

**INSTALLATION INSTRUCTIONS FOR ELECTRIC HEAT (98W96-99, 99W00-15, 13U01-03;
610043-01-23, 30U97-99, 30V01-20, 610043-24-46) USED WITH ZC/ZH 036, 048, 060, 074
UNITS**

Shipping and Packing List

Electric Heat Package Contains:

- 1- Electric element assembly
- 1- Heater fuse panel
- 1- Bag assembly containing:
 - 1- Wire tie
 - 1- Primary limit switch (610043-01, -04, -05, -07, -09, -10, -11, -15, -16, -19, -20, -24, -26, -27, -29, -36, -37, -39, -40, -41, -42, -43)

Unit fuse assembly is ordered and shipped separately.
This heater assembly cannot be installed without the unit fuse kit.

Inspect package upon receiving. If damage is found, contact last carrier immediately.

Requirements

Installation of electric heaters must conform with the standards of the National Fire Protection Association (NFPA) "Standard for the Installation of Air Conditioning and Ventilating Systems," NFPA No. 90A; "Standard for the Installation of Residence Type Warm Air heating and Air Conditioning Systems," NFPA No. 90B; in Canada, CSA C22.1 Canadian Electrical Code Part I and all applicable CSA requirements; manufacturer's installation instructions and local municipal building codes. Heaters are approved for clearance to combustible materials as listed on unit rating plate. Accessibility and service clearances must take precedence over fire protection clearance. All wiring must conform with local codes and the current National Electric Code (NEC) ANSI--C1 and in Canada, CSA C22.1 Canadian Electrical Code Part I and applicable CSA requirements.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

⚠ CAUTION

Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

Application

Electric heat is used as primary heaters in ZC 036, 048, 060, 074 units and as a secondary heat source in ZH 036, 048, 060 heat pump units. See TABLE 1 for usage.

TABLE 1

| Unit | Electric Heat (kW) |
|------|--------------------------|
| | 208-230, 460, 575V 60 Hz |
| 036 | 5, 7.5, 10, 15 |
| 048 | 5, 7.5, 10, 15, 22.5 |
| 060 | 5, 7.5, 10, 15, 22.5 |
| 074 | 7.5, 10, 15, 22.5, 30 |

⚠ IMPORTANT

Install separately ordered unit fuse block assembly before proceeding. Refer to instruction supplied with unit fuse assembly.

Electric Heat Installation

- 1 - Disconnect all power to unit.
- 2 - Remove panels as shown in FIGURE 1.
- 3 - Remove and retain screw in blower flange as shown in FIGURE 2.

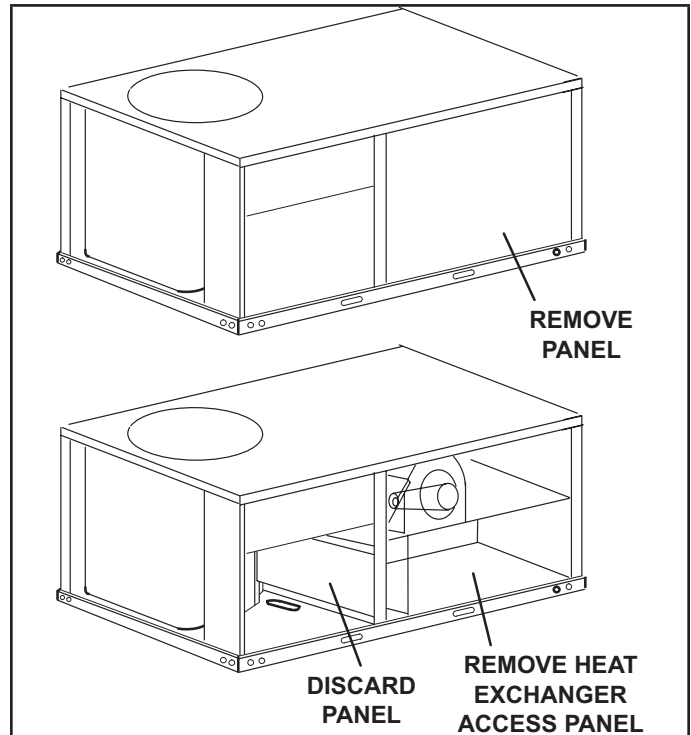


FIGURE 1

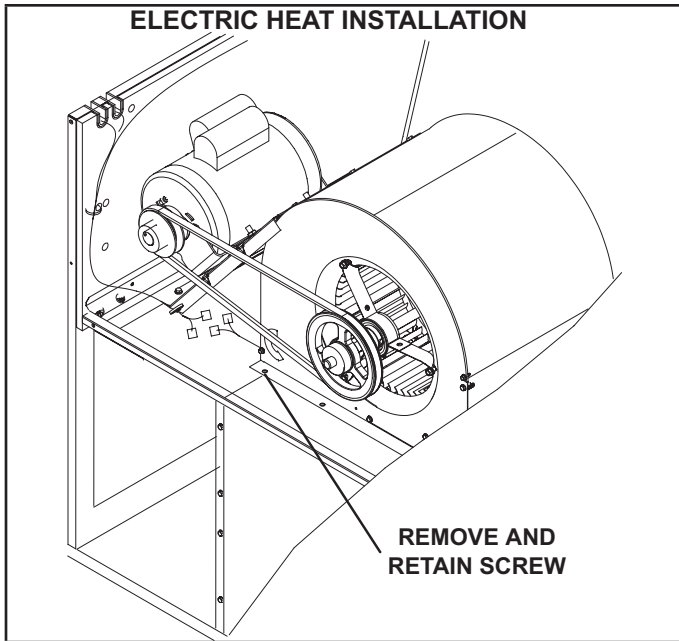


FIGURE 2

- 4 - Remove heater fuse panel from the back side of the electric heat assembly. See FIGURE 3.
- 5 - Replace the primary limit switch on the electric heat / unit combinations shown in TABLE 2. See FIGURE 4.
- 6 - 6- Install electric heat assembly. See FIGURE 4. Secure assembly with sheet metal screws.
- 7 - Replace screw in blower deck engaging heat assembly flange.
- 8 - Locate J2 connector hanging in the electric heat control area. On ZC units, disconnect P2 jumper plug from J2. Connect P2 from the electric heat assembly to J2.

TABLE 2

| Electric Heat Assembly | Units |
|------------------------|---|
| Z1EH0050AN1P | ZCA036, 048, 060 ZCB036, 048, 060 ZHA036, 048, 060 ZHB036, 048 |
| Z1EH0050AN1J | |
| Z1EH0050AN1G | |
| Z1EH0075AN1Y | |
| Z1EH0150AN1P | |
| Z1EH0150AN1Y | |
| Z1EH0150AN1J | |
| Z1EH0225AN1P | |
| Z1EH0225AN1Y | |
| Z1EH0225AN1G | |
| Z1EH0225AN1J | |

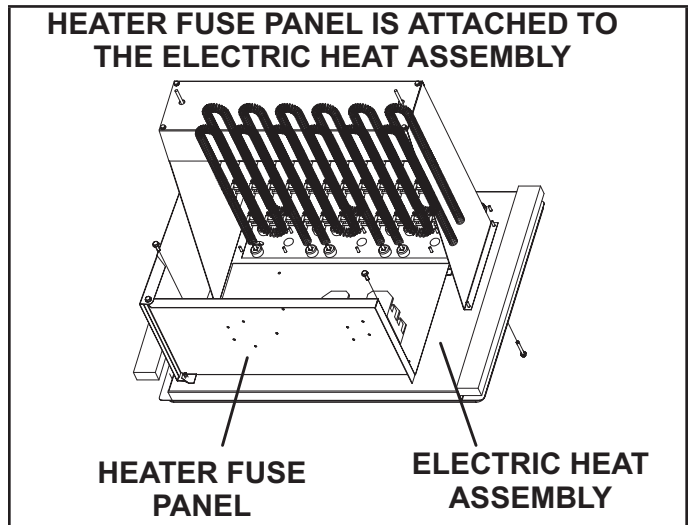


FIGURE 3

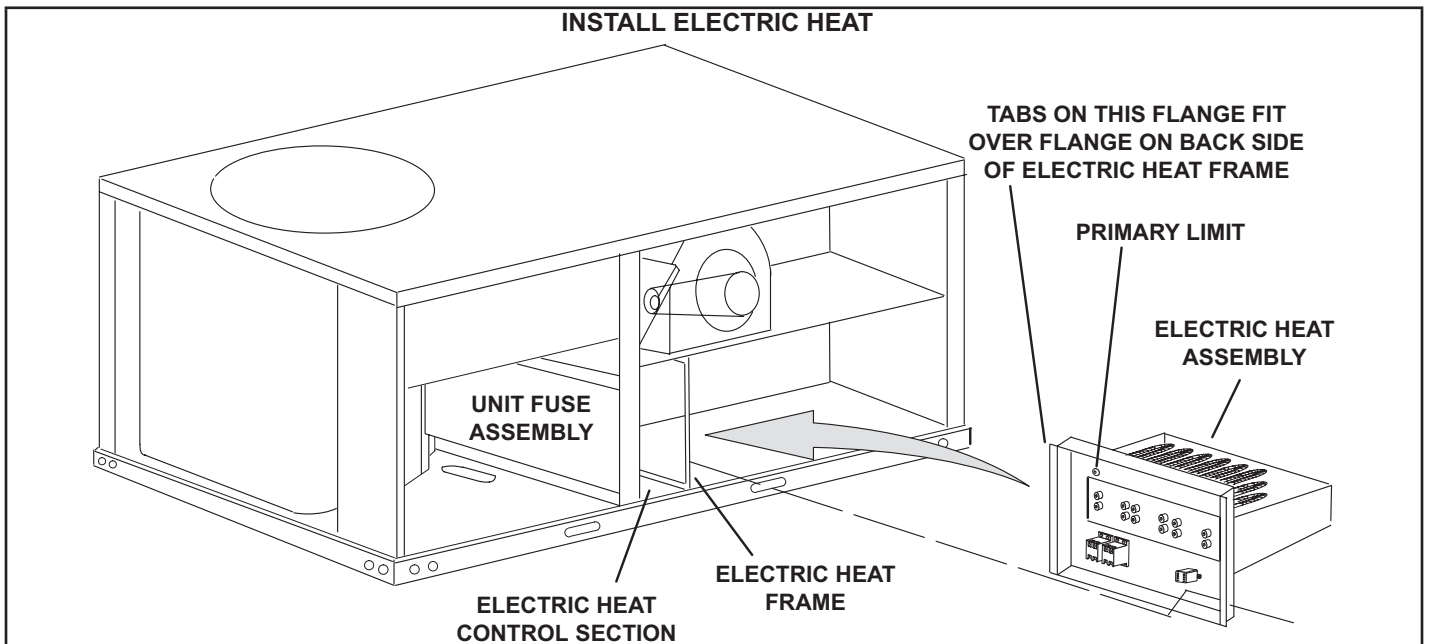


FIGURE 4

Install Heater Fuse Panel

- 1 - Set heater fuse panel near the heat control section opening. Make wiring connections as shown in FIGURE 5 or FIGURE 6.
- 2 - Install heater fuse panel as shown in FIGURE 7. From the outdoor air compartment, secure to the unit fuse assembly with sheet metal screws. Also refer to FIGURE 8.

Field Wiring Connections

Wiring must conform to local codes and the current NEC/CEC. Refer closely to FIGURE 5 or FIGURE 6, the wiring diagram on the unit and the following information: If heater is being installed in an existing unit, a change in power supply wiring may be required. Remove the original supply wires or disconnect at power source. Refer to heater nameplate for minimum circuit ampacity and maximum fuse size.

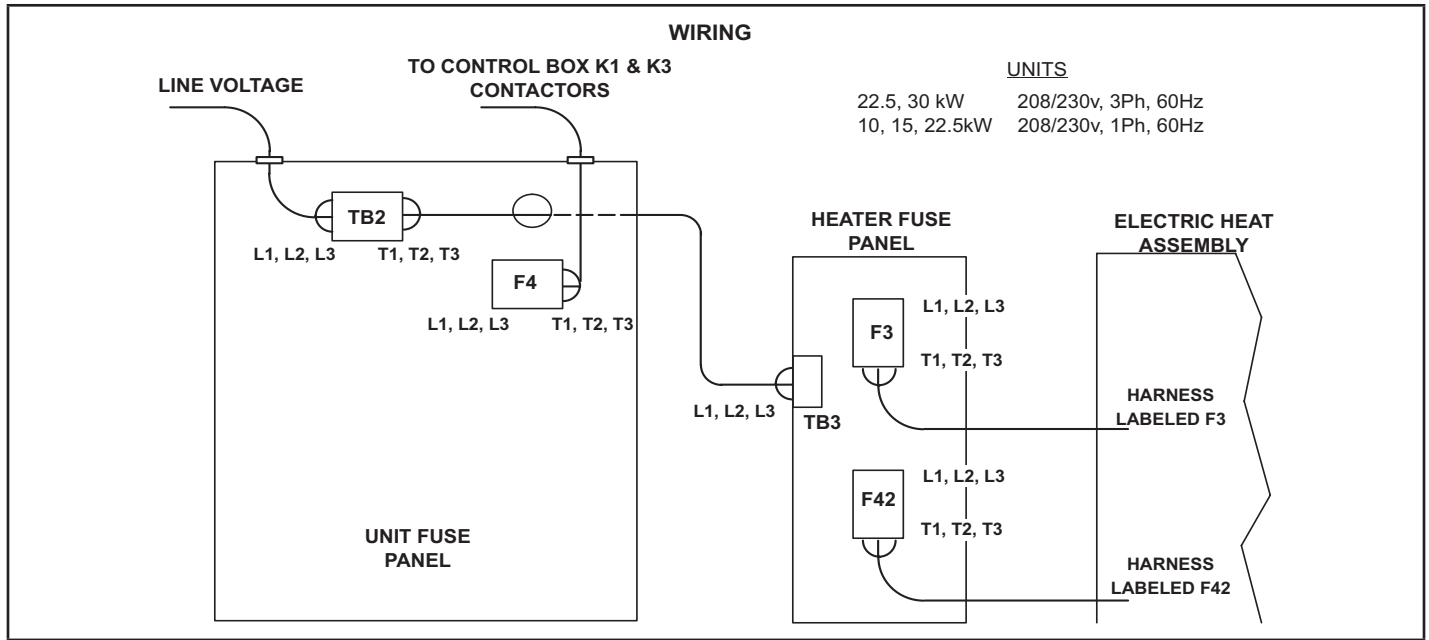


FIGURE 5

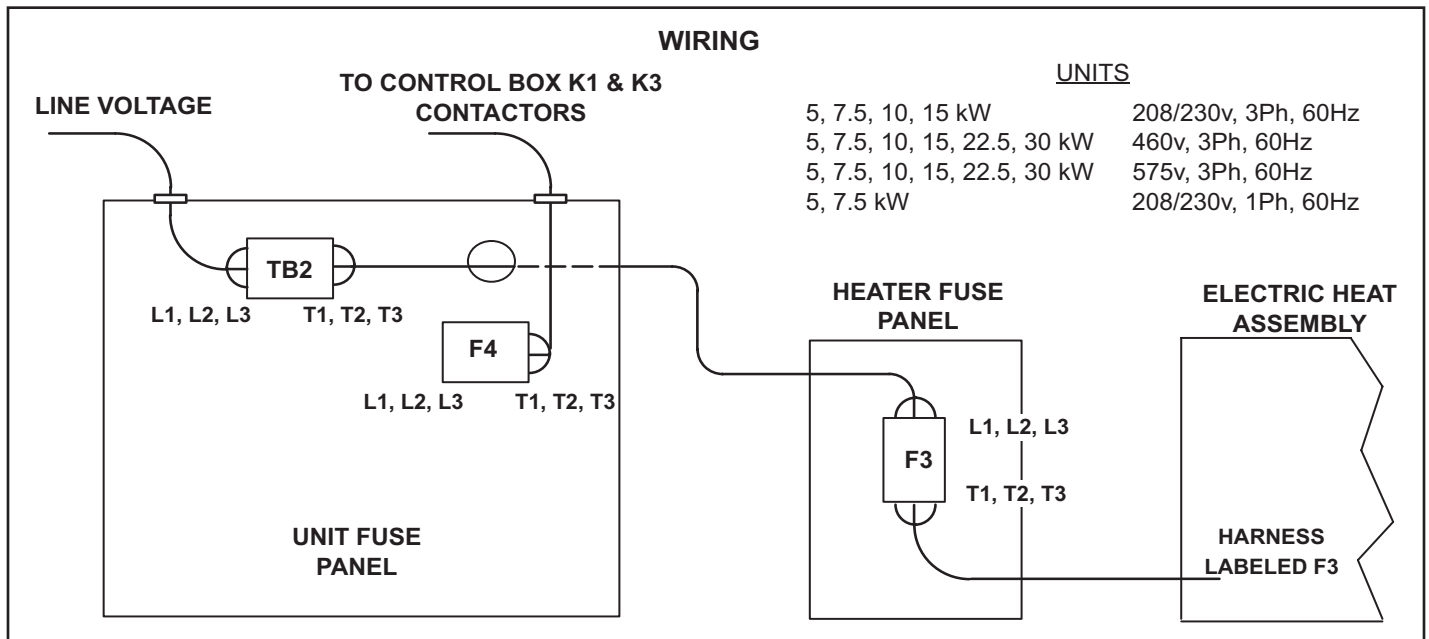


FIGURE 6

- 1 - When installing electric heat in an existing unit, disconnect power wiring to top of K1 contactor. Reconnect power wiring to the line side of the TB2 terminal block.
- 2 - Route power wires from electric heat assembly to control area. Connect wire to load side of TB2 terminal block. Refer to FIGURE 5 or FIGURE 6
- 3 - Locate the two harnesses provided in the kit. Install the longer harness between K1 contactor and F4 fuse block. Install the shorter harness between F4 fuse block and TB2 terminal block. Connect to the terminal marked on each wire.

Blower Speed Requirements

Electric heater applications require specific blower air volumes. Refer to blower tables in the unit installation instruction for start-up.

NOTE - Minimum air requirements are shown in TABLE 3 or TABLE 4. Do not set CFM lower than minimum CFM listed.

Unit Start-Up (Heating Cycle)

Set room thermostat for proper heat or auto operation if switching subbase is used. Apply power to unit and set heat setpoint above room temperature. Refer to unit installation instructions for additional information on start-up operations and adjustments.

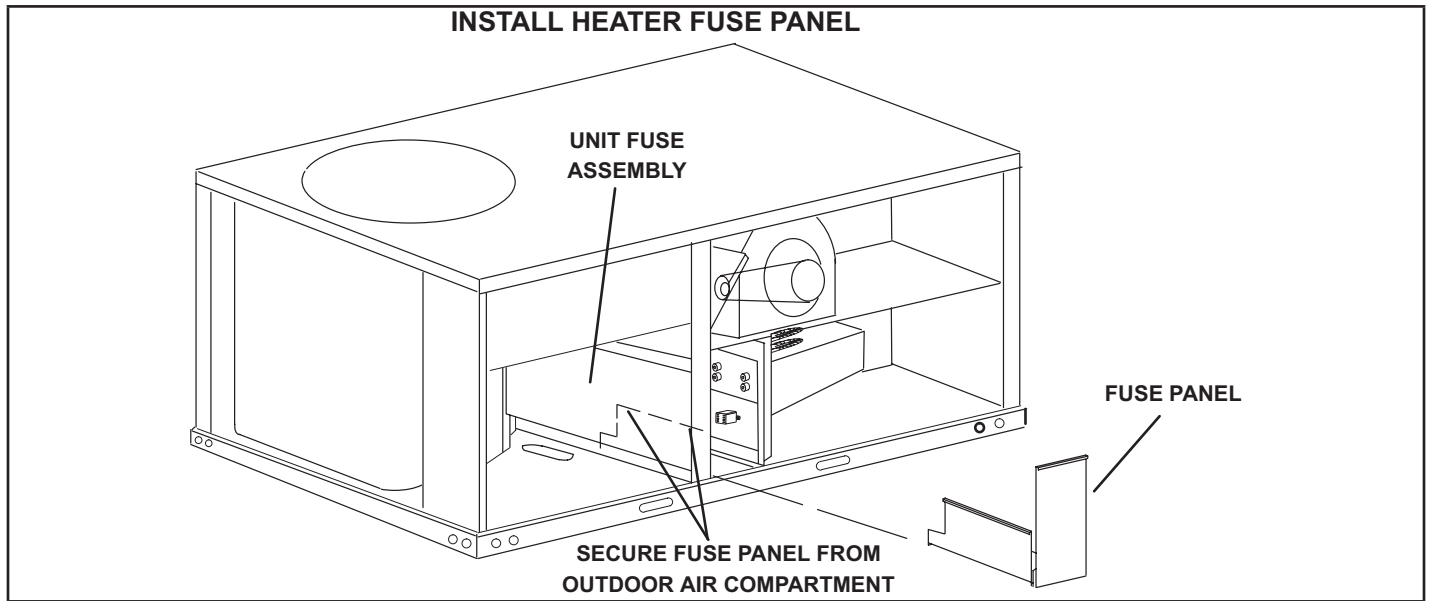


FIGURE 7

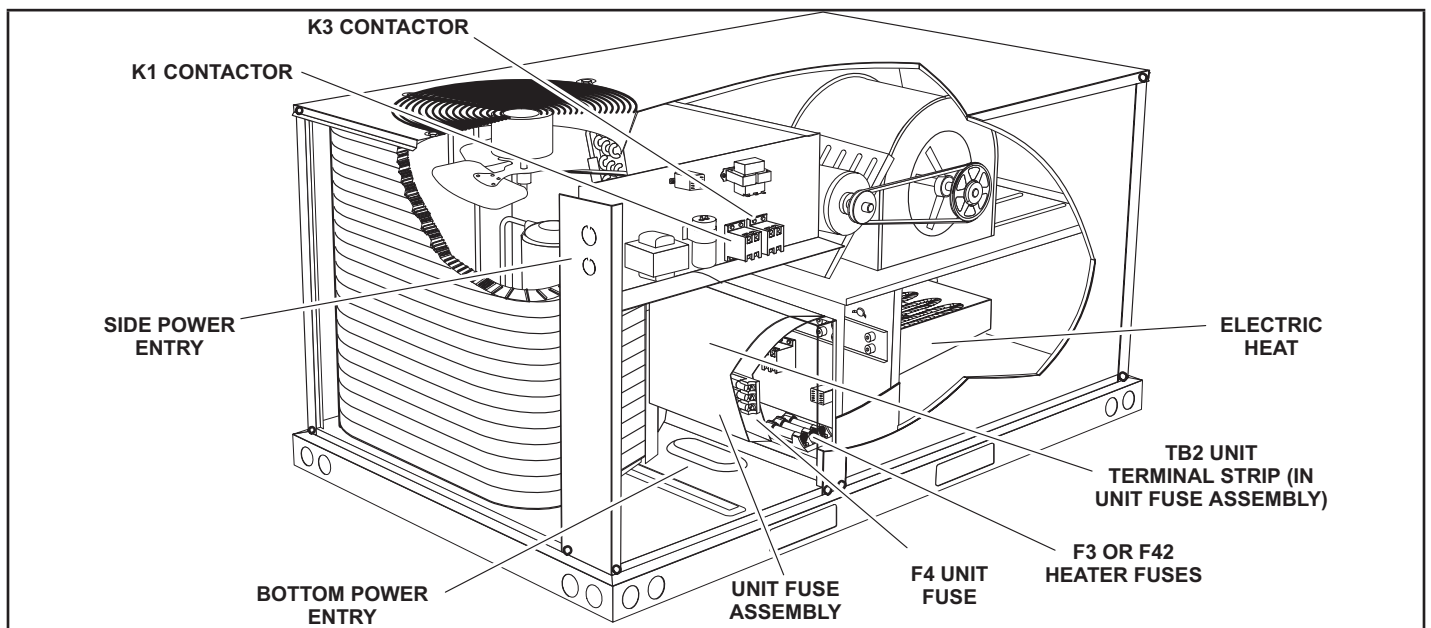


FIGURE 8

TABLE 3
MINIMUM AIRFLOW
ZC UNITS WITH ELECTRIC HEAT

| kW | CFM Downflow and Horizontal | |
|------|-----------------------------|------|
| | 036-060 | 074 |
| 5 | 960 | NA |
| 7.5 | 960 | 1500 |
| 10 | 960 | 1500 |
| 15 | 960 | 1500 |
| 22.5 | 1280 | 1500 |
| 30 | NA | 2100 |

TABLE 4
MINIMUM AIRFLOW
ZH UNITS WITH ELECTRIC HEAT

| kW | CFM Downflow and Horizontal | |
|------|-----------------------------|--------|
| | ZHA036-060 ZHB036-048 | ZHB060 |
| 5 | 960 | 1750 |
| 7.5 | 960 | 1750 |
| 10 | 960 | 1750 |
| 15 | 960 | 1750 |
| 22.5 | 960 | 1750 |

ZC OPTIONS / ACCESSORIES AIR RESISTANCE - in. w.g.

| Air Volume CFM | Wet Indoor Coil | | | | Gas Heat Exchanger | | Electric Heat | Economizer | |
|----------------|------------------|------------------|--------|-------------------|--------------------|------|---------------|------------|------------|
| | ZCA036 ZCA048 | ZCB036 ZCB048 | ZCA060 | ZCB060, ZCA074 | Medium | High | | Downflow | Horizontal |
| 900 | 0.01 | 0.01 | --- | --- | 0.05 | 0.06 | 0.05 | 0.03 | 0.04 |
| 1000 | 0.01 | 0.02 | --- | --- | 0.06 | 0.06 | 0.06 | 0.03 | 0.05 |
| 1100 | 0.02 | 0.02 | --- | --- | 0.06 | 0.07 | 0.08 | 0.04 | 0.05 |
| 1200 | 0.02 | 0.02 | --- | --- | 0.06 | 0.07 | 0.09 | 0.05 | 0.06 |
| 1300 | 0.02 | 0.03 | --- | --- | 0.07 | 0.07 | 0.12 | 0.05 | 0.07 |
| 1400 | 0.03 | 0.03 | --- | --- | 0.07 | 0.08 | 0.17 | 0.06 | 0.08 |
| 1500 | 0.03 | 0.04 | --- | --- | 0.07 | 0.08 | 0.22 | 0.07 | 0.08 |
| 1600 | 0.03 | 0.04 | 0.04 | 0.03 | 0.07 | 0.08 | 0.26 | 0.08 | 0.09 |
| 1700 | 0.04 | 0.05 | 0.05 | 0.03 | 0.07 | 0.08 | 0.30 | 0.09 | 0.10 |
| 1800 | 0.04 | 0.05 | 0.05 | 0.03 | 0.06 | 0.08 | 0.33 | 0.10 | 0.11 |
| 1900 | 0.04 | 0.06 | 0.06 | 0.04 | 0.06 | 0.08 | 0.33 | 0.11 | 0.12 |
| 2000 | 0.05 | 0.06 | 0.06 | 0.04 | 0.07 | 0.09 | 0.31 | 0.12 | 0.13 |
| 2100 | --- | --- | 0.07 | 0.05 | 0.08 | 0.10 | 0.27 | 0.13 | 0.14 |
| 2200 | --- | --- | 0.08 | 0.05 | 0.10 | 0.12 | 0.29 | 0.14 | 0.15 |
| 2300 | --- | --- | 0.08 | 0.05 | 0.11 | 0.14 | 0.31 | 0.15 | 0.16 |
| 2400 | --- | --- | 0.09 | 0.06 | 0.11 | 0.13 | 0.32 | 0.16 | 0.18 |
| 2500 | --- | --- | --- | 0.06 | 0.11 | 0.15 | 0.34 | 0.18 | 0.19 |
| 2600 | --- | --- | --- | 0.07 | 0.13 | 0.16 | 0.38 | 0.19 | 0.20 |
| 2700 | --- | --- | --- | 0.07 | 0.15 | 0.18 | 0.42 | 0.20 | 0.21 |
| 2800 | --- | --- | --- | 0.07 | 0.13 | 0.16 | 0.45 | 0.22 | 0.23 |
| 2900 | --- | --- | --- | 0.08 | 0.13 | 0.18 | 0.49 | 0.23 | 0.24 |

ZH OPTIONS / ACCESSORIES AIR RESISTANCE - in. w.g.

| Air Volume CFM | Wet Indoor Coil | | | Electric Heat | Economizer | |
|----------------------|-----------------|---------------|---------------|------------------|------------|------------|
| | ZHA036 ZHA048 | ZHA060 ZHB036 | ZHB048 ZHB060 | | Downflow | Horizontal |
| 900 | 0.01 | 0.01 | --- | 0.05 | 0.03 | 0.04 |
| 1000 | 0.02 | 0.01 | --- | 0.06 | 0.03 | 0.05 |
| 1100 | 0.02 | 0.02 | --- | 0.08 | 0.04 | 0.05 |
| 1200 | 0.02 | 0.02 | 0.01 | 0.09 | 0.05 | 0.06 |
| 1300 | 0.03 | 0.02 | 0.02 | 0.12 | 0.05 | 0.07 |
| 1400 | 0.03 | 0.03 | 0.02 | 0.17 | 0.06 | 0.08 |
| 1500 | 0.04 | 0.03 | 0.02 | 0.22 | 0.07 | 0.08 |
| 1600 | 0.04 | 0.03 | 0.03 | 0.26 | 0.08 | 0.09 |
| 1700 | 0.05 | 0.04 | 0.03 | 0.30 | 0.09 | 0.10 |
| 1800 | 0.05 | 0.04 | 0.03 | 0.33 | 0.10 | 0.11 |
| 1900 | 0.06 | 0.05 | 0.04 | 0.33 | 0.11 | 0.12 |
| 2000 | 0.06 | 0.05 | 0.04 | 0.31 | 0.12 | 0.13 |
| 2100 | --- | 0.06 | 0.05 | 0.27 | 0.13 | 0.14 |
| 2200 | --- | 0.06 | 0.05 | 0.29 | 0.14 | 0.15 |
| 2300 | --- | 0.07 | 0.05 | 0.31 | 0.15 | 0.16 |
| 2400 | --- | 0.07 | 0.06 | 0.32 | 0.16 | 0.18 |