



## Tap Water Scalds

The water temperature recorded during  
 the home inspection was:  
 \_\_\_\_\_ °F

- Scalds are the number-one cause of burn injury to children under age 4.
- Burn accidents frequently occur when parents or caregivers are in a hurry, angry, or under a lot of pressure.
- Coffee, tea, soup and hot tap water can be hot enough to cause serious burn injury.
- When tap water reaches 140° F, it can cause a third degree (full thickness) burn in just five seconds.
- Hot tap water accounts for 17% of all childhood scald hospitalizations.

The majority of injuries and deaths involving tap water scalds are to the elderly and children under the age of five. The U.S. Consumer Product Safety Commission (CPSC) urges all users to lower their water heaters to 120 degrees Fahrenheit. In addition to preventing accidents, this decrease in temperature will conserve energy and save money. Various procedures for lowering water temperature in the home exist, depending on the method of heating. Here are some suggestions:

**Electric water heaters.** Call your local electric company to adjust the thermostat. Some companies offer this service at no-charge. Hot water should not be used for at least two hours prior to setting. To make the adjustment yourself, start by shutting off current to the water heater, then turn off the circuit breaker to the heater or remove the fuse that serves the heater. Most electric water heaters have two thermostats, both of which must be set to a common temperature for proper operation. To reach these thermostats you must remove the upper and lower access panels. Adjust the thermostat following the instructions

provided with the appliance. Hold a candy or meat thermometer under the faucet to check water temperature.

**Gas water heaters.** Because thermostats differ, call your local gas company for instructions. Where precise temperatures are not given, hold a candy or meat thermometer under faucet for most accurate reading first thing in the morning or at least two hours after water use. If reading is too high, adjust thermostat on heater, according to manufacturer’s instructions, and check again with thermometer.

**Furnace heater.** If you do not have an electric, gas, or oil-fired water heater, you probably have an on-line hot water system. Contact your fuel supplier to have the temperature lowered. If you live in an apartment, contact the building manager to discuss possible options for lowering your tap water temperature. Reducing water temperature will not affect the heating capacity of the furnace.

### It Doesn’t Take Long

The chart below gives burn times for different water temperatures. These times are for normal adults; the burn times for infants, children, or the elderly, are far shorter! Those with skin-related health issues may also be at greater risk for scalding injury. Never put another person in water until you have tested the temperature yourself; you can’t tell how hot it is by looking at it!

Water Temperature	2nd Degree burns	3rd Degree burns (permanent damage)
120	2 hours	3 hours
130	17 seconds	30 seconds
140	3 seconds	5 seconds
149	1 second	2 seconds
<b>154</b>	<b>Instantaneous</b>	<b>1 second</b>

## Health-Related Concerns

While 120 degrees is safe for skin contact, it is not high enough to kill bacteria in the water. Although municipal water is treated with chlorine, the concentration is not high enough once the water reaches the house to completely control any contamination that may be present in the domestic supply lines. There is a growing concern that water held in domestic water heaters can harbor dangerous bacteria, including *Legionella pneumophila*, the organism responsible for Legionnaire's Disease. To kill bacteria, water needs to be at least 140 degrees.



*One example of a mixing valve. The gray knob allows for fine-tuning the temperature of the hot water sent through the domestic supply pipes.*

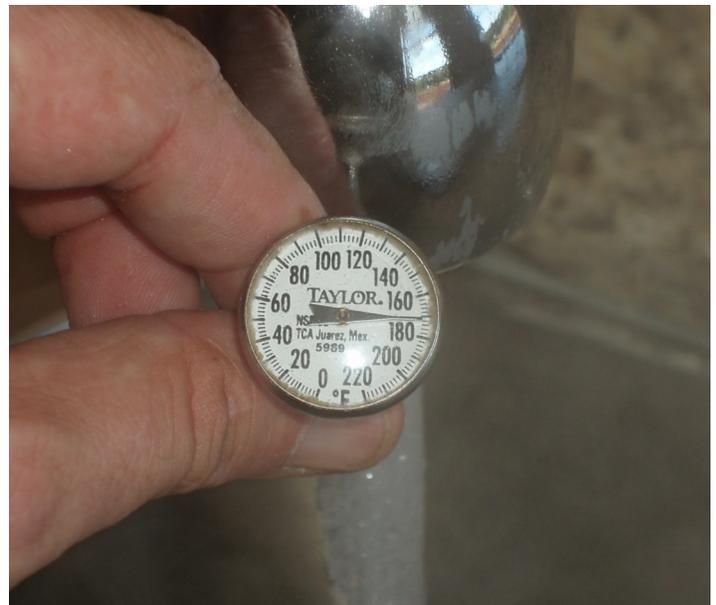
Ideally, you should have both very hot water in the tank to kill the bacteria, but make sure water at all the taps is below 120 degrees. There is a simple way to make sure all the water in the house is at a safe temperature by installing an automatic thermostatic mixing valve at the point where the hot water exits the heating tank, before it has a chance to enter the domestic supply pipes.

Mixing valves do create a slight reduction in the water pressure, so if the house already has low pressure, this type of system may not work well. It also requires the installation of an expansion tank if there is not already one present.

## Don't Rely on the Water Heater's Control Knob!

Just because a water heater is set at 120 degrees doesn't mean that's the maximum temperature of water leaving the tank. In cases where there are several short draws of hot water right after another (like a few short showers and then doing a few dishes), cold water enters the bottom of the tank and triggers the heating elements, and any heated water at the top of the tank will be overheated. This is called thermal layering, and it can cause scalding or accidents if someone using a shower suddenly experiences a burst of overheated water.

An automatic mixing valve helps prevent these sudden surges of overheated water and thereby protects all the occupants.



*The hottest water we've tested so far: 171 degrees.*

## Test your water temperature regularly

Every few months, test the hot water at faucets with an instant-read thermometer. It should always read below 120 degrees for safety. These thermometers are inexpensive and can save the occupants from painful and disfiguring burns.