# Canadian Plumbing Code – Maximum Hot Water Temperature

## THE CHANGE

The Canadian commission on Building and Fire Codes has issued an Interim change to the 2005 National Plumbing Code on wWater temperature control.

The wording for the Code is as follows:

*2.2.10.7 Water Temperature Control*

*1) Except as provided in Sentences (2), all valves supplying fixed-location showerheads shall be individual pressure-balanced or thermostatic-mixing valves conforming to ASME A112.18.1/CSA B125.1,"Plumbing supply fittings."*

*2) Individual pressure-balanced or thermostatic-mixing valves shall not be required for showers having a single tempered water supply that is controlled by a master thermostatic-mixing valve conforming to CSA B125.3, "Plumbing fittings."*

*3) All mixing valves supplying showerheads shall be of the pressure-balanced, thermostatic, or combination pressure-balanced/thermostatic type capable of*

*a) maintaining a water outlet temperature that does not exceed 49°C, and*

*b) limiting thermal shock..*

*4) The temperature of water discharging into a bathtub shall not exceed 49°C.*

*Intent: Hot water delivered to fixtures at too high a temperature will result in scald burn injuries.*

*2.6.1.12. Service Water Heater*

*1) Thermostat controls for electric storage type service water heaters shall be set to a temperature of 60°C.*

*Intent: Hot water stored at too low a temperature may lead to the proliferation of legionella bacteria.*

*Province of Ontario*
*Since January 2005 and, still is in effect.*

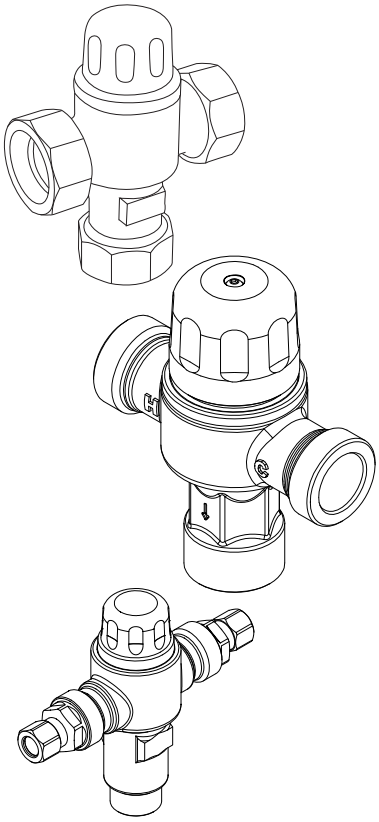
*The Ontario Building Code was amended in September 2004 to specify that*
*"The maximum hot water temperature supplied to fixtures in residential occupancies shall not exceed 49 degrees Celsius or 120 degrees Fahrenheit."*
*This requirement exempts dishwashers and clothes washers.*

*Options for compliance include:*

*1) Installation of a mixing valve at the water heater to lower the temperature to 49°C*

*2) Installation of a mixing valve / pressure balance valve at each outlet.*

*According to the Ministry a replacement of a domestic water heater is a material alteration and necessitates compliance with the new article. As well if a faucet is replaced the temperature at that faucet is required to be a maximum of 49°C and if a system is extended, only those faucets installed at the extended portion of the system are required to meet code.*



HEATGUARD™
THERMOSTATIC MIXING VALVES

## IMPLEMENTATION DATE

The final approval for the Canadian Plumbing code change went into effect December 2007.
The code change for the Province of Ontario has been in effect since January 2005 and is still in effect.

## REASONS FOR THE CHANGE

**1. SCALDING**
High water temperatures are dangerous! The higher the water temperature the shorter the time taken to scald. It is commonly accepted that water temperatures higher than 49°C (120°F) should not be available at outlets used for bathing purposes. At 49°C (120°F) it takes approximately 5 minutes to sustain a full thickness burn. An increase to only 55°C (131°F) dramatically reduces the time for a full thickness burn to less than 1 second in a child!

**2. LEGIONELLA BACTERIA**
This bacteria thrives in warm water environments (i.e. 49°C (120°F) or less), and is thus a potential problem in hot water distribution systems. Water stored at 49°C (120°F) or less can provide ideal conditions for the growth of legionella bacteria within the water heater. It is necessary to store water at 60°C (140°F) or higher to minimize the bacteria growth.

# Canadian Plumbing Code – Maximum Hot Water Temperature

## COMPLYING WITH CODE

Two methods are suggested of complying with the new requirement:
(1) A master automatic compensating mixing valve installed at the water heater, or
(2) Automatic compensating mixing valves or other devices installed at each fixture.

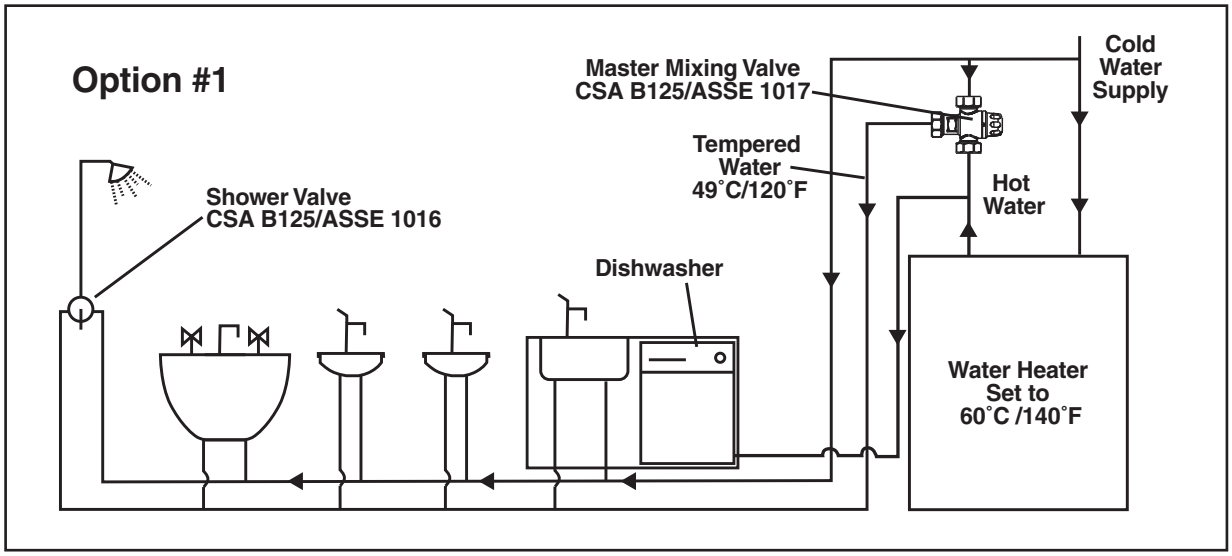
These valves are adjustable and can be set to deliver water at a maximum setting.

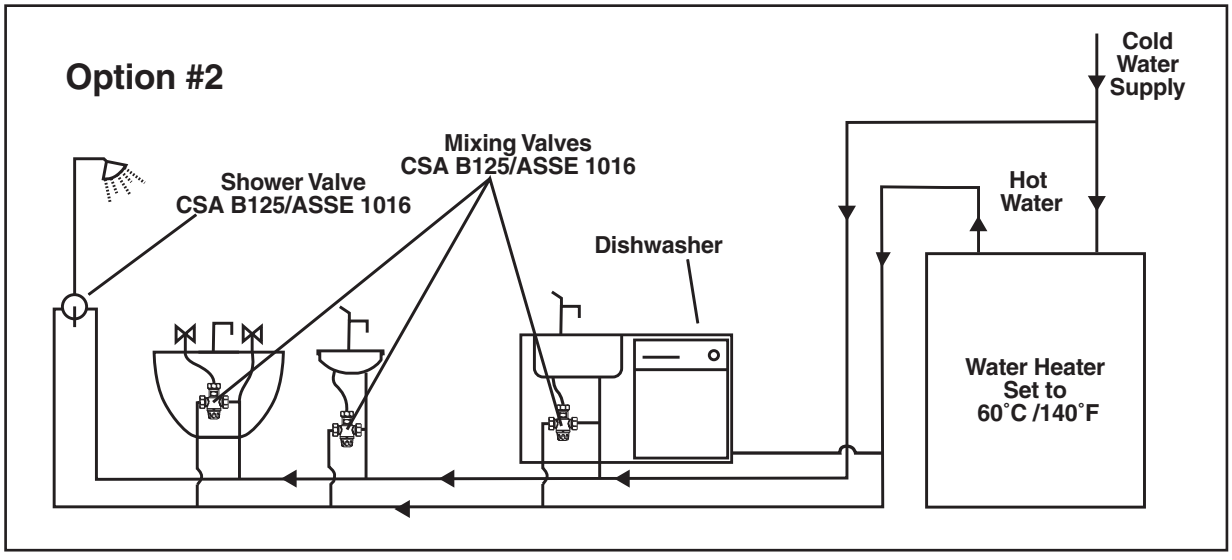
Option 1, the master mixing valve, is the simpler and more economical solution. A single valve fitted at the heater can control the water temperature to the whole installation.

Notes:

(a) Regardless of which method of compliance is selected, it is recommended that an automatic compensating shower valve be fitted in each shower fixture. A shower valve will compensate for localized changes in supply pressures that may give rise to thermal shock conditions at the shower (e.g. a flushed toilet that "steals" some of the cold supply to the shower).

(b) If desired, hot water can be supplied directly from the heater to dishwashers and clothes washers.






07-CAC-175 3.27.08 Printed in USA