

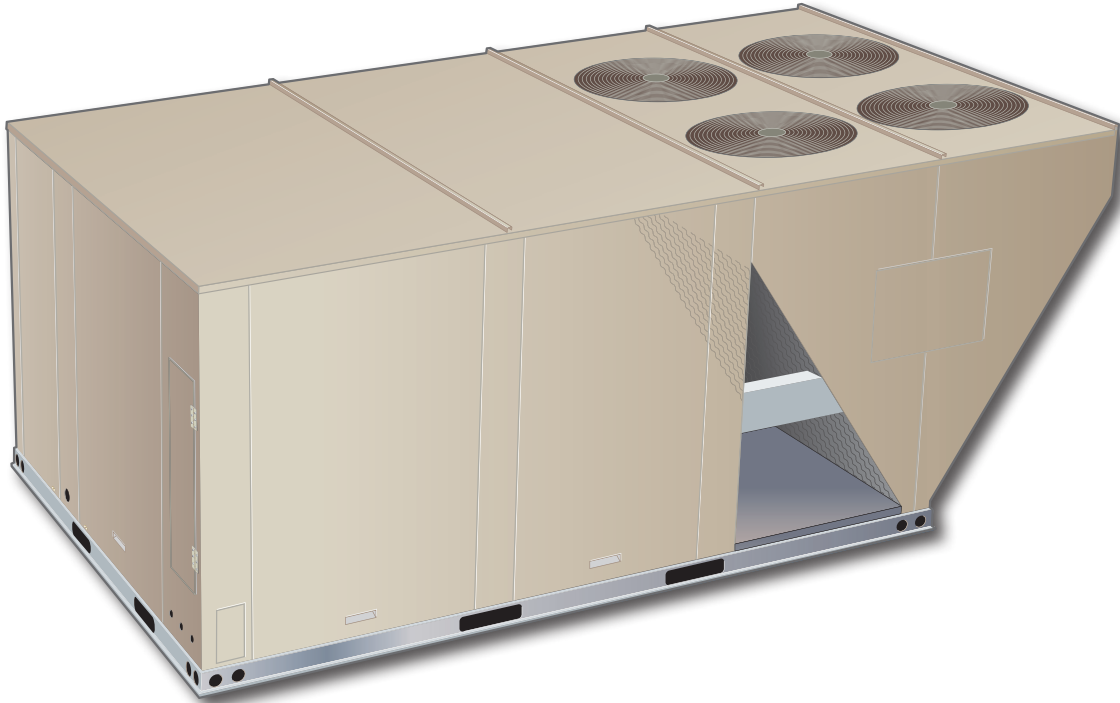


**KCC**

**K-Series™ Rooftop Units  
Standard Efficiency - 60 Hz**

**COMMERCIAL  
PRODUCT SPECIFICATIONS**

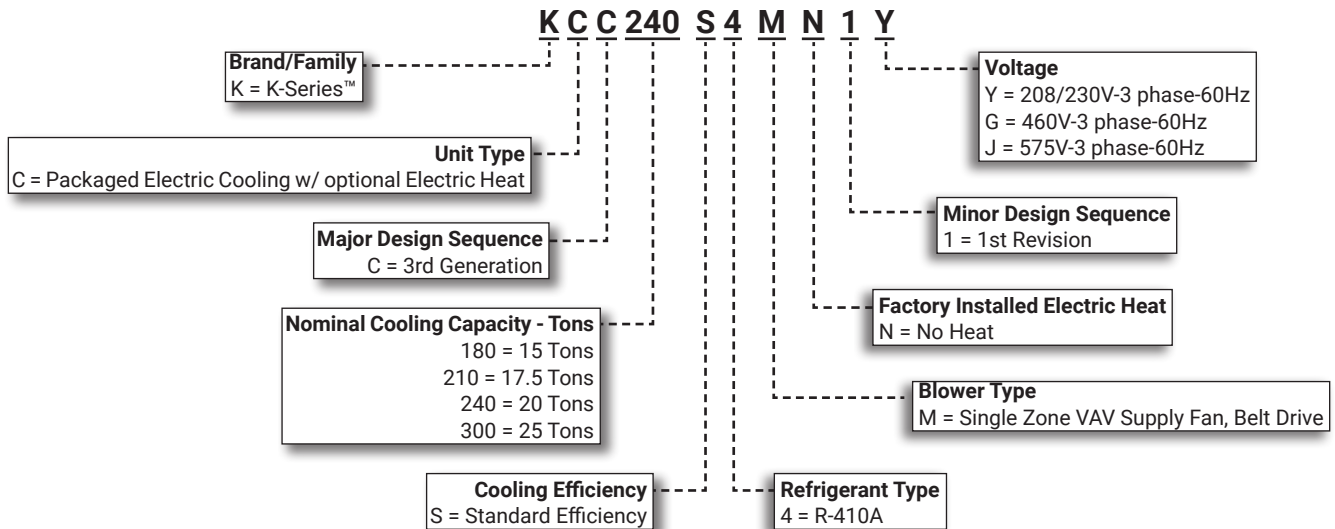
Bulletin No. 310991  
August 2023  
Supersedes June 2023



**ASHRAE 90.1  
COMPLIANT**

**15 to 25 Tons  
Net Cooling Capacity – 172,000 to 270,000 Btuh  
Optional Electric Heat - 15 to 90 kW**

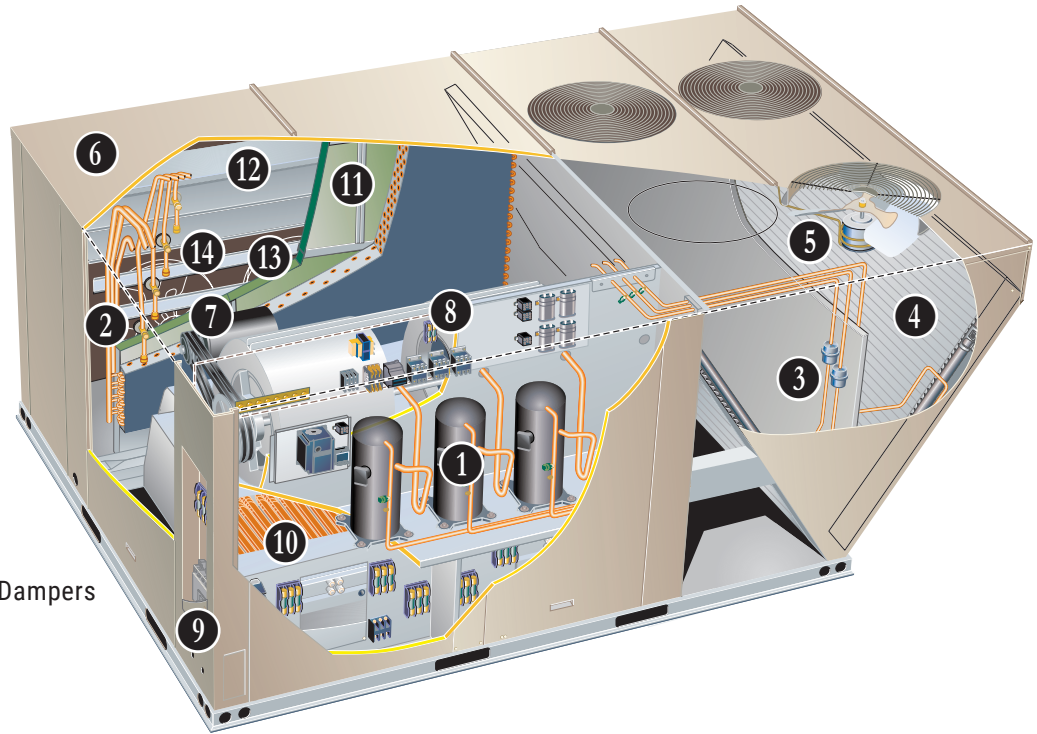
**MODEL NUMBER IDENTIFICATION**



## FEATURE HIGHLIGHTS

K-Series rooftop units are engineered with the right technologies and options to meet standard efficiency requirements while delivering reliable performance and year-round comfort.

1. Scroll Compressors
2. Thermal Expansion Valves
3. Filter/Driers
4. Eco-Last™ Coil System
5. Outdoor Coil Fan Motors
6. Cabinet Construction
7. Single Zone VAV Air Volume Blower
8. Unit Control
9. Disconnect Switch (option)
10. Electric Heat (option)
11. Air Filters
12. Economizer (option)
13. Downflow Barometric Relief Dampers (option)
14. Power Exhaust Fans (option)



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## APPROVALS AND WARRANTY

### APPROVALS

- AHRI Standard 340/360 certified
- ETL and CSA listed
- CSA certified energy ratings
- Unit and components are ETL, NEC, and CEC bonded for grounding to meet safety standards for servicing
- All models are ASHRAE 90.1 energy efficiency compliant and meet or exceed requirements of Section 6.8
- All models meet DOE 2023 energy efficiency standards
- All models meet California Code of Regulations, Title 24 and ASHRAE 90.1 Section 6.4.3.10 requirements for staged airflow
- ISO 9001 Registered Manufacturing Quality System

### WARRANTY

- Compressors - Limited five years
- Eco-Last™ Coil System - Limited three years
- Variable-Frequency Drive (VFD)- Limited five years
- High Performance Economizers (optional) - Limited five years
- All other covered components - Limited one year

## FEATURES AND BENEFITS

### COOLING SYSTEM

- Designed to maximize sensible and latent cooling performance at design conditions
- System can operate from 45°F to 125°F without any additional controls

#### R-410A Refrigerant

- Non-chlorine based
- Ozone-friendly

#### 1 Scroll Compressors

- Scroll compressors on all models for high performance, reliability, and quiet operation
- Resiliently mounted on rubber grommets for quiet operation

#### Compressor Crankcase Heaters

- Protects against refrigerant migration that can occur during low ambient operation or during extended off cycles

#### 2 Thermal Expansion Valves

- Ensures optimal performance throughout the application range
- Removable element head

#### 3 Filter/Driers

- High capacity filter/drier protects the system from dirt and moisture

#### High Pressure Switches

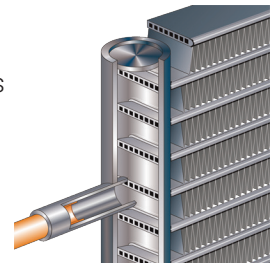
- Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow or loss of outdoor fan operation

#### Indoor Coil Freeze Protection

- Protects the evaporator coil from damaging ice build-up due to conditions such as low/no airflow or low refrigerant charge

#### 4 Condenser Coil - Eco-Last™ Coil System

- Lightweight, all aluminum brazed fin construction
- Constructed of three components
  - A flat extrusion tube
  - Fins in-between the flat extrusion tube
  - Two refrigerant manifolds



#### Eco-Last™ Coil System Features:

- Improved heat transfer performance due to high primary surface area (flat tubes) versus secondary surface (fins)
- Smaller internal volume (reduced refrigerant charge)
- High durability
- All aluminum construction
- Fewer brazed joints
- Compact design
- Reduced unit weight
- Easy maintenance/cleaning
- Mounting brackets with rubber inserts secure coil to unit providing vibration dampening and corrosion protection
- Angled cabinet design protects coil from damage

## FEATURES AND BENEFITS

### COOLING SYSTEM (continued)

#### Evaporator Coil

- Copper tube construction
- Enhanced rippled-edge aluminum fins
- Flared shoulder tubing connections
- Silver soldered construction
- Factory leak tested
- Cross-row circuiting with rifled tubing

#### Antimicrobial Condensate Drain Pan

- Composite pan, sloped to meet drainage requirements of ASHRAE 62.1
- Antimicrobial additive resists growth of mold and mildew on drain pan, which improves indoor air quality and reduces drain line blockage
- Side or bottom drain connections

### 5 Outdoor Coil Fan Motors

- Thermal overload protected
- Totally enclosed
- Permanently lubricated ball bearings
- Shaft up
- Wire basket mount

#### Outdoor Coil Fans

- PVC coated fan guard furnished

### Required Selections

#### Cooling Capacity

- Specify nominal cooling capacity

### Options/Accessories

#### Factory Installed

#### Conventional Fin/Tube Condenser Coil (replaces Eco-Last™ Coil System)

- Copper tube construction
- Enhanced rippled-edge aluminum fins
- Flared shoulder tubing connections
- Silver soldered construction

**NOTE** - Required if Dehumidification System is ordered (180, 210, and 240 models only).

#### Field Installed

#### Condensate Drain Trap

- Available in copper or PVC

#### Drain Pan Overflow Switch

- Monitors condensate level in drain pan, shuts down unit if drain becomes clogged

#### Low Ambient Controls (0°F)

- Units operate satisfactorily down to 45°F outdoor air temperature without any additional controls
- Allows unit operation down to 0°F without evaporator coil icing
- Head pressure speed control reduces outdoor fan operation during low ambient conditions until head pressure rises to the setpoint
- Pressure transducers are mounted on the liquid lines
- Liquid line pressure switches and temperature switches are provided for field installation
- Wiring harnesses are furnished for simple plug-in wiring to fans and controller

### CABINET

### 6 Construction

- Heavy-gauge steel panels
- Full perimeter heavy-gauge galvanized steel base rail
- Base rails have rigging holes
- Three sides of the base rail have forklift slots
- Raised edges around duct and power entry openings in the bottom of the unit for water protection

#### Airflow Choice

- Units are shipped in downflow (vertical) return air flow configuration

**NOTE** - Units can be field converted to horizontal air flow with optional Horizontal Return Air Panel Kit and Horizontal Roof Curb.

#### Power Entry

- Electrical lines can be routed through the unit base or through horizontal access knock-outs

#### Exterior Panels

- Constructed of heavy-gauge, galvanized steel
- Textured pre-paint with polyurethane finish
- Cyclic salt fog and UV exposure up to 1,680 hours per ASTM D5894

#### Insulation

- Fully insulated with non-hygroscopic fiberglass insulation (conditioned areas)
- Unit base is fully insulated
- Base insulation serves as an air seal to the roof curb, eliminating the need to add a seal during installation

#### Access Panels

- Economizer/Filter section
- Heating/Blower section
- Compressor/Controls section

## FEATURES AND BENEFITS

### **CABINET (continued)**

#### Options/Accessories

#### Hinged Access Panels

- Tool-less access
- Filter section
- Heating/Blower section
- Compressor/Controls section
- Panel seals and quarter-turn latching handles provide a tight air and water seal

#### **Field Installed**

#### Combination Coil/Hail Guards

- Heavy gauge steel frame
- Painted to match cabinet
- Expanded metal mesh protects outdoor coil

#### **Field Installed**

#### Horizontal Return Air Panel Kit

- Required for horizontal applications with Horizontal Roof Curb
- Contains panel with return air opening for field replacement of existing unit panel and panel to cover bottom return air opening in unit
- See dimension drawings

### **BLOWER**

A wide selection of supply air blower options are available to meet a variety of airflow requirements

#### **7** Blower Motor

- Overload protected
- Ball bearings

#### Supply Air Blower

- Forward curved blades
- Double inlet
- Blower wheel statically and dynamically balanced
- Ball bearings
- Adjustable pulley (allows speed change)
- Blower assembly slides out of unit for servicing

#### Single Zone VAV Supply Fan Operation

- Single Zone VAV stages the amount of airflow according to compressor stages, heating demand and ventilation demand
  - Units utilize a Variable Frequency Drive (VFD) to stage the supply air blower airflow
  - VFD alters the frequency and voltage of the power supply to the blower to control blower speed
  - The supply air blower has two speeds:
    1. Low speed for part-load cooling operation.  
**Note** - Low speed is 60% of high speed.
    2. High speed for full load cooling and all heat modes.
  - Full speed blower operation is set by adjusting the motor pulley to deliver the desired air volume
  - Ventilation speed is selectable between high and low speed
- NOTE** - Part load airflow in cooling mode should not be set below 220 cfm/nominal full load ton to reduce the risk of evaporator coil freeze-up.
- VFD has an operational range of -40 to 125° F outdoor air ambient temperature

**NOTE** - Lower operating costs are obtained when the blower is operated on lower speeds.

## FEATURES AND BENEFITS

### **BLOWER (continued)**

#### **Single Zone VAV Air Volume Sequence of Operation**

- Ventilation speed is determined by the VENT SPEED switch setting on VFD control board (LO or HI)
- Blower operates in low speed for mechanical cooling (Y1)
- Blower operates in high speed for any other mode (free cooling, mechanical cooling Y1+Y2, and heating)
- Economizer damper minimum position is fully closed in unoccupied mode
- In occupied mode, the economizer damper minimum position is determined by the setting of the two potentiometers on VFD control board:
  - **LO SPD MIN POS** potentiometer sets the minimum position when blower is operating at low speed
  - **HI SPD MIN POS** potentiometer sets the minimum position when blower is operating at high speed

#### **Ordering Information**

- Specify blower motor, motor horsepower and drive kit number when base unit is ordered

**NOTE** - Units equipped a Variable Frequency Drive (VFD) are designed to operate on balanced, three-phase power. Operating units on unbalanced three-phase power will reduce the reliability of all electrical components in the unit. Unbalanced power is a result of the power delivery system supplied by the local utility company. Factory-installed inverters are sized to drive blower motors with an equivalent current rating using balanced three-phase power. If unbalanced three-phase power is supplied; the installer must replace the existing factory-installed inverter with an inverter that has a higher current rating to allow for the imbalance. Refer to the installation instructions for additional information and replacement information.

### **Options/Accessories**

#### **Field Installed**

##### **Blower Belt Auto-Tensioner**

- Provides proper tension to belt drive blower belt without the need for regular adjustments
- Maintains airflow and proper performance

##### **VFD Manual Bypass Kit**

- Bypass Kit can be used to operate the unit in single speed (CAV) blower mode if the inverter needs to be serviced or replaced
- VFD Manual Bypass Control is a manual bypass and is enabled by re-configuring the wiring on the unit

### **CONTROLS**

#### **8 Unit Control**

- All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection
- Up to 2 heat / 2 cool staging with a third party DDC control system or thermostat
- Low voltage terminal block provides screw terminal connections for thermostat or controller wiring

### **Options/Accessories**

#### **Field Installed**

##### **Smoke Detector**

- Photoelectric type
- Installed in supply air section, return air section or both sections
- Available with power board and single sensor (supply or return) or power board and two sensors (supply and return)
- Power board located in unit control compartment

#### **Commercial Control Systems**

##### **Thermostats**

- Control system and thermostat options see page 11

#### **ELECTRICAL**

All units include terminal block and fuse block in power entry junction box for single power entry application

##### **Marked & Color-Coded Wiring**

- All electrical wiring is color-coded and marked to identify which components it is connecting

##### **Electrical Plugs**

- Positive connection electrical plugs are used to connect common accessories or maintenance parts for easy removal or installation

##### **Phase Monitor**

- Located in the control compartment
- Detects the phasing of incoming power
- If the incoming power is out of phase or if any of the three phases are lost, an indicator LED on the phase monitor will turn red and the unit will not start
- In normal operation with correct incoming power phasing, indicator LED will be green

### **Required Selections**

#### **Voltage Choice**

- Specify when ordering base unit

## FEATURES AND BENEFITS

### **ELECTRICAL (continued)**

#### Options/Accessories

#### **Factory or Field Installed**

- 9** Disconnect Switch
- Accessible from outside of unit
  - Spring loaded weatherproof cover furnished

#### **GFI Service Outlets (2)**

- 115V ground fault circuit interrupter (GFCI) type options:
  - Field installed, non-powered, field wired

#### **Field Installed**

- 10** Electric Heat
- Helix wound nichrome elements
  - Individual element limit controls
  - Wiring harness
  - Unit fuse block
  - See Options / Accessories tables for ordering information

#### **GFI Weatherproof Cover**

- Single-gang cover
- Heavy-duty UV-resistant polycarbonate case construction
- Hinged base cover with gasket

### **INDOOR AIR QUALITY**

- 11** Air Filters
- Disposable 2 inch MERV 4 filters furnished as standard

#### Options/Accessories

#### **Field Installed**

#### **High Efficiency Air Filters**

- Disposable MERV 8, MERV 13 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency
- 2 inch pleated filters

#### **Replacement Filter Media Kit With Frame**

- Replaces existing pleated filter media
- Includes washable metal mesh screen and metal frame with clip for holding replaceable non-pleated filter

#### **Indoor Air Quality (CO<sub>2</sub>) Sensors**

- Monitors CO<sub>2</sub> levels
- Reports to the Unit Controller which adjusts economizer dampers as needed

## OPTIONS/ACCESSORIES

### ECONOMIZER

- 12** Economizer  
(Standard and High Performance Common Features)
- Outdoor Air Hood with mist elimination filter furnished
  - Mixed Air Sensor furnished for field installation in the rooftop unit

**NOTE** - Sensor is factory installed when Economizer is factory installed.

### Field Installed

#### Standard Economizer Features (Not for Title 24)

- Gear-driven action
- 24-volt, fully-modulating spring return motor
- Return air and outdoor air dampers
- Plug-in connections to unit
- Nylon bearings
- Neoprene seals

#### Standard Economizer Control Module (Not for Title 24)

- Standard Economizer Control Module operation is based on outdoor air temperatures

#### Economizer Controls:

- **Damper Minimum Position** - Can be set lower than traditional minimum air requirements resulting in cost savings
- **IAQ Sensor** - Signals dampers to modulate and maintain 55°F when CO<sub>2</sub> is higher than the CO<sub>2</sub> setpoint
- **Demand Control Ventilation (DCV) LED** - A steady green Demand Control Ventilation LED indicates the IAQ reading is higher than setpoint and requires more fresh air
- **Free Cool LED** - A steady green LED indicates outdoor air is suitable for free cooling
  - Free Cooling runs when outdoor air temperature is lower than the set temperature on the economizer control



**NOTE:** The Free Cooling default setting for outdoor air temperature sensor is 55°F.

### Factory or Field Installed

#### High Performance Economizer Features

- Approved for California Title 24 building standards
- Low leakage dampers are Air Movement and Control Association International (AMCA) Class 1A Certified - Maximum 3 CFM per sq. ft. leakage at 1 in. w.g.
- ASHRAE 90.1-2010 compliant
- Linked damper action
- High torque 24-volt fully-modulating spring return damper motor
- Return air and outdoor air dampers
- Plug-in connections to unit

**NOTE** - High Performance Economizers are not approved for use with differential enthalpy controls in Title 24 applications.

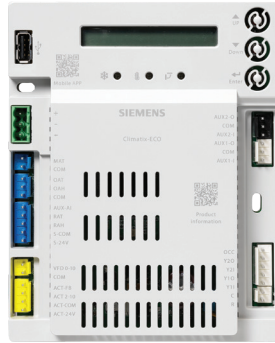


## OPTIONS/ACCESSORIES

### ECONOMIZER (continued)

#### High Performance Economizer Control Module

- Provides inputs and outputs to control economizer based on parameter settings
- Free cooling based on single dry bulb temperature, or combination temperature + humidity sensors
- Automatic switchover for different control modes
- Parameter settings based on climate zone, using GPS functionality in the Climatix Mobile application
- LED indication for free cooling operation, sensor operation and damper operation
- Quick installation and easy commissioning with the **Climatix Mobile App** on a mobile device



**NOTE** - WLAN Stick is required for App connection to module(s).

- Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting
- RS485 port for BACnet MSTP or Modbus RTU communication
- USB port for firmware updates and WLAN connection for setup and commissioning
- QR codes on module for quick access to download Climatix Mobile App and user documentation
- User Interface for normal operation, parameter setup, and alarm notifications with an LCD display and three operation buttons:
  1. **Up Button** - Move to the previous value, step or category
  2. **Down Button** - Move to the next value, step or category
  3. **Enter Button** -
    - Press to edit the current value or option
    - Press to confirm a newly selected value or option
    - Press Enter + Up to jump up one category
    - Press Enter + Down to jump down one category

**NOTE** - The Free Cooling setpoint for Title 24 applications must be set based on the Climate Zone where the system is installed. See Section 140.4 "Prescriptive Requirements for Space Conditioning Systems" of the California Energy Commission's 2013 Building Energy Efficiency Standards.

**NOTE** - Refer to Installation Instructions for complete setup information and menu parameters available.

#### Factory or Field Installed

##### Single Enthalpy Temperature Control

- Outdoor air enthalpy sensor enables economizer if the outdoor enthalpy is less than the setpoint of the control

**NOTE** - The factory installed economizer option comes preset for Single Enthalpy control but can be field converted to Single Sensible Temperature control by changing a parameter on the economizer control module.

#### Field Installed

##### Differential Enthalpy Control (Not for Title 24)

- Order one for factory installed economizer
- Order two for field installed economizer
  - One is field installed in the return air section
  - One in the outdoor air section
- Allows the economizer control board to select between outdoor air or return air, whichever has lower enthalpy

##### WLAN Stick

- Required for Climatix Mobile App usage
- Plugs into USB port on Module to provide a temporary WLAN connection for setup, commissioning, and servicing

**NOTE** - Only one WLAN Stick is required and can be used on multiple modules.

#### EXHAUST

##### Factory or Field Installed

#### 13 Downflow Barometric Relief Dampers With Exhaust Hood

- Allow relief of excess air
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Exhaust hood with bird screen is furnished

##### Field Installed

##### Horizontal Barometric Relief Dampers With Exhaust Hood

- For use when unit is configured for horizontal applications requiring an economizer
- Allows relief of excess air
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Field installed in return air duct
- Exhaust hood with bird screen is furnished

#### 14 Power Exhaust Fans

- Installs internal to unit for downflow applications only with economizer option
- Provides exhaust air pressure relief
- Interlocked to run when supply air blower is operating, fans run when outdoor air dampers are 50% open (adjustable)
- Motor is overload protected
- Dual fans
- 20 in. diameter
- 5 blades
- Two 1/3 hp motors
- SCCR rated

**NOTE** - Requires Economizer with Outdoor Air Hood and Downflow Barometric Relief Dampers

## OPTIONS/ACCESSORIES

### OUTDOOR AIR

#### Field Installed

##### Outdoor Air Damper

- Downflow or Horizontal
- Linked mechanical dampers
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Includes outdoor air hood
- Motorized model features fully modulating spring return damper motor with plug-in connection
- Manual model features parallel blade, gear-driven dampers with adjustable fixed position

#### ROOF CURBS

- Nailer strip furnished (downflow only)
- Mates to unit
- US National Roofing Contractors Approved
- Shipped knocked down

#### Downflow

##### Hybrid Roof Curbs

- Interlocking tabs fasten corners together
- No tools required for assembly
- Can also be fastened together with furnished hardware
- Available in 8, 14, 18, and 24 inch heights

##### Adjustable Pitch Curb

- Fully adjustable pitch curbs (3/4 in. per foot in any direction) provide a level platform for rooftop units allowing flexible installations on roofs with uneven or sloped angles
- Uses interlocking tabs to fasten corners together
- No tools required for assembly
- Hardware is furnished to connect upper curb with lower curb
- Available in 14 inch height

#### Horizontal

- Meet National Roofing Code requirements
- Converts unit from downflow to horizontal (side) air flow
- Return air is on unit
- Supply air is on curb
- See dimension drawings
- Available in 26, 30, 37, and 41 inch heights

**NOTE** - Requires Horizontal Return Air Panel Kit.

**NOTE** - Optional Insulation Kit is available to help prevent sweating.

#### Adaptor Curbs (not shown)

- Curbs are regionally sourced
- Dimensions vary based upon the source

**NOTE** - Contact your local sales representative for a detailed cut sheet with applicable dimensions.

### CEILING DIFFUSERS

#### Field Installed

##### Ceiling Diffusers (Flush or Step-Down)

- White powder coat finish on diffuser face and grilles
- Insulated UL listed duct liner
- Diffuser box has collars for duct connection
- Step-down diffusers have double deflection blades
- Flush diffusers have fixed blades
- Provisions for suspending
- Internally sealed to prevent recirculation
- Removable return air grille
- Adapts to T-bar ceiling grids or plaster ceilings

##### Transitions (Supply and Return)

- Used with diffusers
- Installs in roof curb
- Galvanized steel construction
- Flanges furnished for duct connection to diffusers
- Fully insulated

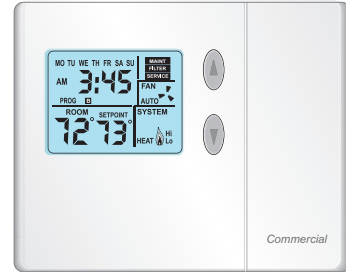
## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

### CS7500 Commercial 7-Day Programmable Thermostat



- Premium Universal Thermostat
- Full Color Touchscreen Interface
- Up To 4 Heat / 3 Cool
- Built-In Sensors For Temperature and Humidity
- Remote Sensors Options For Temperature, Discharge Air, Outdoor Air
- 5-2 or 7-Day Scheduling
- Smooth Setback Recovery
- Heat/Cool Auto-Changeover
- FDD, ASHRAE, IECC Compliant

### CS3000 Commercial 5-2 Day Programmable Thermostat



- Conventional Multi-Stage Thermostat
- Intuitive Display
- Push-Button Operation
- Up To 2 Heat / 2 Cool
- Built-In Temperature Sensor
- Remote Temperature Sensing
- Up to 5-2 Day Scheduling
- Smooth Setback Recovery
- Heat/Cool Auto-changeover

### BACnet Compatible Thermostat With Reheat



Description	Catalog No.
<b>CS7500 Commercial 7-Day Programmable Thermostat</b>	
CS7500 7-Day Thermostat	<b>24K41</b>
Sensors/ Accessories	<sup>1</sup> Remote non-adjustable wall-mount 20k <b>47W36</b>
	<sup>1</sup> Remote non-adjustable wall-mount 10k <b>47W37</b>
	Remote non-adjustable discharge air (duct mount) <b>19L22</b>
	Outdoor temperature sensor <b>X2658</b>
<b>CS3000 5-2 Day Programmable Thermostat</b>	
CS3000 5-2 Day Thermostat	<b>11Y05</b>
Sensor/ Accessories	Remote non-adjustable wall mount 10k averaging <b>47W37</b>
	Thermostat wall mounting plate <b>X2659</b>
<b>BACnet 7-Day Programmable Thermostat</b>	
BACnet Controls	<sup>2</sup> 7-Day BACnet Thermostat <b>24C57</b>
	<sup>3</sup> BACnet Module <b>16X72</b>
<sup>4</sup> BACnet Room Sensors	With Display <b>97W23</b>
	Without Display <b>97W24</b>
<b>Universal Thermostat Guard with Lock (clear)</b>	
Inside Dimensions (H x W x D)	5-7/8 x 8-3/8 x 3 in. <b>39P21</b>

<sup>1</sup> Remote wall-mount sensors can be applied in any of the following combinations:  
 One Sensor - (1) 47W36, Two Sensors - (2) 47W37, Three Sensors - (2) 47W36 and (1) 47W37  
 Four Sensors - (4) 47W36, Five Sensors - (3) 47W36 and (2) 47W37

<sup>2</sup> BACnet Thermostat (24C57) will control units with and without the dehumidification option. If there is a mix of units equipped with and without dehumidification on the same site, this thermostat can be used for all units if suitable.

<sup>3</sup> Not compatible with units equipped with dehumidification option.

<sup>4</sup> Only compatible with BACnet Module (16X70).

- 7-Day Programmable
- For units with or without Humiditrol®
- BTL listed MS/TP ensures compatibility with any BACnet system
- Built-in control programs for conventional and heat pump applications
- Conventional systems up to 3-stage heat and 3-stage cool
- Heat pumps with 1 or 2 compressors and up to 2-stage auxiliary heat
- On-board temperature and humidity sensor
- Multiple configurable inputs and outputs enable advanced control strategies
- Set-up Wizard enables rapid system configuration
- No special tools required for installation or commissioning
- Seven-day (2, 4 or 6 event) occupancy scheduling per day
- Backlit 5-inch LCD touchscreen

## DEHUMIDIFICATION SYSTEM OPTION

### **OVERVIEW**

**NOTE** - Not available with Eco-Last™ Coil System (180, 210 and 240 models only).

Conventional Fin/Tube condenser coil must be ordered as a factory option.

- Factory installed option designed to control humidity
- Provides dehumidification on demand using ASHRAE 90.1 recommended method for comfort conditioning humidity control
- Unit comes equipped with one row reheat coil, solenoid valve and humidity controller
- A thermostat with a dehumidification output, a dehumidistat, or a DDC controller with an isolated output is required to control humidity and must be located in the occupied space

### **BENEFITS**

- Improves indoor air quality
- Helps prevent damage due to high humidity levels
- Improves comfort levels by reducing space humidity levels

### **OPERATION**

#### **No Dehumidification Demand**

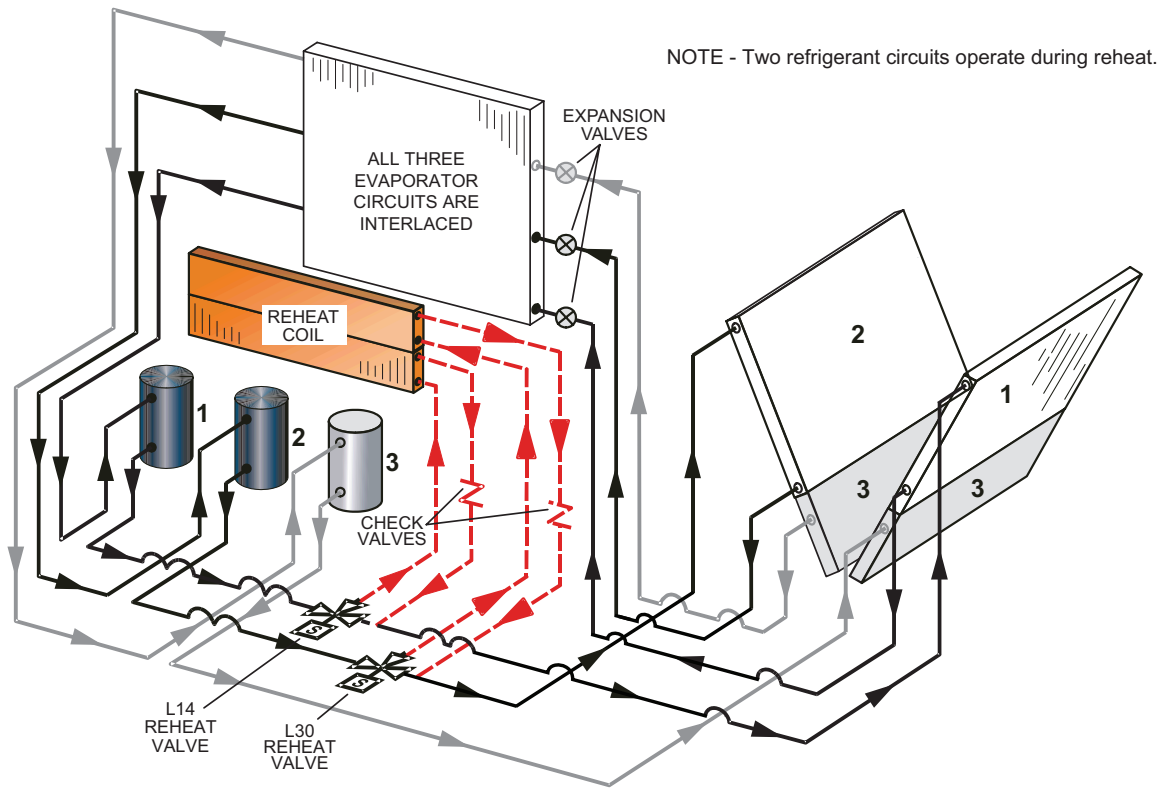
- The unit will operate conventionally whenever there is a demand for cooling or heating and no dehumidification demand
- Free cooling is only permitted when there is no demand for dehumidification

#### **Dehumidification Demand Only**

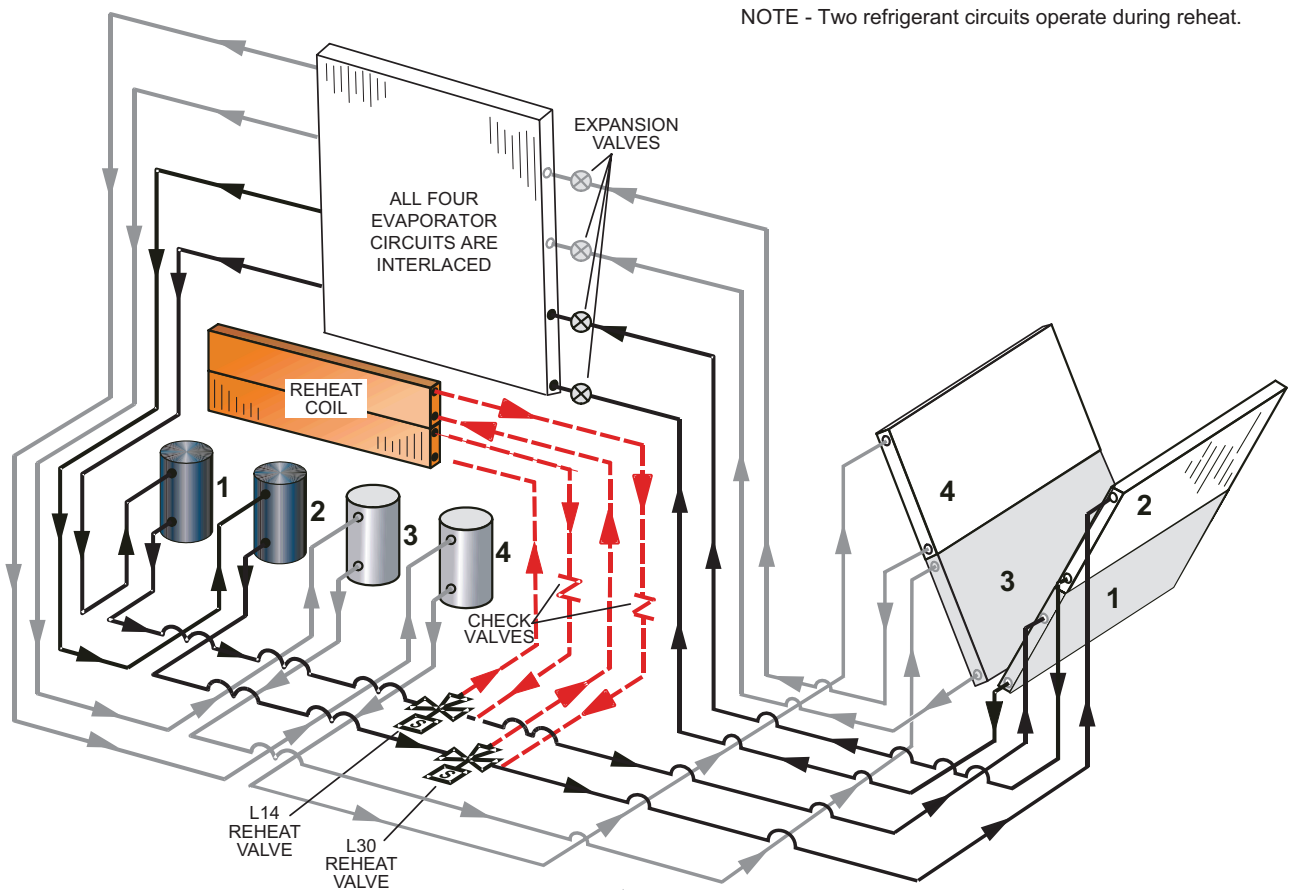
- Dehumidification is initiated by an output from a dehumidistat (furnished), an optional thermostat with a dehumidification output or an optional DDC controller with an isolated output to control humidity
- Reheat operation will initiate on a dehumidification demand and does not require a cooling demand
- The unit will operate in the dehumidification mode until the relative humidity of the conditioned space is below the setpoint
- This reduces sensible cooling capacity and extends compressor run time to control humidity when the cooling load is low
- A solenoid valve diverts hot gas from the compressor to the reheat coil
- The cooled and dehumidified air from the evaporator is reheated as it passes through the reheat coil
- The de-superheated and partially condensed refrigerant continues to the outdoor condenser coil where condensing is completed
- The unit will continue to operate in this mode until the dehumidification demand is satisfied

# DEHUMIDIFICATION SYSTEM OPTION

## REFRIGERANT SCHEMATIC (180, 210 AND 240 MODELS ONLY)



## REFRIGERANT SCHEMATIC (300S MODELS ONLY)



## OPTIONS / ACCESSORIES

Item Description	Catalog Number	180	210	240	300	
<b>COOLING SYSTEM</b>						
Condensate Drain Trap	PVC <b>22H54</b>	X	X	X	X	
	Copper <b>76W27</b>	X	X	X	X	
Conventional Fin/Tube Condenser Coil (replaces Eco-Last™ Coil System) (Required for Dehumidification option on 180, 210 and 240 models)	Factory	O	O	O	O	
Drain Pan Overflow Switch	<b>10C24</b>	X	X	X	X	
Low Ambient Kits (0°F)	<b>23V24</b>	X	X			
	<b>23V25</b>			X		
	<b>23V26</b>				X	
<b>BLOWER - SUPPLY AIR</b>						
Blower Motors	Belt Drive - 3 hp	Factory	O	O		
	Belt Drive - 5 hp	Factory	O	O	O	O
	Belt Drive 7.5 hp	Factory	O	O	O	O
	Belt Drive 10 hp	Factory			O	O
VFD Manual Bypass Kit	3, 5 hp (208/230V)	<b>90W52</b>	X	X	X	X
	3, 5, 7.5, 10 hp (460V and 575V)					
	7.5, 10 hp (208/230V)	<b>90W51</b>	X	X	X	X
Drive Kits See Blower Data Tables for usage and selection	Kit #1 535-725 rpm	Factory	O	O		
	Kit #2 710-965 rpm	Factory	O	O		
	Kit #3 685-856 rpm	Factory	O	O	O	O
	Kit #4 850-1045 rpm	Factory	O	O	O	O
	Kit #5 945-1185 rpm	Factory	O	O	O	O
	Kit #6 850-1045 rpm	Factory	O	O	O	O
	Kit #7 945-1185 rpm	Factory	O	O	O	O
	Kit #8 1045-1285 rpm	Factory	O	O	O	O
	Kit #10 1045-1285 rpm	Factory			O	O
	Kit #11 1135-1365 rpm	Factory			O	O
	Blower Belt Auto-Tensioner	<b>24B80</b>	X	X	X	X
<b>CABINET</b>						
Combination Coil/Hail Guards	<b>23U69</b>	X	X			
	<b>23U71</b>			X	X	
Hinged Access Panels	Factory	O	O	O	O	
<b>CONTROLS</b>						
<b>NOTE - Also see Conventional Thermostat Control Systems on page 11 for additional control options.</b>						
Smoke Detector - Supply or Return (Power board and one sensor)	<b>22H56</b>	X	X	X	X	
Smoke Detector - Supply and Return (Power board and two sensors)	<b>22H57</b>	X	X	X	X	

NOTE - Catalog numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

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## OPTIONS / ACCESSORIES

Item Description	Catalog Number	180	210	240	300	
<b>ELECTRICAL</b>						
Voltage 60 Hz	208/230V - 3 phase	Factory	O	O	O	O
	460V - 3 phase	Factory	O	O	O	O
	575V - 3 phase	Factory	O	O	O	O
Disconnect Switch (see Electric Heat Tables for usage)	80 amp	<b>54W85</b>	OX	OX	OX	OX
	150 amp	<b>54W86</b>	OX	OX	OX	OX
	250 amp	<b>54W87</b>	OX	OX	OX	OX
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only)	<b>74M70</b>	X	X	X	X
	<sup>1</sup> 20 amp non-powered, field-wired (208/230V, 460V, 575V)	<b>67E01</b>	X	X	X	X
Weatherproof Cover for GFI		<b>10C89</b>	X	X	X	X
<b>ELECTRIC HEAT</b>						
15 kW	208/240V-3ph	<b>22H66</b>	X	X	X	X
	460V-3ph	<b>22H67</b>	X	X	X	X
	575V-3ph	<b>22V35</b>	X	X	X	X
30 kW	208/240V-3ph	<b>22H68</b>	X	X	X	X
	460V-3ph	<b>22H69</b>	X	X	X	X
	575V-3ph	<b>22V36</b>	X	X	X	X
45 kW	208/240V-3ph	<b>22H72</b>	X	X	X	X
	460V-3ph	<b>22H73</b>	X	X	X	X
	575V-3ph	<b>22V38</b>	X	X	X	X
60 kW	208/240V-3ph	<b>22H76</b>	X	X	X	X
	460V-3ph	<b>22H77</b>	X	X	X	X
	575V-3ph	<b>22V40</b>	X	X	X	X
90 kW	208/240V-3ph	<b>22H80</b>		X	X	X
	460V-3ph	<b>22H81</b>		X	X	X
	575V-3ph	<b>22V42</b>		X	X	X
<b>DEHUMIDIFICATION REHEAT OPTION</b>						
Dehumidification Option		Factory	O	O	O	O

<sup>1</sup> Canada requires a minimum 20 amp circuit. Select 20 amp, non-powered, field wired GFI.

NOTE - Catalog numbers shown are for ordering field installed accessories.

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## OPTIONS / ACCESSORIES

Item Description	Catalog Number	180	210	240	300	
<b>INDOOR AIR QUALITY</b>						
<b>Air Filters</b>						
High Efficiency Air Filters 24 x 24 x 2 in. (Order 6 per unit)	MERV 8	<b>54W67</b>	X	X	X	X
	MERV 13	<b>52W40</b>	X	X	X	X
Replacement Media Filter With Metal Mesh Frame (includes non-pleated filter media)		<b>44N61</b>	X	X	X	X
<b>Indoor Air Quality (CO<sub>2</sub>) Sensors</b>						
Sensor - Wall-mount, off-white plastic cover with LCD display		<b>77N39</b>	X	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display		<b>23V86</b>	X	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting		<b>87N52</b>	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting		<b>87N54</b>	X	X	X	X
CO <sub>2</sub> Sensor Duct Mounting Kit - for downflow applications		<b>85L43</b>	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO <sub>2</sub> sensors ( <b>77N39</b> )		<b>90N43</b>	X	X	X	X
<b>ECONOMIZER</b>						
<b>Standard Economizer With Outdoor Air Hood (Not for Title 24)</b>						
Standard Economizer Downflow or Horizontal Applications - Includes Outdoor Air Hood, order Downflow or Horizontal Barometric Relief Dampers separately		<b>13U48</b>	X	X	X	X
<b>Standard Economizer Controls (Not for Title 24)</b>						
Single Enthalpy Control		<b>21Z09</b>	X	X	X	X
Differential Enthalpy Control (order 2)		<b>21Z09</b>	X	X	X	X
<b>High Performance Economizer With Outdoor Air Hood (For Title 24) / AMCA Class 1A Certified</b>						
High Performance Economizer Downflow or Horizontal Applications - Includes Outdoor Air Hood, order Downflow or Horizontal Barometric Relief Dampers separately Factory Installed Economizer - Enthalpy control is furnished as standard. Field programmable for Sensible Control without additional hardware Field Installed Economizer - Sensible Sensor is furnished as standard		<b>23G24</b>	OX	OX	OX	OX
<b>High Performance Economizer Controls</b>						
Single Enthalpy Control (Not for Title 24)		<b>23G26</b>	X	X	X	X
Differential Enthalpy Control (order 1 for factory, order 2 for field) (Not for Title 24)		<b>23G26</b>	X	X	X	X
<b>Economizer Accessories</b>						
WLAN Stick (For High Performance Economizer only)		<b>23K58</b>	X	X	X	X
<b>Barometric Relief Dampers With Exhaust Hood</b>						
Downflow Barometric Relief Dampers		<b>54W78</b>	OX	OX	OX	OX
Horizontal Barometric Relief Dampers		<b>16K99</b>	X	X	X	X

NOTE - Catalog numbers shown are for ordering field installed accessories.

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## OPTIONS / ACCESSORIES

Item Description	Catalog Number	180	210	240	300	
<b>OUTDOOR AIR</b>						
<b>Outdoor Air Dampers With Outdoor Air Hood</b>						
Motorized	22J27	X	X	X	X	
Manual	13U05	X	X	X	X	
<b><sup>1</sup> POWER EXHAUST (DOWNFLOW APPLICATIONS ONLY)</b>						
Standard Static, SCCR Rated	208/230V	22H90	X	X	X	X
	460V	22H91	X	X	X	X
	575V	22V34	X	X	X	X
<b>ROOF CURBS</b>						
<b>Hybrid Roof Curbs, Downflow</b>						
8 in. height	11F58	X	X	X	X	
14 in. height	11F59	X	X	X	X	
18 in. height	11F60	X	X	X	X	
24 in. height	11F61	X	X	X	X	
<b>Adjustable Pitch Curb</b>						
14 in. height	43W26	X	X	X	X	
<b>Standard Roof Curbs, Horizontal - Requires Horizontal Return Air Panel Kit</b>						
26 in. height - slab applications	11T89	X	X	X		
30 in. height - slab applications	11T90				X	
37 in. height - rooftop applications	11T96	X	X	X		
41 in. height - rooftop applications	11T97				X	
<b>Insulation Kit For Standard Horizontal Curbs</b>						
For 26 in. Curb	73K32	X	X	X		
For 30 in. Curb	73K33				X	
For 37 in. Curb	73K34	X	X	X		
For 41 in. Curb	73K35				X	
<b>Horizontal Return Air Panel Kit</b>						
Required for Horizontal Applications with Roof Curb	87M00	X	X	X	X	
<b>CEILING DIFFUSERS</b>						
Step-Down - Order one	RTD11-185S	13K63	X			
	RTD11-275S	13K64		X	X	
Flush - Order one	FD11-185S	13K58	X			
	FD11-275S	13K59		X	X	
Transitions (Supply and Return) - Order one	C1DIFF33C-1	12X68	X			
	C1DIFF34C-1	12X70		X	X	

<sup>1</sup> Field installed Power Exhaust requires Economizer with Outdoor Air Hood and Downflow Barometric Relief Dampers with Exhaust Hood. Must be ordered separately.

NOTE - Catalog numbers shown are for ordering field installed accessories.

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X = Field Installed

## SPECIFICATIONS

General Data		Nominal Tonnage	15 Ton	17.5 Ton	20 Ton	25 Ton
Model Number			KCC180S4M	KCC210S4M	KCC240S4M	KCC300S4M
Efficiency Type			Standard	Standard	Standard	Standard
Blower Type			Single Zone VAV Supply Fan	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan
<b>Cooling Performance</b>	Gross Cooling Capacity - Btuh		178,000	206,000	236,000	282,000
	<sup>1</sup> Net Cooling Capacity - Btuh		172,000	200,000	228,000	270,000
	<sup>1</sup> AHRI Rated Air Flow - cfm		7200	6125	7000	7500
	Total Unit Power - kW		15.6	18.2	20.7	27
	<sup>1</sup> IEER (Btuh/Watt)		14.2	14.2	14.2	13.2
	<sup>1</sup> EER (Btuh/Watt)		11.0	11.0	11.0	10.0
<b>Refrigerant Charge</b>	Refrigerant Type		R-410A	R-410A	R-410A	R-410A
	Eco-Last™ Coil System	Circuit 1	7 lbs. 3 oz.	8 lbs. 0 oz.	8 lbs. 12 oz.	7 lbs. 13 oz.
		Circuit 2	6 lbs. 10 oz.	7 lbs. 2 oz.	8 lbs. 7 oz.	6 lbs. 8 oz.
		Circuit 3	6 lbs. 3 oz.	7 lbs. 6 oz.	8 lbs. 10 oz.	5 lbs. 13 oz.
		Circuit 4	---	---	---	5 lbs. 13 oz.
	Conventional Fin Tube Coil Option	Circuit 1	11 lbs. 8 oz.	12 lbs. 12 oz.	13 lbs. 10 oz.	10 lbs. 8 oz.
		Circuit 2	9 lbs. 14 oz.	12 lbs. 0 oz.	14 lbs. 8 oz.	10 lbs. 0 oz.
		Circuit 3	8 lbs. 15 oz.	11 lbs. 2 oz.	13 lbs. 4 oz.	9 lbs. 12 oz.
		Circuit 4	---	---	---	9 lbs. 12 oz.
	Conventional Fin/Tube with Reheat Option	Circuit 1	15 lbs. 4 oz.	14 lbs. 8 oz.	14 lbs. 12 oz.	---
		Circuit 2	13 lbs. 0 oz.	13 lbs. 9 oz.	15 lbs. 4 oz.	---
		Circuit 3	8 lbs. 15 oz.	11 lbs. 2 oz.	13 lbs. 4 oz.	---
		Circuit 4	---	---	---	---
	Coil System with Reheat Option	Circuit 1	---	---	---	7 lbs. 7 oz.
		Circuit 2	---	---	---	7 lbs. 2 oz.
		Circuit 3	---	---	---	5 lbs. 15 oz.
Circuit 4		---	---	---	6 lbs. 1 oz.	
<b>Electric Heat Available, see page 15</b>			15-30-45-60 kW	15-30-45-60-90 kW		
<b>Compressor Type (number)</b>			Scroll (3)	Scroll (3)	Scroll (3)	Scroll (4)
<b>Outdoor Coils</b>	Net face area (total) - sq. ft.		41.1	41.1	55.0	55.0
	Eco-Last™ Number of rows (Fin/Tube)		1 (2)	1 (2)	1 (2)	1 (2)
<b>Outdoor Coil Fans</b>	Fins per inch		23 (20)	23 (20)	23 (20)	23 (20)
	No. and type		(3) PSC	(3) PSC	(4) PSC	(6) PSC
	Motor - horsepower		1/3	1/3	1/3	1/3
	Motor rpm		1075	1075	1075	1075
	Total Motor watts		1100	1100	1665	1950
	Diameter - (No.) in. / No. of blades		(3) 24 / 3	(3) 24 / 3	(4) 24 / 3	(6) 24 / 3
<b>Indoor Coils</b>	Total Air volume - cfm		12,000	12,000	16,000	20,000
	Net face area (total) - sq. ft.		21.4	21.4	21.4	21.4
	Tube diameter - in. / No. of rows		3/8 / 3	3/8 / 4	3/8 / 4	3/8 / 4
	Fins per inch		14	14	14	14
	Drain connection - No. and size		(1) 1 in. FPT	(1) 1 in. FPT	(1) 1 in. FPT	(1) 1 in. FPT
Expansion device type			Balanced Port Thermostatic Expansion Valve, removable element head			
<sup>2</sup> <b>Indoor Blower and Drive Selection</b>	Nominal motor output		3 hp, 5 hp, 7.5 hp		5 hp, 7.5 hp, 10 hp	
	Maximum usable motor output (US)		3.45 hp, 5.75 hp, 8.62 hp		5.75 hp, 8.62 hp, 11.5 hp	
	Motor - Drive kit number		<b>3 hp</b>		<b>5 hp</b>	
			Kit 1 535-725 rpm		Kit 3 685-856 rpm	
			Kit 2 710-965 rpm		Kit 4 850-1045 rpm	
			<b>5 hp</b>		Kit 5 945-1185 rpm	
			Kit 3 685-856 rpm		<b>7.5 hp</b>	
			Kit 4 850-1045 rpm		Kit 6 850-1045 rpm	
			Kit 5 945-1185 rpm		Kit 7 945-1185 rpm	
			<b>7.5 hp</b>		Kit 8 1045-1285 rpm	
		Kit 6 850-1045 rpm		<b>10 hp</b>		
		Kit 7 945-1185 rpm		Kit 7 945-1185 rpm		
		Kit 8 1045-1285 rpm		Kit 10 1045-1285 rpm		
				Kit 11 1135-1365 rpm		
Blower wheel nominal diameter x width - in.			(2) 15 x 15			
<b>Filters</b>			Type of filter / No. and size (in.)			
			MERV 4, Disposable / (6) 24 x 24 x 2			
<b>Electrical characteristics</b>			208/230V, 460V or 575V - 60 hertz - 3 phase			

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

<sup>1</sup> AHRI Certified to AHRI Standard 340/360; 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

<sup>2</sup> Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

NOTE - Motor service factor limit - 1.0.











## BLOWER DATA

### FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Nominal hp	Maximum hp	Drive Kit Number	RPM Range
3	3.45	1	535 - 725
3	3.45	2	710 - 965
5	5.75	3	685 - 856
5	5.75	4	850 - 1045
5	5.75	5	945 - 1185
7.5	8.63	6	850 - 1045
7.5	8.63	7	945 - 1185
7.5	8.63	8	1045 - 1285
10	11.50	7	945 - 1185
10	11.50	10	1045 - 1285
10	11.50	11	1135 - 1365

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

NOTE - Motor service factor limit - 1.0.

### FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE - in w.g.

Air Volume cfm	Wet Indoor Coil		Reheat Coil	Electric Heat	Economizer	Filters		Horizontal Roof Curb	
	180	210 240 300				MERV 8	MERV 13	180 thru 240	300
2750	.01	.02	.01	---	---	.01	.03	.03	---
3000	.01	.02	.01	---	---	.01	.03	.04	---
3250	.01	.03	.01	---	---	.01	.04	.04	.01
3500	.01	.03	.02	---	---	.01	.04	.05	.01
3750	.01	.03	.02	---	---	.01	.04	.05	.01
4000	.02	.04	.02	---	---	.01	.04	.06	.02
4250	.02	.04	.02	---	---	.01	.05	.07	.02
4500	.02	.05	.02	---	---	.01	.05	.07	.02
4750	.02	.05	.02	---	---	.02	.05	.08	.03
5000	.02	.05	.02	---	---	.02	.06	.08	.03
5250	.02	.06	.03	---	---	.02	.06	.09	.04
5500	.02	.07	.03	---	---	.02	.06	.10	.04
5750	.03	.07	.03	---	---	.02	.07	.11	.05
6000	.03	.08	.03	.01	---	.03	.07	.11	.06
6250	.03	.08	.03	.01	.01	.03	.07	.12	.07
6500	.03	.09	.04	.01	.02	.03	.08	.13	.08
6750	.04	.10	.04	.01	.03	.03	.08	.14	.08
7000	.04	.10	.04	.01	.04	.04	.08	.15	.09
7250	.04	.11	.04	.01	.05	.04	.09	.16	.10
7500	.05	.12	.05	.01	.06	.04	.09	.17	.11
8000	.05	.13	.05	.02	.09	.05	.10	.19	.13
8500	.06	.15	.05	.02	.11	.05	.10	.21	.15
9000	.07	.16	.06	.04	.14	.06	.11	.24	.17
9500	.08	.18	.07	.05	.16	.07	.12	.26	.19
10,000	.08	.20	.07	.06	.19	.07	.12	.29	.21
10,500	.09	.22	.08	.09	.22	.08	.13	.31	.24
11,000	.11	.24	.08	.11	.25	.09	.14	.34	.27



## BLOWER DATA

### MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT

Electric Heat kW	Minimum cfm
15	5200
30	5200
45	5200
60	5200
90	6000

### POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure	Air Volume Exhausted
in. w.g.	cfm
0.00	8630
0.05	8210
0.10	7725
0.15	7110
0.20	6470
0.25	5790
0.30	5060
0.35	4300
0.40	3510
0.45	2690
0.50	1840

### CEILING DIFFUSER AIR RESISTANCE - in. w.g.

Air Volume cfm	Step-Down Diffuser						Flush Diffuser	
	RTD11-185S			RTD11-275S			FD11-185S	FD11-275S
	2 Ends Open	1 Side/2 Ends Open	All Ends & Sides Open	2 Ends Open	1 Side/2 Ends Open	All Ends & Sides Open		
5000	.51	.44	.39	---	---	---	.27	---
5200	.56	.48	.42	---	---	---	.30	---
5400	.61	.52	.45	---	---	---	.33	---
5600	.66	.56	.48	---	---	---	.36	---
5800	.71	.59	.51	---	---	---	.39	---
6000	.76	.63	.55	.36	.31	.27	.42	.29
6200	.80	.68	.59	---	---	---	.46	---
6400	.86	.72	.63	---	---	---	.50	---
6500	---	---	---	.42	.36	.31	---	.34
6600	.92	.77	.67	---	---	---	.54	---
6800	.99	.83	.72	---	---	---	.58	---
7000	1.03	.87	.76	.49	.41	.36	.62	.40
7200	1.09	.92	.80	---	---	---	.66	---
7400	1.15	.97	.84	---	---	---	.70	---
7500	---	---	---	.51	.46	.41	---	.45
7600	1.20	1.02	.88	---	---	---	.74	---
8000	---	---	---	.59	.49	.43	---	.50
8500	---	---	---	.69	.58	.50	---	.57
9000	---	---	---	.79	.67	.58	---	.66
9500	---	---	---	.89	.75	.65	---	.74
10,000	---	---	---	1.00	.84	.73	---	.81
10,500	---	---	---	1.10	.92	.80	---	.89
11,000	---	---	---	1.21	1.01	.88	---	.96

### CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume cfm	<sup>1</sup> Effective Throw Range - ft.		Model No.	Air Volume cfm	<sup>1</sup> Effective Throw Range - ft.	
		RTD11-185S Step-Down	FD11-185S Flush			RTD11-275S Step-Down	FD11-275S Flush
180	5600	39 - 49	28 - 37	210 240 300	7200	33 - 38	26 - 35
	5800	42 - 51	29 - 38		7400	35 - 40	28 - 37
	6000	44 - 54	40 - 50		7600	36 - 41	29 - 38
	6200	45 - 55	42 - 51		7800	38 - 43	40 - 50
	6400	46 - 55	43 - 52		8000	39 - 44	42 - 51
	6600	47 - 56	45 - 56		8200	41 - 46	43 - 52
					8400	43 - 49	44 - 54
					8600	44 - 50	46 - 57
					8800	47 - 55	48 - 59

<sup>1</sup> Throw is the horizontal or vertical distance an airstream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 50 ft. per minute. Four sides open.

**ELECTRICAL/ELECTRIC HEAT DATA**

**15 TON**

Model No.		KCC180S4								
<sup>1</sup> Voltage - 60Hz		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1 (Non-Inverter)	Rated Load Amps	13.2			6.3			4.9		
	Locked Rotor Amps	93			60			41		
Compressor 2 (Non-Inverter)	Rated Load Amps	13.2			6.3			4.9		
	Locked Rotor Amps	93			60			41		
Compressor 3 (Non-Inverter)	Rated Load Amps	13.2			6.3			4.9		
	Locked Rotor Amps	93			60			41		
Outdoor Fan Motors (3)	Full Load Amps (3 ECM)	2.4			1.3			1		
	Total	7.2			3.9			3		
Power Exhaust (2) 0.33 HP	Full Load Amps	2.4			1.3			1		
	Total	4.8			2.6			2		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	3	5	7.5	3	5	7.5	3	5	7.5
	Full Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	70	80	100	35	35	45	25	30	35
	With (2) 0.33 HP Power Exhaust	70	80	100	35	40	50	25	30	35
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	61	68	78	30	33	37	23	26	29
	With (2) 0.33 HP Power Exhaust	66	72	82	32	35	40	25	28	31

**ELECTRIC HEAT DATA**

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	15 kW	70	70	80	80	100	100	35	35	45	25	30	35
		30 kW	100	110	100	125	110	125	60	60	60	45	45	50
		45 kW	150	150	150	175	150	175	80	80	90	60	70	70
		60 kW	150	175	150	175	175	175	80	90	90	70	70	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	15 kW	61	61	68	68	78	78	30	33	37	23	26	30
		30 kW	92	104	100	112	109	121	52	55	59	41	44	48
		45 kW	131	149	139	157	148	166	74	78	82	60	62	66
		60 kW	139	158	146	166	156	175	79	82	86	63	66	69
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat and (2) 0.33 HP Power Exhaust	15 kW	70	70	80	80	100	100	35	40	50	30	30	35
		30 kW	100	110	110	125	125	150	60	60	70	45	50	50
		45 kW	150	175	150	175	175	175	80	90	90	70	70	70
		60 kW	150	175	175	175	175	200	90	90	90	70	70	80
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat and (2) 0.33 HP Power Exhaust	15 kW	66	66	72	72	82	82	32	36	40	26	29	32
		30 kW	98	110	106	118	115	127	55	58	63	44	47	50
		45 kW	137	155	145	163	154	172	77	81	85	62	65	68
		60 kW	145	164	152	172	162	181	82	85	90	66	68	72

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

<sup>3</sup> Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

**ELECTRICAL/ELECTRIC HEAT DATA**

**17.5 TON**

Model No.		KCC210S4								
1 Voltage - 60Hz		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1 (Non-Inverter)	Rated Load Amps	19.6			8.2			6.6		
	Locked Rotor Amps	136			66.1			55.3		
Compressor 2 (Non-Inverter)	Rated Load Amps	19.6			8.2			6.6		
	Locked Rotor Amps	136			66.1			55.3		
Compressor 3 (Non-Inverter)	Rated Load Amps	19.6			8.2			6.6		
	Locked Rotor Amps	136			66.1			55.3		
Outdoor Fan Motors (3)	Full Load Amps (3 ECM)	2.4			1.3			1		
	Total	7.2			3.9			3		
Power Exhaust (2) 0.33 HP	Full Load Amps	2.4			1.3			1		
	Total	4.8			2.6			2		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	3	5	7.5	3	5	7.5	3	5	7.5
	Full Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
2 Maximum Overcurrent Protection (MOCP)	Unit Only	100	100	110	40	45	50	30	35	40
	With (2) 0.33 HP Power Exhaust	100	110	125	45	45	50	35	35	45
3 Minimum Circuit Ampacity	Unit Only	82	88	97	36	39	43	29	31	35
	With (2) 0.33 HP Power Exhaust	87	93	102	38	41	45	31	33	37

**ELECTRIC HEAT DATA**

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
2 Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	15 kW	100	100	100	100	110	110	40	45	50	30	35	40
		30 kW	100	110	100	125	110	125	60	60	60	45	45	50
		45 kW	150	150	150	175	150	175	80	80	90	60	70	70
		60 kW	150	175	150	175	175	175	80	90	90	70	70	70
		90 kW	225	250	225	250	225	250	125	125	125	100	100	100
3 Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	15 kW	82	82	88	88	97	97	36	39	43	29	31	35
		30 kW	92	104	100	112	109	121	52	55	59	41	44	48
		45 kW	131	149	139	157	148	166	74	78	82	60	62	66
		60 kW	139	158	146	166	156	175	79	82	86	63	66	69
		90 kW	201	230	209	238	218	247	115	118	123	92	95	98
2 Maximum Overcurrent Protection (MOCP) and (2) 0.33 HP Power Exhaust	Unit+ Electric Heat	15 kW	100	100	110	110	125	125	45	45	50	35	35	45
		30 kW	100	110	110	125	125	150	60	60	70	45	50	50
		45 kW	150	175	150	175	175	175	80	90	90	70	70	70
		60 kW	150	175	175	175	175	200	90	90	90	70	70	80
		90 kW	225	250	225	250	225	300	125	125	150	100	100	110
3 Minimum Circuit Ampacity (MCA) and (2) 0.33 HP Power Exhaust	Unit+ Electric Heat	15 kW	87	87	93	93	102	102	38	41	45	31	33	37
		30 kW	98	110	106	118	115	127	55	58	63	44	47	50
		45 kW	137	155	145	163	154	172	77	81	85	62	65	68
		60 kW	145	164	152	172	162	181	82	85	90	66	68	72
		90 kW	207	236	215	244	224	253	118	122	126	94	97	101

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

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

2 HACR type breaker or fuse.

3 Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

**ELECTRICAL/ELECTRIC HEAT DATA**

**20 TON**

Model No.		KCC240S4								
<sup>1</sup> Voltage - 60Hz		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1 (Non-Inverter)	Rated Load Amps	22.6			10			7.5		
	Locked Rotor Amps	166.2			74.6			54		
Compressor 2 (Non-Inverter)	Rated Load Amps	22.6			10			7.5		
	Locked Rotor Amps	166.2			74.6			54		
Compressor 3 (Non-Inverter)	Rated Load Amps	25			12.8			9.6		
	Locked Rotor Amps	164			100			78		
Outdoor Fan Motors (4)	Full Load Amps (4 ECM)	2.4			1.3			1		
	Total	9.6			5.2			4		
Power Exhaust (2) 0.33 HP	Full Load Amps	2.4			1.3			1		
	Total	4.8			2.6			2		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10
	Full Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	125	125	125	60	60	60	45	45	50
	With (2) 0.33 HP Power Exhaust	125	125	150	60	60	70	45	50	50
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	103	111	119	49	53	56	38	40	43
	With (2) 0.33 HP Power Exhaust	108	116	124	52	55	59	40	42	45

**ELECTRIC HEAT DATA**

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	15 kW	125	125	125	125	125	125	60	60	60	45	45	50
		30 kW	125	125	125	125	125	150	60	60	70	45	50	50
		45 kW	150	175	150	175	175	175	80	90	90	70	70	70
		60 kW	150	175	175	175	175	200	90	90	90	70	70	80
		90 kW	225	250	225	250	250	300	125	125	150	100	100	110
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	15 kW	103	103	111	111	119	119	49	53	56	38	40	43
		30 kW	103	112	111	121	119	129	55	59	63	44	48	50
		45 kW	139	157	148	166	156	174	78	82	86	62	66	68
		60 kW	146	166	156	175	164	183	82	86	90	66	69	72
		90 kW	209	238	218	247	227	256	118	123	126	95	98	101
<sup>2</sup> Maximum Overcurrent Protection (MOCP) and (2) 0.33 HP Power Exhaust	Unit+ Electric Heat	15 kW	125	125	125	125	150	150	60	60	70	45	50	50
		30 kW	125	125	125	150	150	150	60	70	70	50	50	60
		45 kW	150	175	175	175	175	200	90	90	90	70	70	80
		60 kW	175	175	175	200	175	200	90	90	100	70	80	80
		90 kW	225	250	225	300	250	300	125	150	150	100	110	110
<sup>3</sup> Minimum Circuit Ampacity (MCA) and (2) 0.33 HP Power Exhaust	Unit+ Electric Heat	15 kW	108	108	116	116	124	124	52	55	59	40	42	45
		30 kW	108	118	116	127	124	135	58	63	66	47	50	53
		45 kW	145	163	154	172	162	180	81	85	89	65	68	71
		60 kW	152	172	162	181	170	189	85	90	93	68	72	74
		90 kW	215	244	224	253	233	262	122	126	130	97	101	103

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

<sup>3</sup> Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

**ELECTRICAL/ELECTRIC HEAT DATA**

**25 TON**

Model No.		KCC300S4								
<sup>1</sup> Voltage - 60Hz		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1 (Non-Inverter)	Rated Load Amps	19.6			8.2			6.6		
	Locked Rotor Amps	136			66.1			55.3		
Compressor 2 (Non-Inverter)	Rated Load Amps	19.6			8.2			6.6		
	Locked Rotor Amps	136			66.1			55.3		
Compressor 3 (Non-Inverter)	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149			75			54		
Compressor 4 (Non-Inverter)	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149			75			54		
Outdoor Fan Motors (6)	Full Load Amps (6 ECM)	2.4			1.3			1		
	Total	14.4			7.8			6		
Power Exhaust (2) 0.33 HP	Full Load Amps	2.4			1.3			1		
	Total	4.8			2.6			2		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10
	Full Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	125	150	150	60	70	70	50	50	50
	With (2) 0.33 HP Power Exhaust	150	150	150	60	70	70	50	50	60
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	121	129	137	56	60	63	43	46	49
	With (2) 0.33 HP Power Exhaust	126	134	142	59	62	66	45	48	51

**ELECTRIC HEAT DATA**

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	15 kW	125	125	150	150	150	150	60	70	70	50	50	50
		30 kW	125	125	150	150	150	150	60	70	70	50	50	50
		45 kW	150	175	150	175	175	175	80	90	90	70	70	70
		60 kW	150	175	175	175	175	200	90	90	90	70	70	80
		90 kW	225	250	225	250	250	300	125	125	150	100	100	110
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	15 kW	121	121	129	129	137	137	56	60	63	43	46	49
		30 kW	121	121	129	129	137	137	56	60	63	44	48	50
		45 kW	139	157	148	166	156	174	78	82	86	62	66	68
		60 kW	146	166	156	175	164	183	82	86	90	66	69	72
		90 kW	209	238	218	247	227	256	118	123	126	95	98	101
<sup>2</sup> Maximum Overcurrent Protection (MOCP) and (2) 0.33 HP Power Exhaust	Unit+ Electric Heat	15 kW	150	150	150	150	150	150	60	70	70	50	50	60
		30 kW	150	150	150	150	150	150	60	70	70	50	50	60
		45 kW	150	175	175	175	175	200	90	90	90	70	70	80
		60 kW	175	175	175	200	175	200	90	90	100	70	80	80
		90 kW	225	250	225	300	250	300	125	150	150	100	110	110
<sup>3</sup> Minimum Circuit Ampacity (MCA) and (2) 0.33 HP Power Exhaust	Unit+ Electric Heat	15 kW	126	126	134	134	142	142	59	62	66	45	48	51
		30 kW	126	126	134	134	142	142	59	63	66	47	50	53
		45 kW	145	163	154	172	162	180	81	85	89	65	68	71
		60 kW	152	172	162	181	170	189	85	90	93	68	72	74
		90 kW	215	244	224	253	233	262	122	126	130	97	101	103

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

<sup>3</sup> Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

## ELECTRICAL ACCESSORIES - DISCONNECTS

### 15 TON | KCC180S4

Motor Horsepower	3		5		7.5		3	5	7.5	3	5	7.5
	208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
Unit Only	54W85	54W85	54W85	54W85	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust	54W85	54W85	54W85	54W85	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 15 kW	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 45 kW	54W87	54W86	54W87	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 15 kW	54W85	54W85	54W85	54W85	54W86	54W85	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 45 kW	54W87	54W86	54W87	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85

### 17.5 TON | KCC210S4

Motor Horsepower	3		5		7.5		3	5	7.5	3	5	7.5
	208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
Unit Only	54W85	54W85	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 15 kW	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 45 kW	54W87	54W86	54W87	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
+ Electric Heat 90 kW	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	54W86	54W86	54W86	54W86	54W86	54W86
+ Power Exhaust + Elec. Heat 15 kW	54W85	54W85	54W85	54W85	54W86	54W85	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 45 kW	54W87	54W86	54W87	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 90 kW	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	54W86	54W86	54W86	54W86	54W86	54W86

Disconnects - 54W85 - 80A  
 54W86 - 150A  
 54W87 - 250A

<sup>1</sup> Disconnect must be field furnished.

## ELECTRICAL ACCESSORIES - DISCONNECTS

### 20 TON | KCC240S4

Motor Horsepower	5		7.5		10		5	7.5	10	5	7.5	10
	208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
Unit Only	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 15 kW	54W85	54W85	54W85	54W85	54W86	54W85	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 45 kW	54W87	54W86	54W87	54W87	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
+ Electric Heat 90 kW	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	54W86	54W86	54W86	54W86	54W86	54W86
+ Power Exhaust + Elec. Heat 15 kW	54W85	54W85	54W86	54W85	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 45 kW	54W87	54W86	54W87	54W87	54W87	54W87	54W85	54W85	54W86	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W86
+ Power Exhaust + Elec. Heat 90 kW	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	54W86	54W86	54W86	54W86	54W86	54W86

### 25 TON | KCC300S4

Motor Horsepower	5		7.5		10		5	7.5	10	5	7.5	10
	208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
Unit Only	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust	54W86	54W86	54W86	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 15 kW	54W85	54W85	54W85	54W85	54W86	54W85	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 45 kW	54W87	54W86	54W87	54W87	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
+ Electric Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
+ Electric Heat 90 kW	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	54W86	54W86	54W86	54W86	54W86	54W86
+ Power Exhaust + Elec. Heat 15 kW	54W85	54W85	54W86	54W85	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 30 kW	54W86	54W86	54W86	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 45 kW	54W87	54W86	54W87	54W87	54W87	54W87	54W85	54W85	54W86	54W85	54W85	54W85
+ Power Exhaust + Elec. Heat 60 kW	54W87	54W87	54W87	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W86
+ Power Exhaust + Elec. Heat 90 kW	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	<sup>1</sup> NA	54W86	54W86	54W86	54W86	54W86	54W86

Disconnects - 54W85 - 80A  
 54W86 - 150A  
 54W87 - 250A

<sup>1</sup> Disconnect must be field furnished.

**FIELD WIRING NOTES**

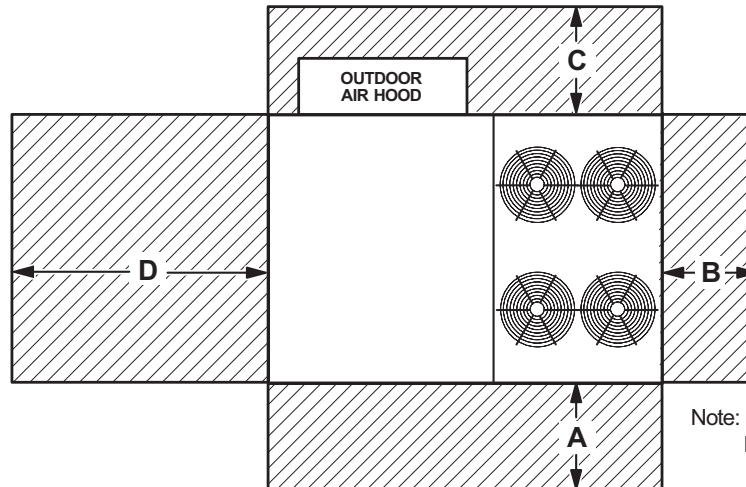
- For use with copper wiring only
- Field wiring not furnished
- All wiring must conform to NEC or CEC and local electrical codes
- For specific wiring information, please refer to the installation instructions

## ELECTRIC HEAT CAPACITIES

Volts Input	15 kW			30 kW			45 kW			60 kW			90 kW		
	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages
208	11.3	38,600	1	22.5	76,800	1	33.8	115,300	2	45.0	153,600	2	67.6	230,700	2
220	12.6	43,000	1	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2	75.6	258,000	2
230	13.8	47,100	1	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2	82.7	282,200	2
240	15.0	51,200	1	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2	90.0	307,100	2
440	12.6	43,000	1	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2	75.6	258,000	2
460	13.8	47,100	1	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2	82.7	282,200	2
480	15.0	51,200	1	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2	90.0	307,100	2
550	12.6	43,000	1	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2	75.6	258,000	2
575	13.8	47,100	1	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2	82.7	282,200	2
600	15.0	51,200	1	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2	90.0	307,100	2

## UNIT CLEARANCES

### Unit With Economizer



Note: Models with four outdoor fans shown.  
Dimension clearances are for all sizes.

<sup>1</sup> Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	914	66	1676	Unobstructed
Minimum Operation Clearance	45	1143	36	914	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

<sup>1</sup> Service Clearance - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

## OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10 <sup>-12</sup> Watts - Center Frequency - Hz							<sup>1</sup> Sound Rating Number (SRN) (dBA)
	125	250	500	1000	2000	4000	8000	
180, 210	71	78	81	81	76	71	63	86
240	80	83	87	88	84	80	71	93
300	79	84	88	89	85	82	73	94

Note - The octave sound power data does not include tonal corrections.

<sup>1</sup> Sound Rating Number according to AHRI Standard 270-95 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).



## WEIGHT DATA

Model Number	Outdoor Coil	Net		Shipping		Outdoor Coil	Net		Shipping	
		lbs.	kg	lbs.	kg		lbs.	kg	lbs.	kg
180S Base Unit	Eco-Last™	1724	782	1924	873	Fin/Tube	1770	803	1970	894
180S Max. Unit	Eco-Last™	2044	927	2244	1018	Fin/Tube	2090	948	2290	1039
210S Base Unit	Eco-Last™	1884	855	2084	945	Fin/Tube	1930	875	2130	966
210S Max. Unit	Eco-Last™	2214	1004	2414	1095	Fin/Tube	2260	1025	2460	1116
240S Base Unit	Eco-Last™	2056	933	2256	1023	Fin/Tube	2121	962	2321	1053
240S Max. Unit	Eco-Last™	2386	1082	2586	1173	Fin/Tube	2451	1112	2651	1202
300S Base Unit	Eco-Last™	2300	1043	2500	1134	Fin/Tube	2365	1073	2565	1163
300S Max. Unit	Eco-Last™	2590	1175	2790	1266	Fin/Tube	2655	1204	2855	1295

NOTE - Max. Unit is the unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories EXTERNAL to unit.

## OPTIONS / ACCESSORIES

	Shipping Weight		
	lbs.	kg	
<b>ECONOMIZER / OUTDOOR AIR / EXHAUST</b>			
<b>Economizer</b>			
Economizer Dampers	102	46	
Barometric Relief Dampers (downflow)	30	14	
Barometric Relief Dampers (horizontal)	20	9	
Outdoor Air Damper Hood (downflow)	65	29	
<b>Outdoor Air Dampers With Hood (Downflow)</b>			
Motorized	18	39	
Manual	10	22	
<b>Power Exhaust</b>	62	28	
<b>ELECTRIC HEAT</b>			
15 kW	59	27	
30 kW	59	27	
45 kW	76	34	
60 kW	76	34	
90 kW	84	38	
<b>COIL/HAIL GUARDS</b>			
Eco-Last™ Coil System	180/210	30	13
	240/300	36	16
Fin/Tube Condenser Coil	180/210	46	21
	240/300	46	21
<b>ROOF CURBS</b>			
<b>Hybrid Roof Curbs, Downflow</b>			
8 in. height	136	62	
14 in. height	169	77	
18 in. height	191	87	
24 in. height	224	102	
<b>Adjustable Pitch Curb, Downflow</b>			
14 in. height	224	102	
<b>Horizontal Roof Curbs, Standard</b>			
26 in. height	450	204	
37 in. height	540	245	
30 in. height	495	225	
41 in. height	575	261	
<b>CEILING DIFFUSERS</b>			
Step-Down	RTD11-185S	168	76
	RTD11-275S	238	108
Flush	FD11-185S	168	76
	FD11-275S	238	108
Transitions	C1DIFF33C-1	80	36
	C1DIFF34C-1	75	34
<b>DEHUMIDIFICATION SYSTEM</b>			
Dehumidification Option (Net Weight)	50	23	

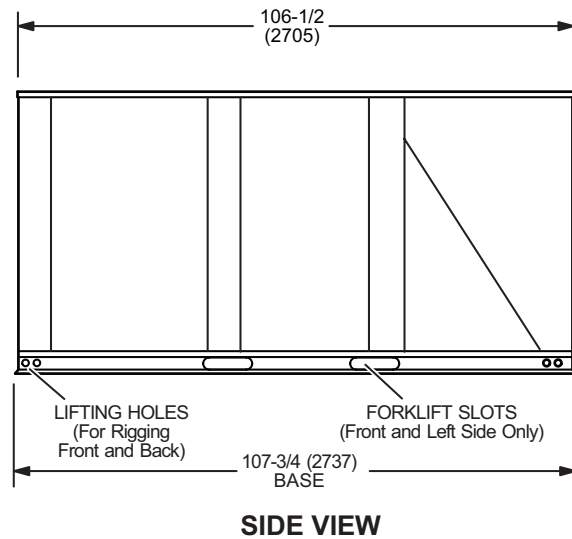
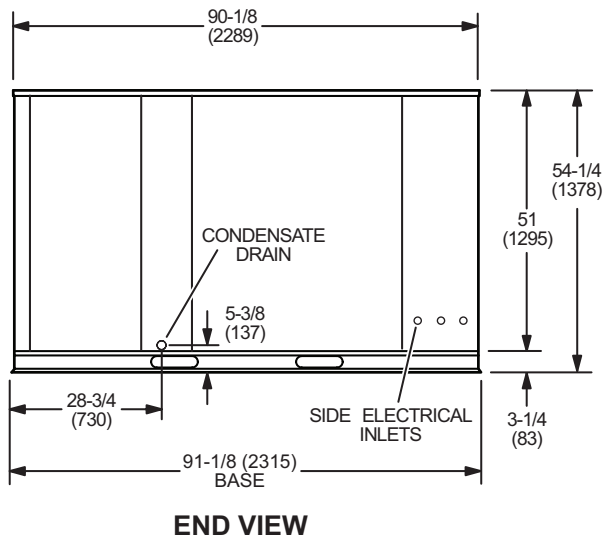
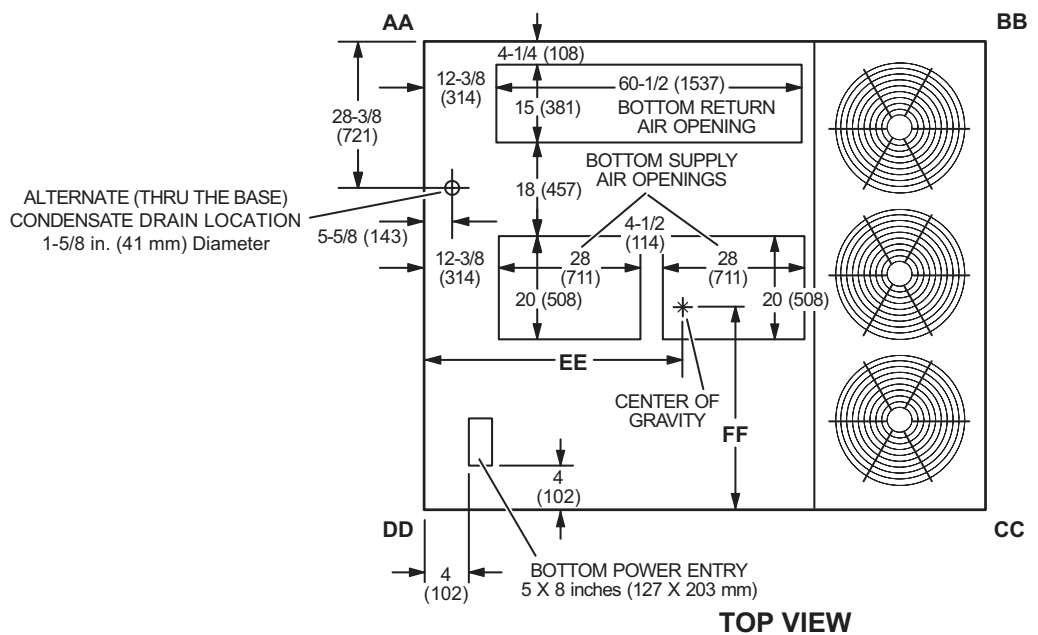
**CORNER WEIGHTS**

**CENTER OF GRAVITY**

Model No.	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
KCC180S Base Unit (Eco-Last™ Coil)	393	179	346	157	461	210	523	238	50-1/2	1282	39	993
KCC180S Max. Unit (Eco-Last™ Coil)	507	231	414	188	505	229	618	281	48-3/8	1230	41	1043
KCC180S Base Unit (Fin/Tube Coil)	412	187	360	164	465	212	533	242	50-1/4	1276	39-3/4	1010
KCC180S Max. Unit (Fin/Tube Coil)	530	241	450	205	510	232	600	273	49-1/2	1257	42-3/4	1086
KCC210S Base Unit (Eco-Last™ Coil)	431	196	381	173	503	229	569	259	50-1/2	1284	39-1/4	998
KCC210S Max. Unit (Eco-Last™ Coil)	555	252	469	213	545	248	645	293	49-3/8	1254	42.14	1071
KCC210S Base Unit (Fin/Tube Coil)	443	201	403	183	517	235	568	258	51-3/8	1304	40	1014
KCC210S Max. Unit (Fin/Tube Coil)	565	257	497	226	561	255	637	289	50-1/2	1281	42-7/8	1088

Base Unit - The unit with NO INTERNAL OPTIONS.

Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit.



**DIMENSIONS - UNIT**

**KCC240**

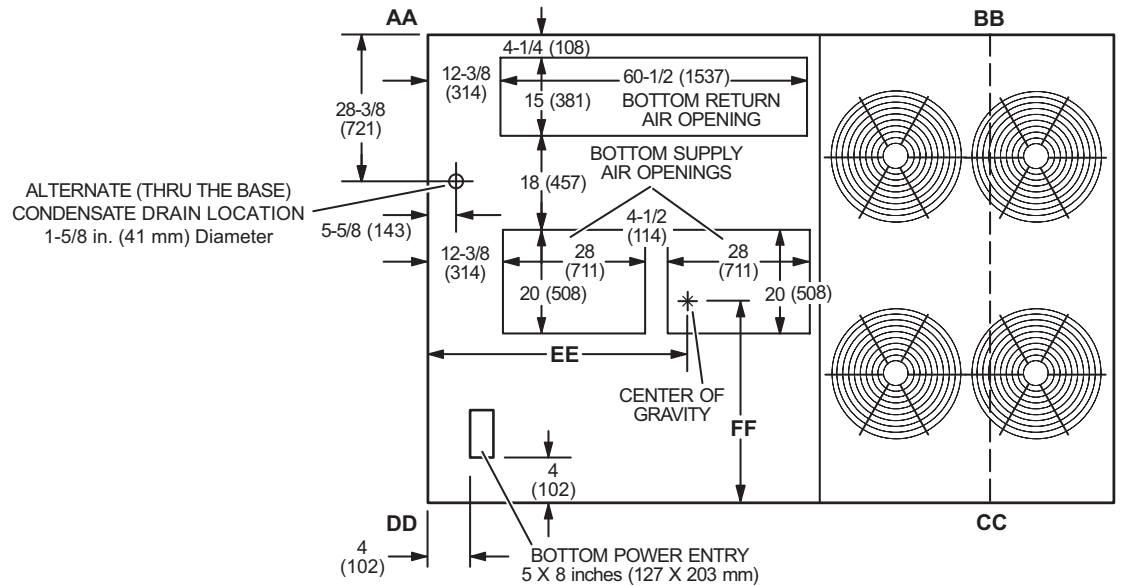
**CORNER WEIGHTS**

**CENTER OF GRAVITY**

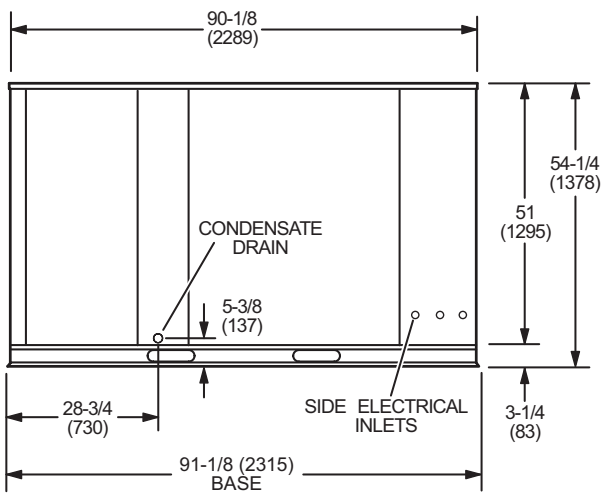
Model No.	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
KCC240S Base Unit (Eco-Last™ Coil)	459	209	423	192	563	256	611	278	51-3/4	1313	39-1/8	993
KCC240S Max. Unit (Eco-Last™ Coil)	579	263	522	237	610	277	675	307	51-1/8	1298	42	1068
KCC240S Base Unit (Fin/Tube Coil)	455	207	470	214	608	276	588	267	54-3/4	1391	39-3/4	1010
KCC240S Max. Unit (Fin/Tube Coil)	579	263	571	260	646	294	655	298	53-1/2	1359	42-3/4	1086

Base Unit - The unit with NO INTERNAL OPTIONS.

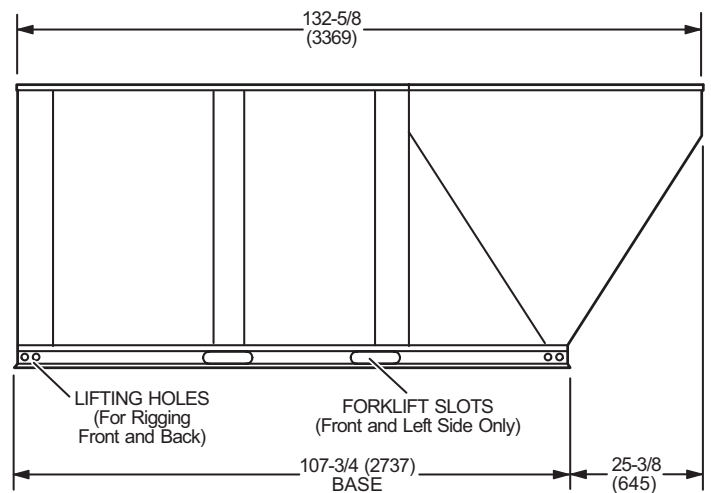
Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit.



**TOP VIEW**



**END VIEW**



**SIDE VIEW**

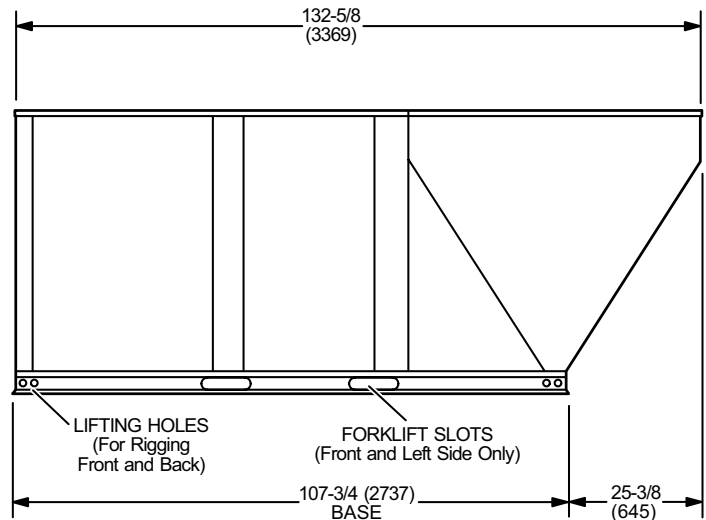
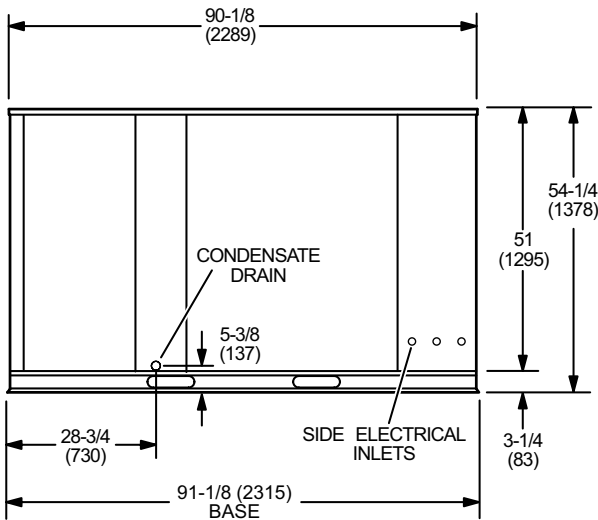
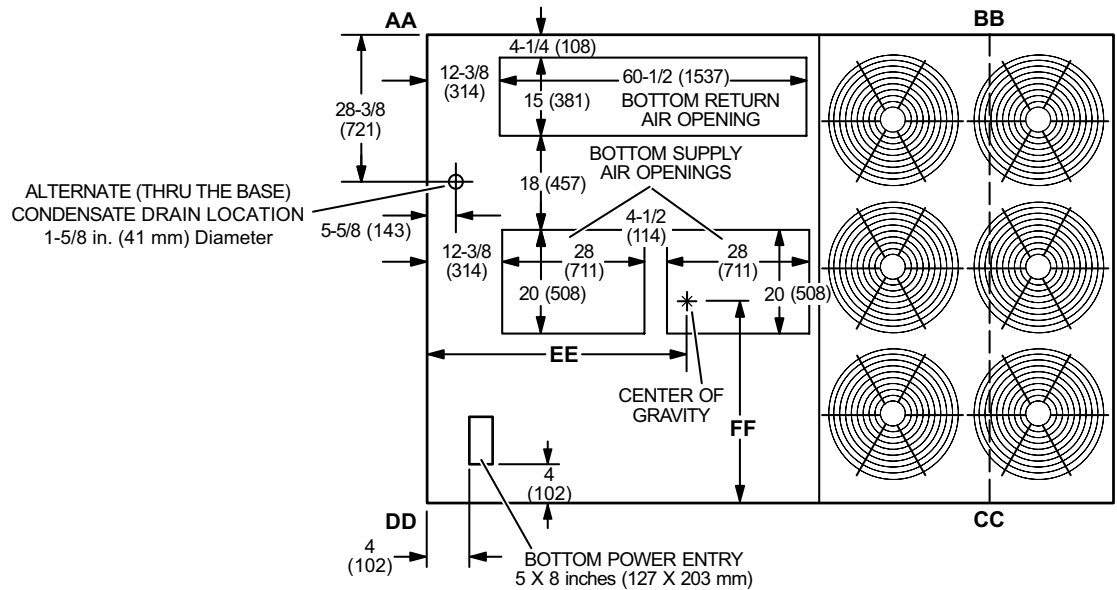
**CORNER WEIGHTS**

**CENTER OF GRAVITY**

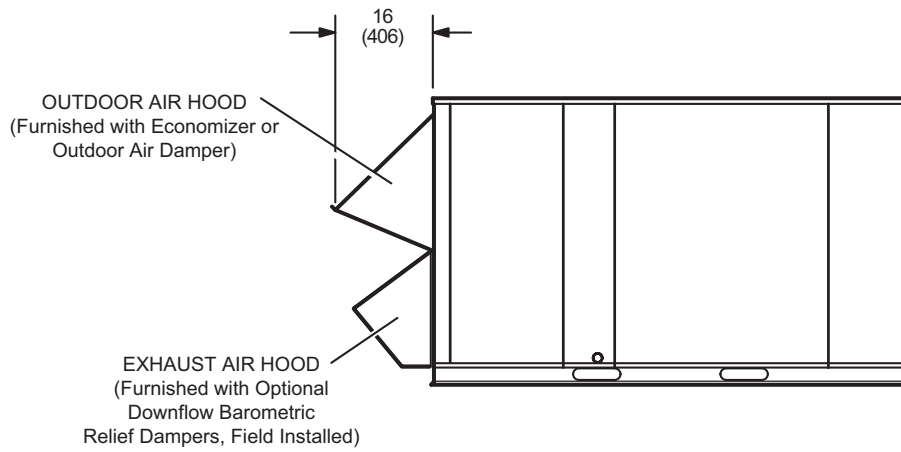
Model No.	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
KCC300S Base Unit (Eco-Last™ Coil)	457	208	477	217	697	317	669	304	55	1397	37	940
KCC300S Max. Unit (Eco-Last™ Coil)	553	251	556	253	742	337	739	336	54	1372	39	991
KCC300S Base Unit (Fin/Tube Coil)	488	222	538	244	703	319	637	290	56-1/2	1435	39-1/2	1003
KCC300S Max. Unit (Fin/Tube Coil)	596	271	627	285	734	334	697	317	55-1/4	1403	42	1067

Base Unit - The unit with NO INTERNAL OPTIONS.

Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit.

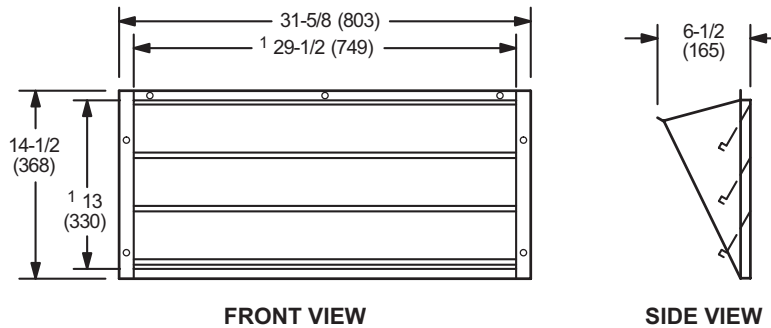


**OUTDOOR AIR HOOD DETAIL**



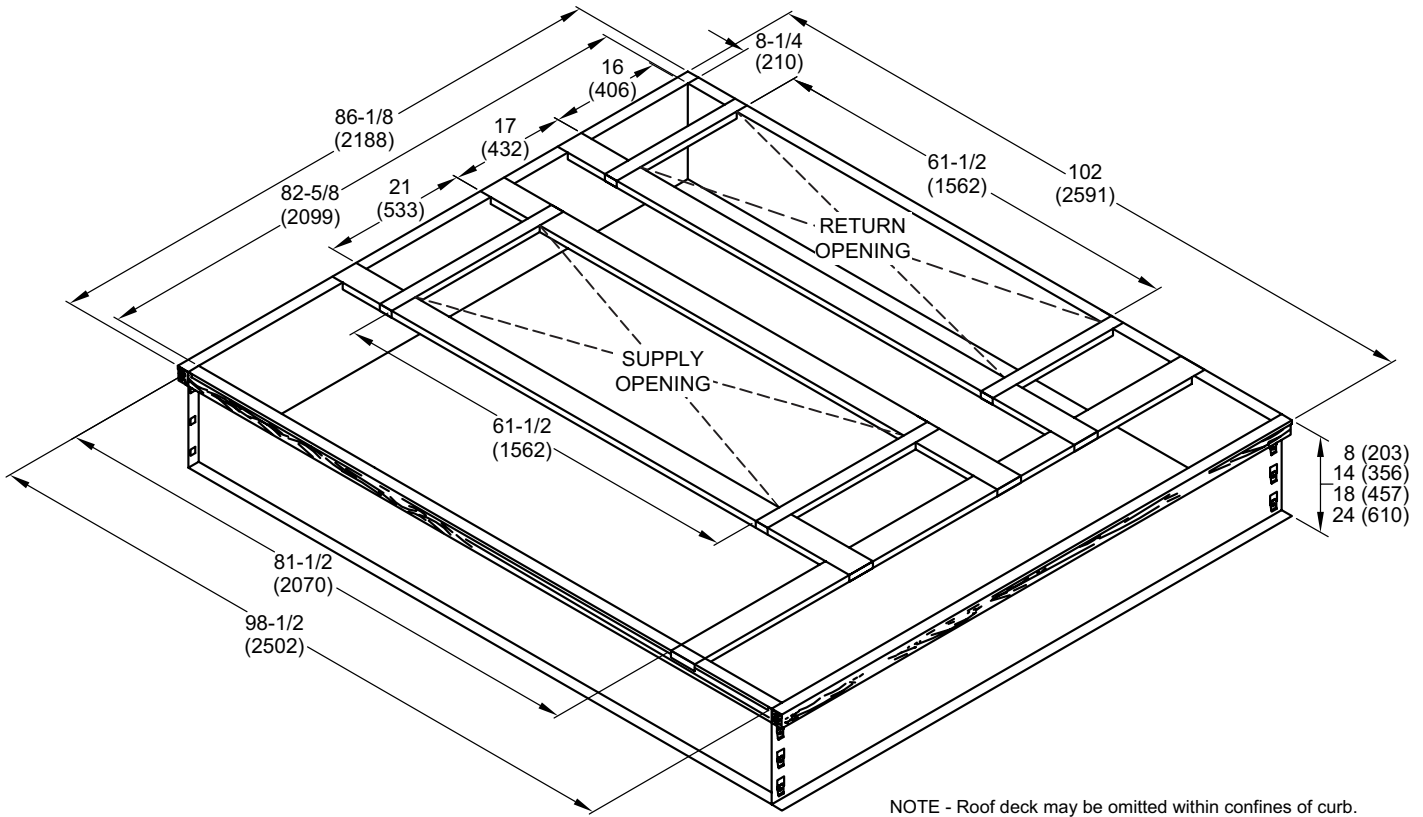
**OPTIONAL HORIZONTAL BAROMETRIC RELIEF DAMPERS WITH HOOD**

(Field installed in horizontal return air duct adjacent to unit)

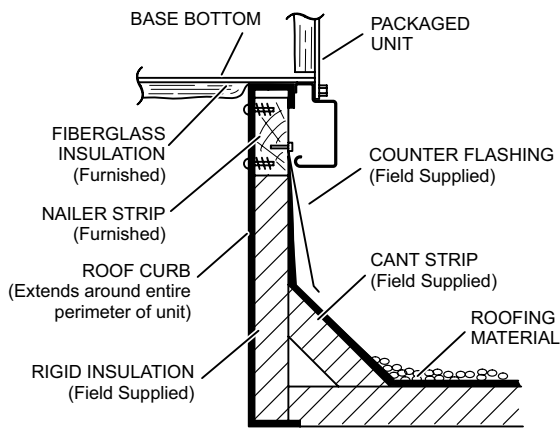


NOTE - Two furnished per order no.  
<sup>1</sup> NOTE - Opening size required in return air duct.

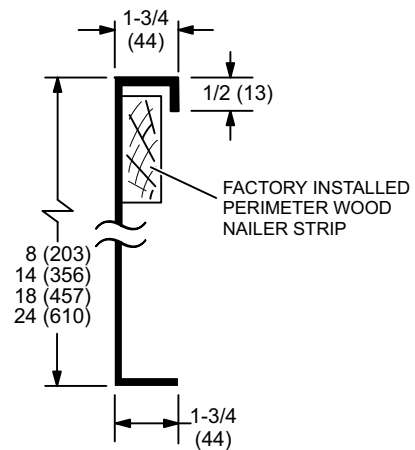
**HYBRID ROOF CURBS - DOUBLE DUCT OPENING**



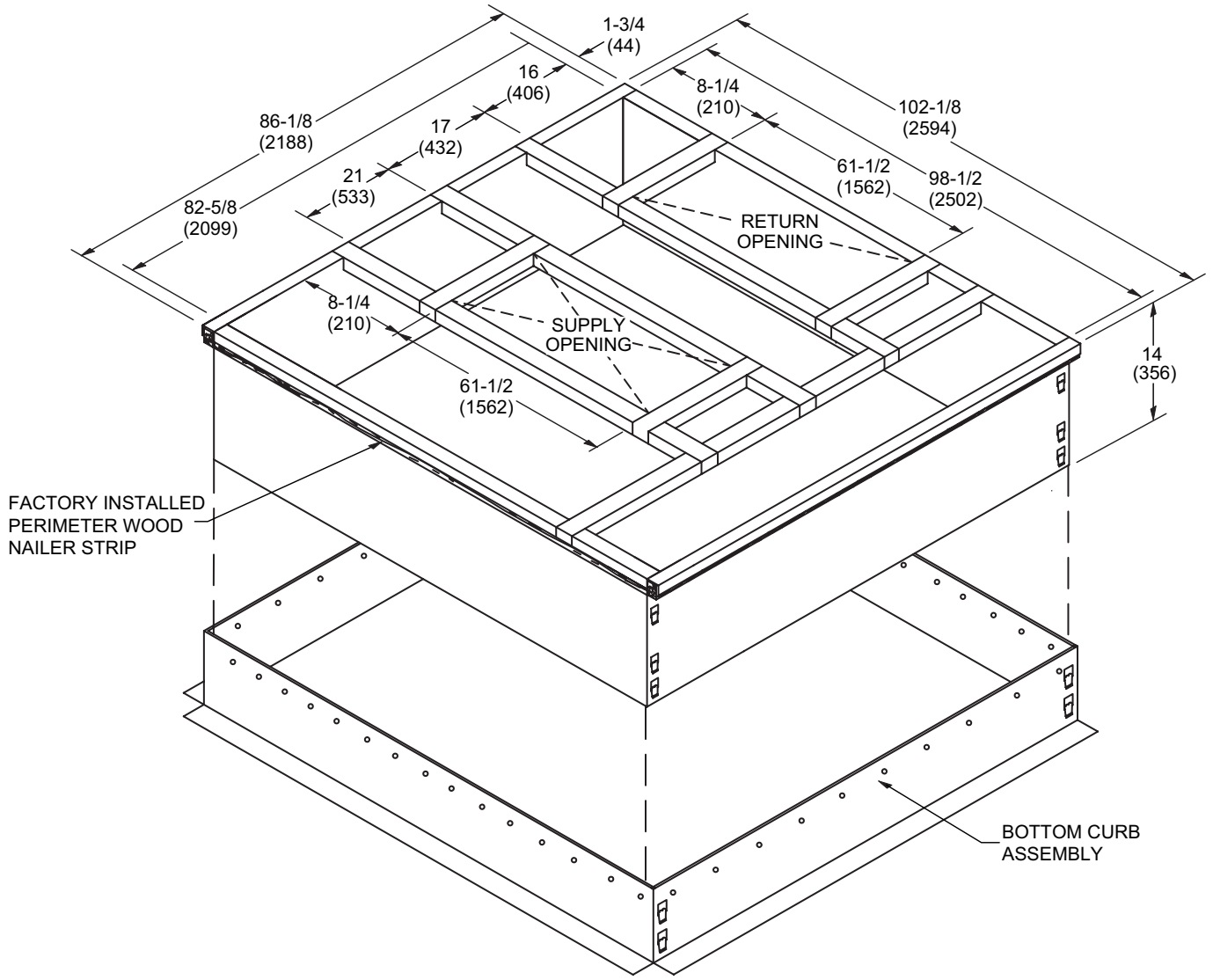
**TYPICAL FLASHING DETAIL FOR ROOF CURB**



**DETAIL ROOF CURB**

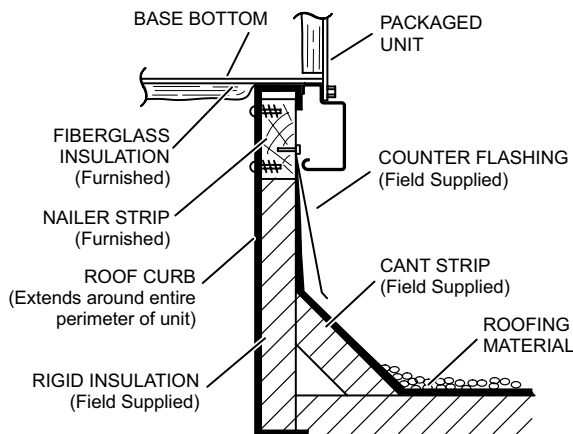


**ADJUSTABLE PITCH CURB - DOUBLE DUCT OPENING**

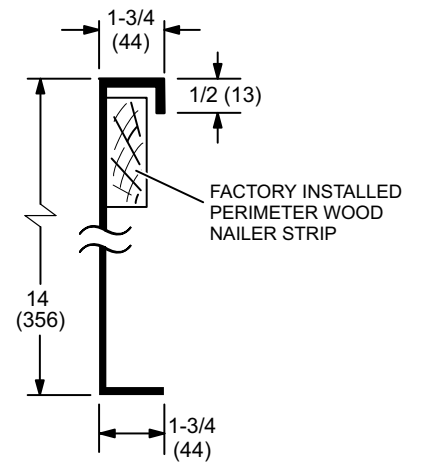


NOTE - Maximum slope pitch is 3/4 in. per 1 foot (19 mm per 305 mm) in any one direction.

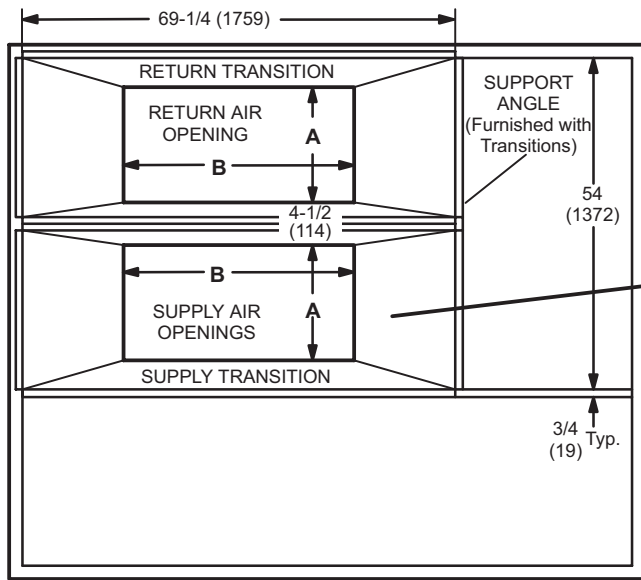
**TYPICAL FLASHING DETAIL FOR ROOF CURB**



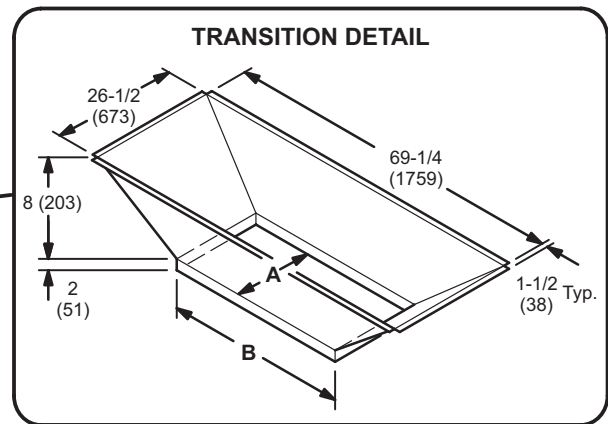
**DETAIL ROOF CURB**



**ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS**



**TOP VIEW**

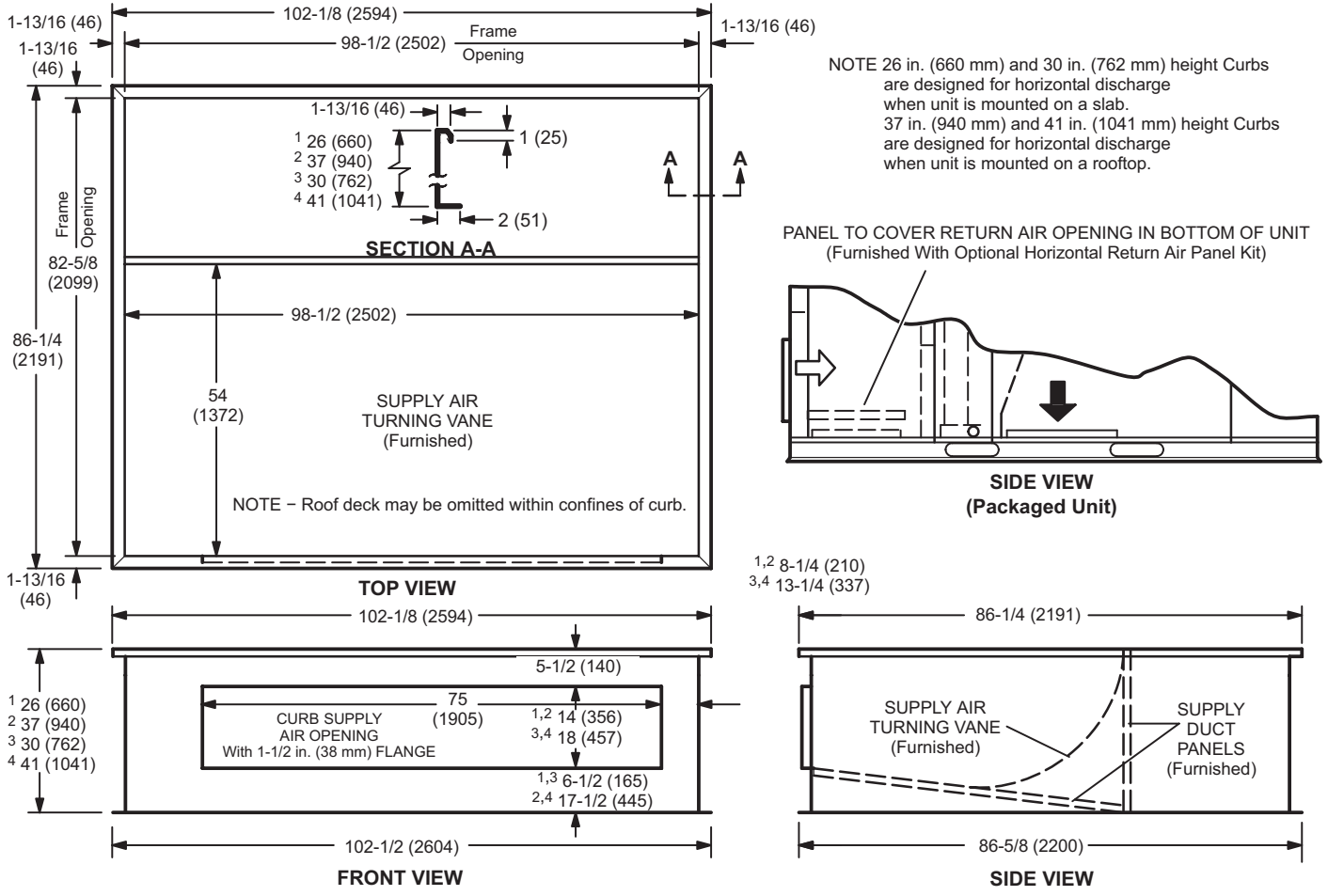


**TRANSITION OPENING SIZES**

Model Number	A		B	
	inch	mm	inch	mm
C1DIFF33C-1	18	457	36	914
C1DIFF34C-1	24	610	48	1219

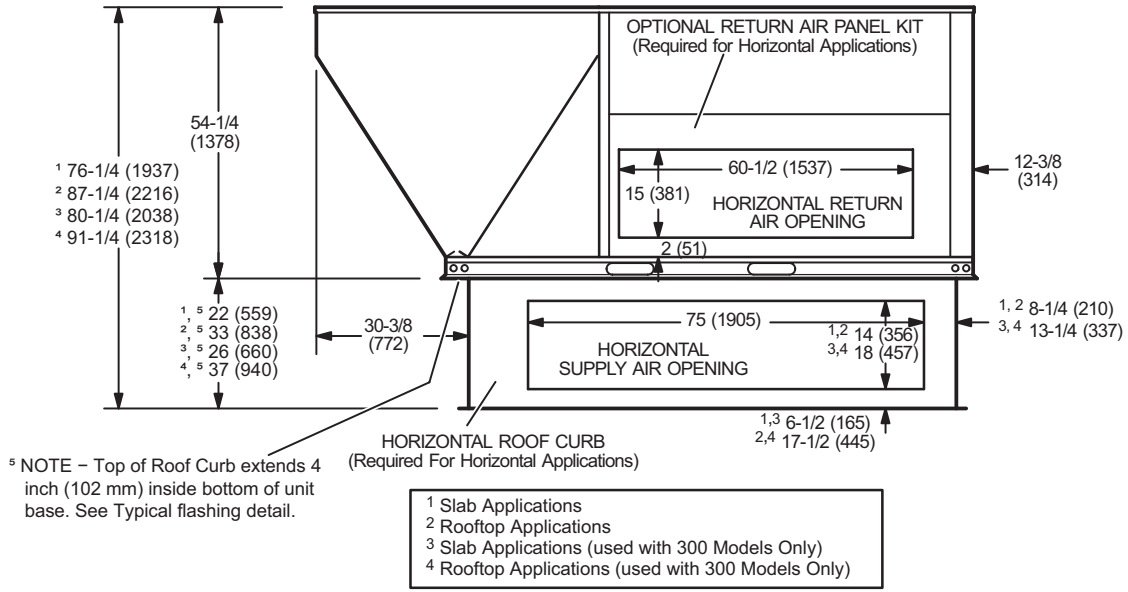


**HORIZONTAL ROOF CURBS – Requires Optional Horizontal Return Air Panel Kit**



1 Slab Applications    2 Rooftop Applications    3 Slab Applications (used with 300)    4 Rooftop Applications (used with 300)

**HORIZONTAL SUPPLY AND RETURN AIR OPENINGS WITH HORIZONTAL ROOF CURB**

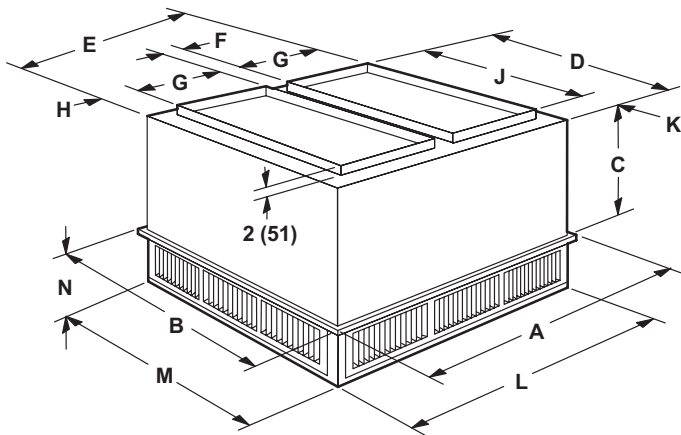


## DIMENSIONS

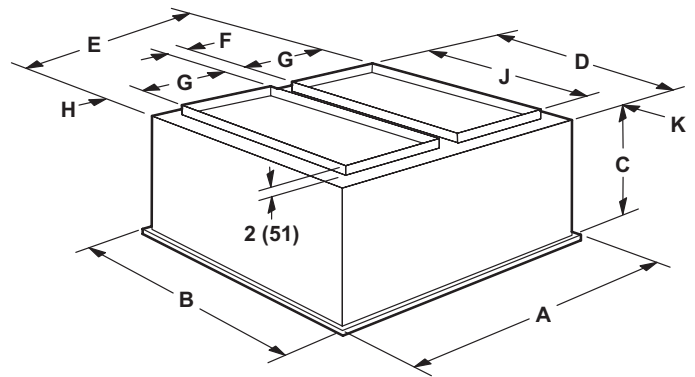
## OPTIONAL ACCESSORIES

### COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

#### STEP-DOWN CEILING DIFFUSER



#### FLUSH CEILING DIFFUSER



Model Number		RTD11-185S	RTD11-275S
A	in.	47-5/8	59-5/8
	mm	1210	1514
B	in.	47-5/8	59-5/8
	mm	1210	1514
C	in.	24-5/8	30-5/8
	mm	625	778
D	in.	45-1/2	57-1/2
	mm	1156	1461
E	in.	45-1/2	57-1/2
	mm	1156	1461
F	in.	4-1/2	4-1/2
	mm	114	114
G	in.	18	24
	mm	457	610
H	in.	2-1/2	2-1/2
	mm	64	64
J	in.	36	48
	mm	914	1219
K	in.	4-3/4	4-3/4
	mm	121	121
L	in.	45-1/2	57-1/2
	mm	1156	1461
M	in.	45-1/2	57-1/2
	mm	1156	1461
N	in.	10-1/8	11-1/8
	mm	257	283
Duct Size	in.	18 x 36	24 x 48
	mm	457 x 914	610 x 1219

Model Number		FD11-185S	FD11-275S
A	in.	47-5/8	59-5/8
	mm	1210	1514
B	in.	47-5/8	59-5/8
	mm	1210	1514
C	in.	29-1/4	35-1/4
	mm	743	895
D	in.	45	57
	mm	1143	1148
E	in.	45	57
	mm	1143	1448
F	in.	4-1/2	4-1/2
	mm	114	114
G	in.	18	24
	mm	457	610
H	in.	2-1/4	2-1/4
	mm	57	57
J	in.	36	48
	mm	914	1219
K	in.	4-1/2	4-1/2
	mm	114	114
Duct Size	in.	18 x 36	24 x 48
	mm	457 x 914	610 x 1219



## REVISIONS

Sections	Description of Change
Weight Data	Updated Roof Curb weights.



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Contact us at 1-800-448-5872

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