

Canadian Families at Risk from Lowered Water Heater Temperatures

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Canadians who turn down the temperature of their hot water heater to reduce energy costs, may be exposing themselves and their families to dangerous bacterial contamination. This resetting, like all changes related to energy consumption patterns, should be examined for unfavourable repercussions before exposing your family to potential health hazards.

Hot water heater temperatures under 50° C may increase the risk of Legionnaires' disease, a form of pneumonia caused by Legionella <<http://www.legionella.org>> bacteria which live in water. Temperature is a critical factor for Legionella growth. The risk of colonization in hot water tanks is significant between 40° C and 50° C.

Although Canada compiles no national statistics for Legionnaire's, Hydro-Québec reports about 100 people a year are hospitalized in that province for pneumonia caused by contaminated residential water heaters.

In most Canadian homes, hot water heaters are set at 60° C (140° F), a setting that has long been an acceptable standard. However, tap water of 60° C can cause agonizing third-degree burns, the most serious scalds since they damage all layers of the skin. What is really frightening is how quickly this can occur:

- * In most adults, third-degree burns can take place in six seconds.
- * The elderly and those with disabilities are more susceptible to severe scalds, particularly if restricted movement hampers their ability to withdraw from the hot water. An elderly person may die in the aftermath of a extreme scalding.
- * Young children can suffer serious hot water burns to their delicate skin in as little as one second and then require years of painful skin graft surgery.

Injury prevention advocates have lobbied to have settings on domestic hot water tanks reduced to 49° C from the accepted 60° C standard. A few jurisdictions outside Canada mandate the 49 ° C setting, and have seen a decrease in scalding injuries.

Canada's top experts, represented on the Canadian Commission on Building and Fire Codes <http://www.nationalcodes.ca/ccbfc/index_e.shtml> (CCBFC), have rejected the lower maximum hot water tank temperature of 49° C, believing bacterial contamination is a greater hazard to public health. The Canada Safety Council <<http://www.safety-council.org>> is concerned because "trusted organizations are telling homeowners to lower their hot water tank temperature to 49° C as a precaution against scalds from tap water. Some even offer tips on

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how to find the thermostat so you can adjust it yourself."

The best compromise to prevent contamination and to reduce scalding? Water must be stored at 60° C or higher, but it can be delivered from the tap at a lower temperature to prevent scalds. At fixture outlets in residential occupancies, the maximum hot water temperature should be 49° C, with the exception of installed dishwashers or clothes washers. Automatic compensating mixing valves at each fixture, or a master mixing valve, could be installed to meet the objective. The change, which would only apply to new construction, was to appear in both the National Plumbing Code (NPC) and the National Building Code (NBC) in 2005.

In June 2005, the Canadian Commission on Building and Fire Codes Standing Committee supported the recommendation of a task group to provide 49° C tap water to showers, baths and lavatories to reduce the risk of scalding. At the same time, the Standing Committee insisted hot water tank temperatures be maintained at 60° C to remove the risk of bacteria contamination, particularly by Legionella.

Always take precautions and exercise care around hot water:

- * Reduce the temperature of water as it comes out of a tap by turning the cold water on first, then adding hot water until the temperature is comfortable -- and teach children to do the same.
- * Tap water anti-scald devices can be installed at individual taps to slow the water to a trickle if it gets too hot.
- * Always test the water temperature before stepping into a bath or shower, and before putting your child in water.

For those who feel compelled to turn down the temperature on their hot water tank, the Canada Safety Council recommends a setting no lower than 54° C. If you are unsure how to accurately make the adjustment, hire a qualified professional, like a plumber, or contact your utility.