Industrial Climate Engineering®
AIRXCEL™, Inc.
ISO 9001:2015 REGISTERED COMPANY

CFA1120A/1150A/3120A/3150A/ 3180A/3240A/3300A/3360A (10, 12.5, 15, 20, 25 & 30 Ton) Vertical Wall Mount Air Conditioners

CFA1120

General Description

Industrial Climate Engineering's CFA air conditioners are used primarily to cool electronic and mechanical equipment shelters (E-Houses). Due to the high internal heat load, these shelters require cooling even when outside temperatures are 60°F (15°C) and below. ICE air conditioners have the necessary controls and components for operation during these temperatures. All models use the non-ozone depleting R-410A refrigerant.

ICE air conditioners are installed on the exterior of the building – no interior space is required. Two openings in the wall allow for the conditioned (supply) air to be discharged into the building and for the indoor air to return to the air conditioner.

A sealed condenser fan motor permits operation in hot, dusty environments. The saw tooth fan blade delivers both excellent efficiency and extremely quiet operation.

The direct drive backward inclined motorized impellor evaporator motor provides high aerodynamic efficiency in a compact design. The optimized blade geometry provides excellent air flow at a minimum sound level. Direct drive eliminates all belts and pulleys. A scroll compressor with R-410A refrigerant ensures years of dependable service even in the harshest of operating conditions. When outside air is required to provide pressurization, optional fresh air dampers can be field installed in openings in both the left and right side panels. When no outside air is desired, these openings are covered with blank-off panels.

Safety Listed

ICE air conditioners are built to UL standard 1995, 4th edition and CAN/CSA C22.2, No. 236-11. The units are tested in accordance to the ASHRAE standard. The air conditioners are commercial and industrial units and are not intended for use in residential applications.

Features and Benefits

High Efficiency

- *Thermal Expansion Valve Improves Efficiency*
- *High Efficiency Scroll Compressor*
- *Lanced Fins On the Evaporator and Condenser Coils Improve Heat Transfer*

Built-In Reliability

- *High and Low Pressure Switch with Lockout*
- *Adjustable Short Cycle Protection*
- *Phase Monitor*
- *High Compressor Temperature Switch*
- *Internal Motor Overload Protection*

Rugged Construction

- *Copper Tube, Aluminum Fin Evaporator & Condenser Coil*
- *Field Or Factory Installed Heaters On Discharge Side of Evaporator Coil*
- *Baked On Finish Over Galvanneal Steel*

Standard Features

Designed for Operation in High and Low Ambient Conditions

- Low ambient control cycles the condenser fan to maintain proper refrigerant pressures.
- Hot gas bypass valve provides for precise capacity control in the cooling mode and to protect against coil freeze up during low load conditions.
- Three minute by-pass of the low pressure switch for start-up of compressor when outdoor temperatures are below 55°F (13°C).
- Designed for operation from 0°F (-8°C) up to 131°F (55°C). Economizer-equipped models can operate in ambient temps as low as -40°F (-40°C).

High Efficiency

- Thermal Expansion Valve improves efficiency and cooling capacity at both high and low ambient temperatures.
- High efficiency scroll compressor.
- Lanced fins on the evaporator and condenser coils improve heat transfer.

Ease of Installation

- Sloped top with flashing eliminates need of rainhood.
- Built-in mounting flanges facilitate installation and minimize chance of water leaks.
- Supply and air return openings match many competitive models.
- Factory installed disconnect on all units.
- Single Point Power Entry complies with latest edition of U.L. Standard 1995.

Built-in Reliability

- High pressure switch and low pressure switch with lockout protects refrigerant circuit.
- Adjustable .03 to ten minute delay on make for short cycle protection.
- Phase Monitor - Continuously measures the voltage of each of the three phases. The monitor separately senses low and high voltage, voltage unbalance including phase loss and phase reversal. A red LED glows to indicate a fault. When all voltages are acceptable, a green LED glows. Automatically resets when voltages and phases are within operating tolerances.
  Note: Not required on 1ø units.
- High temperature switch on the compressor discharge line protects the compressor in the event of a complete loss of refrigerant.
- Internal motor overloads on the evaporator motor, the condenser motor and the compressor.

Remote Alarm Capability

- Dry contacts can be used for remote alarm or notification upon air conditioner lockout.

Rugged Construction

- Copper tube, aluminum fin evaporator & condenser coils.
- Field or factory installed heaters on discharge side of evaporator coil (optional)
- Baked on neutral gray finish over galvanneal steel for maximum cabinet life. (Other finishes are available.)

Ease of Service

- CFA1120 & 1150 - the upper panel opens to the left or the right to facilitate access to the control box and the evaporator motor and coil. This panel can also be easily removed. As an option, these panels can be locked. Stainless steel hinges on the right side of the lower panel allow access to the compressor compartment.
- CFA3180/3240/3300/3360 - Stainless steel hinges on the outer side of the two upper panels facilitate access to the control box and the evaporator motor and coil. As an option, these panels can be locked. Stainless steel hinges on the outer side side of each lower panel allow access to the compressor compartment.
- Service access valves are standard.
- Standard 2" (50 mm) pleated filter with a MERV rating of 8 changeable from outside.
- All major components are readily accessible.
- Front Control Panel allows easy access and complies with NEC clearance codes on redundant side-by-side systems.
- LEDs indicate operational status and fault conditions.
- Foiled backed insulation on the indoor air path.
- Sight glass indicates proper refrigerant charge and, if ever required, facilitates charging the unit in the field.

Controllers and Thermostats

➤ Controllers

Marvair MPC-10 PLC Controller.....*P/N K/40028-100*

The new MPC-10 from Marvair controls between 1 and 10 PLC-equipped HVAC units.

- Controls up to 10 PLC Equipped Marvair Units
- Single or 2-Stage for up to 20 Stages of Cooling
- Lead/Lag Control
- Modbus TCP/IP or BACnet Connectivity
- 7-Inch Color Touchscreen Interface

The HVAC units can be single or dual circuit systems. When using 10 dual circuit units, the MPC-10 will stage the compressors for a maximum of 20 stages of cooling.

The MPC-10 works in a lead-lag fashion and will swap the lead unit every 12-24 hrs. It features remote connectivity through either Modbus TCP/IP or BACnet. MPC-10 users have remote access to all the unit faults and room conditions as well as the ability to view/change set points:

- Temperature
- Differentials
- Anti-Short Cycle Time
- + More

The thermostat can be set to Auto, Cooling, Heating, or Off and each unit can be shutdown manually through the 7 inch color HMI display which displays the current status of each unit. The HMI also has a built-in alarm screen to display which unit has a fault, what the fault is, what time it occurred, and the status of the fault."

CommStat 6 2/4 HVAC Controller..... *P/N 70705*
CommStat 6 4/8 HVAC Controller.....*P/N S/12087-04*
CommStat 6 6/12 HVAC Controller.....*P/N S/12087-06*

The CommStat 6 HVAC controller is available in three configurations, and is designed specifically for controlling up to six redundant air conditioners with two stage compressors in a shelter or enclosure. The **CommStat 6 4/8** Controls up to four single or two-stage air conditioners (8 Stages max.) and the **CommStat 6 6/12** Controls up to six single or two-stage air conditioners (12 Stages max.)

In addition to the control of the air conditioners, the CommStat 6 has multiple configurable outputs for remote alarms or notification. The CommStat 6 is factory programmed with standard industry set points, but can be configured on site. Settings are retained indefinitely in the event of a power loss.

CommStat 4 Telecom HVAC Controller.....*P/N S/07846*

The CommStat 4 HVAC controller is designed specifically for controlling two redundant air conditioners, with single or 2-stage compressors. The CommStat 4 has multiple configurable outputs for remote alarms or notification. Status LED's indicate HEAT, COOL, POWER and the LEAD unit. When a fault is detected, an alarm LED flashes and the LCD screen displays the fault.

The CommStat 4 uses RS-485 communications via a RJ11 jack. It can be daisy chained with a second CommStat 4 controllers for controlling up to four air conditioners in one shelter. When two CommStat 4 controllers are daisy chained together, one is the MASTER and the other controller is the SLAVE. Any settings to the MASTER unit immediately take effect on the SLAVE unit. See the CommStat 4 Product Data Sheet for complete details.

CommStat 4 ModBus Adapter.....P/N *03272*

The self-contained Modbus Interface Adapter provides an Ethernet gateway to the CommStat™ 4 HVAC controller through which an external host can read and write information from the CommStat 4 as if it were a device on a Modbus TCP network. It is powered by 24VDC or 48VDC. The external host located, for example, within a Network Operations Center (NOC), can then monitor and control the operation of the HVAC units connected to the CommStat 4 controller. The adapter supports CommStat 4 controllers with protocol version 3 or later with software revision 67 or later.

➤ Thermostats & Thermostat Guards

Thermostat.....*P/N 50218*
Digital, non-programmable thermostat. 1 stage cool and 1 stage heat. Auto-changeover.

Thermostat.....*P/N 50252*
Non-programmable digital thermostat with backlit display. 2 stage heat and 2 stage cool. Auto changeover.

Thermostat .....*P/N 50123*
Digital thermostat. 1 stage heat, 1 stage cool. 7 day programmable. Fan switch: Auto & On. Auto-change over. Keypad lockout. Non-volatile program memory.

Thermostat .....*P/N 50107*
Digital thermostat. 2 stage heat, 2 stage cool. 7 day programmable. Fan switch: Auto & On. Auto-change over. Status LED's. Backlit display. Programmable fan. Non-volatile program memory.

Thermostat Guard.....*P/N 50092*
Thermostat guard for use with the 50123 and 50107 thermostats.

Accessories

➤ **Supply Grille**

CFA1120/1150 & CFA3090/3120/3150..... *P/N 93189*
42½" x 15¼" (1,080 mm x 387 mm)
CFA3180/3240/3300/3360 ..... *P/N 93190*
54½" x 15½" (1,384 mm x 394 mm)

➤ **Return Grille**

CFA1120/1150 & CFA3090/3120/3150..... *P/N 93188*
42½" x 21½" (1,080 mm x 546 mm)
CFA3180/3240..... *P/N 93191*
54½" x 21½" (1,384 mm x 546 mm)
CFA3300/3360..... *P/N 93192*
54½" x 37½" (1,384 mm x 953 mm)

➤ **Lifting Eye Kit**

CFA1120/1150 & CFA3090/3120/3150.....*P/N K/40025*
CFA3180/3240/3300/3360.....*P/N K/40026*

Options

ICE CFA air conditioners are designed and are built to stringent requirements of the electronic shelter. Applications occur that have special requirements. Numerous options are available for the air conditioners that meet these special needs.

➤ **Protective Coating Packages**

Coated Coils: Either the condenser or evaporator coil can be coated. For harsh conditions, e.g., power plants, paper mills or sites were the unit will be exposed to salt water, the coils should be coated. ***Note:*** Cooling capacity may be reduced by up to 5% on units with coated coils.

Coastal Environmental Package: This package includes:

- Corrosion resistant fasteners,
- Sealed or partially sealed condenser fan motor,
- Insitu coating applied to all exposed internal copper and metal in the in the condenser section, and
- A protective coating on the condenser coil.

All Coat Package: Includes the same features as the Coastal Environmental Package and adds a coating on the evaporator coil and on all exterior and interior components and sheet metal. (**Note:** the insulated internal sheet metal and the internal control box are not coated).

➤ **Color**

ICE air conditioners are available in two standard cabinet colors - gray and beige. The standard cabinet's sides, top and front panels are constructed of 16 gauge painted steel. Contact your sales representative for color chips, custom powder coated colors and 316 stainless steel cabinets.

➤ **Dirty Filter Indicator**

A factory installed option that measures the difference in pressure across the internal filter and illuminates an LED when the pressure exceeds the desired difference. Dry contacts can be used to remotely monitor filter status.

➤ **Lockable Doors**

Prevent unauthorized access to internal components and controls.

➤ **Compressor Crankcase Heater**

A factory installed option to allow operation in low ambient temperatures.

➤ **Freeze Sensor On Indoor Coil**

Prevents frost on the indoor coil caused by a loss of air flow or restrictive duct work.

➤ **Fresh Air Damper**

Allows introduction of outside air into the building to provide positive pressure and includes a prefilter. Field installed on the right, left, or both sides of the unit.

Model Number	Fresh Air Damper Part #	Fresh Air Damper Filter Part #	Fresh Air Damper Filter Size In (mm)
CFA1120/1150 & CFA3090/3120/3150	K/04657-xxx	80119	11" x 22" x 1" (279 x 559 x 25)
CFA3180/3240/3300/3360	K/04757-xxx	92127	9¼" x 37" x ⅜" (235 x 940 x 10)
xxx designates the color. 200 = Grey (standard). 100 = Beige. 500 = Stainless Steel			

CFA1120 with Fresh Air Damper

➤ **Dual Compressors With Lead/Lag Operation with Optional Compatible Controller**

Single compressors are standard on the CFA1120/1150, but these units may be configured with dual compressors (CFA3090/3120/3150). Dual compressors are standard on the CFA3180/3240/3300/3360. Dual compressor units are factory wired for maximum cooling operation utilizing both compressors. A factory installed jumper can be removed between terminals 1 and 2 of the low voltage terminal strip for 2 stage compressor operation.

➤ **Filter Access From Return Air Opening**

Factory or field installed filter bracket allows access to the filters from the return air grille. See model ID, position #20, option code "F".

➤ **Reverse Air Flow Configuration**

Location of Supply and Return openings are reversed. See dimensional drawings.

➤ **Economizer**

The factory installed economizer saves energy and reduces the run time on the compressor and condenser fan motor by using outside air to cool the shelter – when ambient conditions are suitable.

On a signal from the wall mounted indoor thermostat that cooling is required, either mechanical cooling with the compressor or free cooling with the economizer is provided. A factory installed enthalpy controller determines whether the outside air is sufficiently cool and dry to be used for cooling. If suitable, the compressor is locked out and the economizer damper opens to bring in outside air through fresh air hoods located on both sides of the air conditioner. The outside air is filtered with prefilters in each of the outside air hoods. Integral pressure relief allows the interior air to exit the shelter, permitting outside air to enter the shelter. The temperature at which the economizer opens is adjustable from 63°F (17°C) at 50% Relative Humidity to 73°F (23°C) at 50% Relative Humidity.

After the enthalpy control has activated and outside air is being brought into the building, the mixed air sensor measures the temperature of the air entering the indoor blower and then modulates the economizer damper to mix the right proportion of cool outside air with warm indoor air to maintain 50°-63°F (10° - 17°C) air being delivered to the building. This prevents shocking the electronic components with cold outside air.

The compressor is not permitted to operate when the economizer is functioning.

If the outside air becomes too hot or humid, the economizer damper closes completely, or to a field selectable minimum open position, and mechanical cooling is activated.

Fresh air hoods with prefilters are field installed on each side of the air conditioner.

Programmable Logic Controller

Optional on all CFA units, a factory installed Programmable Logic Controller (PLC) to control the operation of the HVAC system as standard equipment. LEDs on the PLC show operational status and provide assistance with diagnosis if troubleshooting is ever required. Various control functions are field selectable and programmable. The PLC is also capable of communicating to other PLCs to allow run time leveling and does not require additional equipment to be installed. The PLC provides improved reliability because of the reduction of components. The components utilized are more durable and the control box wiring has been simplified. Pertinent statistical data about the life of the refrigeration system can be accessed through the PLC.

PLC equipped models include built in head pressure control.

- Advanced PID algorithm to ensure accurate automatic adjustment of condenser airflow.
- Quick-Safe prevention of low and high discharge pressures ensure the system operates well under any conditions.
- Modulating of the condenser fan reduces cycling, improving reliability.
- Energy efficient, achieving the most efficient use of the condenser fan.

The PLC is factory installed and tested, requires no adjustments or changes when the air conditioning system is installed.

PLC External LED Indicator Lights

Type	LED Indicator	Color	Description
Power	RUN/STOP	Green	PLC is in run mode
		Yellow	PLC is in stop mode
	ERROR	Red	PLC has encountered an error
	MAINT	Yellow	Maintanence is required
Inputs	DI a .0	Green	High Pressure Switch Refrigerant Circuit A
	DI a .1	Green	Low Pressure Switch Refrigerant Circuit A
	DI a .2	Green	High Pressure Switch Refrigerant Circuit B
	DI a .3	Green	Low Pressure Switch Refrigerant Circuit B
	DI a .4	Green	Emergency Management System
	DI b .1	Green	Phase Monitor
	DI b .2	Green	Call for first stage cooling from thermostat
	DI b .3	Green	Call for second stage cooling from thermostat
	DI b .4	Green	Call for heating from thermostat
	DI b .5	Green	Call for indoor blower from thermostat
Outputs	DQ a .0	Green	Output to call for compressor A
	DQ a .1	Green	Output to call for the indoor blower
	DQ a .2	Green	Output to call for the outdoor fan
	DQ a .4	Green	Output to call for compressor B
	DQ a .5	Green	Output to call for the heater
	DQ a .6	Green	Flashing lockout indicator (See below for flash code)
	DQ a .7	Green	Fault relay

➤ Remote Access Data Points

Through the Ethernet connection, the network operations center can monitor and change various data points in the HVAC system and the shelter.

Data Points which can be monitored **and** changed:

- Cooling Set Point*
- Heating Set Point*
- Continuous Blower On/Off
- Cooling Stage Differential*
- Heating Stage Differential*
- Low Temperature Alarm Set Point*
- High Temperature Alarm Set Point*
- Y Fan Purge Time
- W Fan Purge Time
- Anti-Short Cycle Time
- Thermostat Offset*
- AC Unit Remote Shutdown

Data points which can only be monitored:

- Room Temperature*
- Room Humidity*
- High Pressure Switch Refrigeration Circuit A Fault
- Low Pressure Switch Refrigeration Circuit A Fault
- High Pressure Switch Refrigeration Circuit B Fault
- Low Pressure Switch Refrigeration Circuit B Fault
- Phase Fault
- Emergency Shutdown
- High Temperature Cut-Off
- High Temperature Alarm*
- Low Temperature Alarm*

* Not available when using an external thermostat

➤ Modes of Operation

Normal Start-up: On a call for cooling, and with the high pressure switch closed, the cooling system (compressor, indoor blower motor and outdoor fan motor) will be energized. (Note: See the Delay on Make feature). The cooling system will remain energized during the three minute low pressure switch bypass cycle. If the low pressure is closed, the cooling system will continue to operate after the three-minute bypass. If the low pressure switch is open after the three-minute bypass, the cooling system will be de-energized.

Lockout Mode: If either the high or low pressure switch opens on the same call for cooling, the PLC system enters into and indicates the lockout mode. In the lockout mode, the compressor is turned off, the alarm output is energized and the status LED's will blink to indicate which fault has occurred. If there is a call for air flow, the indoor blower will remain energized. When the lockout condition has cleared, the unit will reset if the demand of the thermostat is removed or when power is reset. The lockout circuit has a 3-second delay to prevent premature activation and is factory wired for normally open contacts. The user can select either normally closed or normally open remote alarm dry contacts.

PLC Flash Code for Lockout Indicator

# of Flashes	Description of Fault
1	High Pressure Switch Refrigerant Circuit A fault
2	Low Pressure Switch Refrigerant Circuit A fault
3	High Pressure Switch Refrigerant Circuit B fault
4	Low Pressure Switch Refrigerant Circuit B fault

# of Flashes	Description of Fault
5	Phase fault
10	Heater current overload fault
11	Emergencey Management System fault

Delay on Make: On initial power up or on resumption of power, the air conditioner will wait 3 minutes from a call for cooling before allowing the contactor to energize.

Control Box

Standard on CFA models, the internal control board in the air conditioners simplifies wiring, consolidates several of the electrical functions onto one device and improves the reliability of the air conditioner. In addition, the control board has LED's that indicate operational status and fault conditions.

LED Indicator Lights

COLOR	TYPE	STATUS	DESCRIPTION
Green	Power	Constant On	24 VAC power has been applied
Red	Status	Constant On	Normal operation
		1 Blink	High pressure switch has opened twice
		2 Blinks	Low pressure switch has opened twice
		3 Blinks	Freeze stat (optional) - indoor coil temperature is below 35°F (1°C)

➤ Modes of Operation

Normal Start-up: On a call for cooling, and with the high pressure switch closed, the cooling system (compressor, indoor blower motor and outdoor fan motor) will be energized. (Note: See the Delay on Make feature). The cooling system will remain energized during the three minute low pressure switch bypass cycle. If the low pressure is closed, the cooling system will continue to operate after the three-minute bypass. If the low pressure switch is open after the three-minute bypass, the cooling system will be de-energized.

Lockout Mode: If either the high or low pressure switch opens twice on the same call for cooling, the control board enters into and indicates the lockout mode. In the lockout mode, the compressor is turned off, the alarm output is energized and the status LED's will blink to indicate which fault has occurred. If there is a call for air flow, the indoor blower will remain energized. When the lockout condition has cleared, the unit will reset if the demand for cooling from the thermostat is removed or when power is reset. The alarm lockout circuit is factory wired for normally open contacts. The user can select either normally closed or normally open remote alarm dry contacts.

Delay on Make: On initial power up or on resumption of power, the air conditioner will wait .03 to 10 minutes from a call for cooling before allowing the contactor to energize. The delay can be adjusted by the DOM wheel on the control board. Factory recommended wait is 3 minutes.

Model Identification

Example	C	F	A	3	1	8	0	A	D	0	5	0	D	R	+	+	+	1	C	A	+	A	1	1	+	+	+	+	+	+
Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

1	Unit Designation/Family	**C** = Industrial Climate Engineering (ICE)
2	Energy Efficiency Ratio (EER)	**F** = EER <9
3	Refrigerant Type	**A** = R-410a
4	Compressor Type/Quantity	**1** = Single **3** = Dual
5 6 7	Unit Capacity/Nominal Cooling (BTUH)	**120** = 120,000 **240** = 240,000 **150** = 150,000 **300** = 300,000 **180** = 180,000 **360** = 360,000
8	System Type	**A** = Air Conditioner
9	Power Supply (Volts-Phase-Hz)	**A** = 208/230-1-60 **E** = 380-3-50 (4 Wire) **C** = 208/230-3-60 **M** = 400-3-60 **D** = 460-3-60 **Z** = 575-3-60
10 11 12	Heat Designation @ Rated Voltage **KW** = Kilowatt	**000** = No Heat **150** = 15KW **050** = 5KW **180** = 18KW **090** = 9KW
13	Ventilation Configuration	**A** = Solid Front Door **C** = Economizer **D** = Motorized Damper w/Pressure Relief **E** = Motorized Damper w/Pressure Relief & Independent Motorized Damper Control
14	Dehumidification	**R** = Electric Reheat **T** = Electric Reheat w/Humidity Control **+** = None
15	Controls	**A** = Power Fail Alarm w/Additional Lockouts **C** = 24V EMS Relay Kit **D** = 24V EMS Relay Kit w/Factory Installed T-Stat **E** = Factory Installed T-Stat **+** = None
16	Operating Condition	**A** = Evaporator Freeze Sensor (EFS) **C** = EFS w/Hot Gas Bypass **M** = Extreme Duty w/Hard Start & EFS **N** = Hard Start **P** = Hard Start w/Low Ambient & CCH **Q** = Hard Start w/Low Ambient & Fan Cycle Control (FCC) **R** = Crank Case Heater (CCH) **T** = Hard Start w/EFS **U** = Hard Start w/Hot Gas Bypass **V** = Hard Start w/Low Ambient & CCH & EFS **W** = Low Ambient w/CCH **X** = Hot Gas Bypass **Y** = Low Ambient w/CCH & FCC **Z** = Low Ambient w/CCH & EFS **1** = Low Ambient w/FCC **2** = Low Ambient w/FCC & EFS **3** = CCH w/Hot Gas Bypass **+** = None
17	Indoor Air Quality Features	**A** = UV Light **D** = Dry Bulb Sensor **E** = Dry Bulb Sensor w/Dirty Filter **G** = Dirty Filter Sensor **K** = Bi-Polar Ionization **+** = None
18	Air Flow	**1** = Top Supply/Bottom Return
19	Compressor Location	**C** = Center
20	Filter Option	**A** = 2" Pleated (MERV 8, AC/HP-C) **C** = 2" Charcoal **D** = MERV 11 High Filtration Package **E** = MERV 13 High Filtration Package **F** = Filter Access Through Return Air Opening **G** = F + C **H** = F + D **J** = F + E **K** = F + W **W** = Aluminum Washable **+** = None
21	Corrosion Protection	**A** = Condenser Coil Only **C** = Evaporator Coil Only **D** = Both Coils Condenser & Evaporator **E** = All Coils Cond/Evap/Reheat **F** = Coat All **K** = Coastal Package **+** = None **$** = Special
22 23	Engineering Revision Level	A1
24	Cabinet Color	**1** = Beige **2** = Gray **3** = Carlsbad Canyon **4** = White **5** = Stainless Steel Exterior **6** = Dark Bronze **7** = .050 Aluminum Stucco **8** = Mesa Tan **9** = Pebble Gray **A** = Stainless Steel - Unit **$** = Custom Color (Powder Coat)
25	Sound Attenuation	**2** = Compressor Blanket **+** = None
26	Security Option	**A** = Lockable Access Plate/Tamper Proof **B** = Lockable Latch/Hinge **+** = None
27	Fastener/Drain Pan Option	**A** = Stainless Steel Fasteners **C** = Stainless Steel Drain Pan **D** = Stainless Steel Fasteners & Drain Pan **+** = None
28	Special Variation	**+** = None **$** = Special Configuration Not Covered by Model Nomenclature
29	Unused	**+** = None **$** = Special
30	Unused	**+** = None **$** = Special

Note: Not all options are available with all configurations. Contact your ICE sales representative for configuration details and feature compatibility.

Capacity Ratings: CFA Air Conditioners *(Single and Dual Compressors)*

Model Number	CFA1120A/3120A					CFA1150A/3150A				CFA3180A				CFA3240A				CFA330A		CFA3360A	
	A	C	D	E	Z	C	D	E	Z	C	D	E	Z	C	D	E	Z	D	Z	D	Z
Cooling BTUH[1]	125,000					150,000				182,200				216,600				300,000		330,000	
Rated Air Flow (CFM[2])	4,500					4,500				6,500				7,400				11,900		10,200	
ESP[3] @ Rated Conditions	0.30					0.35				0.35				0.40				.40		.50	

[1]Cooling rated at 95°F (35°C) outdoor and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air. [2]CFM=Cubic Feet per Minute
[3]ESP=External Static Pressure
Ratings are with no outside air. Performance will be affected by altitude.
Ratings are at 230 volts for 208/230 volt units ("A" & "C" models), 460 volts for "D" models, 380 volts for "E" models, and 575 volts for "Z" models.
Derate performance by 17% for ACE (380v. 3ø, 50Hz) models. Operation of units at a different voltage from that of the rating point will affect performance and air flow.

Sensible Total Heat Ratio @ 95°F (35°C) Outside Air Dry Bulb: CFA Air Conditioners *(Single and Dual Compressors)*

Model Number	CFA1120A/3120A					CFA1150A/3150A				CFA3180A				CFA3240A				CFA330A		CFA3360A	
	A	C	D	E	Z	C	D	E	Z	C	D	E	Z	C	D	E	Z	D	Z	D	Z
Total Capacity	125,000					150,000				182,200				216,000				300,000		330,000	
Sensible Heat Ratio	0.75					0.75				0.75				0.75				0.79		0.78	
Sensible Capacity	93,750					112,500				136,650				162,000				238,071		257,400	

[1]CFM=Cubic Feet per Minute
Sensible heat ratios based upon outdoor air conditions of 95°F (35°C) and 80°F DB/67° WB (26.5°C DB/19.5°C WB) return air.
Derate performance by 17% for ACE (380v. 3ø, 50Hz) models.

SCFM @ Different Static Pressure

Model Number	IWG Static											
	0	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2
CFA1120/3120	4,748	4,585	4,408	4,229	4,046	3,867	3,667	3,481	3,291	3,092[1]	2,850[1]	2,675[1]
CFA1150/3150	4,748	4,585	4,408	4,229	4,046	3,867	3,667	3,481	3,291	3,092[1]	2,850[1]	2,675[1]
CFA3180	6,876	6,622	6,378	6,143	5,916	5,686	5,487	5,285	5,090	4,902[1]	4,721[1]	4,547[1]
CFA3240	8,400	7,892	7,413	6,966	6,545	6,149	5,777	5,427	5,099[1]	4,790[1]	4,500[1]	4,228[1]
CFA3300	12,269	12,245	11,926	11,604	11,289	11,265	10,651	10,333	10,014	9,695[1]	9,004[1]	N/A
CFA3360	13,283	12,219	10,934	9,650	8,366[1]	6,766[1]	5,798[1]	4,514[1]	3,230[1]	1,946[1]	662[1]	N/A

[1]Operation below these airflows is not recommended.

Cooling Performance (BTUH) at Various Outdoor Temperatures
CFA Air Conditioners
(60Hz Power Supply, Single and Dual Compressors)

Model Number	Return Air (DB/WB) ºF (ºC)	Cooling Capacity BTUH	Ambient Outdoor Temperature ºF (ºC)											
			75	80	85	90	95	100	105	110	115	120	125	130
			(26.7)	(23.9)	(29.4)	(32.2)	(35)	(37.8)	(40.6)	(43.3)	(46.1)	(48.9)	(51.7)	(54.4)
CFA1120 CFA3120	76/63 (24.4/17.2)	Total	134,875	130,250	125,500	120,875	116,250	111,625	107,000	102,250	100,000	97,750	95,500	93,250
		Sensible	99,883	97,991	96,062	94,197	92,345	90,507	88,682	86,821	85,944	85,071	84,200	83,332
	80/67 (26.7/19.4)	Total	145,000	140,000	135,000	130,000	125,000	120,000	115,000	110,000	107,500	105,250	103,000	100,750
		Sensible	99,281	97,374	95,480	93,601	91,736	89,885	88,048	86,224	85,317	84,504	83,693	82,885
	84/71 (28.9/21.7)	Total	155,125	149,750	144,500	139,125	133,750	128,375	123,000	117,750	115,000	112,750	110,500	108,250
		Sensible	98,168	96,265	94,420	92,545	90,686	88,840	87,009	85,324	84,309	83,555	82,804	82,055
CFA1150 CFA3150	76/63 (24.4/17.2)	Total	161,850	156,300	150,600	145,050	139,500	133,950	128,400	122,700	120,000	117,300	114,600	111,900
		Sensible	111,453	109,123	106,750	104,458	102,185	99,931	97,694	95,416	94,344	93,275	92,211	91,151
	80/67 (26.7/19.4)	Total	174,000	168,000	162,000	156,000	150,000	144,000	138,000	132,000	129,000	126,300	123,600	120,900
		Sensible	110,834	108,482	106,151	103,840	101,548	99,276	97,023	94,788	93,678	92,683	91,692	90,704
	84/71 (28.9/21.7)	Total	186,150	179,700	173,400	166,950	160,500	154,050	147,600	141,300	138,000	135,300	132,600	129,900
		Sensible	109,597	104,975	104,975	102,668	100,381	98,114	95,867	93,691	92,559	91,636	90,716	89,800
CFA3180	76/63 (24.4/17.2)	Total	196,378	189,644	182,728	175,994	169,260	162,526	155,792	148,876	145,600	142,324	139,048	135,772
		Sensible	143,688	140,949	138,157	135,457	132,776	130,113	127,469	124,772	123,501	122,235	120,972	119,714
	80/67 (26.7/19.4)	Total	211,120	203,840	196,560	189,280	182,000	174,720	167,440	160,160	156,520	153,244	149,968	146,692
		Sensible	142,779	140,019	137,279	134,559	131,858	129,178	126,516	123,874	122,560	121,381	120,206	119,035
	84/71 (28.9/21.7)	Total	225,862	218,036	210,392	202,566	194,740	186,914	179,088	171,444	167,440	164,164	160,888	157,612
		Sensible	141,126	138,372	135,703	132,990	130,298	127,626	124,974	122,402	121,062	119,970	118,881	117,796
CFA3240	76/63 (24.4/17.2)	Total	233,064	225,072	216,864	208,872	200,880	192,888	184,896	176,688	172,800	168,912	165,024	161,136
		Sensible	177,803	174,610	171,351	171,351	165,064	161,951	158,857	155,699	154,210	152,726	151,247	149,771
	80/67 (26.7/19.4)	Total	250,560	241,920	223,280	233,280	216,000	207,360	198,720	190,080	185,760	181,872	177,984	174,096
		Sensible	176,603	173,386	170,191	170,191	163,862	160,729	157,617	154,524	152,986	151,605	150,228	148,856
	84/71 (28.9/21.7)	Total	268,056	258,768	249,696	249,696	231,120	221,832	212,544	203,472	198,720	194,832	190,944	187,056
		Sensible	174,520	171,313	168,201	168,201	161,894	158,772	155,672	152,664	151,096	149,817	148,542	147,270
CFA3300	76/63 (24.4/17.2)	Total	323,700	312,600	301,200	290,100	279,000	267,900	256,800	245,400	240,000	234,600	229,200	223,800
		Sensible	259,693	255,335	250,885	246,577	242,292	238,032	233,796	299,470	227,430	225,395	223,365	221,341
	80/67 (26.7/19.4)	Total	348,000	336,000	324,000	312,000	300,000	288,000	276,000	264,000	258,000	252,600	247,200	241,800
		Sensible	214,166	253,440	249,080	244,745	240,435	236,151	231,891	227,657	225,549	223,657	221,770	219,887
	84/71 (28.9/21.7)	Total	372,300	359,400	346,800	333,900	312,000	308,100	295,200	282,600	276,000	270,600	265,200	259,800
		Sensible	254,732	250,361	246,117	241,798	237,505	233,238	288,998	224,880	222,733	220,981	219,234	217,490
CFA3360	76/63 (24.4/17.2)	Total	356,070	343,860	331,320	319,110	306,900	294,690	282,480	269,940	264,000	258,060	252,120	246,180
		Sensible	280,154	275,371	270,487	265,759	261,056	256,380	251,730	246,980	244,739	242,505	240,276	238,054
	80/67 (26.7/19.4)	Total	382,800	369,600	356,400	343,200	330,000	316,800	303,600	290,400	283,800	277,860	271,920	265,980
		Sensible	231,686	273,254	268,469	263,711	258,981	254,279	249,603	244,954	242,640	240,562	238,490	236,424
	84/71 (28.9/21.7)	Total	409,530	395,340	381,480	367,290	353,100	338,910	324,720	310,860	303,600	297,660	291,720	285,780
		Sensible	274,629	269,833	265,176	260,436	255,725	251,042	246,387	241,867	239,510	237,586	235,668	233,754

Cooling Performance (BTUH) at Various Outdoor Temperatures
CFA Air Conditioners
(50Hz Power Supply, Single and Dual Compressors)

Model Number	Return Air (DB/WB) °F (°C)	Cooling Capacity kW/BTUH	Ambient Outdoor Temperature °F (°C)																					
			75°F (26.7)		80°F (23.9)		85°F (29.4)		90°F (32.2)		95°F (35)		100°F (37.8)		105°F (40.6)		110°F (43.3)		115F (46.1)		120°F (48.9)		130°F (54.4)	
			kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH	kW	BTUH
CFA1120 CFA3120	76/63 (24.4/17.2)	Total	32.8	111,950	31.7	108,110	30.5	104,170	29.4	100,330	28.3	96,490	27.1	92,650	26.0	88,810	24.9	84,870	24.3	83,000	23.8	81,130	22.7	77,400
		Sensible	24.3	82,900	23.8	81,330	23.4	79,730	22.9	78,180	22.5	76,650	22.0	75,120	21.6	73,610	21.1	72,060	20.9	71,330	20.7	70,610	20.3	69,170
	80/67 (26.7/19.4)	Total	35.3	120,350	34.0	116,200	32.8	112,050	31.6	107,900	30.4	103,750	29.2	99,600	28.0	95,450	26.8	91,300	26.1	89,230	25.6	87,360	24.5	83,620
		Sensible	24.1	82,400	23.7	80,820	23.2	79,250	22.8	77,690	22.3	76,140	21.9	74,600	21.4	73,080	21.0	71,570	20.7	70,810	20.6	70,140	20.2	68,790
	84/71 (28.9/21.7)	Total	37.7	128,750	36.4	124,290	35.1	119,940	33.8	115,470	32.5	111,010	31.2	106,550	29.9	102,090	28.6	97,730	28.0	95,450	27.4	93,580	26.3	89,850
		Sensible	23.9	81,480	23.4	79,900	23.0	78,370	22.5	76,810	22.1	75,270	21.6	73,740	21.2	72,220	20.8	70,820	20.5	69,980	20.3	69,350	20	68,110
CFA1150 CFA3150	76/63 (24.4/17.2)	Total	39.4	134,340	38.0	129,730	36.6	125,000	35.3	120,390	33.9	115,790	32.6	111,180	31.2	106,570	29.8	101,840	29.2	99,600	28.5	97,360	27.2	92,880
		Sensible	27.1	92,510	26.5	90,570	26.0	88,600	25.4	86,700	24.8	84,810	24.3	82,940	23.8	81,090	23.2	79,200	22.9	78,310	22.7	77,420	22.2	75,660
	80/67 (26.7/19.4)	Total	42.3	144,420	40.9	139,440	39.4	134,460	37.9	129,480	36.5	124,500	35.0	119,520	33.6	114,540	32.1	109,560	31.4	107,070	30.7	104,830	29.4	100,350
		Sensible	27.0	91,990	26.4	90,040	25.8	88,110	25.3	86,190	24.7	84,280	24.1	82,400	23.6	80,530	23.1	78,670	22.8	77,750	22.5	76,930	22.1	75,280
	84/71 (28.9/21.7)	Total	45.3	154,500	43.7	149,150	42.2	143,920	40.6	138,570	39.0	133,220	37.5	127,860	35.9	122,510	34.4	117,280	33.6	114,540	32.9	112,300	31.6	107,820
		Sensible	26.7	90,970	25.5	87,130	25.5	87,130	25.0	85,210	24.4	83,320	23.9	81,430	23.3	79,570	22.8	77,760	22.5	76,820	22.3	76,060	21.8	74,530
CFA3180	76/63 (24.4/17.2)	Total	47.8	162,990	46.1	157,400	44.4	151,660	42.8	146,080	41.2	140,490	39.5	134,900	37.9	129,310	36.2	123,570	35.4	120,850	34.6	118,130	33	112,690
		Sensible	34.9	119,260	34.3	116,990	33.6	114,670	32.9	112,430	32.3	110,200	31.6	107,990	31.0	105,800	30.3	103,560	30.0	102,510	29.7	101,460	29.1	99,360
	80/67 (26.7/19.4)	Total	51.3	175,230	49.6	169,190	47.8	163,140	46.0	157,100	44.3	151,060	42.5	145,020	40.7	138,980	38.9	132,930	38.1	129,910	37.3	127,190	35.7	121,750
		Sensible	34.7	118,510	34.1	116,220	33.4	113,940	32.7	111,680	32.1	109,440	31.4	107,220	30.8	105,010	30.1	102,820	29.8	101,720	29.5	100,750	28.9	98,800
	84/71 (28.9/21.7)	Total	54.9	187,470	53.0	180,970	51.2	174,630	49.3	168,130	47.4	161,630	45.5	155,140	43.6	148,640	41.7	142,300	40.7	138,980	39.9	136,260	38.3	130,820
		Sensible	34.3	117,130	33.7	114,850	33.0	112,630	32.3	110,380	31.7	108,150	31.0	105,930	30.4	103,730	29.8	101,590	29.4	100,480	29.2	99,580	28.6	97,770
CFA3240	76/63 (24.4/17.2)	Total	56.7	193,440	54.7	186,810	52.7	180,000	50.8	173,360	48.9	166,730	46.9	160,100	45.0	153,460	43.0	146,650	42.0	143,420	41.1	140,200	39.2	133,740
		Sensible	43.2	147,580	42.5	144,930	41.7	142,220	41.7	142,220	40.1	137,000	39.4	134,420	38.6	131,850	37.9	129,230	37.5	127,990	37.1	126,760	36.4	124,310
	80/67 (26.7/19.4)	Total	60.9	207,960	58.8	200,790	54.3	185,320	56.7	193,620	52.5	179,280	50.4	172,110	48.3	164,940	46.2	157,770	45.2	154,180	44.2	150,950	42.3	144,500
		Sensible	42.9	146,580	42.2	143,910	41.4	141,260	41.4	141,260	39.9	136,010	39.1	133,410	38.3	130,820	37.6	128,250	37.2	126,980	36.9	125,830	36.2	123,550
	84/71 (28.9/21.7)	Total	65.2	222,490	62.9	214,780	60.7	207,250	60.7	207,250	56.2	191,830	53.9	184,120	51.7	176,410	49.5	168,880	48.3	164,940	47.4	161,710	45.5	155,260
		Sensible	42.4	144,850	41.7	142,190	40.9	139,610	40.9	139,610	39.4	134,370	38.6	131,780	37.9	129,210	37.1	126,710	36.7	125,410	36.4	124,350	35.8	122,230
CFA3300	76/63 (24.4/17.2)	Total	78.7	268,670	76.0	259,460	73.2	250,000	70.5	240,780	67.8	231,570	65.2	222,360	62.4	213,140	59.7	203,680	58.4	199,200	57.1	194,720	54.4	185,750
		Sensible	63.2	215,550	62.1	211,930	61.0	208,230	60.0	204,660	58.9	201,100	57.9	197,570	56.9	194,050	72.8	248,560	55.3	188,770	54.8	187,080	53.8	183,710
	80/67 (26.7/19.4)	Total	84.6	288,840	81.7	278,880	78.8	268,920	75.9	258,960	73.0	249,000	70.0	239,040	67.1	229,080	64.2	219,120	62.7	214,140	61.4	209,660	58.8	200,690
		Sensible	52.1	177,760	61.6	210,360	60.6	206,740	59.5	203,140	58.5	199,560	57.4	196,010	56.4	192,470	55.4	188,960	54.9	187,210	54.4	185,640	53.5	182,510
	84/71 (28.9/21.7)	Total	90.5	309,010	87.4	298,300	84.3	287,840	81.2	277,140	75.9	258,960	74.9	255,720	71.8	245,020	68.7	234,560	67.1	229,080	65.8	224,600	63.2	215,630
		Sensible	61.9	211,430	60.9	207,800	59.9	204,280	58.8	200,690	57.8	197,130	56.7	193,590	70.3	239,870	54.7	186,650	54.2	184,870	53.7	183,410	52.9	180,520
CFA3360	76/63 (24.4/17.2)	Total	86.6	295,540	83.6	285,400	80.6	275,000	77.6	264,860	74.6	254,730	71.7	244,590	68.7	234,460	65.6	224,050	64.2	219,120	62.8	214,190	59.9	204,330
		Sensible	68.1	232,530	67.0	228,560	65.8	224,500	64.6	220,580	63.5	216,680	62.3	212,800	61.2	208,940	60.1	204,990	59.5	203,130	59.0	201,280	57.9	197,580
	80/67 (26.7/19.4)	Total	93.1	317,720	89.9	306,770	86.7	295,810	83.5	284,860	80.3	273,900	77.0	262,940	73.8	251,990	70.6	241,030	69.0	235,550	67.6	230,620	64.7	220,760
		Sensible	56.3	192,300	66.5	226,800	65.3	222,830	64.1	218,880	63.0	214,950	61.8	211,050	60.7	207,170	59.6	203,310	59.0	201,390	58.5	199,670	57.5	196,230
	84/71 (28.9/21.7)	Total	99.6	339,910	96.1	328,130	92.8	316,630	89.3	304,850	85.9	293,070	82.4	281,300	79.0	269,520	75.6	258,010	73.8	251,990	72.4	247,060	69.5	237,200
		Sensible	66.8	227,940	65.6	223,960	64.5	220,100	63.3	216,160	62.2	212,250	61.0	208,360	59.9	204,500	58.8	200,750	58.2	198,790	57.8	197,200	56.8	194,020

Electrical Characteristics - Compressor, Fan & Blower Motors:
CFA Air Conditioners *(Single and Dual Compressors)*

BASIC MODEL	COMPRESSOR			OUTDOOR FAN MOTOR	INDOOR BLOWER MOTOR
	VOLTS-PH-HZ	RLA[1]	LRA[2]	FLA[3]	FLA[3]
CFA3120AA	208/230-1-60	36.9 (73.8)	185.0	12.5	10.8
CFA3150AA	208/230-1-60	36.9 (73.8)	185.0	12.5	10.8
CFA1120AC	208/230-3-60	33.3	239.0	9.2	5.9
CFA3120AC	208/230-3-60	22.4 (44.8)	149.0	9.2	5.9
CFA1150AC	208/230-3-60	51.3	300.0	9.2	5.9
CFA3150AC	208/230-3-60	25 (50)	164.0	9.2	5.9
CFA3180AC	208/230-3-60	29.5 (59)	195.0	4.6 (9.2)	3.6 (7.2)
CFA3240AC	208/230-3-60	33.3 (66.6)	239.0	9.2 (18.4)	5.9 (11.8)
CFA3300AC	208/230-3-60	51.3 (102.6)	300.0	9.2 (18.4)	5.9 (11.8)
CFA3360AC	208/230-3-60	55.8 (111.6)	340.0	4.6 (18.4)	9.2 (18.4)
CFA1120AD	460-3-60	17.9	125.0	4.6	3.4
CFA3120AD	460-3-60	10.6 (21.2)	75.0	4.6	3.4
CFA1150AD	460-3-60	23.1	150.0	4.6	3.4
CFA3150AD	460-3-60	11.2 (22.4)	75.0	4.6	3.4
CFA3180AD	460-3-60	14.7 (29.4)	95.0	2.7 (5.4)	2.1 (4.2)
CFA3240AD	460-3-60	17.9 (35.8)	125.0	4.6 (9.2)	3.4 (6.8)
CFA3300AD	460-3-60	23.1 (46.2)	150.0	4.6 (9.2)	5.2 (10.4)
CFA3360AD	460-3-60	26.9 (53.8)	173.0	2.7 (10.8)	5.2 (10.4)
CFA1120AE	380-3-50	17.9	118.0	3.7	2.8
CFA3120AE	380-3-50	10.6 (21.2)	74.0	3.7	2.8
CFA1150AE	380-3-50	21.8	140.0	3.7	2.8
CFA3150AE	380-3-50	11.2 (22.4)	75.0	3.7	2.8
CFA3180AE	380-3-50	14.7 (29.4)	95.0	2.2 (4.4)	1.8 (3.6)
CFA3240AE	380-3-50	17.9 (35.8)	118.0	3.7 (7.4)	2.8 (5.6)
CFA3300AE	380-3-50	21.8 (43.6)	140.0	3.7 (7.4)	4.3 (8.6)
CFA3360AE	380-3-50	25 (50)	173.0	2.2 (8.8)	4.3 (8.6)
CFA1120AZ	575-3-60	12.8	80.0	3.7[4]	2.7[4]
CFA3120AZ	575-3-60	7.7 (15.4)	54.0	3.7[4]	2.7[4]
CFA1150AZ	575-3-60	19.9	109.0	3.7[4]	2.7[4]
CFA3150AZ	575-3-60	7.9 (15.8)	54.0	3.7[4]	2.7[4]
CFA3180AZ	575-3-60	12.2 (24.4)	80.0	2.2 (4.4)[4]	1.7 (3.4)[4]
CFA3240AZ	575-3-60	12.8 (25.6)	80.0	3.7 (7.4)[4]	2.7 (5.4)[4]
CFA3300AZ	575-3-60	19.9 (39.8)	109.0	3.7 (7.4)[4]	4.2 (8.4)[4]
CFA3360AZ	575-3-60	23.7 (47.4)	132.0	2.2 (8.8)[4]	4.2 (8.4)[4]

[1]RLA = Rated Load Amps [2]LRA = Locked Rotor Amps [3]FLA = Full Load Amps [4]460V Motor with a transformer
Values in parentheses are for dual compressor air conditioners when both compressors are operating simultaneously.

Summary Electrical Ratings (Wire and Circuit Breaker Sizing):
CFA Air Conditioners *(Single and Dual Compressors)*

ELECTRIC HEAT		000 = None		050 = 5 kw		090 = 9 kw		150 = 15 kw		180 = 18 kw	
BASIC MODEL	VOLTS-PH-HZ	SPPE[3]		SPPE[3]		SPPE[3]		SPPE[3]		SPPE[3]	
		MCA[1]	MFS[2]	MCA[1]	MFS[2]	MCA[1]	MFS[2]	MCA[1]	MFS[2]	MCA[1]	MFS[2]
CFA3120AA	208/230-1-60	115.6	125	115.6	125	115.6	125	115.6	125		
CFA3150AA	208/230-1-60	115.6	125	115.6	125	115.6	125	115.6	125		
CFA1120AC	208/230-3-60	56.7	90			56.7	90	56.7	90	60.0	90
CFA3120AC	208/230-3-60	71.1	80			71.1	80	71.1	80	71.1	80
CFA1150AC	208/230-3-60	79.2	125			79.2	125	79.2	125	79.2	125
CFA3150AC	208/230-3-60	77.6	90			77.6	90	77.6	90	77.6	90
CFA3180AC	208/230-3-60	90.1	110			90.1	110	90.1	110	90.1	110
CFA3240AC	208/230-3-60	113.5	125			113.5	125	113.5	125	113.5	125
CFA3300AC	208/230-3-60	158.5	175			158.5	175	158.5	175	158.5	175
CFA3360AC	208/230-3-60	176.3	200			176.3	200	176.3	200	176.3	200
CFA1120AD	460-3-60	30.4	45			30.4	45	30.4	45	30.5	45
CFA3120AD	460-3-60	34.5	40			34.5	40	34.5	40	34.5	40
CFA1150AD	460-3-60	36.9	50			36.9	50	36.9	50	36.9	50
CFA3150AD	460-3-60	36.0	40			36.0	40	36.0	40	36.0	40
CFA3180AD	460-3-60	46.4	50			46.4	50	46.4	50	46.4	50
CFA3240AD	460-3-60	60.8	70			60.8	70	60.8	70	60.8	70
CFA3300AD	460-3-60	77.4	90			77.4	90	77.4	90	77.4	90
CFA3360AD	460-3-60	88.5	100			88.5	100	88.5	100	88.5	100
CFA1120AE	380-3-50	28.9	45			28.9	45	28.9	45	28.9	45
CFA3120AE	380-3-50	33.0	40			33.0	40	33.0	40	33.0	40
CFA1150AE	380-3-50	33.8	50			33.8	50	33.8	50	33.8	50
CFA3150AE	380-3-50	34.5	40			34.5	40	34.5	40	34.5	40
CFA3180AE	380-3-50	44.8	50			44.8	50	44.8	50	44.8	50
CFA3240AE	380-3-50	57.8	70			57.8	70	57.8	70	57.8	70
CFA3300AE	380-3-50	70.5	80			70.5	80	70.5	80	70.5	80
CFA3360AE	380-3-50	79.9	90			79.9	90	79.9	90	79.9	90
CFA1120AZ	575-3-60	22.4	35			22.4	35	22.4	35	25.3	35
CFA3120AZ	575-3-60	25.7	30			25.7	30	25.7	30	25.7	30
CFA1150AZ	575-3-60	31.3	50			31.3	50	31.3	50	31.3	50
CFA3150AZ	575-3-60	26.2	30			26.2	30	26.2	30	26.2	30
CFA3180AZ	575-3-60	38.3	45			38.3	45	38.3	45	38.3	45
CFA3240AZ	575-3-60	44.8	50			44.8	50	44.8	50	44.8	50
CFA3300AZ	575-3-60	65.6	80			65.6	80	65.6	80	65.6	80
CFA3360AZ	575-3-60	76.5	90					76.5	90	76.5	90

[1]MCA = Minimum Circuit Ampacity (Wiring Size Amps) [2]MFS = Maximum Fuse Size [3]SPPE = Single Point Power Entry
MCA & MFS are calculated at 230 volts on the "C" models. The "D" models are calculated at 480 volts. The "Z" models are calculated at 575 volts.
The "E" units are calculated at 400v. This chart should only be used as a guideline for estimating conductor size and overcurrent protection.
For the requirements of specific units, always refer to the data label on the unit.

Summary Electrical Ratings With Electric Re-Heat (Wire and Circuit Breaker Sizing):

CFA Air Conditioner *(Single and Dual Compressors)*

ELECTRIC HEAT		000 = None		050 = 5 kw		090 = 9 kw		150 = 15 kw		180 = 18 kw	
BASIC MODEL	VOLTS-PH-HZ	SPPE[3]		SPPE[3]		SPPE[3]		SPPE[3]		SPPE[3]	
		MCA[1]	MFS[2]	MCA[1]	MFS[2]	MCA[1]	MFS[2]	MCA[1]	MFS[2]	MCA[1]	MFS[2]
CFA3120AA	208/230-1-60	115.6	125	141.6	150	162.4	175	193.7	200		
CFA3150AA	208/230-1-60	115.6	125	141.6	150	162.4	175	193.7	200		
CFA1120AC	208/230-3-60	56.7	90			83.8	110	101.8	125	110.9	125
CFA3120AC	208/230-3-60	71.1	80			98.2	100	116.2	125	125.2	150
CFA1150AC	208/230-3-60	79.2	125			106.3	150	124.3	150	133.4	150
CFA3150AC	208/230-3-60	77.6	90			104.7	110	122.7	125	131.7	150
CFA3180AC	208/230-3-60	90.1	110			117.2	125	135.3	150	144.3	150
CFA3240AC	208/230-3-60	113.5	125			140.5	150	158.6	175	167.6	175
CFA3300AC	208/230-3-60	158.5	175			185.5	200	203.6	225	212.6	225
CFA3360AC	208/230-3-60	176.3	200			203.4	225	221.4	250	230.4	250
CFA1120AD	460-3-60	30.4	45			43.9	50	52.9	60	57.4	60
CFA3120AD	460-3-60	34.5	40			48.0	50	57.1	60	61.6	70
CFA1150AD	460-3-60	36.9	50			50.4	70	59.4	70	63.9	80
CFA3150AD	460-3-60	36.0	40			49.5	50	58.6	60	63.1	70
CFA3180AD	460-3-60	46.4	50			59.9	60	68.9	70	73.4	80
CFA3240AD	460-3-60	60.8	70			74.3	80	83.3	90	87.8	90
CFA3300AD	460-3-60	77.4	90			90.9	100	99.9	110	104.4	110
CFA3360AD	460-3-60	88.5	100			102.0	110	111.0	125	115.5	125
CFA1120AE	380-3-50	28.9	45			39.4	50	46.5	60	50.0	60
CFA3120AE	380-3-50	33.0	40			43.6	45	50.6	60	54.1	60
CFA1150AE	380-3-50	33.8	50			44.3	60	51.3	60	54.9	70
CFA3150AE	380-3-50	34.5	40			45.1	50	52.1	60	55.6	60
CFA3180AE	380-3-50	44.8	50			55.3	60	62.3	70	65.9	70
CFA3240AE	380-3-50	57.8	70			68.3	70	75.3	80	78.9	80
CFA3300AE	380-3-50	70.5	80			81.1	90	88.1	100	91.6	100
CFA3360AE	380-3-50	79.9	90			90.5	100	97.5	110	101.0	110
CFA1120AZ	575-3-60	22.4	35			33.7	40	41.2	50	45.0	50
CFA3120AZ	575-3-60	25.7	30			36.9	40	44.5	45	48.2	50
CFA1150AZ	575-3-60	31.3	50			42.6	60	50.1	60	53.9	60
CFA3150AZ	575-3-60	26.2	30			37.4	40	45.0	45	48.7	50
CFA3180AZ	575-3-60	38.3	45			49.6	50	57.1	60	60.9	70
CFA3240AZ	575-3-60	44.8	50			56.1	60	63.6	70	67.4	70
CFA3300AZ	575-3-60	65.6	80			76.8	80	84.4	90	88.1	90
CFA3360AZ	575-3-60	76.5	90					95.3	100	99.0	110

[1]MCA = Minimum Circuit Ampacity (Wiring Size Amps) [2]MFS = Maximum Fuse Size [3]SPPE = Single Point Power Entry

MCA & MFS are calculated at 230 volts on the “C” models. The “D” models are calculated at 480 volts. The “Z” models are calculated at 575 volts. The “E” units are calculated at 400v. This chart should only be used as a guideline for estimating conductor size and overcurrent protection. For the requirements of specific units, always refer to the data label on the unit.

Unit Load Amps - CFA Air Conditioners *(Single and Dual Compressors)*

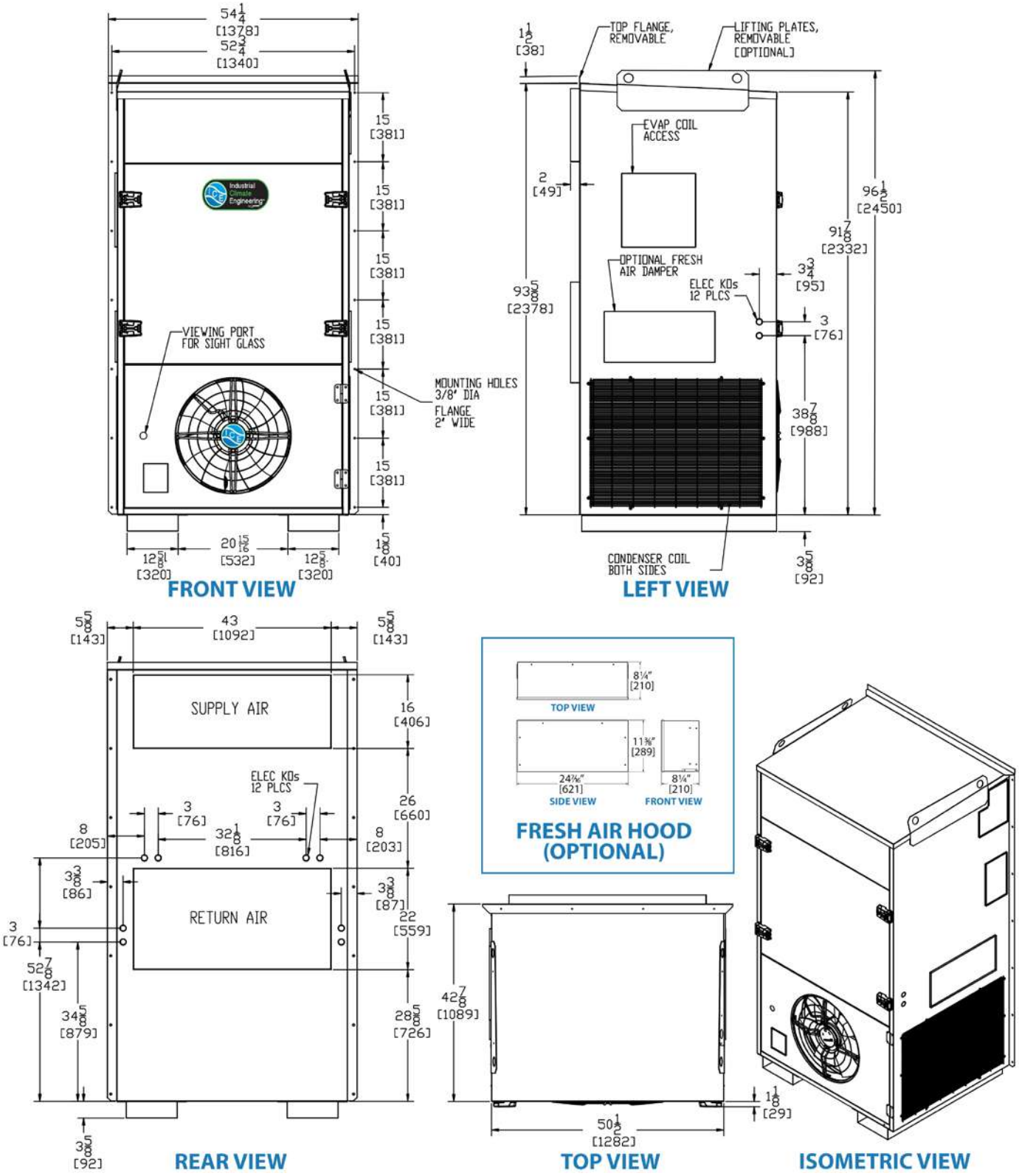
BASIC MODEL	VOLTS-PH-HZ	CURRENT AMPS		LOAD OF RESISTIVE HEATING - ELEMENTS ONLY (AMPS) *Note: ALL HEATING ELEMENTS ARE ON A SEPARATE CIRCUIT*				TOTAL MAXIMUM HEATING AMPS *INCLUDES AMPS FROM MOTOR(S) THAT ARE LOCATED ON AN ELECTRICAL CIRCUIT THAT DOES NOT HAVE HEATERS*			
		AC[1]	IBM[2]	5 kW	9 kW	15 kW	18 kW	5 kW	9 kW	15 kW	18 kW
CFA3120AA	208/230-1-60	97.1	10.8	20.8	37.5	62.5		31.6	48.3	73.3	
CFA3150AA	208/230-1-60	97.1	10.8	20.8	37.5	62.5		31.6	48.3	73.3	
CFA1120AC	208/230-3-60	48.4	5.9		21.7	36.1	43.3		27.6	42.0	49.2
CFA3120AC	208/230-3-60	59.9	5.9		21.7	36.1	43.3		27.6	42.0	49.2
CFA1150AC	208/230-3-60	66.4	5.9		21.7	36.1	43.3		27.6	42.0	49.2
CFA3150AC	208/230-3-60	65.1	5.9		21.7	36.1	43.3		27.6	42.0	49.2
CFA3180AC	208/230-3-60	75.4	7.2		21.7	36.1	43.3		28.9	43.3	50.5
CFA3240AC	208/230-3-60	96.8	11.8		21.7	36.1	43.3		33.5	47.9	55.1
CFA3300AC	208/230-3-60	132.8	11.8		21.7	36.1	43.3		33.5	47.9	55.1
CFA3360AC	208/230-3-60	148.4	18.4		21.7	36.1	43.3		40.1	54.5	61.7
CFA1120AD	460-3-60	25.9	3.4		10.8	18.0	21.7		14.2	21.4	25.1
CFA3120AD	460-3-60	29.2	3.4		10.8	18.0	21.7		14.2	21.4	25.1
CFA1150AD	460-3-60	31.1	3.4		10.8	18.0	21.7		14.2	21.4	25.1
CFA3150AD	460-3-60	30.4	3.4		10.8	18.0	21.7		14.2	21.4	25.1
CFA3180AD	460-3-60	39	4.2		10.8	18.0	21.7		15.0	22.2	25.9
CFA3240AD	460-3-60	51.8	6.8		10.8	18.0	21.7		17.6	24.8	28.5
CFA3300AD	460-3-60	65.8	10.4		10.8	18.0	21.7		21.2	28.4	32.1
CFA3360AD	460-3-60	75	10.4		10.8	18.0	21.7		21.2	28.4	32.1
CFA1120AE	380-3-50	24.4	2.8		8.4	14.1	16.9		11.2	16.9	19.7
CFA3120AE	380-3-50	27.7	2.8		8.4	14.1	16.9		11.2	16.9	19.7
CFA1150AE	380-3-50	28.3	2.8		8.4	14.1	16.9		11.2	16.9	19.7
CFA3150AE	380-3-50	28.9	2.8		8.4	14.1	16.9		11.2	16.9	19.7
CFA3180AE	380-3-50	37.4	3.6		8.4	14.1	16.9		12.0	17.7	20.5
CFA3240AE	380-3-50	48.8	5.6		8.4	14.1	16.9		14.0	19.7	22.5
CFA3300AE	380-3-50	59.6	8.6		8.4	14.1	16.9		17.0	22.7	25.5
CFA3360AE	380-3-50	67.4	8.6		8.4	14.1	16.9		17.0	22.7	25.5
CFA1120AZ	575-3-60	19.2	2.7		9.0	15.1	18.1		11.7	17.8	20.8
CFA3120AZ	575-3-60	21.8	2.7		9.0	15.1	18.1		11.7	17.8	20.8
CFA1150AZ	575-3-60	26.3	2.7		9.0	15.1	18.1		11.7	17.8	20.8
CFA3150AZ	575-3-60	22.2	2.7		9.0	15.1	18.1		11.7	17.8	20.8
CFA3180AZ	575-3-60	32.2	3.4		9.0	15.1	18.1		12.4	18.5	21.5
CFA3240AZ	575-3-60	38.4	5.4		9.0	15.1	18.1		14.4	20.5	23.5
CFA3300AZ	575-3-60	55.6	8.4		9.0	15.1	18.1		17.4	23.5	26.5
CFA3360AZ	575-3-60	64.6	8.4				18.1				26.5

[1]AC = Air Conditioner Unit Amps [2]IBM = Indoor Blower Motor
Heating kW is rated at 230 volts on the "A" models, 240 volts on the "C" models. Derate heater by 25% for operation on 208v.
Heating kW is rated at 480 volts on the "D" models. Derate heater performance by 35% for "E" models. Heating kW is rated at 575 volts on Z models. Total heating and cooling amps includes all motors.

ICE Air Conditioner Model & Cabinet Designation

MODEL	CABINET DESIGNATION									
	A	B	C	D	E	F	G	H	I	J
CFA1120/3120 & CFA1150/3150	✓									
CFA1120/3120 & CFA1150/3150 - Reverse Air Flow		✓								
CFA1120/3120 & CFA1150/3150 - with Economizer			✓							
CFA1120/3120 & CFA1150/3150 - Reverse Flow w/Economizer				✓						
CFA3180/3240 Air Conditioner					✓					
CFA3180/3240 - Reverse Air Flow						✓				
CFA3180/3240 - with Economizer							✓			
CFA3180/3240 - Reverse Flow with Economizer								✓		
CFA3300/3360 Air Conditioner									✓	
CFA3300 - with Economizer										✓

Dimensional Data - Cabinet A: CFA1120/1150 & CFA3120/3150



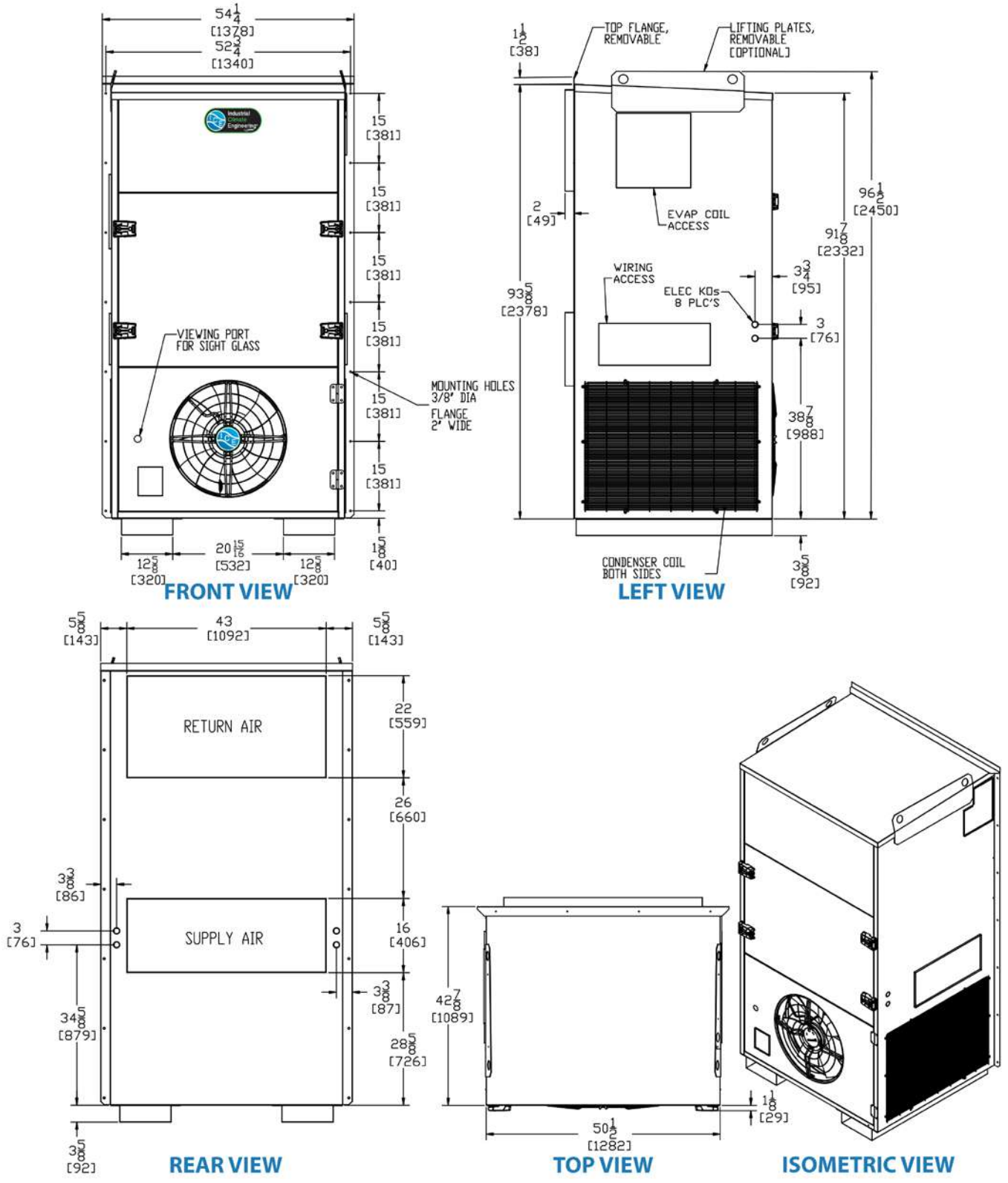
Weight

	LBS/KGS
CFA1120/CFA3120	1160/527.3
CFA1150/CFA3150	1166/530

Filter Size

CFA1120/1150 & CFA3120/3150	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8
For Optional Fresh Air Hood, #K/04657	11" x 22" x 1"	279 x 559 x 25	80119	2	N/A

Dimensional Data - Cabinet B: CFA1120/1150 & CFA3120/3150 - Reverse Air Flow



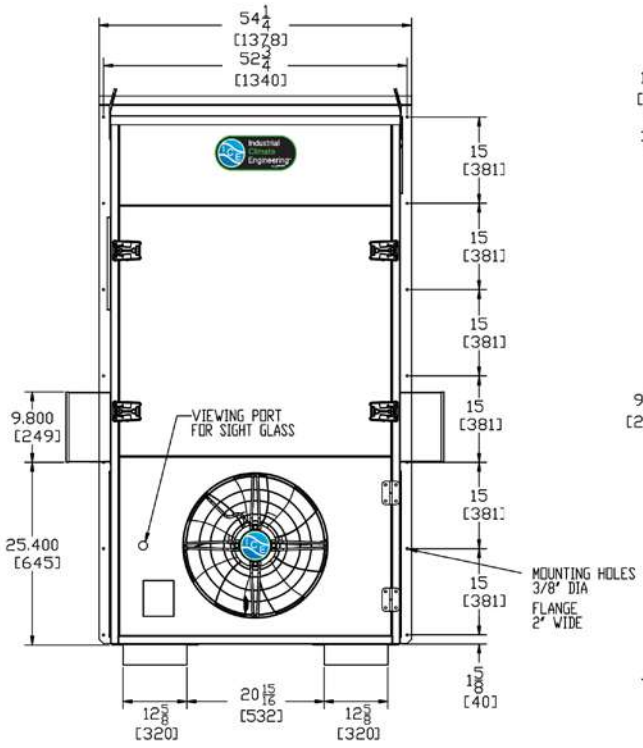
Weight

	LBS/KGS
CFA1120/CFA3120	1160/527.3
CFA1150/CFA3150	1166/530

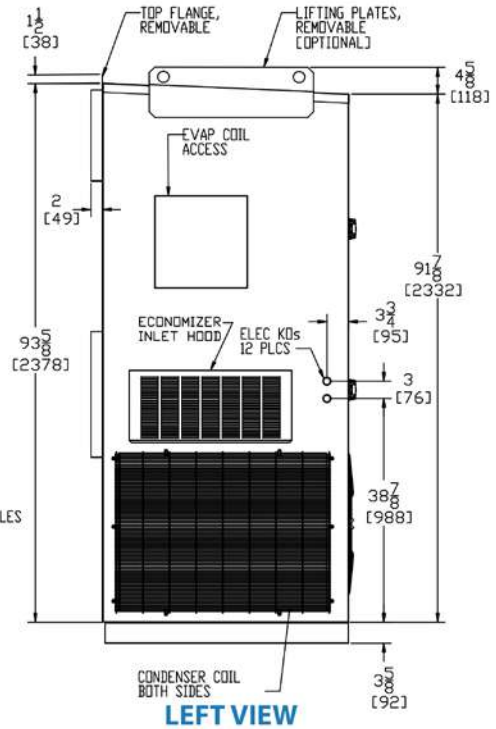
Filter Size

CFA1120/1150 & CFA3120/3150	INCHES	MIL LIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8

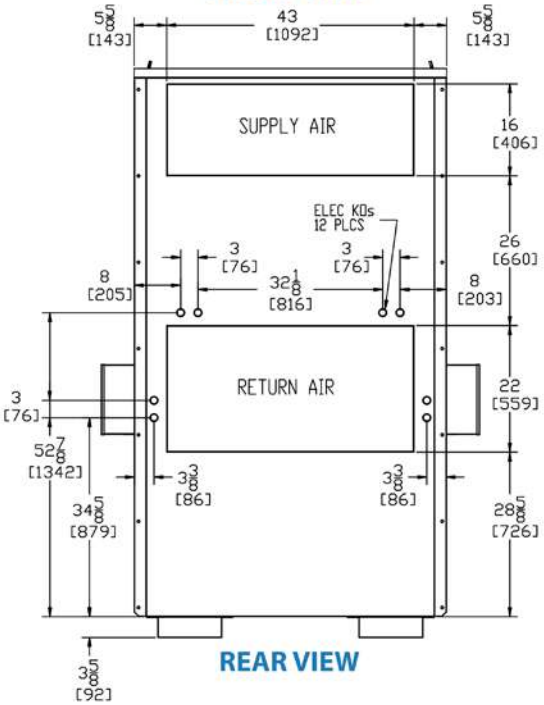
Dimensional Data - Cabinet C: CFA1120/1150 & CFA3120/3150 - with Economizer



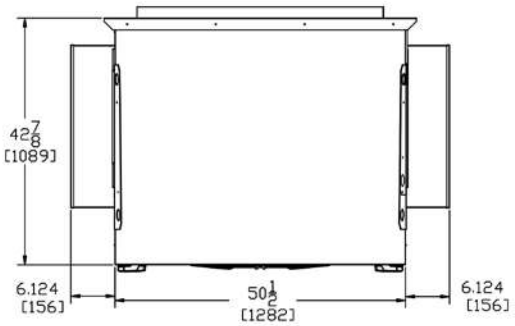
FRONT VIEW



LEFT VIEW



REAR VIEW



TOP VIEW

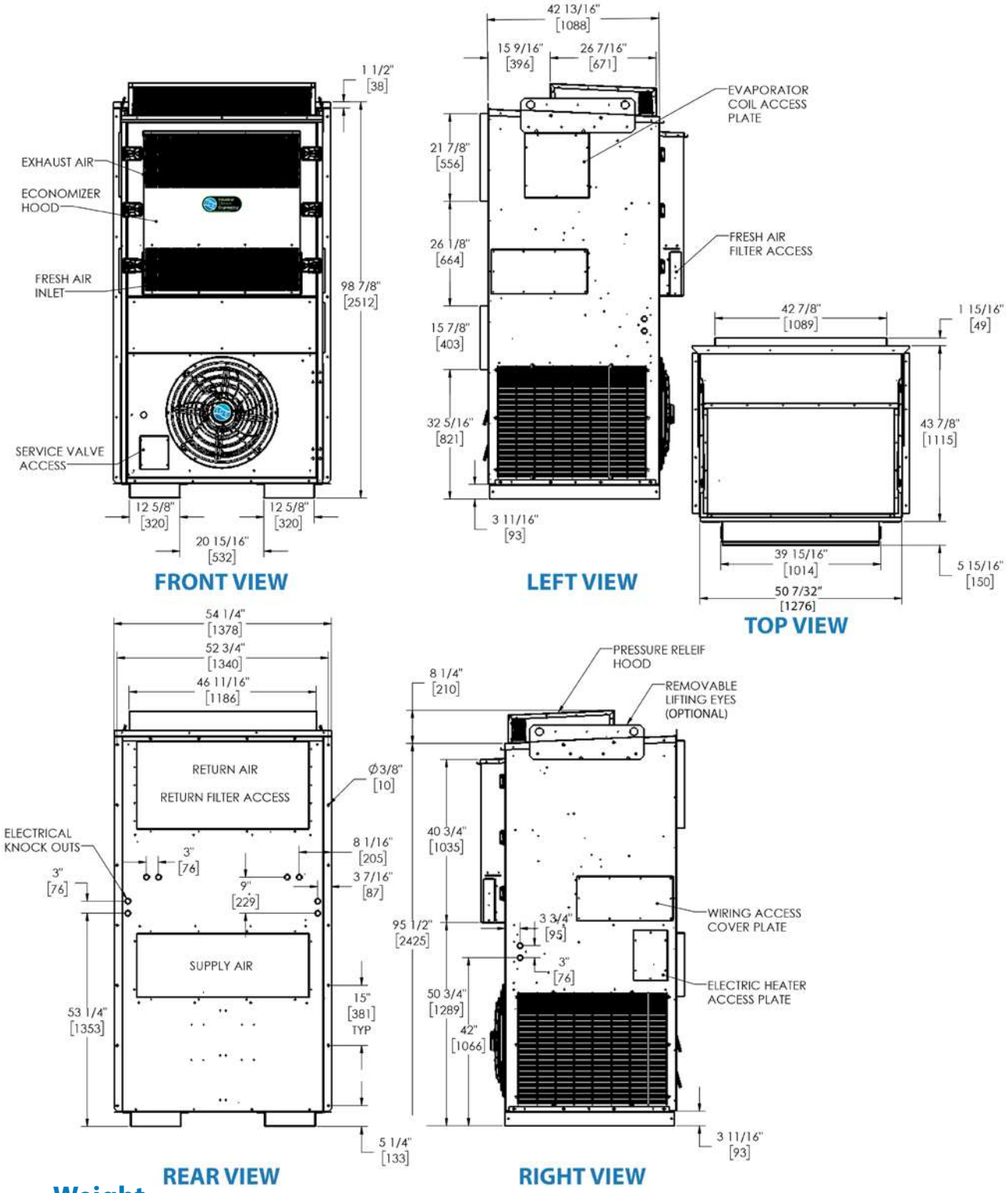
Weight

	LBS/KGS
CFA1120/1150 & CFA3120/3150 with Economizer	1210/550

Filter Size

CFA1120/1150 & CFA3120/3150 with Economizer	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8
Fresh Air Hood Pre-filters	26" x 12" x 1"	660 x 305 x 25	92526	2	N/A

Dimensional Data - Cabinet D: CFA1120/1150 & CFA3120/3150 - Reverse Flow w/Economizer



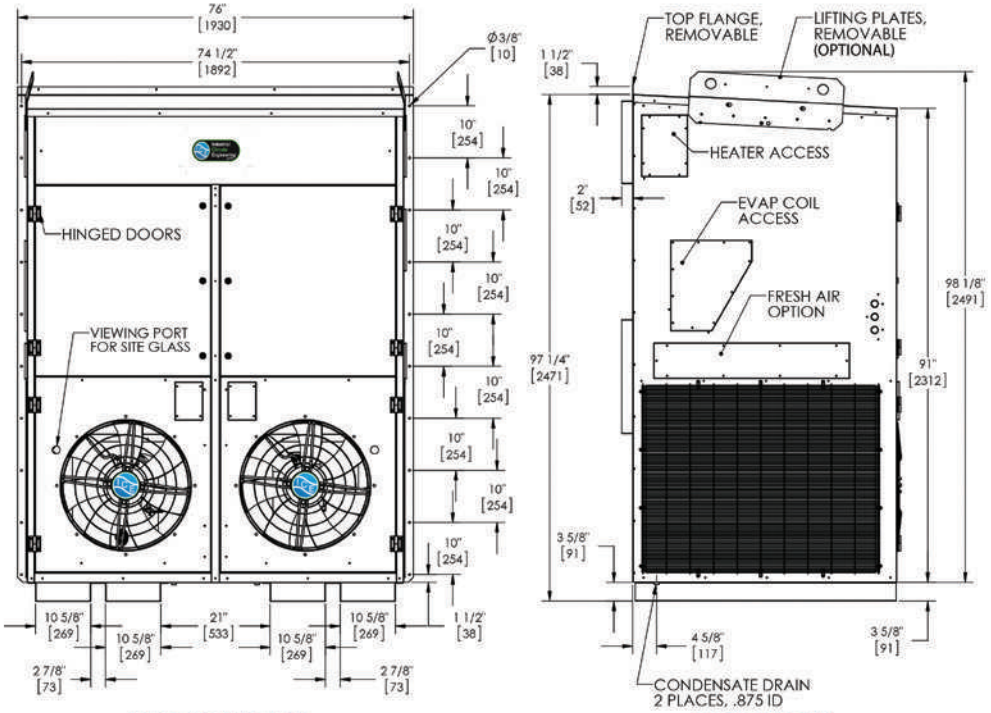
Weight

	LBS/KGS
CFA1120/1150 & CFA3120/3150 with Economizer	1210/550

Filter Size

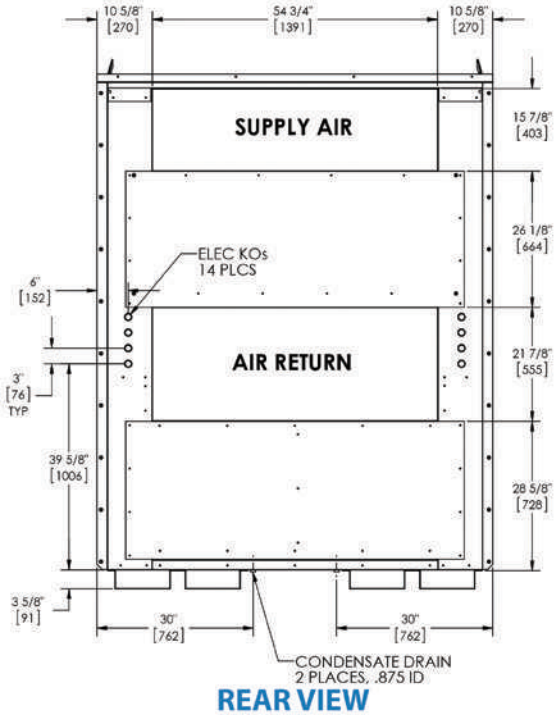
CFA1120/1150 & CFA3120/3150 with Economizer	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25" x 16" x 2"	635 x 406 x 51	80137	3	8
Interior Access Return Air Filter	15" x 20" x 2"	381 x 508 x 51	92365	3	8
Economizer Pre-filter	9.25" x 37" x .375"	235 x 940 x 10	92127	1	N/A

Dimensional Data - Cabinet E: CFA3180/3240 Air Conditioner

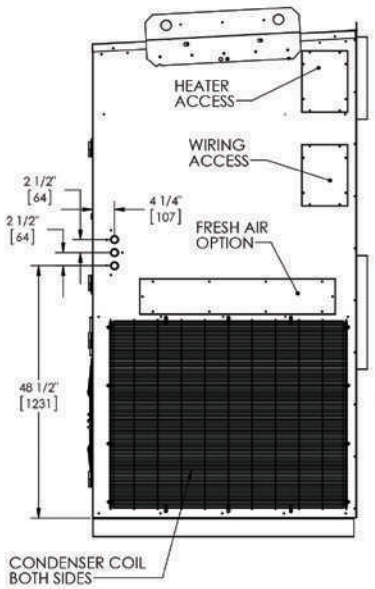


FRONT VIEW

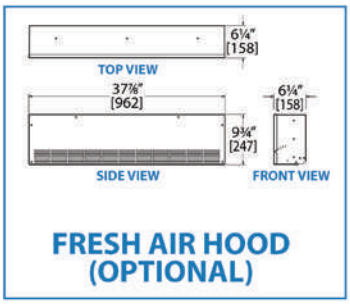
LEFT VIEW

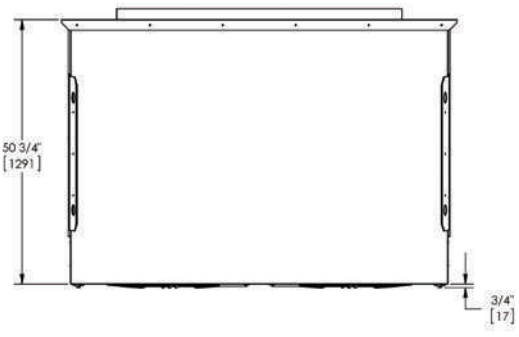


REAR VIEW



RIGHT VIEW





TOP VIEW

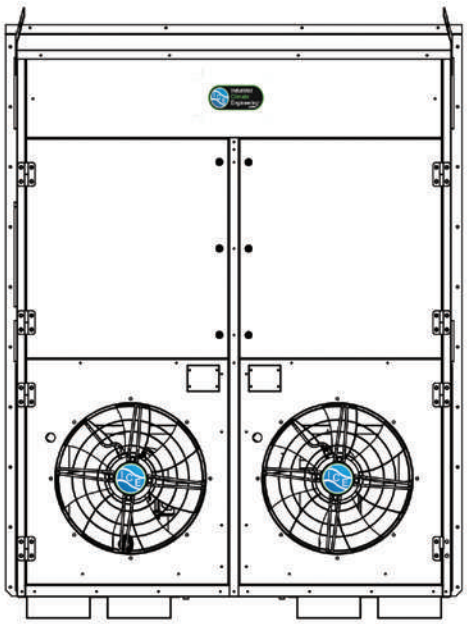
Weight

	LBS/KGS
CFA3180	2307/1049
CFA3240	2523/1148

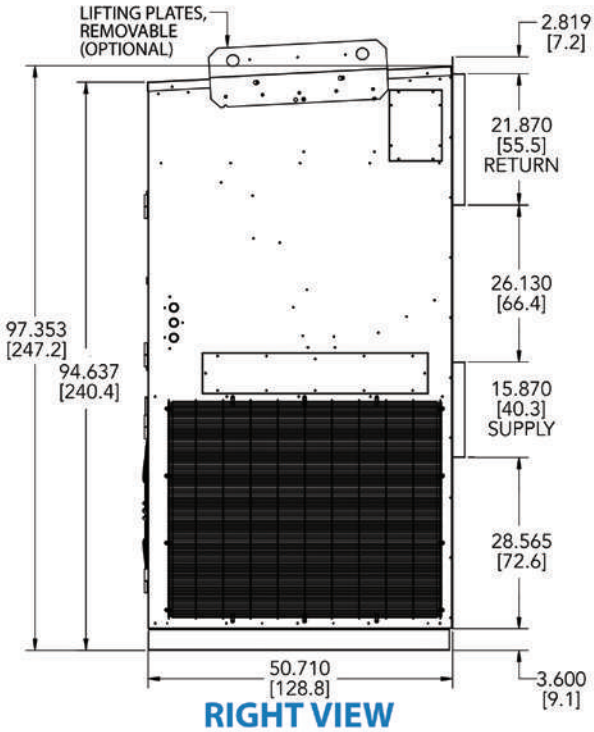
Filter Size

CFA3180/3240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25 x 16 x 2	635 x 406 x 51	80137	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	4	8

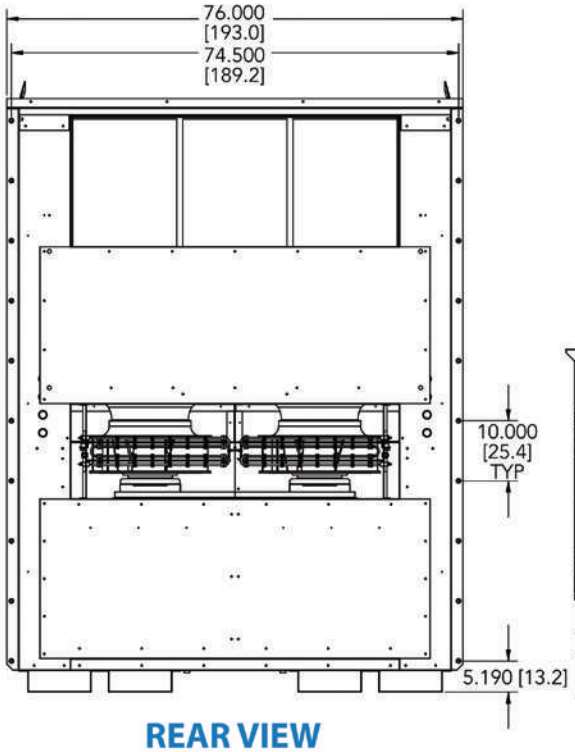
Dimensional Data - Cabinet F: CFA3180/3240 - Reverse Air Flow



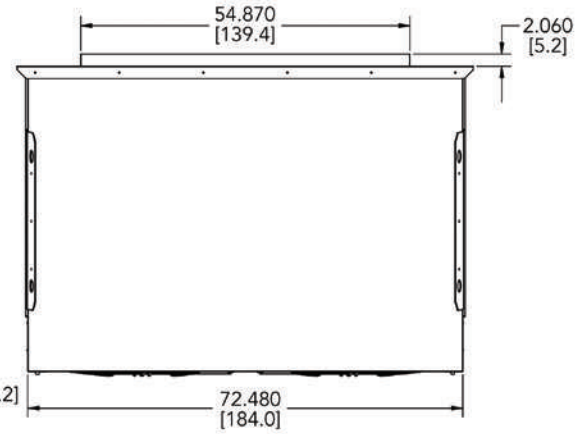
FRONT VIEW



RIGHT VIEW



REAR VIEW



TOP VIEW

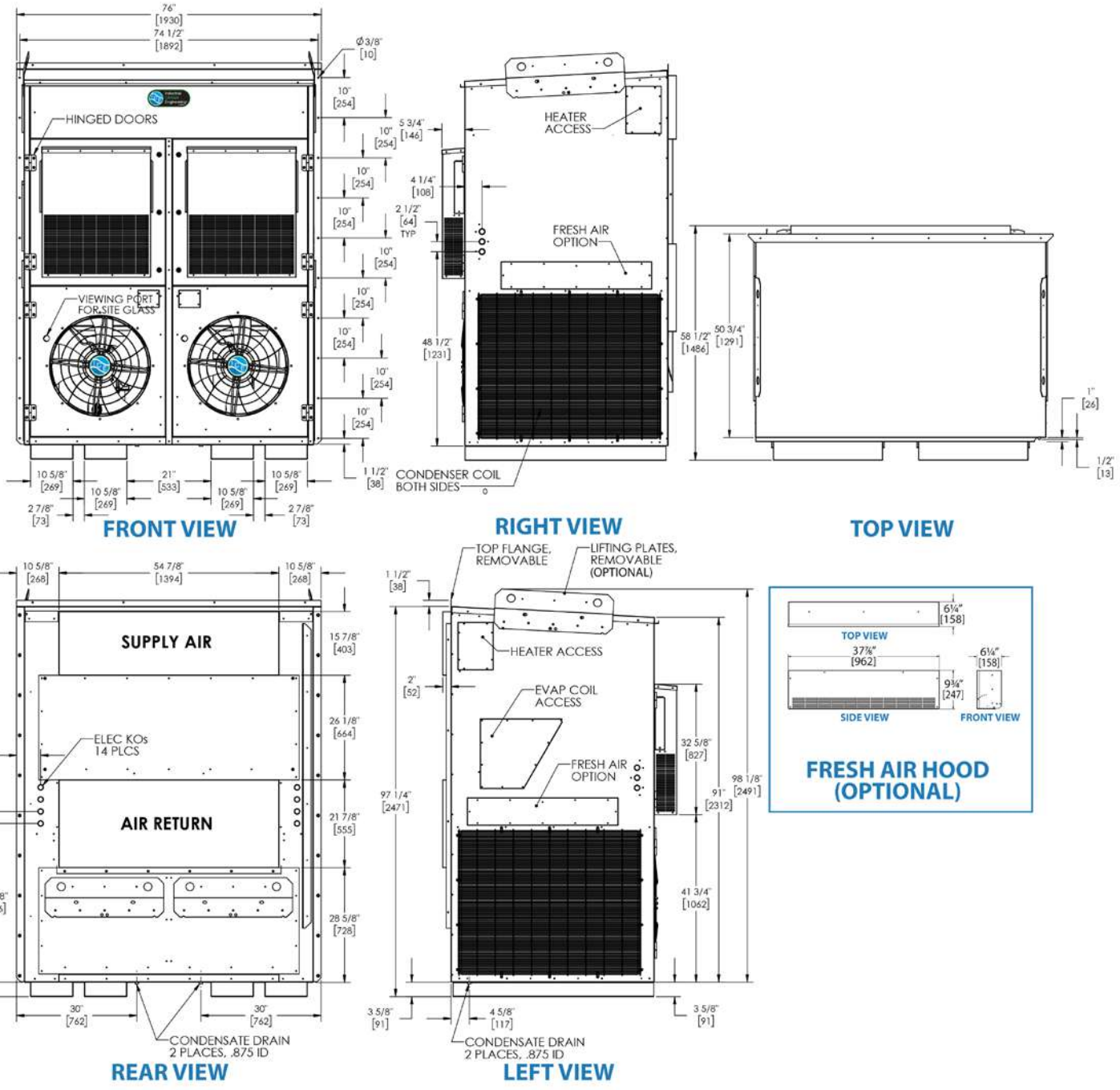
Weight

	LBS/KGS
CFA3180	2307/1049
CFA3240	2523/1148

Filter Size

CFA3180/3240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25 x 16 x 2	635 x 406 x 51	80137	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	4	8

Dimensional Data - Cabinet G: CFA3180/3240 - with Economizer



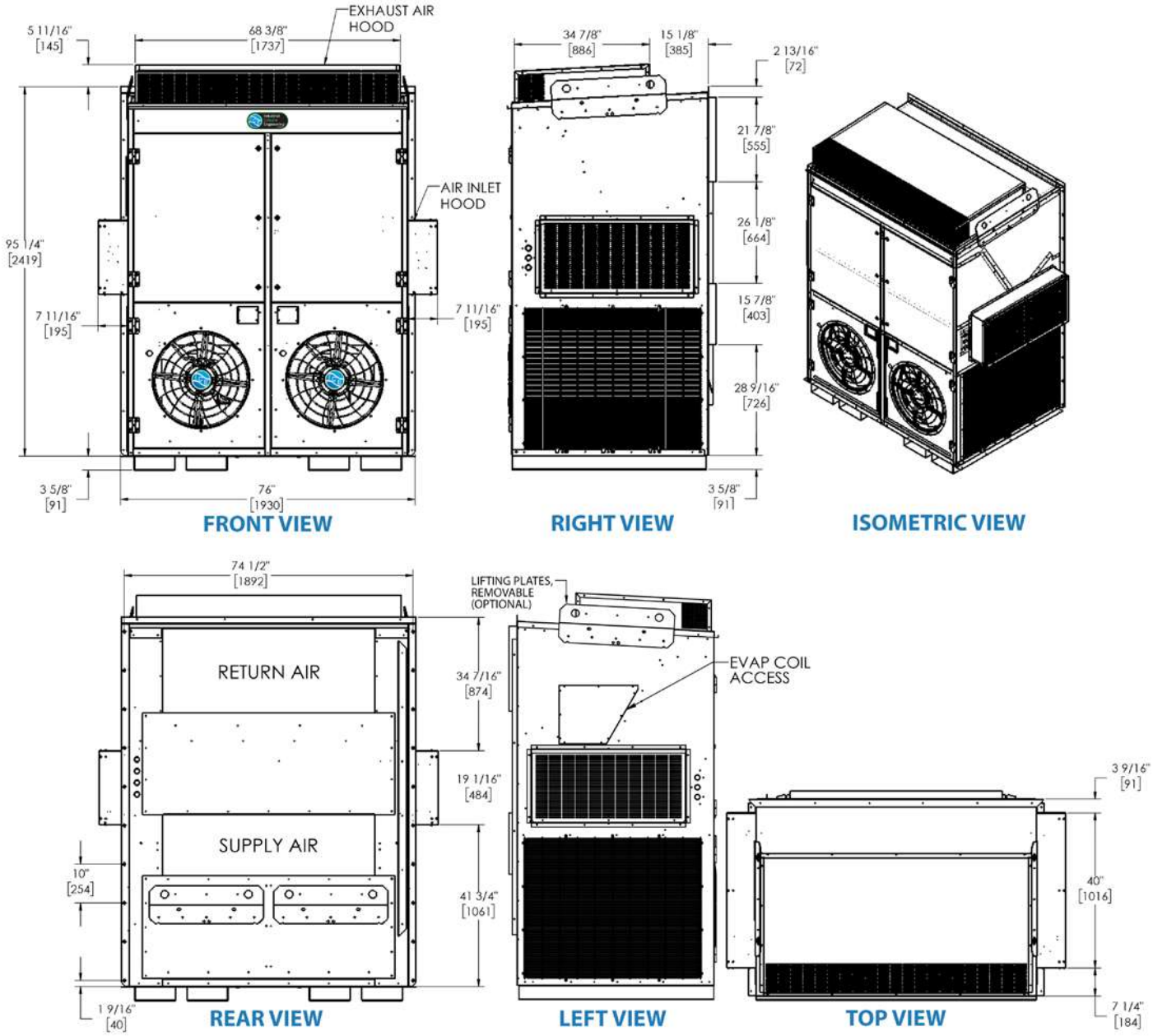
Weight

	LBS/KGS
CFA3180	2447/1110
CFA3240	2663/1208

Filter Size

CFA3180/3240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	25 x 16 x 2	635 x 406 x 51	80137	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	3	8
Fresh Air Hood Pre-filters	26” x 12” x 1”	660 x 305 x 25	92526	2	N/A

Dimensional Data - Cabinet H: CFA3180/3240 - Reverse Flow with Economizer



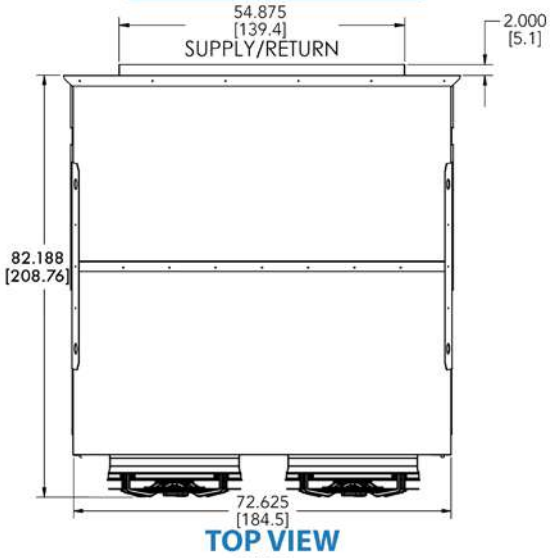
Weight

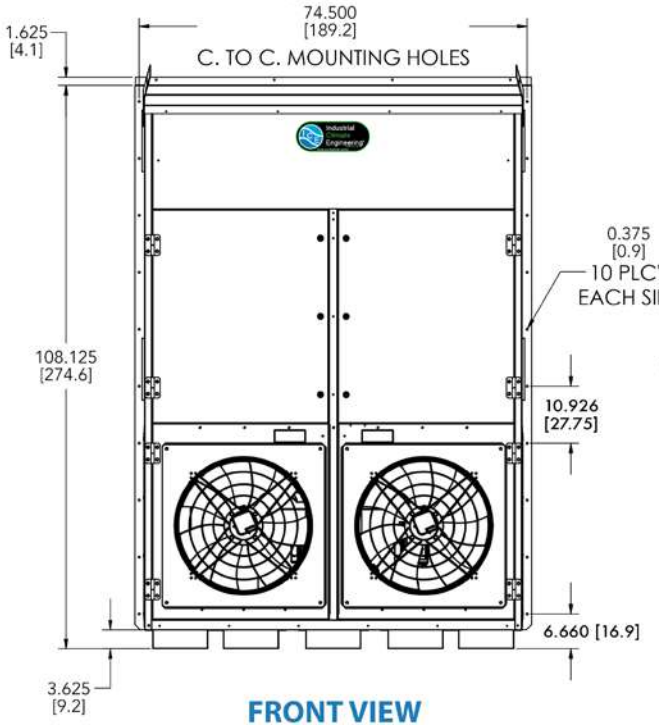
	LBS/KGS
CFA3180	2,253/1,022
CFA3240	2,345/1,063

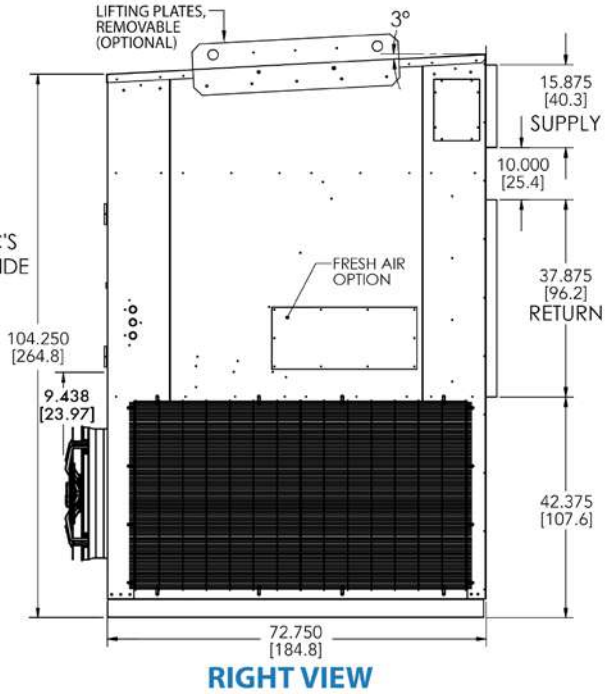
Filter Size

CFA3180/3240	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	3	8
Mist Eliminator Filter	15 5/8 x 24 5/8 x 2	397 x 625 x 25	92971	3	N/A
Fresh Air Hood Pre-filters	16 x 32 x 1	406 x 813 x 25	93187	3	N/A

Dimensional Data - Cabinet I: CFA3300 & CFA3360







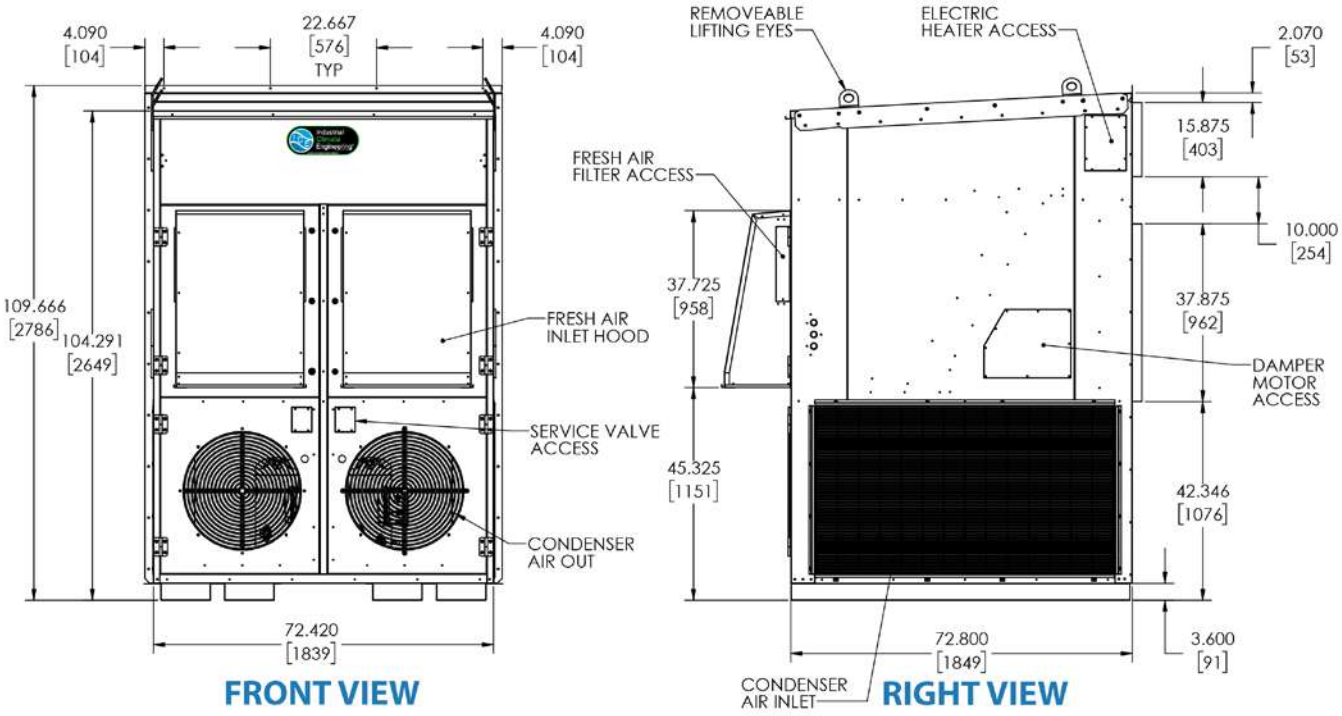
Weight

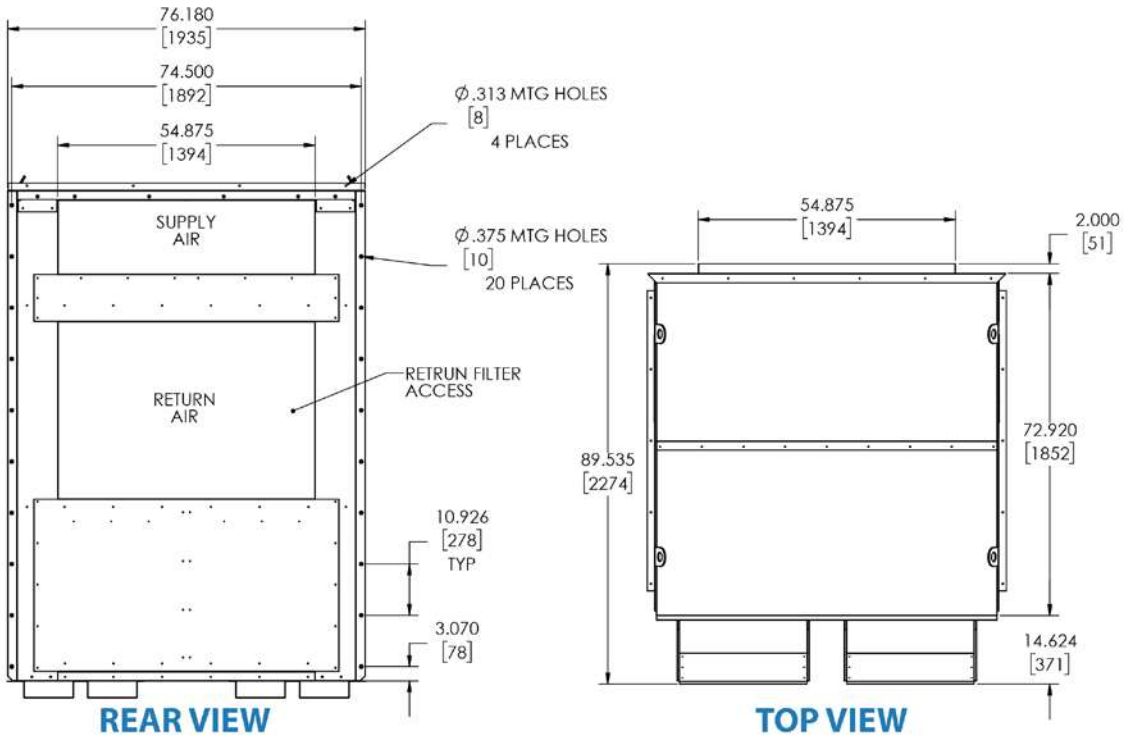
	LBS/KGS
CFA3300	2840/1288
CFA3360	3210/1456

Filter Size

CFA3300 & CFA3360	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Return Air Filter	20 x 30 x 2	508 x 762 x 51	92545	4	N/A

Dimensional Data - Cabinet J: CFA3300 - with Economizer





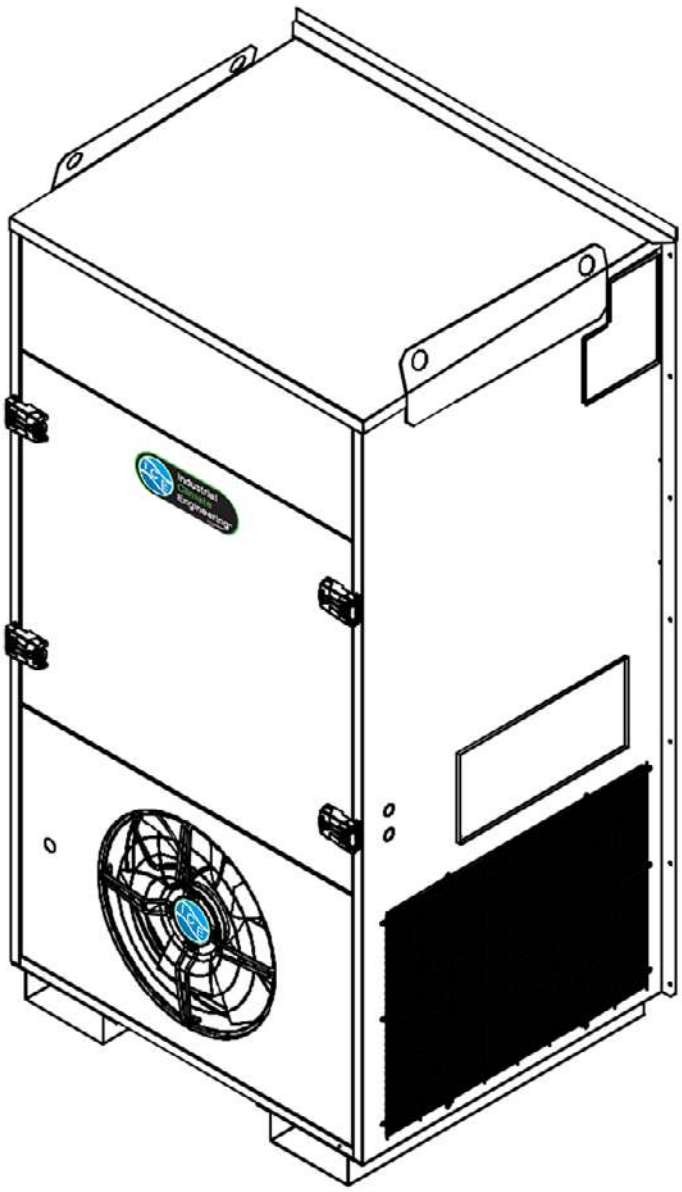
Weight

	LBS/KGS
CFA3300	3055/1386

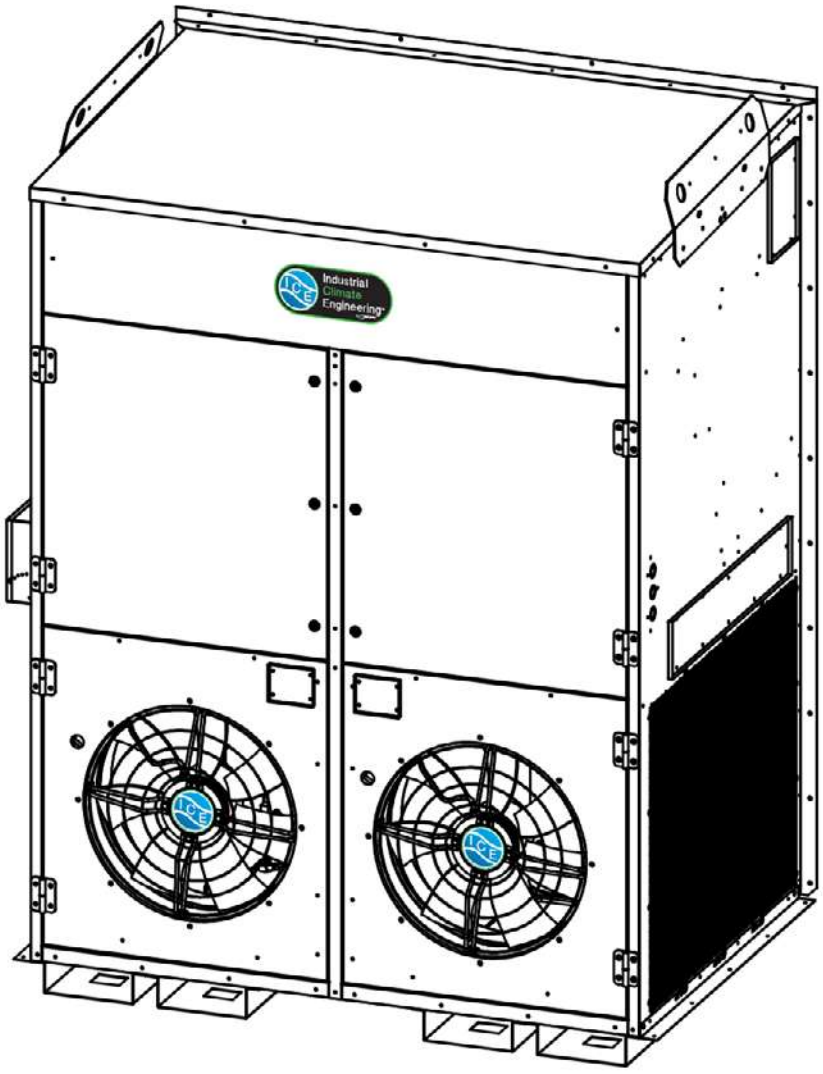
Filter Size

CFA3300	INCHES	MILLIMETERS	PART NUMBER	FILTERS PER UNIT	MERV RATING
Exterior Access Return Air Filter	30 x 30 x 2	762 x 762 x 51	80156	4	8
Interior Access Return Air Filter	24 x 18 x 2	610 x 457 x 51	81257	4	8

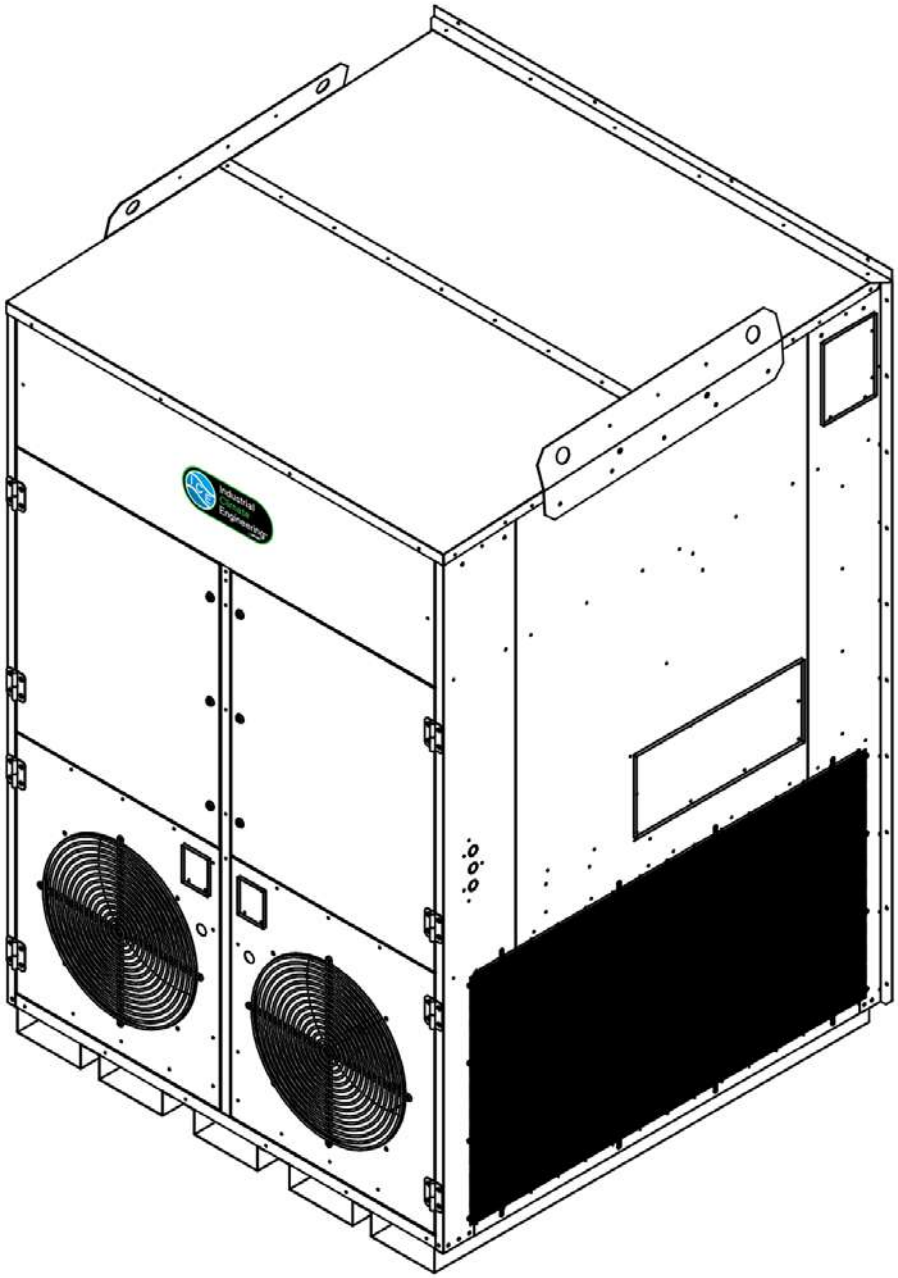
CFA1120 & CFA1150 Air Conditioner Isometric View



CFA3180 & CFA3240 Air Conditioner Isometric View



CFA3300 & CFA3360 Air Conditioner Isometric View



Please consult the Industrial Climate Engineering website at www.acice.com for the latest product literature. Detailed dimensional data is available upon request. A complete warranty statement can be found in each product's Installation/Operation Manual, on our website. As part of the ICE continuous improvement program, specifications are subject to change without notice.

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