# Electric Water Heater Problems

The [water heater](https://www.thespruce.com/best-water-heaters-4172821) found in most homes will use either [natural gas](https://www.thespruce.com/anatomy-of-a-gas-water-heater-1824894) (or sometimes propane) or [electricity to heat the water](https://www.thespruce.com/safely-replace-electric-water-heaters-1152637). Some of the typical problems that occur are common to both types, but other issues are unique to electric water heaters.

How Electric Water Heaters Work

Electric water heaters use either [120- or 240-volt power](https://www.thespruce.com/installing-a-240-volt-circuit-breaker-1824649) (240 volts is more common) to energize metal heating elements that protrude into the water heater tank through the side wall. Most water heaters have two heating elements—one near the top of the tank, another located further down. Electricity heats the metal loops on the elements, which then heats the surrounding water. Depending on the size of the water heater and the recovery time, the wattage of these heating elements may differ from one water heater to the next.

What Can Go Wrong?

A brand new water heater will work flawlessly for many years, but after time there are common problems that may arise.

* Sediment: Over time, a layer of sediment from water can form on the bottom half of the tank, and eventually, this may cover the [lower heating element](https://www.thespruce.com/tandp-relief-valve-hot-water-heater-1825057). This can dramatically decrease the efficiency of the water heater, as the sediment effectively blankets the lower heating element and prevents it from transmitting its heat to the water. At this stage, it is probably time to [replace the water heater](https://www.thespruce.com/replacing-a-water-heater-1824920). Although regular flushing of the tank may prevent sediment from getting established in the first place, by the time the lower heating element is covered, it is too late. At this point, there are few options other than replacing the water heater.
* Heating elements may also burn out: The most obvious symptom of this problem is if you suddenly notice that the normally hot water coming out of taps has become only warm. When this happens, it's likely that the top [heating element](https://www.thespruce.com/replace-the-heating-element-water-heater-1824886) is defective. A failed lower element exhibits a slightly different symptom: the water coming from the tap starts out quite hot, but then quickly becomes cold. Replacing a heating element is a fairly easy job, well within reach of most DIYers.
* Thermostat: The thermostat is the device mounted on the front of the heater that allows you to adjust the temperature of the water delivered to the faucets. On electric water heaters, it is usually located under the access panel on the side of the heater, or it may be located on the front. The cure for a hot water problem may be as simple as turning the temperature setting up. Also, check the reset button on the thermostat—the red button located at the top of the thermostat. Sometimes merely resetting this bottom will cause the heater to begin working again. A thermostat problem is fairly unusual, though—it's much more likely that a burned-out heating element is causing problems.

DIY Advice

As with any [electrical project](https://www.thespruce.com/common-electrical-mistakes-homeowners-make-1152376) you attempt to do yourself, always turn the power off to the circuit before you begin work on a water heater, and observe all other rules for electrical safety.

When replacing heating elements, make sure to match the voltage and wattage rating listed on the element’s nameplate rating. Never replace a 120-volt element with a 240-volt element, for example. If you are not sure what the wattage is, take the old heating element to your nearest plumbing store and ask them for a suitable replacement.

If you do have to replace either the thermostat or the heating elements, be sure to draw a diagram of the way the wires are connected as you remove the old ones, or label each wire as you disconnect it. Always disconnect the power and then [drain the water from the tank](https://www.thespruce.com/how-to-drain-a-water-heater-2719055) before attempting to remove the heating elements. There is usually a drain located at the bottom of the tan below the bottom element for this purpose.

* Tip: Rather than trying to identify which heating element has gone bad, many experts simply [replace them both](https://www.thespruce.com/maintain-a-water-heater-1824893). This will ensure that you won't face another replacement job in the near future.

After replacing the heating elements, simply fill the tank again and open the faucets to release the air that is now in the tank. After the tank is full again and the water is flowing at full strength from the faucets, turn off the faucets and turn on the power to the water heater.