

# Chromalox®

## Installation, Operation

## and MAINTENANCE

### SERVICE REFERENCE

DIVISION 4

SECTION AC

SALES  
REFERENCE (Supersedes PF494)

PF494-1

161-506173-001

DATE JULY, 2002

# CAF-20 Series Architectural Cabinet Convection Heater

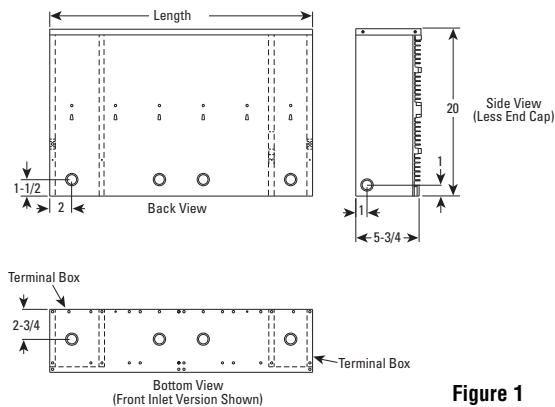
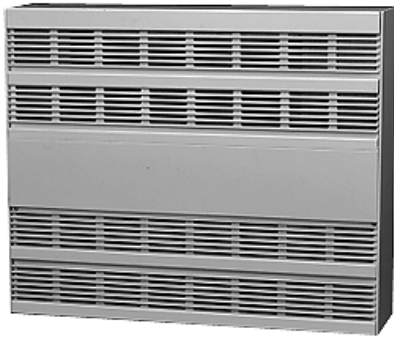


Figure 1

TABLE 1 — Specifications

Model	Volts	Phase	Watts	Amps	BTUH	Length	Weight (Lbs.)
CAF-20215	208	1	1,500	7.2	5,118	24.3	32
CAF-20215	208	3	1,500	4.2	5,118	24.3	32
CAF-20215	240	1	1,500	6.3	5,118	24.3	32
CAF-20215	240	3	1,500	3.6	5,118	24.3	32
CAF-20215	277	1	1,500	5.4	5,118	24.3	32
CAF-20215	480	1	1,500	3.1	5,118	24.3	32
CAF-20215	480	3	1,500	1.8	5,118	24.3	32
CAF-20220	208	1	2,000	9.6	6,824	24.3	32
CAF-20220	208	3	2,000	5.6	6,824	24.3	32
CAF-20220	240	1	2,000	8.3	6,824	24.3	32
CAF-20220	240	3	2,000	4.8	6,824	24.3	32
CAF-20220	277	1	2,000	7.2	6,824	24.3	32
CAF-20220	480	1	2,000	4.2	6,824	24.3	32
CAF-20220	480	3	2,000	2.4	6,824	24.3	32
CAF-20330	208	1	3,000	14.4	10,236	36.3	43.5
CAF-20330	208	3	3,000	8.3	10,236	36.3	43.5
CAF-20330	240	1	3,000	12.5	10,236	36.3	43.5
CAF-20330	240	3	3,000	7.2	10,236	36.3	43.5
CAF-20330	277	1	3,000	10.8	10,236	36.3	43.5
CAF-20330	480	1	3,000	6.3	10,236	36.3	43.5
CAF-20330	480	3	3,000	3.6	10,236	36.3	43.5
CAF-20430	208	1	3,000	14.4	10,236	48.3	53
CAF-20430	208	3	3,000	8.3	10,236	48.3	53
CAF-20430	240	1	3,000	12.5	10,236	48.3	53
CAF-20430	240	3	3,000	7.2	10,236	48.3	53
CAF-20430	277	1	3,000	10.8	10,236	48.3	53
CAF-20430	480	1	3,000	6.3	10,236	48.3	53
CAF-20430	480	3	3,000	3.6	10,236	48.3	53
CAF-20440	208	1	4,000	19.2	13,648	48.3	53
CAF-20440	208	3	4,000	11.1	13,648	48.3	53
CAF-20440	240	1	4,000	16.7	13,648	48.3	53
CAF-20440	240	3	4,000	9.6	13,648	48.3	53
CAF-20440	277	1	4,000	14.4	13,648	48.3	53
CAF-20440	480	1	4,000	8.3	13,648	48.3	53
CAF-20440	480	3	4,000	4.8	13,648	48.3	53
CAF-20645	208	1	4,500	21.6	15,354	72.3	74
CAF-20645	208	3	4,500	12.5	15,354	72.3	74
CAF-20645	240	1	4,500	18.8	15,354	72.3	74
CAF-20645	240	3	4,500	10.8	15,354	72.3	74
CAF-20645	277	1	4,500	16.2	15,354	72.3	74
CAF-20645	480	1	4,500	9.4	15,354	72.3	74
CAF-20645	480	3	4,500	5.4	15,354	72.3	74
CAF-20550	208	1	5,000	24	17,060	60.3	63.5
CAF-20550	208	3	5,000	13.9	17,060	60.3	63.5
CAF-20550	240	1	5,000	20.8	17,060	60.3	63.5
CAF-20550	240	3	5,000	12	17,060	60.3	63.5
CAF-20550	277	1	5,000	18.1	17,060	60.3	63.5
CAF-20550	480	1	5,000	10.4	17,060	60.3	63.5
CAF-20550	480	3	5,000	6	17,060	60.3	63.5
CAF-20660	208	1	6,000	28.8	20,472	72.3	74
CAF-20660	208	3	6,000	16.7	20,472	72.3	74
CAF-20660	240	1	6,000	25	20,472	72.3	74
CAF-20660	240	3	6,000	14.5	20,472	72.3	74
CAF-20660	277	1	6,000	21.7	20,472	72.3	74
CAF-20660	480	1	6,000	12.5	20,472	72.3	74
CAF-20660	480	3	6,000	7.2	20,472	72.3	74

## MODEL NUMBER DESCRIPTION

TABLE 2

CAF-20	2	20	21	01	A9
Type	Code Length	Code	Code	Code	Code
Architectural Cabinet Convection Heater	2 = 2 ft. 3 = 3 ft. 4 = 4 ft. 5 = 5 ft. 6 = 6 ft.	Wattage (See Table)	Wattage (See Table)	Wattage (See Table)	Control Options (Factory Installed)
					A9 = Built-in DP tamperproof hydraulic thermostat 208 - 480V A3 = Built-in 3P tamperproof hydraulic thermostat for 3P voltages 208 - 480V A4 = Built-in 24V low voltage relay for 1P voltages 208 - 480V A5 = Built-in 24V low voltage relay and transformer for 1P voltages 208 - 480V A6 = Built-in 24V contactor for 3P voltages 208 - 480V A7 = Built-in 24V contactor and transformer for 3P voltages 208 - 480V
					<b>Painted</b> 68 = Almond 07 = Bronze 02 = White 10 = Clear
					<b>Anodized</b> 07 = Bronze 10 = Clear
					<b>Code Voltage/Phase</b> 21 = 208/1 23 = 208/3 31 = 240/1 41 = 277/1 73 = 480/3

## INSTALLATION

**WARNING: Hazard of Electric Shock. Disconnect all power before installing heater.**

**WARNING: Hazard of Electric Shock. Any installation involving electric heaters must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.**

**WARNING: Hazard of Fire.**

1. Do not install heaters against any highly combustible surfaces such as low density cellulose fibre.
2. Do not locate heater below electrical convenience receptacles.
3. Do not store or use gasoline or flammable liquids in the vicinity of the heaters.

**WARNING: Hazard of Fire. Keep electrical cords, drapes, rugs and other furnishings away from the heater. The normal operating temperatures of cabinet converters are relatively high. Proper operation requires free circulation of room air through the heating element.**

### Installation Wall

1. Unpack the heater from the carton and remove the front panel.
 

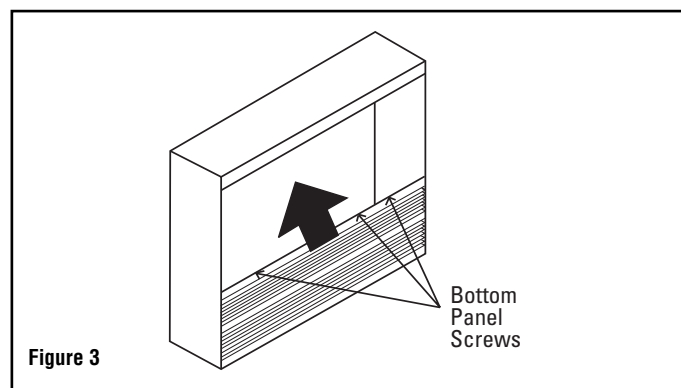
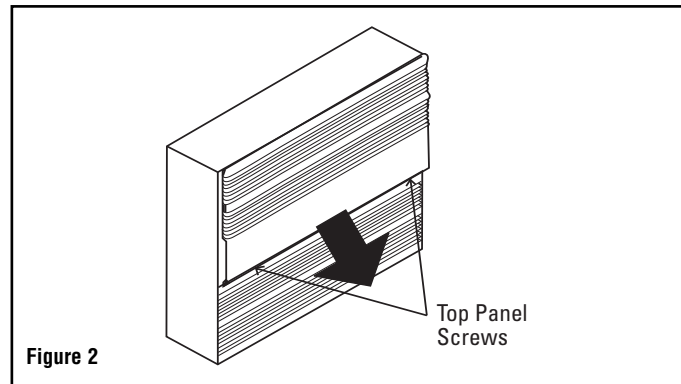
**Note:** The front panel screws are recessed at the bottom of the top front panel at each end of the heater. (Figure 2) Remove top front panel by pulling down to disengage from top of heater. To remove the bottom front panel, remove screws as shown in Figure 3. Pull bottom front panel by pulling upward to disengage from bottom of heater.
2. Remove the desired terminal box covers and wire supply knockouts from the terminal box area.
3. Determine the correct mounting height, and scribe or snap a level line on the wall to maintain each heater back plate in a horizontal alignment, when mounting.
4. Mount the back plate to the wall using suitable fasteners (provided by customer) using the scribed line on the wall to keep the heater level.
 

TIP: Should the wall surface be uneven, secure the heater back panel to the high spots. This will avoid a distorted appearance.
5. Proceed to the wiring instructions.

### Recessed Wall

**Note:** The use of a ALTB Trim kit is strongly recommended when recessing the heater.

A recess opening dimension of 20-1/2" high and the length of the heater is required to install this heater. The heater may be recessed up to a depth of 5-5/8".



## INSTALLATION (Recessed Wall)

1. Unpack the heater from the carton and remove the front panel.  
**Note:** The front panel screws are recessed at the bottom of the front panel at each end of the heater.
2. Remove the desired terminal box covers and wire supply knockouts from the terminal box area.
3. Use trim frame as a template to drill holes into the top, bottom and sides of the heater using a 1/8" diameter drill bit.
4. Secure the trim frame using the #8 screws provided with the trim kit.

**TIP:** The bottom trim may be omitted if the heater is to be installed at floor level.

5. Prepare the wall recess opening to accept the heater.  
**TIP:** Leave approximately 1/2" clearance to insert the heater cabinet.
6. Secure the back plate into the recess opening using suitable fasteners (Provided by customer).
7. Proceed to the wiring instructions.

## WIRING

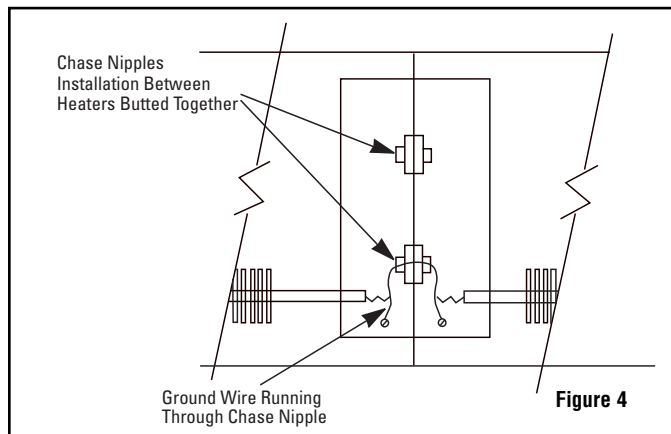
**Note:** All wiring should be done in accordance with local codes and the National Electrical Code by a qualified person.

1. Run branch circuit wiring of proper voltage and wire size to the location of the terminal box of the heater.  
**TIP:** Supply wire entry is commonly made into one heater. Through wiring (factory furnished) can be used for connection to adjacent heaters.

Recommended minimum supply wire sizes are listed in the table below:

Maximum Watts Per Circuit Using 75°C. Wire								
	Rough In Wire Size	120V	208V	240V	277V	347V	480V	600V
Copper	14	1440	2496	2880	3324	4164	5760	7200
	12	1920	3328	3840	4432	5552	7680	9600
Wire	10	2880	4992	5760	6648	8328	11520	14400

2. Wire all heaters and controls in accordance with the appropriate wiring diagram.  
**TIP:** Sample wiring diagrams are provided on page 4.
3. Wrap the supply ground wire to the green painted ground screw and tighten.  
**Note:** When heaters are mounted end to end, remove the finishing end plate, install a chase nipple and locknut in the terminal box to insure grounding continuity, and to protect the wiring. (Figure 4)



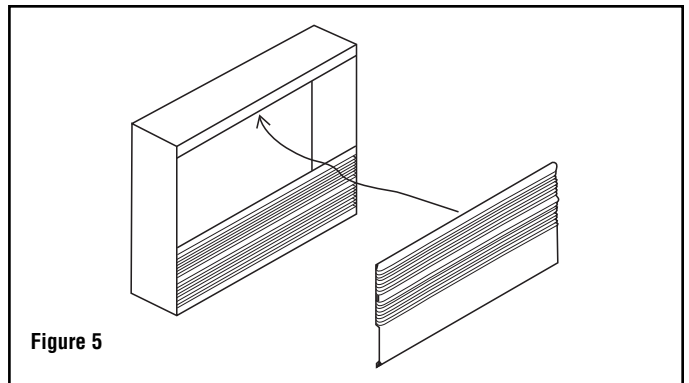
Where heaters are spaced apart, remove the finishing plate and use rigid conduit (provided by customer) for through wiring and ground continuity. Do not exceed the allowable number of conductors allowed by the National Electrical Code.

Terminal Box Volumes (Cubic Inches)		
Heater Style	Left Hand Box 4" Wide	Right Hand Box 5" Wide
CAF-20	379.75	474.75

4. Do a final and complete check of all wiring then replace the terminal box covers.
5. The front panel may now be installed.

**WARNING: To prevent the risk of fire, do not operate the heater without the front cover in place.**

Insert the top of the front panel into the top flange of the heater. Push the bottom flange of the front panel into place and secure with screws.



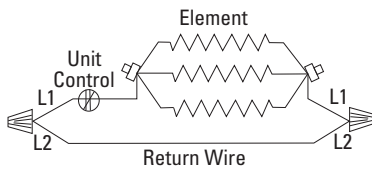
### Maintenance

The CAF-20 series heaters contain no moving parts. Occasional vacuum cleaning of the cabinet interior is the only maintenance required.

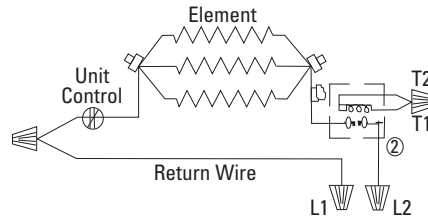
**WARNING: Before removing the front cover for cleaning, make certain supply power is disconnected.**

# WIRING DIAGRAMS

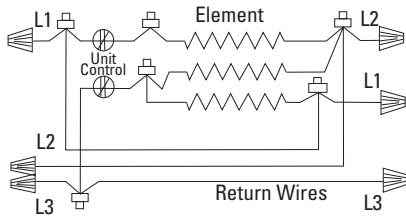
Heater No Controls – 1-Ph Parallel



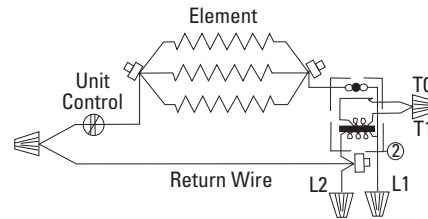
Heater LYD Relay – 1-Ph Parallel



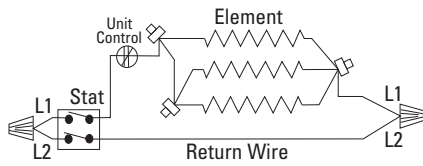
Heater No Controls – 3-Ph Delta



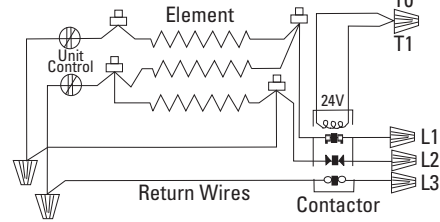
Heater LVC Relay – 1-Ph Parallel



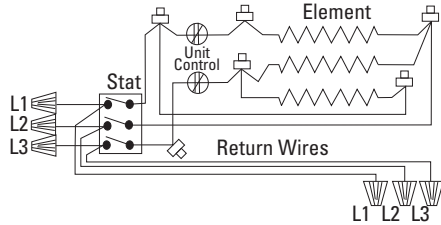
Heater 2 Pole Stat – 1-Ph Parallel



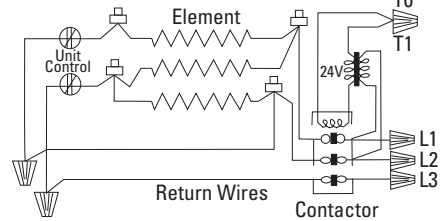
Heater 3 Pole Contactor – 3-Ph Delta



Heater 3 Pole Stat – 3-Ph Parallel



Heater 3 Pole Contactor/TX – 3-Ph Delta



**Limited Warranty:**

Please refer to the Chromalox limited warranty applicable to this product at [http://www.chromalox.com/customer-service/policies/terms\\_of\\_sale.aspx](http://www.chromalox.com/customer-service/policies/terms_of_sale.aspx).

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PRECISION HEAT AND CONTROL

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