



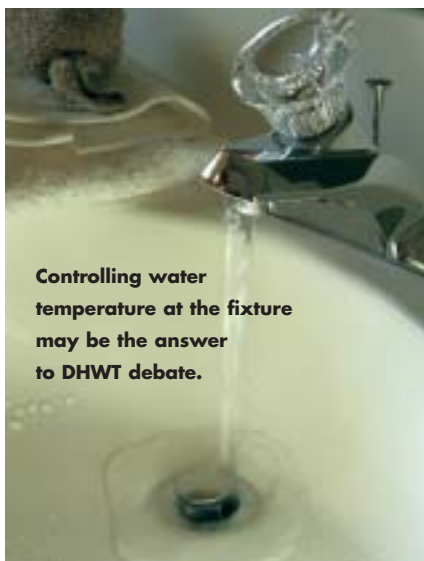
HOT TOPIC PROMPTS DEBATE

Public safety was a prime motivation behind the creation of Canada's National Building and Plumbing Code. In the past, public input has been a catalyst for change and this is certainly the case currently with regard to proposed changes to delivery temperatures for

domestic hot water (DHW). Safe Kids Canada is one group pursuing a change that would see the maximum delivery of domestic hot water limited to 49C (120F), down from the current industry norm of 60C (140F).

According to statistics taken from National Research Council (NRC) documents and supplied by Safe Kids Canada, approximately 1,000 Canadian children have been disfigured by hot tap water in the past 20 years.

In a May 29, 2001 press release, Sonya Corkum, then executive director of Safe Kids Canada explained "A child's skin burns four times more quickly and



"It may be more appropriate to consider mandatory installation of anti scald or automatic compensating devices..."

more deeply than an adult's at the same temperature." The release stated that a child's skin will burn in just one second when exposed to water delivered at 60C.

REGULATE DELIVERY TEMPERATURE

While on the surface it would seem that limiting the maximum temperature setting on domestic hot water tanks (DHWT) is the simple solution, Claude Lesage, president of Giant Water Heaters feels that there is really only one viable option. "In 1956, the first generation of what is now the modern DHWT had a temperature setting of 66 degrees Celsius," says Lesage. "From that point until more recently, Legionella was virtually unknown in residential DHWT."

Another factor to consider has to do

with temperature fluctuations within the tank. According to Lesage "Both gas and electric tanks draw from the top of the tank and while the draw temperature on an electric tank is consistent at approximately plus/minus one degree (at point of draw), gas tanks can vary to a much greater degree. Further, recovery capacity of DHWTs is affected by inlet water temperatures which range from 32 to 44 degrees Fahrenheit, as well as the inevitable sedimentation that takes place in the tank over time.

"In order to maintain an acceptable level of safety and performance, current tank settings must remain at 60 degrees Celsius. The answer is to regulate the delivery temperature of the hot water by using a thermostatic valve," contends Lesage.

HEALTH THREAT

Constance Wrigley-Thomas, manager of the Canadian Water Quality Association (CWQA) and program manager for the Canadian Institute of Plumbing and Heating (CIPH) points to the October 2002 CWQA Communiqué which contained an article on a new health threat known as Non-Tubercular Mycobacterium or NTM. The article describes the mycobacterium as being everywhere, particularly in biofilms such as pond scum and the slime inside faucets and showerheads. Some doctors believe that mycobacterium from the pipes is becoming aerosolized in water spray. The more enclosed the space, the greater the buildup of germ infected spray. The article explains that a variant of this illness called hottub lung occurs when people develop an allergic reaction to the mycobacterium in indoor tubs.

The article notes that the change in how water has been treated (in the United States, DHWTs are currently factory set at 49C) to save energy and prevent scalding creates perfect conditions for mycobacterium. Wrigley-Thomas feels that the industry must be concerned about the health risks associated with lowering maximum tank temperature settings.

TEMPERATURE AT FIXTURES

CIPH, under the auspices of a task force of the Canadian Advisory Council on Plumbing (CACCP), recently scored a victory by preventing a special change to the National Plumbing Code which would have required residential hot water heater temperatures to be pre-set to 49C at the time of installation. At the April 4, 2002 meeting of the Executive Committee of the Canadian Commission on Building and Fire Codes, CIPH presented a position paper and requested revisions to the proposed "Special Change".

In its submission, CIPH outlined a strategy that recommended options to

ensure that the maximum temperature supplied to each fixture in a residential occupancy does not exceed 49C. "It is the goal of CIPH to reduce the probability of burns and scalds while protecting the health and safety of Canadians. The task force has thoroughly examined the health and safety issues and believes that the proposed change is a win/win," states Plumbing Industry Advisory Council Chair Mike Dennis of Moen. The result of the meeting was that changes would not be made to the Code, at least until the public has an opportunity for input.

COMPENSATING DEVICES

In its January/February 2002 Bulletin the Ontario Plumbing Inspectors Association (OPIA) supports the efforts of Safe Kids Canada, but cautions about lowering tank temperature maximum settings. "The thermostats used in many water heaters do not accurately measure the temperature within the tank, they are not calibrated to specific temperature readings. As this device ages it can become less accurate at measuring the temperature, this degradation in accuracy can be such

SCALDING HAZARDS	
Temperature	Time to cause a bad burn
150F (66C)	2 seconds
140F (60C)	6 seconds
125F (52C)	2 minutes
120F (49C)	10 minutes

that it is not noticed until the temperature has reached an unsafe level."

The bulletin states "Current codes require that every hot water tank of a storage-type service water heater shall be equipped with a temperature relief valve or a device that is designed to shut off the supply of electricity or fuel. In both instances, these devices shall limit the temperature to less than 99C, the flow of water is not interrupted should this occur and may not be noticed, particularly if it is a gradual occurrence. Reducing water heater temperatures alone may offer a false sense of security."

OPIA suggests "It may be more appropriate to consider mandatory installation

of anti scald or automatic compensating devices certified to CSA B-125 and ASSE 1016 (or ASSE 1017) because of safeguards built into these devices."

Verlyn Busch, heating specialist with Wolseley Plumbing in Victoria, BC, shares this view. "The health risks posed by lower tank settings are an issue. Downstream regulation of the water temperature will effectively manage this problem and offer consumers a new level of safety in protecting them from potential scald injuries."

PUBLIC REVIEW

With the support of CIPH, Safe Kids Canada, OPIA and other groups, a proposal for change is currently being considered by NRC through the Canadian Commission on Building and Fire Codes (CCBFC), specifically the Building and Plumbing Services Committee. This change would impact the National Plumbing Code, Provision Sentence 2.10.7 (1).

According to Raman Chauhan of

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NRC, "All proposed revisions to the model codes are prepared by the standing committees and must be subjected to a broad public review with the next public review period scheduled for January



"A child's skin burns four times more quickly and more deeply than an adult's at the same temperature".

to March of 2003. Included will be proposed changes to the National Building Code and the National Plumbing Code that would require that the temperature of hot water supplied to each fixture in a residential occupancy not exceed 49C."

An accompanying explanatory note in the appendix of each code suggests this requirement could be met by adjustment of the hot water tank temperature, thermostatic mixing valves at each fixture, or

a master thermostatic valve at the tank. The committees will review all comments received. The final decision will be made by the CCBFC and will be reflected in the codes editions expected in late 2004 or early 2005. "At this stage, it is impossible to predict the outcome of these proposals," said Chauhan.

It seems that while there will be further discussion concerning the most suitable means of accomplishing the objec-

tive of reducing scalding injuries, there is industry-wide recognition that something needs to be done to prevent or reduce these injuries. For further information visit www.safekidscanada.ca, www.nationalcodes.ca or www.ciph.com. To share your views, contact the NRC at www.nrc.ca.

■ *Mark Evans is a 20-year veteran of the plumbing and heating industry with sales and management experience in the wholesale distribution, rep agency and manufacturing sectors. He can be reached by e-mail at writemarkevans@hotmail.com.*

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