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SUBJECT: CIPH & PMI's comments to City of Vancouver's Proposed Changes to Building By-laws

Dear Mr. Radziminski,

Thank you for the opportunity to provide input to the City of Vancouver's proposed changes to the building by-laws. Please find attached the technical commentary and recommendations from the Canadian Institute of Plumbing & Heating (CIPH) and Plumbing Manufacturers International (PMI).

CIPH and PMI share the common objectives with the City on water and energy conservation and efficiency and as such have promoted the development of these objectives into the 2015 National model Codes. We are aware of the challenges municipalities face with existing infrastructure and pushing the limit on water conservation may not be the most prudent strategy without the flexibility to manage old infrastructure, renovations and retrofits.

As well, we share the strategic objective to internally align regulations, code and policy with the provincial and federal government with our support of both the Agreement on Internal Trade and the Canadian Free Trade Agreement. We also believe that the municipalities should be involved in these alignment efforts.

The overall recommendation is for the City of Vancouver to work with the Province on the referencing and adoption of the 2015 National Plumbing Code into provincial regulations and enforce in a timely manner.

This is the basis on which we are submitting our technical commentary. If you have any questions please feel free to contact us at any time. We would be delighted to help.

Sincerely,

Ralph Suppa, CAE
President & General Manager
Canadian Institute of Plumbing & Heating

Barb Higgens
CEO/Executive Director
Plumbing Manufacturers International

cc: CIPH BC Region Board of Directors
Plumbing Industry Advisory Council
CIPH Water Closet and Fittings Manufacturers
J. Hutchinson
P. Rizcallah

The Canadian Institute of Plumbing & Heating (CIPH) is a not-for-profit trade association. Founded in Montreal in 1933, the Institute is a vibrant organization committed to providing members with the tools for success in today's competitive environment. More than 260 companies are members of this influential Canadian industry association. They are the manufacturers, wholesaler distributors, master distributors, manufacturers' agents and allied companies who manufacture and distribute plumbing, hydronic heating, industrial, waterworks and other mechanical products. CIPH wholesalers operate more than 700 warehouses and showrooms across Canada. Total industry sales exceed $6 billion annually.

Plumbing Manufacturers International is the voluntary, not-for-profit international industry association of manufacturers of plumbing products, serving as the Voice of the Plumbing Industry. Member companies produce 90 percent of the nation's plumbing products, and represent more than 150 brands. As part of its mission, PMI advocates for plumbing product performance and innovation contributing to water savings, sustainability, public health and safety, and consumer satisfaction.

CIPH Comments and Recommendations to the proposed changes to the City of Vancouver Building By-laws

Part A. The following proposals are applicable only to those activities triggering the City of Vancouver Building By-law (VBBL) (examples: new construction, major renovations):

Item	Current Requirement	Proposed Vancouver Building By-law Requirement	CIPH/PMI Comment	Recommendation
Fixtures				
Water closet (tank type or direct flush)	6.0 Lpf, but 4.8 Lpf for "Group C residential" A tank type toilet with a dual flush cycle of 4.1 L or less and 6.0 L complies with the latter requirement. (VBBL sec 10.3.1.2)	4.8 Lpf Maximum flush volume shall not exceed 4.8 Lpf. For dual-flush, the full-flush volume shall not exceed 4.8 L. Tank-type water closets shall be certified to the performance criteria of the most recent version of the EPA WaterSense Specification for Tank-Type Toilets. Direct flush (also known as "flushometer-valve") water closets shall be certified to the performance criteria of the most recent version of the EPA WaterSense Specification for Flushometer-Valve Water Closets.	4.8lpf (no Watersense) necessary but consider the impacts on retrofits and spaces where the infrastructure will not support the lower flush volume (i.e. older buildings). In that case you will need to give the proponent and the inspector flexibility to recommend and apply a higher flush volume. **Proposed Language:** *Maximum flush volume shall not exceed 4.8 Lpf. For tank-type dual-flush, ~~the full-flush volume shall not exceed 4.8 L.~~ water closets, the effective flush volume shall not exceed 4.8 Lpf. The effective flush volume is the average flush volume of two reduced flushes and one full flush.*	Apply the 2015 National Plumbing Code As it addressed both the water efficiency objective and the existing infrastructure consideration.
Flushing urinal (tank type or direct flush)	1.9 Lpf Flush tanks (for automatic flushing) permitted with a timing device limited to period during which building is normally occupied. (VBBL sec 10.3.1.2)	1.9 Lpf Certified to the performance criteria of the most recent version of the EPA WaterSense Specification for Flushing Urinals. Flush tanks for automatic flushing of urinals are prohibited.	Refer to Table 2.6.1.6 of the 2015 NPC applying the 1.9lpf, with no WaterSense. Product to conform to ASME A112.19/CSA B45 A-2.6.1.6 (5) Except for seasonal buildings not intended to be occupied year round, flush tank type urinals shall be equipped with a device capable of preventing flush cycles when not in use.	Apply the 2015 National Plumbing Code As it addressed both the water efficiency objective and the infrastructure consideration.

			(See Appendix A)	
Lavatory faucet (Non-residential, and for residential: common and public use areas)	8.3 L/min @ 415 kPa (60 psi) (VBBL sec 10.3.1.1)	1.9 L/min @ 415 kPa (60 psi) and self closing (metering faucet: 0.95 L per cycle) Exception — health care and food preparation sinks: 6.8 L/min @ 415 kPa (60 psi) and self closing	Refer to Table 2.2.10.6 of the 2015 NPC applying the 1.9lpm. Products are to conform to ASME A112.18.1/CSA B125.1 Per ASME A112.18.1/CSA B125.1; metering faucets are 1.0L per cycle	Apply the 2015 National Plumbing Code
Lavatory faucet (Residential: private use areas)	8.3 L/min @ 415 kPa (60 psi) (VBBL sec 10.3.1.1)	5.7 L/min @ 415 kPa (60 psi) Certified to the performance criteria of the most recent version of the EPA WaterSense Specification for High-Efficiency Lavatory Faucets.	Refer to Table 2.2.10.6 of the 2015 NPC applying 5.7Lpm. Products are to conform to ASME A112.18.1/CSA B125.1	Apply the 2015 National Plumbing Code
Kitchen faucet (Residential and non-residential)	8.3 L/min @ 415 kPa (60 psi) (VBBL sec 10.3.1.1)	6.8 L/min @ 415 kPa (60 psi) May temporarily increase to 8.3 L/min @ 415 kPa but must default to the lower flow-rate upon physical release of the activation mechanism or closure of the faucet valve.	Remove non-residential kitchen faucets from the proposed amendments. Both the U.S. Department of Energy and California Energy Commission (refer to attached) permit non-residential/commercial kitchen faucets to provide flow rates to meet non-residential/commercial kitchen operations. Additionally, pot and kettle fillers require higher flow rates to quickly fill up large cooking vessels without wasting energy.	Remove from proposed bylaw requirements
Shower head	9.5 L/min @ 550 kPa (80 psi) (VBBL sec	7.6 L/min @ 550 kPa (80 psi) per showerhead Safety	Refer to Table 2.2.10.6 of the 2015 NPC applying 7.6Lpm. Products are to conform to	Apply the 2015 National Plumbing Code

	10.3.1.1)	showerheads exempted. Certified to the performance criteria of the most recent version of the EPA WaterSense Specification for Showerheads. Allowable flowrate from all shower outlets that can operate simultaneously is limited to 7.6 L/min. If area of shower compartment exceeds 1.7 m_2, an additional flow of 7.6 L/min is permitted for each multiple of 1.7 m_2 of floor area or fraction thereof. The term "showerhead" includes rain heads, rain tiles, rain systems, waterfalls, bodysprays, jets or any other fitting that transmits water for the purposes of showering. A hand-held shower shall be considered a showerhead.	ASME A112.18.1/CSA B125.1 It is recommended to remove the WaterSense® criteria as the definition of showerhead per the proposed Vancouver Building By-Law is not consistent with the WaterSense® specification. In addition, rain heads installed vertically cannot meet the force and coverage requirements even though they meet the flow rate requirements. Remove flow rate per shower compartment limitation as this effectively kills any vertical spa installations. Note, most of the devices defined within the proposed amendments as “showerhead” could not be certified to WaterSense® making this list somewhat moot. Showerheads used in institutions such as prisons and mental healthcare facilities should be exempted as they are generally metered products that are designed to get prisoners, patients, etc. in and out of the showering area quickly. Furthermore, such showerheads do not meet the spray coverage requirements of the EPA WaterSense® Specification for Showerheads. Proposed language: *Safety showerheads exempted. ~~Certified to the performance criteria of the most recent version of the EPA WaterSense Specification for Showerheads.~~ Showerheads shall have a*	

			maximum flow rate of not more than 7.6 L/min @ 550 kPa.	
Clothes washer (Residential and non-residential)		Certified to the performance criteria of the most recent version of the ENERGY STAR® Product Specification for Clothes Washers		
Dishwasher (Residential)		Certified to the performance criteria of the most recent version of the ENERGY STAR® Product Specification for Residential Dishwashers	Please note that most certified dishwashers include a grinding mechanism for small food particles. The prohibition on food waste disposers (see below) could affect the sale and use of modern dishwashers.	
Dishwasher (Non-residential) — Product Specification for Commercial Dishwashers		Certified to the performance criteria of the most recent version of the ENERGY STAR®	Please note that most certified dishwashers include a grinding mechanism for small food particles. The prohibition on food waste disposers (see below) could affect the sale and use of modern dishwashers.	
Food waste disposer (garburator, or garbage grinder)		Prohibition Includes any device intended to grind solid food waste into small particles for the purpose of disposing of such waste into the sanitary system; also known as garburators, garbage grinders, or waste disposal units. Not within the scope of this prohibition are food waste	Plumbing and building codes typically are silent on residential in-sink food waste disposers on the water efficiency topic because numerous studies have determined disposer use does not correlate with additional water use. CIPH is committed to science-based approaches to the consideration of restrictions and endorsement of products and appliances; with CIPH's support, restrictions	Do not prohibit/restrict; disposers support organics-diversion initiatives by Metro Vancouver, as per policy statement adopted in 2015 – especially for multi-residential buildings. Recommendation: collaborate with Metro Vancouver,

		bio-digesters.	on disposers have been rejected in York Region (ON), Vaughn (ON), Markham (ON), London (ON) and Winnipeg (MB) Philadelphia (PA) recently adopted building code requirement for installation of disposers. Commercial food waste disposers, and related devices, may have differing water-use profiles. Industry innovations have achieved significant water-use reductions via shut-off sensors, recirculation systems, and other means.	InSinkErator and BCWWA.
Mechanical Equipment & Commercial Operations				
Conveyor and in-bay vehicle wash		Install, use and maintain a water recycling system that recycles and reuses at least 60% of the water and rinse water Spray wands and foamy brushes shall use no more than 11.4 L/min		
Wash fountain		One (1) 6.8 L/min @ 415 kPa (60 psi) fixture fitting for each 508 mm rim space, and self closing (metering faucet: 0.95 L per cycle)		
Commercial pre-rinse spray valve		4.8 L/min Certified to the performance		Apply the 2015 National Plumbing Code

		criteria of the most recent version of the EPA WaterSense Specification for Commercial Pre-Rinse Spray Valves with an integral automatic shut-off.		
Commercial ice machine		Certified to the performance criteria of the most recent version of the ENERGY STAR® Product Specifications for Automatic Commercial Ice Makers		
Commercial steam cooker		Certified to the performance criteria of the most recent version of the ENERGY STAR® Product Specifications for Commercial Steam Cookers		
Commercial oven		Certified to the performance criteria of the most recent version of the ENERGY STAR® Product Specifications for Commercial Ovens Combination ovens shall not consume more than 38 L/hour in the full operational mode.		

Irrigation Systems				
Maximum supplied water pressure		Maximum supplied pressure to an irrigation system is 415 kPa (60 psi) The term "irrigation system" includes systems using potable water to irrigate landscapes, green walls and green roofs.		Recommendation: The City should consult with CANARM and ARSCA.
Irrigation controller		> 46.5 m_2 (500 sq ft) aggregate landscaped area requiring permanent irrigation: install an automatic irrigation controller that is weather- or soil moisture-based to automatically adjust irrigation as weather or soil conditions change. Rainfall devices which interrupt or modify irrigation events based on rainfall do not meet this requirement when used as the sole method for modifying irrigation schedules. This requirement does not apply to areas that require temporary irrigation solely for the plant establishment period.		Recommendation: The City should consult with CANARM and ARSCA.

Part B. The following proposed amendments to the City of Vancouver Water Works By-law (4848) are applicable to all new and existing facilities and properties:[1]

"ONCE THROUGH COOLING EQUIPMENT" means equipment that produces a cooling effect by transfer of heat to water that is only circulated once through the equipment and is then discharged, and includes but is not limited to commercial and industrial air conditioners, refrigerators, coolers and ice machines;

3.8 Prohibition Against Using Water in Non-Recirculating Applications
A customer or other person must not use, or permit, suffer or allow the use of water in the following non-recirculating uses, equipment, or systems:

(a) once through cooling equipment;
(b) venturi-type flow-through vacuum generators or aspirators in which running water is used solely for the venturi effect;
(c) non-recirculating liquid ring pumps or non-recirculating wet-hood scrubbers;
(d) spray systems to thermally condition building surfaces or roofs, except that this does not apply to emergency fire protection of buildings using fire sprinklers;
(e) running water as a form of freeze protection, through piping, hoses, fixtures, or building equipment or systems, except that this does not apply to City of Vancouver and Metro Vancouver water quality sampling stations; and
(f) use of water for melting or thawing, except that this does not apply to food preparation applications.

[Question: Should there be an exemption for health care applications here as well not just food preparation?]

3.9 Prohibition Against Connecting to Non-Recirculating Applications
A customer or other person must not connect, or permit, suffer or allow connection of the City's water system to any of the non-recirculating uses, equipment, or systems listed in section 3.8 of this by-law.

3.10 Disconnection of Non-recirculating Applications
All non-recirculating uses, equipment and systems listed in section 3.8 of this by-law must be disconnected from the City's water system, except that:
(a) once through cooling equipment;
(b) venturi-type flow-through vacuum generators or aspirators in which running water is used solely for the venturi effect; and
(c) non-recirculating liquid ring pumps or non-recirculating wet-hood scrubbers;
must be disconnected from the City's water system by January 1, 2019.

[1] Note that the proposed, two-stage prohibition on "once through cooling equipment" mirrors the approach of "Capital Regional District Water Conservation Bylaw No. 1, 2016," adopted May 11, 2016.