PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install vertical 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.
   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


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.
      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.
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 100 mm square by 1/2 inch 13 mm 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
3. Lennox Industries, Dallas, TX  www.lennox.com or Lennox Industries (Canada) Ltd, Etobicoke, ON  (416) 621-9302.

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