32      | 40         | 44        | 32             | 32      |            |           | 32             | 32      | 40         | 44        |
| 1-1/2 HP | 40             | 41      | 47         | 57        | 40             | 41      |            |           | 40             | 41      | 47         | 57        |
| 2 HP     | 42             | 67      | 65         | 64        | 50             | 67      |            |           | 42             | 48      | 65         | 64        |
| 3 HP     | 78             | 86      |            |           | 78             | 86      |            |           | 78             | 86      |            | 90        |
| 5 HP     |                |         |            |           | 87             |         |            |           | 87             | 99      | 95         |           |
| 7-1/2 HP |                |         |            |           | 134            | 138     |            |           | 134            | 138     |            |           |
| 10 HP    |                |         |            |           | 165            |         |            |           | 140            | 161     |            |           |
| 15 HP    |                |         |            |           |                |         |            |           |                |         |            |           |
|          | 4 - (208/3/60) |         |            |           | 5 - (230/3/60) |         |            |           | 6 - (460/3/60) |         |            |           |
|          | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE |
| 1/2 HP   | 19             | 18      | 22         | 22        | 19             | 18      | 22         | 22        | 19             | 18      | 22         | 22        |
| 3/4 HP   | 27             | 26      | 27         |           | 27             | 22      | 27         | 31        | 27             | 22      | 27         | 31        |
| 1 HP     | 24             | 26      | 36         | 37        | 24             | 26      | 36         | 37        | 24             | 26      | 36         | 37        |
| 1-1/2 HP | 28             | 34      | 40         | 42        | 28             | 34      | 40         | 42        | 28             | 34      | 40         | 42        |
| 2 HP     | 35             |         | 46         | 49        | 35             |         | 46         | 49        | 35             |         | 46         | 49        |
| 3 HP     | 48             |         | 69         | 69        | 48             |         | 69         | 69        | 48             |         | 69         | 69        |
| 5 HP     |                |         | 76         | 77        |                |         | 76         | 77        |                |         | 76         | 77        |
| 7-1/2 HP |                |         | 117        | 136       |                |         | 117        | 136       |                |         | 117        | 136       |
| 10 HP    |                |         | 128        | 158       |                |         | 128        | 158       |                |         | 128        | 158       |
| 15 HP    |                |         | 217        | 255       |                |         | 217        | 255       |                |         | 217        | 255       |
|          | 7 - (575/3/60) |         |            |           |                |         |            |           |                |         |            |           |
|          | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE |                |         |            |           |                |         |            |           |
| 1/2 HP   | 22             | 18      |            |           |                |         |            |           |                |         |            |           |
| 3/4 HP   | 20             | 22      |            |           |                |         |            |           |                |         |            |           |
| 1 HP     | 28             | 26      | 33         | 38        |                |         |            |           |                |         |            |           |
| 1-1/2 HP |                |         | 40         | 42        |                |         |            |           |                |         |            |           |
| 2 HP     |                |         | 46         | 48        |                |         |            |           |                |         |            |           |
| 3 HP     |                |         | 66         | 69        |                |         |            |           |                |         |            |           |
| 5 HP     |                |         | 74         | 91        |                |         |            |           |                |         |            |           |
| 7-1/2 HP |                |         | 114        | 143       |                |         |            |           |                |         |            |           |
| 10 HP    |                |         | 145        | 153       |                |         |            |           |                |         |            |           |
| 15 HP    |                |         | 234        | 302       |                |         |            |           |                |         |            |           |

### Motor Type (MT) Legend:

ODP - Open Drip Proof

TE - Totally Enclosed

PEODP - Premium Efficiency Open Drip Proof

PETE - Premium Efficiency Totally Enclosed

# Roof Curb Kits

## Approximate Ship Weights (lbs.) — Table 9

| †Kit Number | Rooftop Arrangement [RA] | Capacity [CA] | †Roof Curb Kit Suffix Number |     |
|-------------|--------------------------|---------------|------------------------------|-----|
|             |                          |               | -2                           | -4  |
| RC001       | N                        | 20,40         | 133                          | 161 |
| RC002*      | R                        | 20, 40        | 163                          | 191 |
| RC005       | W                        | 20, 40        | 210                          | 238 |
| RC006       | T                        | 20, 40        | 179                          | 207 |
|             | U                        | 20, 40        |                              |     |
| RC011       | M                        | 20, 40        | 85                           | 112 |
| RC012*      | P                        | 20, 40        | 115                          | 142 |
| RC013       | S                        | 20, 40        | 140                          | 168 |

### Roof Curb Ductwork Adapter Kits

|                       | Usage per Roof Curb Kit | †Roof Curb Kit Suffix Number |    |
|-----------------------|-------------------------|------------------------------|----|
| RC016**<br>Return Air | RC001 thru RC013        | 6                            | 7  |
| RC017††<br>Supply Air | RC001, RC002            | 11                           | 12 |
| RC018††<br>Supply Air | RC005, RC006            | 11                           | 12 |

\* Roof Curb Kits RC002 and RC012 include the adjustable evaporative cooler platform.

\*\*For units equipped with a return air opening.

† These weights also apply to the Uninsulated Roof Curb Kits URC001 - URC013.

†† For use with unit arrangements equipped with supply plenums.

#### † Curb Kit Suffix Legend

| Capacity | Suffix |
|----------|--------|
| 20       | -2     |
| 40       | -4     |

# Motor Electrical Data — Table 10

## FULL LOAD CURRENT IN AMPERES

|          | 1 - (115/1/60) |         |            |           | 2 - (208/1/60) |         |            |           | 3 - (230/1/60) |         |            |           |
|----------|----------------|---------|------------|-----------|----------------|---------|------------|-----------|----------------|---------|------------|-----------|
|          | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE |
| 1/2 HP   | 7.2            | 8.0     | 5.2        | 4.6       | 3.7            | 4.0     | 2.8        |           | 3.8            | 4.0     | 2.6        | 2.3       |
| 3/4 HP   | 11.6           | 11.0    | 8.0        | 6.3       | 5.2            | 5.4     | 4.2        |           | 5.3            | 5.5     | 4.0        | 3.2       |
| 1 HP     | 13.0           | 13.4    | 8.6        | 8.5       | 6.6            | 6.8     |            |           | 6.5            | 6.7     | 4.3        | 4.3       |
| 1-1/2 HP | 18.0           | 15.2    | 12.5       | 12.6      | 9.3            | 8.2     |            |           | 9.0            | 7.6     | 6.3        | 6.3       |
| 2 HP     | 21.0           | 23.0    | 17.6       | 17.6      | 11.3           | 11.7    |            |           | 10.5           | 8.1     | 8.8        | 8.8       |
| 3 HP     | 33.0           | 34.0    |            |           | 17.7           | 17.5    |            |           | 16.5           | 17.0    |            | 11.8      |
| 5 HP     |                |         |            |           | 23.5           |         |            |           | 21.0           | 23.0    | 19.1       |           |
| 7-1/2 HP |                |         |            |           | 33.0           | 31.0    |            |           | 31.0           | 29.0    |            |           |
| 10 HP    |                |         |            |           | 49.0           |         |            |           | 39.0           | 38.0    |            |           |
| 15 HP    |                |         |            |           |                |         |            |           |                |         |            |           |
|          | 4 - (208/3/60) |         |            |           | 5 - (230/3/60) |         |            |           | 6 - (460/3/60) |         |            |           |
|          | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE |
| 1/2 HP   | 2.1            | 2.2     | 1.8        | 2.0       | 2.2            | 2.2     | 1.8        | 1.7       | 1.1            | 1.1     | 0.9        | 1.0       |
| 3/4 HP   | 3.0            | 3.2     | 2.5        |           | 3.4            | 2.8     | 2.4        | 2.8       | 1.7            | 1.4     | 1.2        | 1.4       |
| 1 HP     | 3.4            | 3.7     | 3.0        | 3.3       | 3.4            | 3.6     | 2.8        | 3.0       | 1.7            | 1.8     | 1.4        | 1.5       |
| 1-1/2 HP | 4.8            | 5.0     | 4.3        | 4.5       | 4.8            | 4.8     | 4.2        | 4.1       | 2.4            | 2.4     | 2.1        | 2.1       |
| 2 HP     | 6.2            |         | 6.0        | 5.7       | 6.3            |         | 5.5        | 5.4       | 3.1            |         | 2.8        | 2.7       |
| 3 HP     | 9.2            |         | 8.5        | 8.6       | 8.6            |         | 8.0        | 8.2       | 4.3            |         | 4.0        | 4.1       |
| 5 HP     |                |         | 12.2       | 12.0      |                |         | 11.2       | 11.2      |                |         | 5.6        | 5.6       |
| 7-1/2 HP |                |         | 21.0       | 21.0      |                |         | 19.2       | 18.8      |                |         | 9.6        | 9.4       |
| 10 HP    |                |         | 26.0       | 27.0      |                |         | 25.0       | 25.0      |                |         | 12.5       | 12.5      |
| 15 HP    |                |         | 37.4       | 38.9      |                |         | 35.4       | 37.0      |                |         | 17.7       | 18.5      |
|          | 7 - (575/3/60) |         |            |           |                |         |            |           |                |         |            |           |
|          | 1<br>ODP       | 2<br>TE | 3<br>PEODP | 4<br>PETE |                |         |            |           |                |         |            |           |
| 1/2 HP   | 0.8            | 0.9     |            |           |                |         |            |           |                |         |            |           |
| 3/4 HP   | 1.1            | 1.1     |            |           |                |         |            |           |                |         |            |           |
| 1 HP     | 1.3            | 1.5     | 1.1        | 1.1       |                |         |            |           |                |         |            |           |
| 1-1/2 HP |                |         | 1.7        | 1.6       |                |         |            |           |                |         |            |           |
| 2 HP     |                |         | 2.1        | 2.2       |                |         |            |           |                |         |            |           |
| 3 HP     |                |         | 3.1        | 3.1       |                |         |            |           |                |         |            |           |
| 5 HP     |                |         | 5.2        | 5.2       |                |         |            |           |                |         |            |           |
| 7-1/2 HP |                |         | 7.6        | 7.6       |                |         |            |           |                |         |            |           |
| 10 HP    |                |         | 10.0       | 10.0      |                |         |            |           |                |         |            |           |
| 15 HP    |                |         | 14.1       | 15.1      |                |         |            |           |                |         |            |           |

### Motor Type (MT) Legend:

ODP - Open Drip Proof  
 TE - Totally Enclosed  
 PEODP - Premium Efficiency Open Drip Proof  
 PETE - Premium Efficiency Totally Enclosed

# Notes

## LIMITED WARRANTY

Sterling Gas-Fired Products are warranted by Sterling to be free from defects in material and workmanship for a period of one (1) year from the date of shipment from Sterling's Plant.

Sterling will repair or replace, at its option, any components which, upon inspection, it finds to be defective, provided that the unit has been operated within its listed capacity, installed in accordance with the furnished instructions, has not been misused or subject to negligence and has received reasonable and necessary maintenance. This warranty does not cover labor or other costs incurred in repairing, removing, installing, servicing or handling of parts or complete products.

This warranty does not cover loss due to corrosion by chemicals precipitated in the air such as halogenated hydrocarbons.

Sterling will in no event be liable for incidental or consequential damages of any kind.

The buyer must request written permission from Sterling to return defective components and then must send them with all transportation charges prepaid to the plant designated in the written permission.

This warranty is extended only to the original owner of the unit.

## REPLACEMENT PARTS

Replacement parts are available for all current and most obsolete Sterling Gas Fired Products. See list price sheet GRPPS and replacement part selection catalog RRPC for listing and prices.

**In the interest of product improvement Sterling reserves the right to make changes without notice.**

Unless otherwise specified, the following conversions may be used for calculating SI unit measurements:

|                                     |                                            |
|-------------------------------------|--------------------------------------------|
| 1 cubic foot = 0.028 m <sup>3</sup> | 1,000 Btu per hour = 0.293 kW              |
| 1 foot = 0.305 m                    | Liter/second = CFM x 0.472                 |
| 1 inch = 25.4 mm                    | Meter/second = FPM ÷ 196.8                 |
| 1 psig = 6.894 kPa                  | 1,000 Btu/Cu. Ft. = 37.5 MJ/m <sup>3</sup> |
| 1 inch water column = 0.249         | 1 gallon = 3.785 L                         |
| 1 pound = 0.453 kg                  |                                            |

## Mestek

Mestek's corporate headquarters is located in Westfield, Massachusetts, the same location where Company operations began in 1946.

Mestek is a large and growing multidivisional Company that holds a leadership position in the residential and commercial building finned-tube heating equipment industry. It has become a major supplier of gas-fired heating equipment and is a leading manufacturer of fire, smoke, and air control dampers used in the HVAC systems of office buildings, hospitals, and schools. In addition, it is rapidly building toward a leadership position as a manufacturer of coil stock handling systems for the metal stamping and forming industries.

Mestek's products are proudly built in modern manufacturing facilities located across the US. A nationwide network of aggressive, experienced sales representatives, distributors, and wholesalers keep Mestek products flowing to the marketplace.

The Mestek products meet the stringent performance standards of Canadian Standards Association, Underwriters Laboratory, ETL, and other highly regarded industry associations. Building at this level of quality while paying attention to cost has consistently given Mestek products extra appeal in the marketplace.

The Company's representatives and wholesalers have been carefully selected to assure the highest possible level of product experience and know how. The competence and product knowledge of the headquarters staff is unmatched. Thus whatever the product or where ever you're located, specifying Mestek gives you the combination of top quality and complete technical support with the application of the product.



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