



Water heater efficiency and tips to avoid failures

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For many years, residential water heaters were mainly stand-alone, tank-type. They used either electricity or natural gas for the energy source. The average home typically had a 40-gallon tank of hot water always available for showers, baths, and dishwashing. Gas-fired water heaters were vented into a masonry chimney, along with the gas-fired furnace.

Although this is still a common installation for many new and older homes, there are many other equipment options available today. Most of the new designs for water heaters were driven by the desire for better efficiency and to reduce operating costs. New homes can be designed with a higher efficiency water heater system at the time of construction. Older homes can consider changing lower efficiency systems to higher efficiency systems when it's time to replace the old, existing tank water heaters.

Many homeowners have converted from older tank-type to high-efficiency, on-demand water heaters. These units do not have a storage tank. They heat the cold water instantly, when needed, as it flows through the heater. State or utility rebate programs commonly offer financial incentives to upgrade to high-efficiency water heaters at the time of replacement. The incentives can offset the increased cost to switch from the low-efficiency unit to the high-efficiency system.

With many homeowners converting from tank-type to on-demand water heaters, it is important to compare the maintenance requirements for each type of system to make sure you are still doing all you can to prevent a premature failure of your equipment.

Common maintenance requirements for tank-type water heaters*

- Inspect the venting system (gas) for obstructions, damage, or deterioration annually
- Inspect the hot and cold water connection pipes for signs of corrosion annually
- Inspect the burner and pilot assembly (gas) for sooting and proper flame annually
- Vacuum the dust, dirt, and lint from the area around the base of the tank as necessary
- Inspect the anode rod every three years and replace if necessary
- Operate the temperature-pressure relief valve annually
- Drain and flush the tank of sediment every six months

Common maintenance requirements for on-demand water heaters*

- Inspect the venting system (gas) for obstructions, damage, or deterioration annually
- Inspect the hot and cold water connection pipes for signs of corrosion annually
- Inspect the burner and pilot assembly (gas) for sooting and proper flame annually
- Remove dirt and lint from the area around the main burner, heat exchanger, and fan blades annually
- Clean the inlet water filter as needed
- Operate the temperature-pressure relief valve annually
- Flush the heat exchanger of lime and scale using a circulating pump and vinegar solution for one hour based on trouble-code readouts

The high-efficiency, on-demand water heaters will provide increased efficiency and reduced operating costs because there is no tank heat loss during times when hot water is not needed. These systems are more complex and more expensive to repair than a tank-type water heater. It is critical to keep inlet filters clean and to control the lime and scale buildup in the heat exchanger for satisfactory water temperature, flow, and overall system performance.

**Be sure to check the Installation and Operation Manual that was supplied with your water heater for the actual manufacturer's maintenance requirements.*

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