

Installation Manual

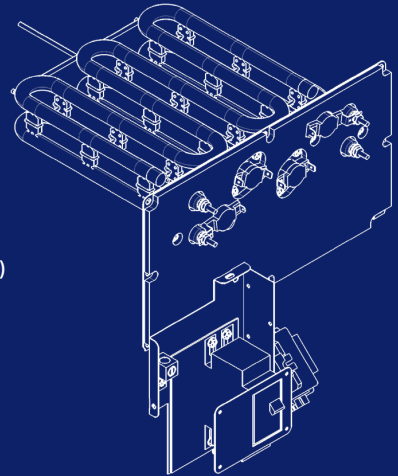
Field Installed Electric Heat Accessory For NASV/NASS Series Air Handlers

Model
(HEATER KIT
USED)

NASV&NASS24
(NEHV05B, NEHV08B, NEHV10B)

NASV&NASS36
(NEHV05C, NEHV08C, NEHV10C, NEHV15C)

NASV&NASS48
NASV&NASS59
(NEHV05D, NEHV08D, NEHV10D, NEHV15D, NEHV20D)



ALWAYS read and follow this manual completely.
This manual should remain with the unit for future reference.

⚠ WARNING

FIRE OR EXPLOSION HAZARD

Improper installation, operation, or service can damage the heat pump, your home, and other property and can create hazards such as fire, burns, electric shock, and explosion, which can result in serious injury or death.

The manufacturer recommends installing only indoor and outdoor systems that are approved and compatible. Read the entire user guide before starting installation.

This appliance must be installed and serviced by a technician qualified under all local and national building codes.

Follow all safety codes. Wear safety glasses, protective clothing and work gloves. Have a dry powder or carbon dioxide fire extinguisher available during installation. Read this manual thoroughly and follow all warnings or cautions contained in the literature and attached to the appliance. Refer to the latest version of your local building code and the National Electrical Code (NEC) NFPA 70. In Canada, refer to the latest version of the Canadian Electrical Code CSA 22.1.

General

GENERAL INSTALLATION

This instruction covers the installation of an electric heat kit in an NASV or NASS Series air handler.

Refer to unit instructions for electrical specifications.

The electric heat accessories are used for applications of cooling with electric heat and heat pump. Each of the air handler unit models are approved for use with specific electric heat accessories. The installation instructions list the possible combinations and other important electrical data and limitations.

LINE POWER CONNECTIONS

Power may be brought into the unit through the knockout located at the top left or on the left side of the air handler cabinet.

Use the appropriate hole in the cabinet to route the power wiring into the control box. Use line and low voltage wiring specified in these instructions, National Electrical Code (NFPA 70), any State or Local Codes or ordinances.

IMPORTANT

All field wiring must be rated at 60°C or higher. Please refer to the wiring diagrams on the furnace or this book for more information.

The 15kW and 20kW models may be connected to a single or dual branch circuit.

Refer to the NEC National Electrical Code (NFPA 70) or the Canadian Electrical Code, Part I (CSA C22.1) and local codes for wiring material requirements.

LOW VOLTAGE CONNECTIONS

The 24 VAC power supply is provided by an internally wired low voltage transformer which is standard on all models. Low voltage wiring may exit the air handler on the top right side of the cabinet.

CODES

The wiring must be installed in accordance with the following codes.

- National Electrical Code (NFPA 70)
- Canadian Electrical Code, Part I (CSA C22.1)
- All local codes (State, City, and Township)

Note All applicable codes take precedence over any recommendation made in these instructions.

WARNING

MUST USE COPPER CONDUCTORS ONLY

WARNING

RISK OF ELECTRIC SHOCK

CAN CAUSE INJURY OR DEATH: DISCONNECT ALL REMOTE ELECTRIC POWER SUPPLIES BEFORE SERVICING.

INSTALLATION

1. Turn power off to air handler.
2. Remove blower access door and control panel cover.
3. Remove blank-off plate and discard. Retain screws.
4. Remove wiring from terminal block.
5. Insert electric heat kit into opening on discharge of unit. Secure with screws removed from blank off plate.
6. Connect wiring to proper terminals on circuit breaker(s). See wiring diagram
7. Connect male plug adapter supplied with the electric heater kit to the female plug adapter supplied with the air handler.
8. Review all wiring with wiring diagram supplied with the air handler and the heater kit.
9. Place the heater kit wiring diagram on the blower housing below the air handler wiring diagram.
10. Replace the blower access door.

⚠ CAUTION

To prevent damage, carefully pass the accessory heating element through the rectangular opening in the discharge of the air handler. Heating element support rod must be seated in the hole on the opposite side of the discharge.

⚠ CAUTION

Air Handler is approved for a zero clearance to combustible material. A one inch clearance must be maintained on all sides of the supply air duct and/or plenum for a minimum of 36 inches from the top of the air handler.

BRAND	ACCESSORY	AIR HANDLER MOTOR TYPE	HEATING CAPACITY @ 240 Volts 1 PH	AIR HANDLER CABINET SIZE
N=NAVIEN				B=17.5" C=21" D=24.5"
	EH=ELECTRIC HEATER KIT	V=VARIOUS MOTOR TYPES		05=5kW 08=8kW 10=10kW 15=15kW 20=20kW

Table 1. Heater Kit Nomenclature

AIR HANDLER MODELS																			
	NASV24				NASS24				NASV36					NASS36					
5 kw Heater Amps - 208/240 VAC	18.0/20.8				18.0/20.8				18.0/20.8					18.0/20.8					
8 kw Heater Amps - 208/240 VAC	28.9/33.3				28.9/33.3				28.9/33.3					28.9/33.3					
10 kW Heater Amps - 208/240 VAC	36.1/41.7				36.1/41.7				36.1/41.7					36.1/41.7					
15 kW Heater Amps - 208/240 VAC	N/A				N/A				54.1/62.5					54.1/62.5					
Indoor Blower Motor Type	VSD				CONSTANT TORQUE				VSD					CONSTANT TORQUE					
Indoor Blower Amps – 208/240 VAC	3.81/4.40				2.43/2.80				4.33/5.00					3.55/4.10					
Heater - kW	0	5	8	10	0	5	8	10	0	5	8	10	15	0	5	8	10	15	
Minimum Circuit Ampacity	5.50	31.54	47.17	56.48	3.50	29.54	45.17	55.58	6.25	32.29	47.92	58.33	84.37	5.13	31.17	46.79	57.21	83.25	
Minimum Wire Size (194°F / 90°C)	#14	#12	#8	#8	#14	#12	#8	#8	#14	#12	#8	#8	#4	#14	#12	#8	#8	#4	
Minimum Wire Size (167°F / 75°C)	#14	#10	#8	#6	#14	#10	#8	#6	#14	#10	#8	#6	#4	#14	#10	#8	#6	#4	
Minimum Wire Size (140°F / 60°C)	#14	#10	#6	#6	#14	#10	#6	#6	#14	#10	#6	#6	#3	#14	#10	#6	#6	#3	
Ground Wire Size	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Maximum Overcurrent Protection Amps	15	35	50	60	15	30	50	60	15	35	50	60	90	15	35	50	60	90	

Table 2. Wiring Requirements – 208/240 VAC Electric Heat 24 - 36kBTU Models - Single Branch Circuit

15kW, and 20kW two-stage models may have a dual or single power supply. - Single power supply may require jumper bar or a jumper wire.

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor **must be the same size and temperature rating** as the other conductors listed in Table 2.

AIR HANDLER MODELS												
	NASV48,59						NASS48,59					
5 kw Heater Amps - 208/240 VAC	18.0/20.8						18.0/20.8					
8 kw Heater Amps - 208/240 VAC	28.9/33.3						28.9/33.3					
10 kW Heater Amps - 208/240 VAC	36.1/41.7						36.1/41.7					
15 kW Heater Amps - 208/240 VAC	54.1/62.5						54.1/62.5					
20 kW Heater Amps - 208/240 VAC	72.2/83.4						72.2/83.4					
Indoor Blower Motor Type	VSD						CONSTANT TORQUE					
Indoor Blower Amps – 208/240 VAC	5.46/6.30						5.37/6.20					
Heater - kW	0	5	8	10	15	20	0	5	8	10	15	20
Minimum Circuit Ampacity	7.88	33.92	49.54	59.96	86.00	112.04	7.75	33.79	49.42	59.83	85.67	111.91
Minimum Wire Size (194°F / 90°C)	#14	#12	#8	#6	#4	#3	#14	#12	#8	#6	#4	#3
Minimum Wire Size (167°F / 75°C)	#14	#10	#8	#6	#4	#2	#14	#10	#8	#6	#4	#2
Minimum Wire Size (140°F / 60°C)	#14	#10	#6	#4	#3	#1	#14	#10	#6	#4	#3	#1
Ground Wire Size	*	*	*	*	*	*	*	*	*	*	*	*
Maximum Overcurrent Protection Amps	15	35	50	60	90	120	15	35	50	60	90	120

Table 3. Wiring Requirements – 208/240 VAC Electric Heat 48 - 59 kBTU Models - Single Branch Circuit

15kW, and 20kW two-stage models may have a dual or single power supply. - Single power supply may require jumper bar or a jumper wire.

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor **must be the same size and temperature rating** as the other conductors listed in Table 3.

AIR HANDLER MODELS				
	NASV36		NASS36	
Circuit Number	1	2	1	2
15 kW Heater Amps - 208/240 VAC	36.1/41.7	18.0/20.8	36.11/41.7	18.0/20.8
Indoor Blower Motor Type	VSD		CONSTANT TORQUE	
Indoor Blower Amps	4.33/5.00		3.55/4.10	
Heater - kW	15		15	
Circuit Number	1 (10kW)	2 (5kW)	1 (10kW)	2 (5kW)
Minimum Circuit Ampacity	58.33	30.00	57.21	30.00
Minimum Wire Size (90°C)	#8	#12	#8	#12
Minimum Wire Size (75°C)	#6	#10	#6	#10
Minimum Wire Size (60°C)	#6	#10	#6	#10
Ground Wire Size	*	*	*	*
Maximum Overcurrent Protection Amps	60	30	60	30

Table 4. Wiring Requirements – 208/240 VAC Electric Heat 36 kBTU Models – Dual Branch Circuit

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor **must be the same size and temperature rating** as the other conductors listed in Table 4.

AIR HANDLER MODELS								
	NASV48,59				NASS48,59			
Circuit Number	1		2		1		2	
15 kW Heater Amps - 208/240 VAC	36.1/41.7		18.06/20.8		36.1/41.7		18.1/20.8	
20 kW Heater Amps - 208/240 VAC	36.1/41.7		36.1/41.7		36.1/41.7		36.1/41.7	
Indoor Blower Motor Type	VSD				CONSTANT TORQUE			
Indoor Blower Amps	5.46/6.30				5.37/6.20			
Heater - kW	15		20		15		20	
Circuit Number	1 (10kW)	2 (5kW)	1 (10kW)	2 (10kW)	1 (10kW)	2 (5kW)	1 (10kW)	2 (10kW)
Minimum Circuit Ampacity	59.96	26.04	59.96	52.08	59.83	26.04	59.83	52.08
Minimum Wire Size (90°C)	#8	#12	#8	#8	#8	#12	#8	#8
Minimum Wire Size (75°C)	#6	#10	#6	#6	#6	#10	#6	#6
Minimum Wire Size (60°C)	#6	#10	#6	#6	#6	#10	#6	#6
Ground Wire Size	*	*	*	*	*	*	*	*
Maximum Overcurrent Protection Amps	60	30	60	60	60	30	60	60

Table 5. Wiring Requirements – 208/240 VAC Electric Heat 48-59 kBTU Models – Dual Branch Circuit

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor **must be the same size and temperature rating** as the other conductors listed in Table 5.

	ELECTRIC HEATER HEATING CAPACITIES							
		5kW	8kw	10kW	15kW		20kW	
	BRANCH CIRCUIT	1	1	1	1	2	1	2
240 VAC	BTU/HR	17,033	27,297	34,067	34,067	17,033	34,067	34,067
	kW	4.99	8.00	10.00	10.00	4.99	10.00	10.00
230 VAC	BTU/HR	15,876	25,420	33,686	33,686	15,876	33,686	33,686
	kW	4.65	7.45	9.78	9.78	4.65	9.78	9.78
220 VAC	BTU/HR	14,736	23,612	30,222	30,222	14,736	30,222	30,222
	kW	4.32	6.92	8.86	8.86	4.32	8.86	8.86
TOTAL HEATING CAPACITY @ 240 VAC	BTU/HR	17,033	27,297	34,067	51,149		68,134	
	kW	4.99	8.00	10.00	14.99		20.00	

Table 6. Electric Heater Heating Capacities

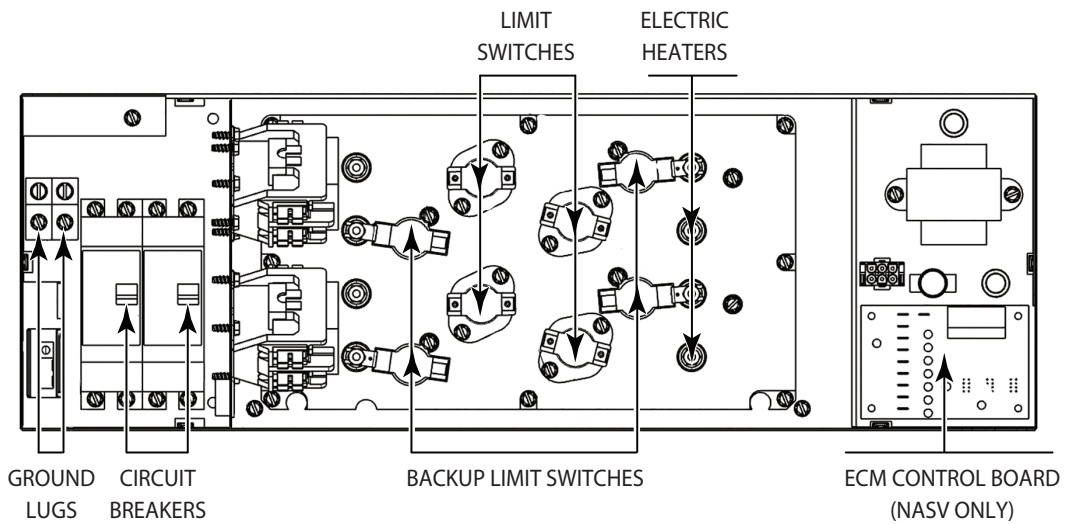


Figure 1. Component Locations – Electric Heat Control Box

Casing or cabinet must be permanently grounded in accordance with the National Electrical Code or other applicable codes.

Heater Kit Model	Circuit Breaker	Contactors	Auto-Reset Limits	Non-Resettable Limits	Element kW
Small Cabinet—NASV24 / NASS24					
NEHV05B	1 (35 amp)	1	1	1	5
NEHV08B	1 (50 amp)	1	2	2	8
NEHV10B	1 (60 amp)	1	2	2	10
Medium Cabinet—NASV36 / NASS36					
NEHV05C	1 (35 amp)	1	1	1	5
NEHV08C	1 (60 amp)	1	2	2	8
NEHV10C	1 (60 amp)	1	2	2	10
NEHV15C	1 (30 amp) & 1 (60 amp)	2	3	3	15
Large Cabinet—NASV48,59 / NASS48,59					
NEHV05D	1 (35 amp)	1	1	1	5
NEHV08D	1 (60 amp)	1	2	2	8
NEHV10D	1 (60 amp)	1	2	2	10
NEHV15D	1 (30 amp) & 1 (60 amp)	2	3	3	15
NEHV20D	2 (60 amp)	2	4	4	20

Table 7. Field Installed Electric Heater Component List

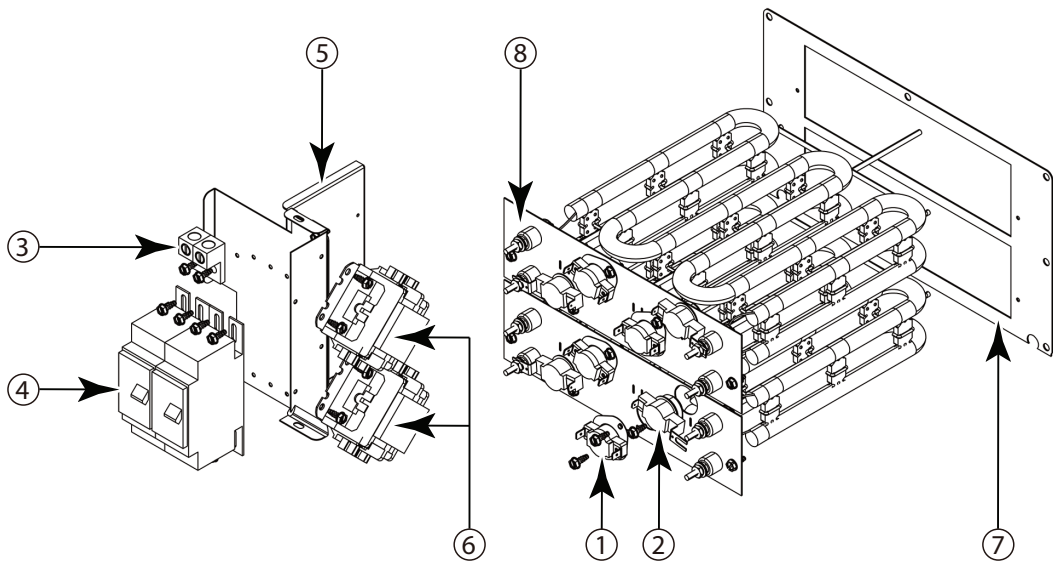


Figure 2. Heater Kit Exploded View

Item	Quantity	Description
1	1, 2, 3 or 4	165°F Auto-Reset Limit Switch
2	1, 2, 3 or 4	190° F Non-Resettable Limit Switch
3	1 or 2	Ground Lug
4	1 or 2	Circuit Breaker(s)
5	1	Circuit Breaker Mount Plate
6	1 or 2	Electric Heater DP Contactors
7	1	Heating Element Adapter Plate
8	1 or 2	Electric Heating Elements

Table 8. Quantities and Descriptions for Heater Kit Components Shown in Figure 2

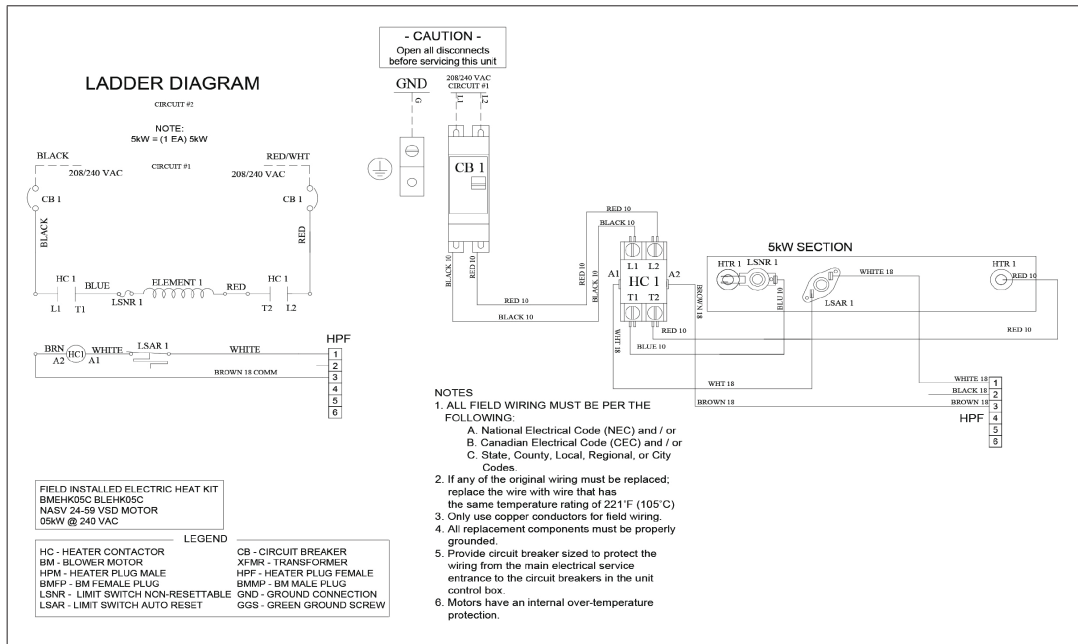


Figure 3. 5kW Field Installed Electric Heat Kit

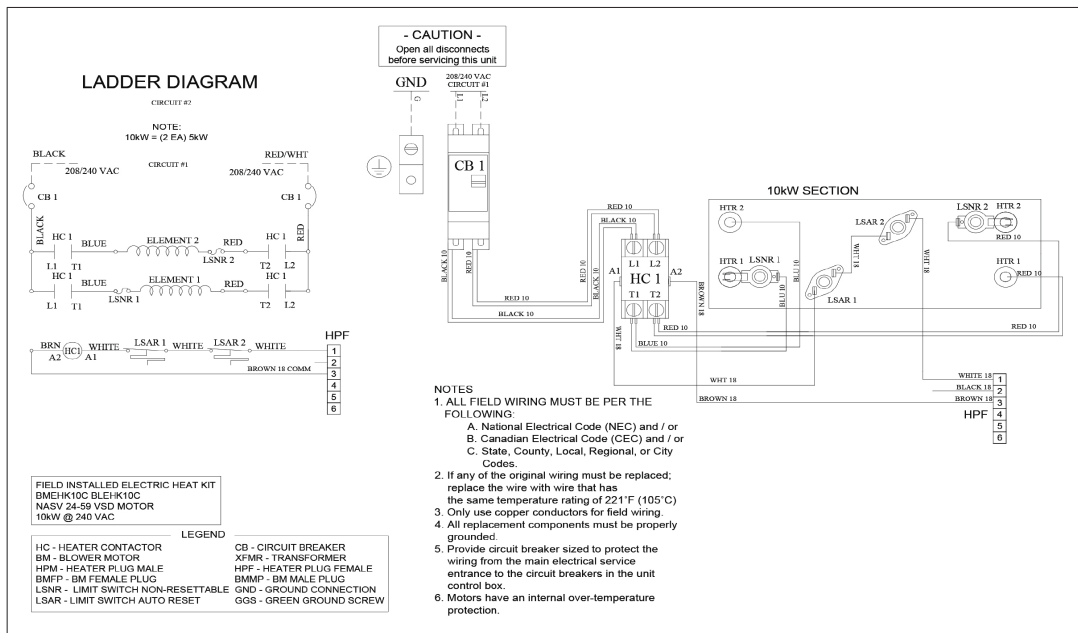


Figure 4. 8kW & 10kW Field Installed Electric Heat Kit

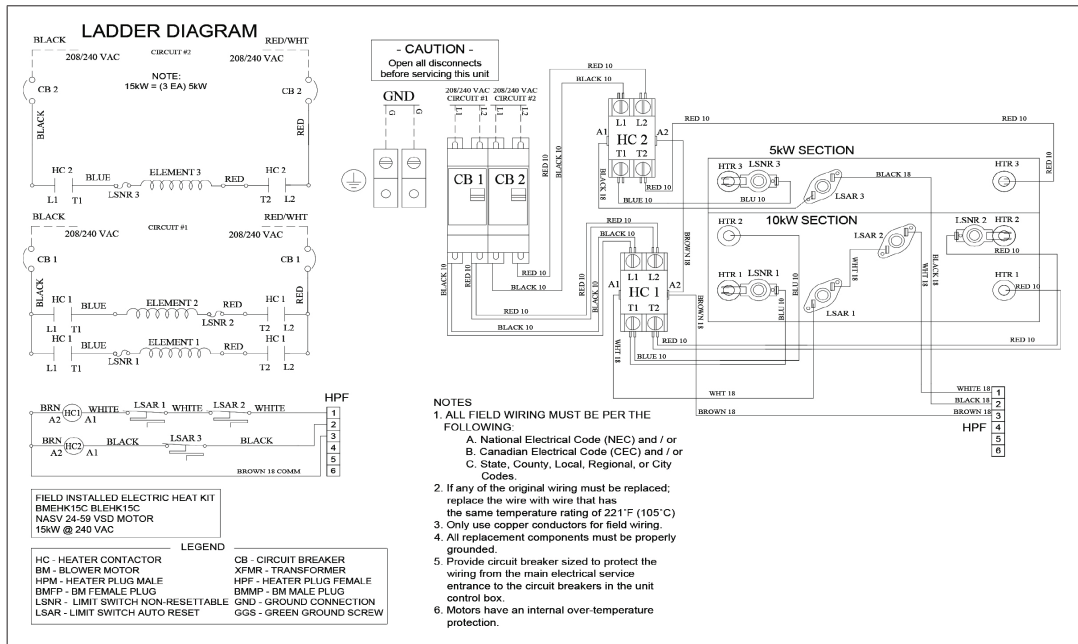


Figure 5. 15kW Field Installed Electric Heat Kit

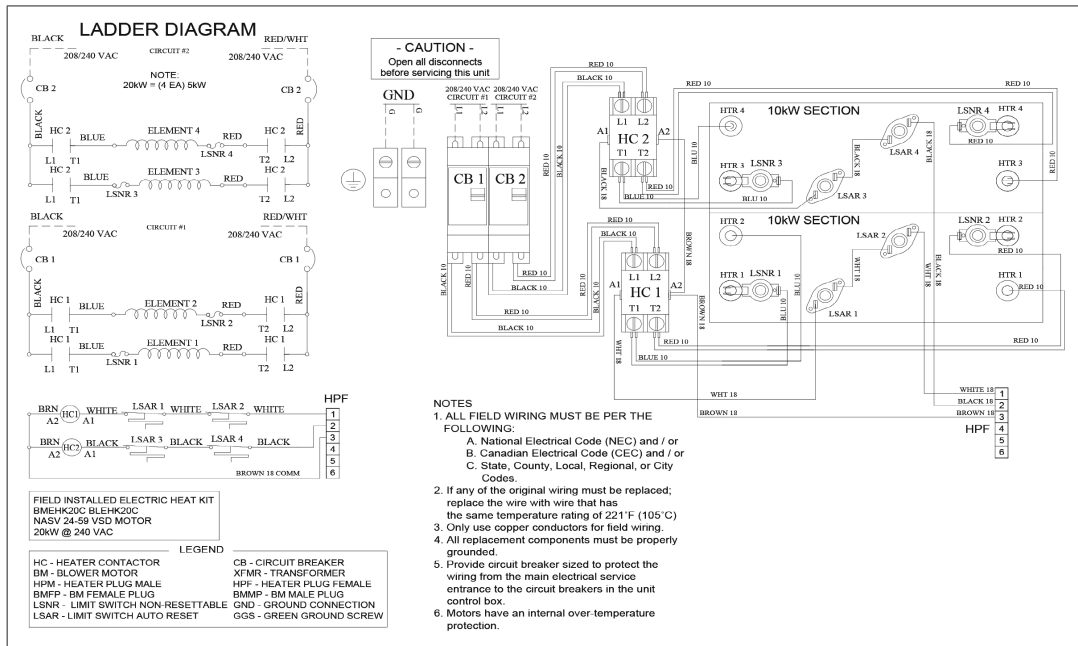


Figure 6. 20kW Field Installed Electric Heat Kit

Subject to change without notice

Installation Manual

Field Installed Electric Heat Accessory For NASV/NASS Series Air Handlers

Getting Service

If your Electric Heat Accessory requires service:

- All repairs require pre-authorization by Technical Support.
- Request for your installer or any licensed professional to contact Technical Support at 1-800-519-8794 Option 2 once at the installation site.
- A short list of independent service providers in your area can be found on the website: www.navieninc.com/installers.
- Contact a licensed professional for the affected system (for example, a plumber, gas fitter, or electrician).

When you contact Technical Support, please have the following information at hand:

- Model number
- Serial number
- Date purchased
- Installation location and type
- Error code, if any appears on the front panel display

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