

2018 British Columbia Plumbing Code Public Review of Proposed Changes



PROPOSED CHANGE: Plumbing Fixture Water Efficiency

CHANGE NUMBER: 2018-BCPC-02-Efficiency

CODE REFERENCE: 2012 British Columbia Building Code – Division B - Section 10.3 and the 2015 National Plumbing Code - Division B - Article 2.2.10.6., Article 2.6.1.6.

DESCRIPTION OF THE PROPOSED AMENDMENT:

It is proposed to relocate plumbing fixture efficiency requirements from the British Columbia Building Code (BCBC) to British Columbia Plumbing Code (BCPC). Some new plumbing fixture efficiency requirements are adopted from the 2015 National Plumbing Code of Canada (NPC).

PROBLEM/GENERAL BACKGROUND:

The BCPC is based substantially on the model NPC. The NPC is updated about every five years and British Columbia adopts most of the NPC requirements into the next edition of the BCPC. The 2018 BCPC will be based on the 2015 NPC with some changes specific to British Columbia.

In 2008, the Province of British Columbia created a variation to the model national codes, which formerly did not address water efficiency of plumbing fixtures. Now that the model NPC has included such requirements, the British Columbia variation is no longer necessary. The former British Columbia variation was located in Part 10 of the BCBC, but is proposed to be relocated in the BCPC.

The code language shown below is the proposed final code language that will appear in the 2018 BCPC. Comments submitted should focus on the changes noted. Changes from the 2012 BCPC to the 2015 NPC are not identified.

2018 PROPOSED BRITISH COLUMBIA CODE LANGUAGE (~~Deleted text~~ / ~~Added text~~):

British Columbia Building Code:

~~Section 10.3. Water Efficiency~~

~~10.3.1. Design and Installation~~

~~10.3.1.1. Fixture Fitting Maximum Flow Rates~~

~~1) The flow rates of fittings that supply water to plumbing fixtures must not exceed the maximum flow rate at the test pressures listed for that fitting in Table 10.3.1.1.~~

Table 10.3.1.1. Maximum Flow Rates for Supply Fittings Forming part of Sentence 10.3.1.1.(1)		
Fittings	Maximum Flow (L/min)	Test Pressure (kPa)
Lavatory Faucet	8.3	415
Kitchen Faucet	8.3	415
Shower Head	9.5	550

10.3.1.2. Fixture Efficiency

1) The flush cycle for the installation of a water closet or urinal must not exceed the flush cycle listed for that fixture in Table 10.3.1.2.

Table 10.3.1.2. Maximum Flow Rates for Supply Fittings Forming part of Sentence 10.3.1.2.(1)	
Fixture	Litres
Water Closet (Tank Type)	6.0
Water Closet (Direct Flush)	6.0
Urinal (Tank Type)	5.7
Urinal (Direct Flush)	5.7

2) The flush cycle for the installation of a water closet or urinal in a Group C residential occupancy must not exceed the flush cycle listed for that fixture in Table 10.3.1.2.(2).

Table 10.3.1.2.(2) Maximum Flush Cycle Forming Part of Sentence 10.3.1.2.(2)	
Fixture	L
Water Closet (Tank Type)	4.8 ⁽⁴⁾
Water Closet (Direct Flush)	4.8
Urinal (Tank Type)	1.9
Urinal (Direct Flush)	1.9

Notes to Table 10.3.1.2.(2):

⁽⁴⁾ A water closet with a dual flush cycle of 4.1 L or less and 6.0 L complies with this requirement.

3) The water supply to urinal flush tanks equipped for automatic flushing shall be controlled with a timing device in order to limit operation to the period during which the building is normally occupied.

British Columbia Plumbing Code:

2.2.10.6. Supply and Waste Fittings

1) Supply fittings shall conform to

- a) ASME A112.18.1/CSA B125.1, "Plumbing Supply Fittings," or
- b) CSA B125.3, "Plumbing Fittings."

2) Except for lavatories in health care facilities, emergency eye washes, and emergency showers, supply fittings and individual shower heads shall have an integral means of limiting the maximum water flow rate to that specified in Table 2.2.10.6. (See Note A-2.2.10.6.(2).)

Table 2.2.10.6. Water Flow Rates from Supply Fittings Forming part of Sentence 2.2.10.6.(2)	
Supply Fittings	Maximum Water Flow Rate, L/min
Lavatory supply fittings	
private	5.7
public	1.9
Kitchen supply fittings (except those in industrial, commercial or institutional kitchens)	8.3
Shower heads	7.6

3) An automatic compensating valve serving an individual shower head addressed in Sentence (1) shall have a water flow rate equal to or less than the shower head it serves. (See Note A-2.2.10.6.(3).)

4) Where multiple shower heads installed in a public showering facility are served by one temperature control, each shower head shall be equipped with a device capable of automatically shutting off the flow of water when the shower head is not in use. (See Note A-2.2.10.6.(4) and (5).)

5) Each lavatory in a public washroom shall be equipped with a device capable of automatically shutting off the flow of water when the lavatory is not in use. (See Note A-2.2.10.6.(4) and (5).)

6) Waste fittings shall conform to ASME A112.18.2/CSA B125.2, "Plumbing Waste Fittings."

2.6.1.6. Flushing Devices

1) Flushing devices that serve water closets or urinals shall have sufficient capacity and be adjusted to deliver at each operation a volume of water that will thoroughly flush the *fixture* or *fixtures* they serve.

2) Where a manually operated flushing device is installed, it shall serve only one *fixture*.

3) Except as provided in Sentence (4), water closets and urinals shall have an integral means of limiting the maximum amount of water used in each flush cycle to that specified in Table 2.6.1.6.

Table 2.6.1.6.
Water Usage per Flush Cycle
 Forming part of Sentence 2.6.1.6.(3)

Fixtures	Maximum Water Usage per Flush Cycle, Lpf
Water closets – residential	
single-flush	4.8
dual-flush: 6.0/4.1 Lpf	4.8 ¹
Water closets – industrial, commercial, institutional	6.0
Urinals	1.9

⁽¹⁾ A water closet with a dual flush cycle of 6.0 L and 4.1 L or less complies with this requirement.

4) In residential retrofits, a maximum water usage of 6.0 Lpf shall be permitted for single-flush water closets where it can be demonstrated that a maximum water usage of 4.8 Lpf would be impracticable given the existing *building* or municipal infrastructure.

5) Except where installed in *buildings* not intended to be occupied year-round, flush-tank-type urinals shall be equipped with a device capable of preventing flush cycles when they are not in use. (See Note A-2.6.1.6.(5).)

A-2.2.10.6.(2) Supply Fittings and Individual Shower Heads. Flow restriction devices within supply fittings should not be removed.

Due to the low flow rate of public lavatory faucets, design consideration should be given to the wait time for hot water to be delivered to each fixture.

A-2.2.10.6.(3) Automatic Compensating Valves. When replacing a shower head, the appropriate shower valve with a suitable compensating feature matching the flow rate should be chosen to decrease the possibility that users will suffer thermal shock. The water flow rate of automatic compensating mixing valves can be found in ASSE 1016/ASME 112.1016/CSA B125.16, “Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations.”

A-2.2.10.6.(4) and (5) Automatic Shut-off of Water Flow. Examples of water shut-off devices include occupant sensors and self-closing valves.

A-2.6.1.6.(5) Flush-Tank-Type Urinals in Seasonal Buildings. Flush-tank-type urinals that are not in use for an extended period of time, such as those in seasonal buildings, are permitted to be set up to flush automatically at predetermined intervals. Automatic flushing prevents the depletion of the water seal due to evaporation or backflow conditions. The trap seal restricts the infiltration of gases, which can pose health and safety concerns.

RATIONALE FOR CHANGE

Plumbing fixture efficiency requirements are proposed to be adopted from the model NPC.

JUSTIFICATION/EXPLANATION:

Adoption of plumbing fixture efficiency requirements from the model NPC will help achieve consistent requirements across Canada.

- lavatories in health care facilities, emergency eye washes, and emergency showers are exempted
- private lavatory fixture maximum flow rates are reduced from 8.3 l/min to 5.7 l/min
- public lavatory fixtures are reduced from 8.3 l/min to 1.9 l/min
- kitchen supply fixture flow rates remain at 8.3 l/min
- shower head flow rates are reduced from 9.5 l/min to 7.6 l/min
- maximum flow rates are based on, and in some cases exceed the requirements of ASME A112.18.1/CSA B125.1 "Plumbing Supply Fixtures"
- test pressures are not listed because ASME A112.18.1/CSA B125.1 "Plumbing Supply Fixtures" contains the applicable requirements
- automatic shut off requirements for public showers and lavatories in public washrooms are introduced
- water closet flush cycles are unchanged, other than non-residential urinals which are reduced from 5.7 l to 1.9 l