



WHAT YOU NEED WITH YOU

- ▶ Quick Permit Application.
- ▶ The permit fee of \$70.
- ▶ If you are using a contractor, you will need a letter of intent from the contractor and a copy of both 055 and 058 state licenses. The plumber performing the work must be on site for the inspection and have their 058 license on hand.

WHAT YOU SHOULD KNOW

- ▶ No work can begin prior to a permit being issued.
- ▶ The water heater must be able to provide water at a temperature of 110 degrees Fahrenheit to every fixture requiring hot water.
- ▶ Unless combustion air is brought directly to the water heater from outside of the room, water heaters cannot be installed in any room normally kept closed when in use, such as a bedroom or bathroom.
- ▶ A final inspection is required upon completion of the work. Contact the City of Elgin to schedule the inspection.

REQUIREMENTS

1. **General:**

- a) Installation should comply with the most current Illinois Plumbing code, department standards, and local amendments.
- b) Locations like bedrooms and bathrooms are typically prohibited because of the need for dedicated combustion air and also because pilots and standing flames are adversely affected by exhaust fans and negative pressure.
- c) 30" x 30" clearance in front of the controls is required for service, repair, replacement, and inspection.
- d) Elevated and Bottom feed water heaters must have a vacuum relief valve (VRV) installed between the water heater and the shut off valve.
- e) A water heater in an unconfined space uses indoor air for combustion and requires at least 50 cubic feet for each 1,000 BTUH of the total input for all gas appliances. The table below shows a few examples of the minimum square footage (area) required for various BTUH inputs.



BTUH Input	Min. Sq. Ft. With 8' Ceiling	Typical Room with 8' Ceiling
30,000	188	9 x 21
45,000	281	14 x 20
60,000	375	15 x 25
75,000	469	15 x 31
90,000	563	20 x 28
105,000	657	20 x 33
120,000	750	25 x 33
135,000	844	28 x 30

2. Venting:

- a) Appliances in closets, alcoves, and small rooms must be ventilated. Two vents (1-hi & 1-low) minimum 100 square inches each is the minimum allowed. Louvered doors are also an option and an easy way to supply sufficient combustion air.
- b) Gas appliance venting:
 - a) Single wall vent clearance to combustibles: 6".
 - b) Double wall vent clearance to combustibles: 2".
 - c) Minimum pitch/slope for both types of vent piping: 1/4" per foot.
- c) Water heater must be properly vented to an approved chimney or venting system
- d) Exhaust vent must be separated from combustibles.
- e) Vent and chimney connectors must be made of approved materials. Joints must be sealed with screws, rivets, or other approved materials.
- f) There must be an approved draft hood.
- g) The vent and chimney connectors must pitch upward from the water heater to the chimney, and the penetration at the chimney should be sealed to prevent leakage into the building's interior.

3. Gas Supply:

- a) Electrical bonding: a number 6 bonding jumper is required between gas pipe and both hot and cold water lines.
- b) Gas Pipe, fittings, and connectors must be schedule 80 black steel and flex connectors are prohibited.
- c) An approved gas shut-off valve shall be located within 6 feet of the appliance.
- d) The gas supply line must be made of approved material and properly connected.
- e) The gas supply shut-off valve must be accessible and properly installed.
- f) Posts or precast concrete posts are acceptable foundations if they are placed at least 24 inches into the ground and firmly tamped with dirt or gravel. Concrete must not be used to secure the posts. All wood in contact with the ground must be pressure treated in accordance with AWPA or be decay-resistant heartwood of redwood, black locust, or cedars.



4. **Electric Water Heaters: NEC:**

- a) Must have an EGD (equipment grounding conductor) and a compliant disconnect.

5. **Water Connections:**

- a) Safety pans are strongly recommended to prevent flood damage.
- b) Piping must be type M or L copper, flexible connectors are prohibited.
- c) Brass union adapters or dielectric unions are required.
- d) Each water heater must have a separate, lead free, full port ball valve on the cold supply line within 5 feet.
- e) Piercing valves and saddle clamps for humidifiers etc are not approved vales and are prohibited.

6. **Safety Controls:**

- a) T&P discharge pipe: no threads, reducers, or couplings are allowed on the bottom relief discharge piping. Safety valve piping shall be metallic/water rated material. Floor drain shall be located in the same room as the water heater. A properly sized expansion tank is required on closed water systems and water heaters with 75,000 BTUH or higher input.
- b) Are the safety controls in good condition with no evidence of tampering?
- c) Is the thermostat in good condition?
- d) Does the water heater have a temperature/pressure relief valve to relieve excessive pressure and prevent explosions? Does the water heater have a tag indicating 210 degrees Fahrenheit and a maximum of 150 PSI.
- e) Is the temperature/pressure relief valve located within 6 inches of the top of the tank? s the temperature/pressure relief valve in good condition and free from leaks and corrosion?
- f) Is the relief valve discharge pipe made of rigid, metal piping; the same diameter as the relief valve outlet (no threads); and within 6 inches of the floor?
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- h) Is the relief valve discharge pipe made of rigid, metal piping; the same diameter as the relief valve outlet (no threads); and within 6 inches of the floor?



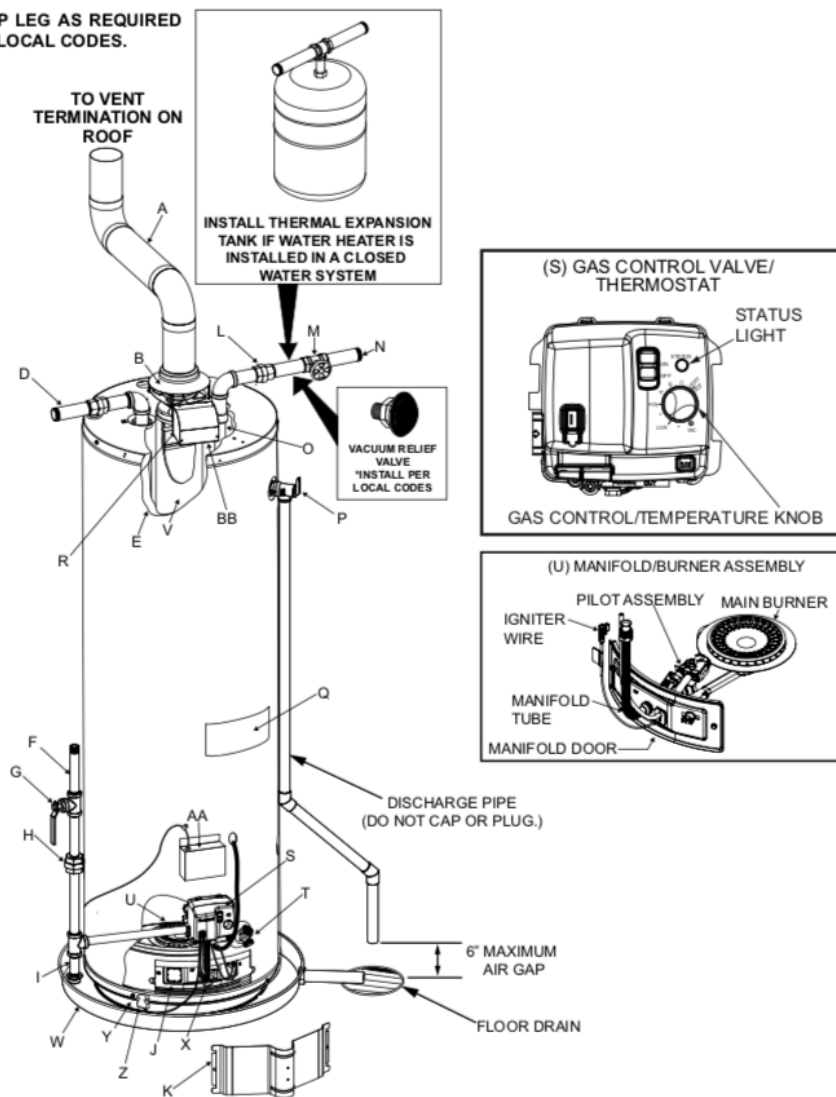
- A Vent Pipe
- B Draft Hood
- C Anode (Not Shown)
- D Hot Water Outlet
- E Insulation
- F Gas Supply Piping
- G Manual Gas Shut-off Valve
- H Ground Joint Union
- I Drip Leg (Sediment Trap)

- J Inner Door
- K Outer Door
- L Union
- M Inlet Water Shut-off Valve
- N Cold Water Inlet
- O Inlet Dip Tube
- P Temperature-Pressure Relief Valve
- Q Rating Plate
- R Flue Baffle

- S Gas Control Valve/Thermostat
- T Drain Valve
- U Pilot and Main Burner
- V Flue
- W Metal Drain Pan
- X Igniter Wire
- Y Base-Ring Filter
- Z FV Sensor
- AA Transformer
- BB Flue Damper

* INSTALL IN ACCORDANCE WITH LOCAL CODES.

* DRIP LEG AS REQUIRED BY LOCAL CODES.



* ALL PIPING MATERIALS TO BE SUPPLIED BY CUSTOMERS.

NOTE: POWER CORD NOT SHOWN FOR CLARITY