

## TWO STAGE FORCED AIR GAS FIRED FURNACE 95%+ with EC MOTOR – REPLACEMENT

### Equipment Requirements

- Furnish and install 2-stage, forced air gas furnace with EC motor as per manufacturer's installation instructions, state mechanical code and per the following specifications.
  - Furnace is to be sized with sufficient BTU output rating to maintain 70°F interior at –20°F exterior temperature as per Manual J.
- Minimum 20-year heat exchanger warranty on unit
- Remove and proper disposal of existing equipment.
- Install a new programmable thermostat.
- An ACCA approved Manual J is required with invoice.

### Venting

- Two pipe, sealed combustion fresh air intake system is required. Furnish and install intake and exhaust system per manufacture's specifications and per the following;
  - All PVC connections on the furnace must be cleaned with purple cleaner
  - Piping must be secured & suspended (not directly attached) to floor joists a minimum every 5'.
  - Intake terminates a minimum of 12" above the average snow accumulation or 12" above grade level, whichever is greater. Seal venting as they pass through the sill plate.
  - Test holes must be sealed with a stainless steel or PVC plug.
- Condensate drain line must be installed and terminated at a floor drain or plumbing drain. Condensate pump must be installed if line will create a trip hazard.

### Gas Line

- Furnish and install all new state approved, if copper L grade, gas supply as per state mechanical code.
- Determine gas supply by the length of run from the meter and avoid pressure drop inconsistent with the furnace burner design.
- Install a new manual in-line gas approved shut-off valve on the supply side of the union, a ground joint type union, and a gas drip tee leg.

**NOTE: If ward flex or Gastite gas line will remain, it must be bonded by a licensed Electrician as per manufacturer's instructions and per code.**

### Distribution System

- The new furnace must be placed on platform or blocks.
- Mechanically fasten furnace to the existing plenum and ducts in a professional manner.
- Add new supplies (or existing modified) if the system provides less than 2 sq. in. of unobstructed total area per 1,000 BTU approved appliance rating.
- Insulate existing heat runs through unheated spaces (crawl spaces, attics, etc.).
- Return air sized to provide a minimum of 2 sq. in. unobstructed total area per 1,000 BTU approved appliance rating and balanced to the CFM output of the furnace fan.
- Negative air pressure in basement or furnace rooms is unacceptable.
- An easily accessible air filter rack with cover installed in the main return air plenum.
- A new pleated filter of the highest MERV rating that can be installed without being overly restrictive is required as part of this installation.

### Electrical

- Wiring of the furnace by a licensed electrician to be included as part of this contract.
- Service supply must be on a separate circuit that is controlled and identified at the service panel.

### Homeowner info/Education

- Leave owner's manual(s), all warranties, and instructions on equipment operation.
- Prominently display the contractor's contact information on new unit.
- Educate household on proper operation and maintenance of system.
  - filter replacement; MERV rating, size, frequency
  - proper use and programming of thermostat.

Work shall be performed in accordance with the Standard Work Specifications developed by the National Renewable Energy Laboratory for the Weatherization Assistance Program along with state, local and municipal codes. These standards can be referenced at <https://sws.nrel.gov/>.