

SECTION 23 5417

GAS-FIRED FURNACES

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To:
 - 1. Furnish and install multi-poise gas-fired condensing furnaces as described in Contract Documents.
- B. Related Sections:
 - 1. Section 23 0501: Common HVAC Requirements.
 - 2. Section 23 1123: Natural Gas Piping System.
 - 3. Section 23 2300: Refrigerant Piping System.
 - 4. Section 23 4100: Air Filters.

1.2 SYSTEM DESCRIPTION

- A. Performance Requirements: Rated at 90 percent minimum AFUE (Annual Fuel Utilization Efficiency) calculated in accordance with DOE test procedures.

1.3 SUBMITTALS

- A. Quality Assurance / Control: Equipment check-out sheets.

1.4 WARRANTY

- A. Provide 15-year minimum limited warranty on heat exchanger.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

- A. Furnaces:
 - 1. Factory assembled units certified by AGA complete with blower section, furnace section, steel casing, piped, and wired.
 - 2. Blower section shall consist of cabinet, blower, and motor.
 - a. Cabinet shall be of 22 ga minimum cold rolled steel and have finish coat of baked-on enamel.
 - b. Blower shall be Class 1, full DIDW, statically and dynamically balanced.
 - 3. Automatic controls shall consist of:
 - a. 100 percent cut-off safety pilot.
 - b. Manual gas shut-off valve.
 - c. Operating automatic gas valve.
 - d. Solid-state type fan and thermal limit controls.
 - e. 24-volt transformer.

- f. Electronic ignition system.
 - 4. Blower shall be driven by motor with adjustable pitch V-belt drive or by multi-speed direct driven motor.
 - 5. Furnace section shall be enclosed in 22 ga minimum enameled steel casing lined with foil covered insulation.
 - 6. Heat Exchanger: Aluminized steel.
 - 7. Gas Burners: Aluminized steel.
 - 8. PVC intake of outside air and PVC combustion product exhaust, with sealed combustion, direct vent system.
 - 9. Concentric roof termination kit for roof mounting.
 - 10. Category Four Approved Products. See Section 01 6000 for definitions of Categories.
 - a. Standard Furnaces:
 - 1) Carrier 58 MXB / Bryant 350 AAV.
 - 2) Lennox G51MP.
 - 3) Trane TUXC.
 - 4) York GY9S.
 - b. Two-Stage Furnaces:
 - 1) Carrier 58 MTB / Bryant 352 AAV.
 - 2) Lennox G61MP.
 - 3) Trane TUXR.
 - 4) York PT9S.
- B. Cooling Coil:
- 1. Cooling coil shall consist of heavy gauge steel cabinet with baked-on enamel finish to match furnace.
 - a. Coil shall have aluminum fins bonded to seamless copper tubing.
 - b. Coil shall be ARI rated. Provide drain pans with connections at one end.
 - c. Use thermal expansion valve with brazed joints in place of capillary tube metering device. Compression fittings not acceptable.
 - d. Do not include cooling coil and coil cabinet on furnaces serving zones where cooling is not required.
 - 2. Category Four Approved Products. See Section 01 6000 for definitions of Categories.
 - a. Horizontal:
 - 1) Carrier / Bryant CK3B.
 - 2) Lennox CH23 or CH33.
 - 3) Trane TXC.
 - 4) York G1HA, G2FD.
 - b. Vertical:
 - 1) Carrier / Bryant CK5A.
 - 2) Lennox C26.
 - 3) Trane TXC.
 - 4) York G1FA, G2FD.

2.2 ACCESSORIES

- A. Build filter frame external to furnace as detailed on Drawings.
- B. Vibration Isolators:
 - 1. Horizontal Installation:
 - a. Neoprene hanger type with load of 75 lbs maximum.
 - b. Category Four Approved Products. See Section 01 6000 for definitions of Categories.
 - 1) RH by Kinetics Noise Control.
 - 2) HD by Mason Industries
 - 3) RH by Vibration Mounting & Controls
 - 2. Vertical Installation: 4 inches square by 1/2 inch thick minimum neoprene type vibration isolation pads.

2.3 MANUFACTURERS

A. Contact Information:

1. Carrier Corp, Syracuse, NY or Carrier Canada Ltd/Ltee, Mississauga ON
www.commercial.carrier.com.
2. Kinetics Noise Control, Dublin, OH www.kineticsnoise.com.
3. Lennox Industries, Dallas, TX www.lennox.com or Lennox Industries (Canada) Ltd, Etobicoke, ON (416) 621-9302.
4. Mason Industries, Hauppauge, NY www.mason-ind.com.
5. Trane, La Crosse, WI www.trane.com.
6. Vibration Mounting & Controls, Bloomingdale, NJ www.vmc-kdc.com.
7. York International, York, PA www.york.com.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install vibration isolator on each hanger rod supporting horizontal furnace and under each corner of vertical furnace.

3.2 FIELD QUALITY CONTROL

A. Manufacturer's Field Service:

1. Furnace distributor's technical service representative shall:
 - a. Verify proper gas orifice size.
 - b. Clock gas meter for rated input.
 - c. Verify and set gas pressure at furnace.
 - d. Check and measure temperature rise.
 - e. Check safety controls for proper operation.
 - f. Check combustion vent sizes and combustion air sizes.
2. In addition, furnace distributor's technical service representative shall start up, check out, and adjust furnaces using equipment check-out sheet provided by Manufacturer. Complete and sign all items on sheet.

END OF SECTION