



City of

**Apple  
Valley**

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## **FURNACE REPLACEMENT INSPECTION**

- **Permits and/or permit number should be available.**
- **Heating equipment**
  - Listed and installed per manufacturer – provide instructions.
  - Check clearances to furnace
    - 30" in front and 1" to sides and back minimum (installation instructions).
    - 6" to combustibles for single wall vent.
    - 1" to combustibles Class B vent.
    - PVC/ABS must be installed per manufacturers specifications. Support every 4' max.
- **Ducts**
  - Check for vibration isolation between duct and furnace on supply and return.
  - Check overall tightness of joints for air leakage.
- **Venting**
  - Check vent connector rise and length to vent. (1/4" per foot minimum rise 6 feet maximum).
  - Furnace needs to be vented per manufacturers installation instructions (read installation instructions for direct and power vented furnaces).
  - Must have tested and approved roof cap installed on top of flue.
  - Must have 3 screws per joint on single wall vent.

### **Combustion Air Supply**

- Combustion air source may be installed in the return duct with an undampered opening into the mechanical room only if furnace listed for that application.
- Combustion air must be in the same room as the furnace and water heater.
- Combustion air duct sized at least the same size as the flue and insulated.
- Make sure openings are not blocked or restricted. Minimum 12 above grade level.
- Verify that inlet openings are properly screened. ¼" mesh.
- Verify that combustion air duct is insulated.
- Verify location of inlet on exterior to exterior exhaust vents (3 feet). If the combustion air is in the return, then the separation becomes 10 feet.

### **Gas Piping**

- Copper tubing, galvanized or black steel with threaded fittings, welded pipe or corrugated stainless steel (CSST).
- CSST gas pipe to be bonded per instructions.
- Branch lines not connected to appliances must be plugged.
- Check gas lines are not bent, strained, or kinked.
- Joints need to be brazed, not soldered or flare fittings. Must use couplings for reducers.
- Strap all gas lines every 6' with copper straps (4 feet for ½ inch tubing).
- Shutoffs for appliances outside of appliance and within 6 feet in same room.
- Must have "T" on gas line.
- Must have shut-off and union on furnace gas supply.

### **Informational handout for furnace replacement**

A mechanical permit is required for the replacement of a furnace. The following items must be complete before the work can be inspected.

1. The furnace performance test shall be completed and a tag filled out and attached on the gas line near the furnace.
2. Appliance venting shall comply with Section 503 of the 2015 Minnesota Fuel Gas Code.
3. The common vent shall terminate in a listed cap above the roof.
4. The entire common vent shall be double-wall (B-vent) material. The common vent begins at the point where the water heater and furnace vents are combined.
5. All horizontal vent connectors require a minimum upward pitch of  $\frac{1}{4}$  inch per foot.
6. Combustion air may be required based on MN Fuel Gas Code requirements and room size. The combustion air intake assembly shall be located a minimum of twelve inches (12") above grade (measured to the bottom of the opening) on the outside and shall be caulked on the top and sides. The combustion air duct shall terminate a maximum of twelve inches (12") above the floor on the inside. Other combustion air options are available. See the manufacturer's specifications.
7. Maintain a one inch (1") clearance between combustibles and B-vent material and a six inch (6") clearance between combustibles and single-wall vent material.
8. Direct vent appliances shall be installed per Manufacturer's installation instructions. The installation manual is required to be on site at the time of inspection.
9. A separate electrical permit is required.

## **INSTALLING HEAT IN A GARAGE OR SHED**

**PERMITS**-If you are adding a furnace or heating appliance, you need to obtain a mechanical permit. All appliances shall be listed and tested by a third party agency and installed per manufacturer's installation instructions.

If adding insulation in walls or ceiling, you will need to obtain a building permit in addition to the mechanical permit.

An electrical permit can be obtained on line. Electrical inspections are scheduled by contacting Mike Hawke, electrical inspector, at 952-997-6822, Monday through Friday, between 7:00 and 8:30 am.

**INSULATION**-Garages and sheds are exempt from the requirements of the energy code. The building code requires that a vapor barrier be installed on the warm side of fiberglass insulation. Vapor barriers shall be covered or shall be of flame retardant materials.

**ATTIC VENTILATION**-Roof vents and exterior soffit vents are required to ventilate the attic space. If the ceiling is insulated, air chutes are required between the rafters at the exterior walls to provide an air space between the ceiling insulation and the roof plywood.

**ATTIC ACCESS**-A 22 by 30 attic access shall be provided if the attic area is 30 square feet or more and has a vertical height of 30 inches or more.

**MECHANICAL**-If the walls and ceiling are insulated, proper combustion air shall be provided for all fuel burning appliances.

The flue pipe shall have the proper clearance to combustibles for the entire length. A metal sleeve shall be provided where the vent passes through attic or wall insulation. The sleeve shall provide a one inch clearance from the insulation to the flue pipe.

An approved (UL listed) cap is required on the vent termination.

**GAS LINES**-All gas lines shall be tested with air pressure. The test shall be a minimum of 25 psi for 30 minutes and the city inspector shall witness the test.

**INSPECTIONS**-Attic ventilation, attic access, ductwork, venting and gas lines must be inspected before covering. Call the Inspections Department at 952-953-2588 to arrange inspections.

**This handout is for information only and is not intended to be a complete list of requirements.**