

2023 Plumbing Code Updates

Presented by: Doug Vance



Agenda



01 Introduction

02 Division A

03 Section 1.4 – Terms and Abbreviations

05 Division B

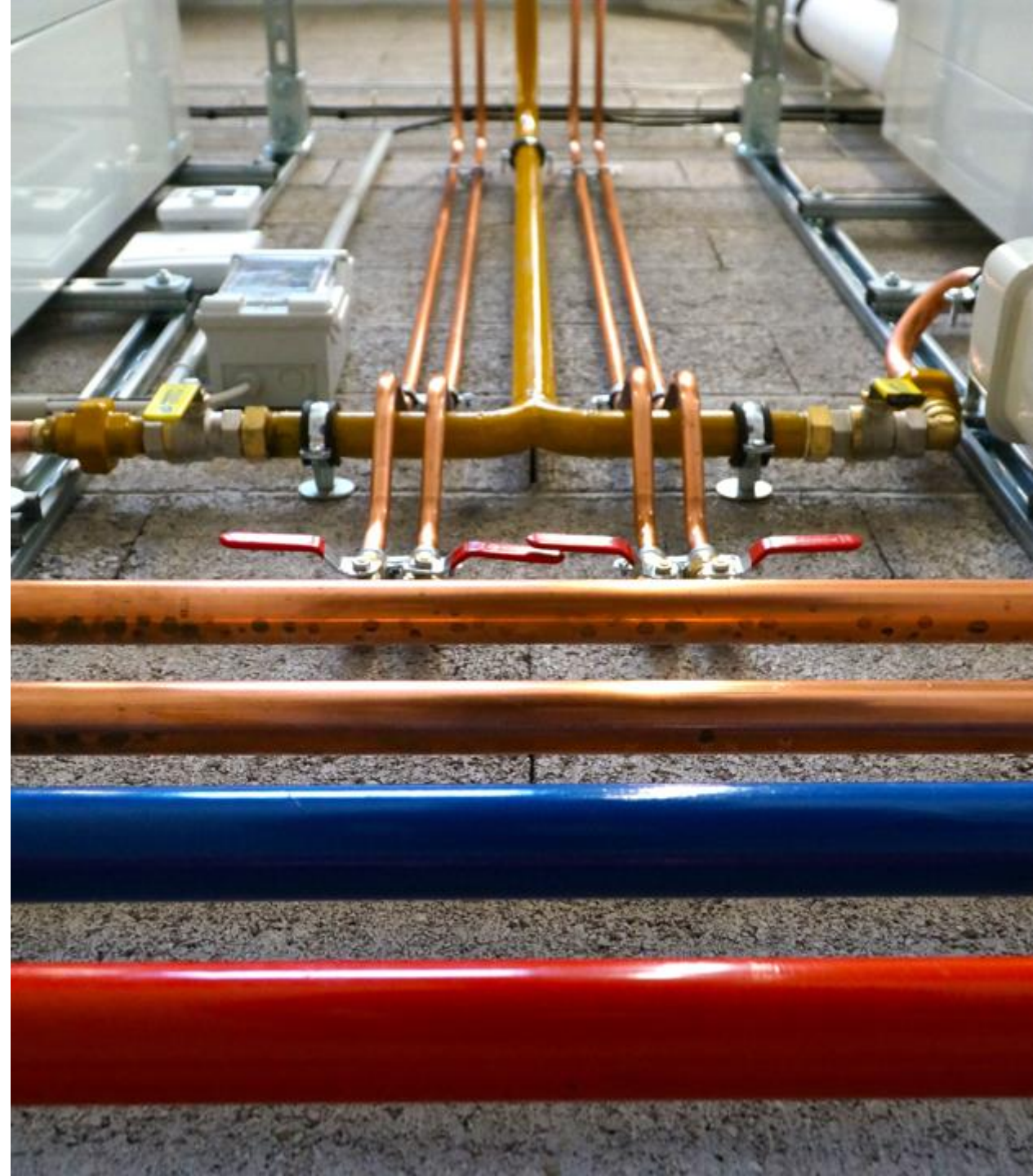
06 Table 1.3.1.2. – Referenced Documents

07 Part 2, Changes & Deletions

08 Wrap-up and Questions

Introduction

- This presentation is a comparison between 2015 and 2020 National Plumbing Codes (NPC).
- BC Plumbing Code (BCPC) publication later than anticipated due to delays related to COVID-19.
- Further analysis required once BCPC published but changes expected to be minor.



Division A



Nominal Pipe Size (NPS)

This term replaces the term *size*.

Definition:

- means the nominal diameter by which a pipe, fitting, *trap*, or other similar item is commercially designated.





Sanitary Drainage Pipe

Replaces the term *soil-or-waste pipe*.

Definition:

- means a pipe in a sanitary drainage system.

Stack

Replaces the term *soil-or-waste stack*.

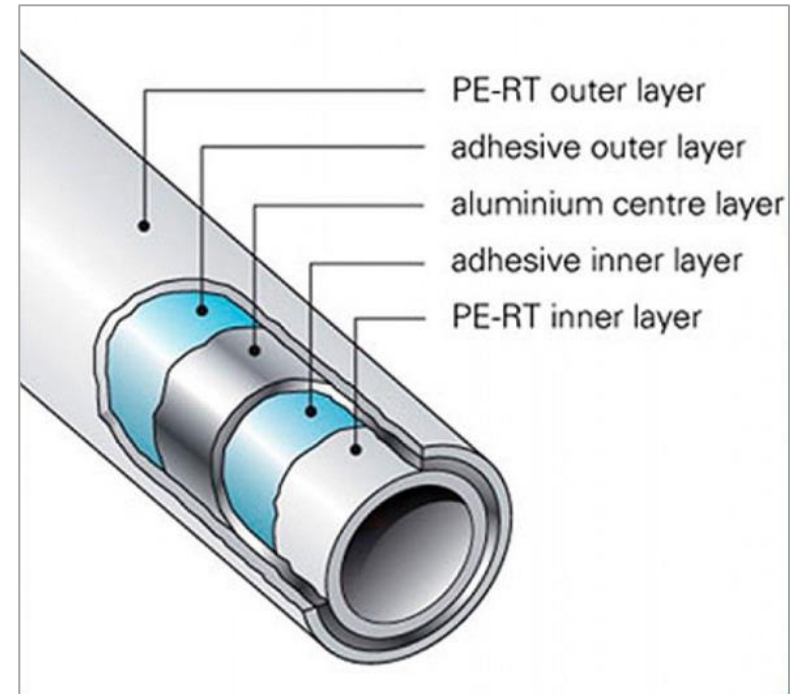
Definition:

- means a vertical *sanitary drainage pipe* that passes through one or more storeys, and includes any *offset* that is part of the *stack*.



New Abbreviation – PE-RT

Polyethylene of raised temperature
(PE-RT)



Notes to Part 2

A-2.2.1.1.(1) Objectives – OS1, Fire Safety

- New note clarifies the term “person”.
- Refers to any individual in or adjacent to the building or facility, including the occupants, the public, **and emergency responders including firefighters when performing their duties.**



Division B



Section 1.3

Referenced Documents and Organizations

Table 1.3.1.2.
Documents Referenced in the National Plumbing Code of Canada 2020⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document	Code Reference
ANSI/CSA	ANSI Z21.22-2015/CSA 4.4-2015	Relief Valves For Hot Water Supply Systems	2.2.10.11.(1)
ARCSA/ASPE/ANSI	63-2013	Rainwater Catchment Systems	A-2.7.2.4.(1)
ASHRAE	2011	ASHRAE Handbook – HVAC Applications	A-2.6.3.1.(2)
ASHRAE	2013	ASHRAE Handbook – Fundamentals	A-2.6.3.1.(2)
ASME/CSA	ASME A112.3.4-2018/CSA B45.9-18	Macerating Toilet Systems and Waste-Pumping Systems for Plumbing Fixtures	2.2.2.2.(1)
ASME/CSA	ASME A112.4.2-2015/CSA B45.16-15	Personal hygiene devices for water closets	2.2.2.2.(1)
ASME/CSA	ASME A112.4.14-2017/CSA B125.14-17	Manually Operated Valves for Use in Plumbing Systems	2.2.10.6.(7)
ASME/CSA	ASME A112.18.1-2018/CSA B125.1-18	Plumbing Supply Fittings	2.2.10.6.(1) 2.2.10.7.(1)
ASME/CSA	ASME A112.18.2-2015/CSA B125.2-15	Plumbing Waste Fittings	2.2.3.3.(1) 2.2.10.6.(6)
ASME/CSA	ASME A112.18.6-2017/CSA B125.6-17	Flexible water connectors	2.2.10.18.(1)
ASME/CSA	ASME A112.19.1-2018/CSA B45.2-18	Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures	2.2.2.2.(1)
ASME/CSA	ASME A112.19.2-2018/CSA B45.1-18	Ceramic Plumbing Fixtures	2.2.2.2.(1)
ASME/CSA	ASME A112.19.3-2017/CSA B45.4-17	Stainless Steel Plumbing Fixtures	2.2.2.2.(1)
ASME/CSA	ASME A112.19.7-2012/CSA B45.10-12	Hydromassage Bathtub Systems	2.2.2.2.(1)
ASME	B16.3-2016	Malleable Iron Threaded Fittings: Classes 150 and 300	2.2.6.6.(1) A-2.2.5. to 2.2.8.
ASME	B16.4-2016	Gray Iron Threaded Fittings: Classes 125 and 250	2.2.6.5.(1) A-2.2.5. to 2.2.8.
ASME	B16.5-2017	Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24 Metric/Inch Standard	2.2.6.12.(1)
ASME	B16.9-2018	Factory-Made Wrought Buttwelding Fittings	2.2.6.11.(1) 2.2.6.14.(1)



2.1.2.1.(1)

This Sentence now references Section 2.7 in its entirety.

- (1) Except where supplying systems that are covered in **Section 2.7.**, *sanitary drainage systems* shall be connected to a public *sanitary sewer*, a public *combined sewer* or a *private sewage disposal system.*”

2.1.2.2.(1)

This Sentence now references Section 2.7 in its entirety.

- (1) Except as provided in Section 2.7., *storm drainage systems* shall be connected to a public *storm sewer*, a public *combined sewer* or a designated *storm water disposal location.*”





2.1.2.3.(1)

This Sentence now references Section 2.7 in its entirety.

- (1) Except as provided in **Section 2.7.**, *water distribution systems shall be connected to a public water main or a potable private water supply system."*

2.1.4.1.(1)

Seismic Restraints and Design

- (1) *Plumbing systems in buildings constructed in accordance with Part 3 of Division B of the NBC shall be designed and installed to accommodate the seismic forces addressed in Subsection 4.1.8. of Division B of the NBC. (See Note A-2.1.4.1.(1).)"*



2.2.2.2.(1)(i)

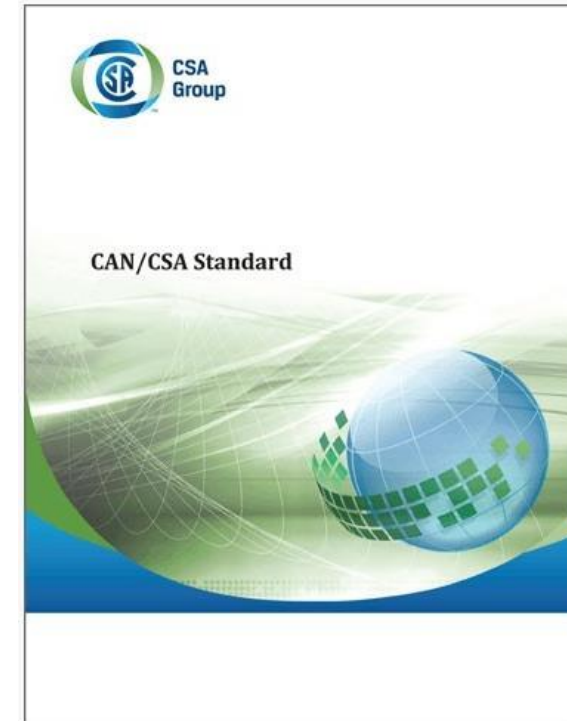
New referenced Standard for personal hygiene devices for water closets.

- (i) personal hygiene devices for water closets shall conform to ASME A112.4.2/CSA B45.16, “Personal hygiene devices for water closets.”

2.2.5.1.(1)

New referenced Standard for fibrocement pipe and fittings.

- (1) Fibrocement pipe and fittings for use in a drain, waste or vent system shall conform to CAN/CSA-B127.3, “Fibrocement drain, waste, and vent pipe and pipe fittings.””



2.2.5.15.(1) & (2)

- (1) Polyethylene of raised temperature (PE-RT) tube and manufacturer-approved fittings used in hot and cold *potable water systems* shall conform to CSA B137.18, “Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications.” (See Note A-2.2.5.15.(1).)
- (2) The use of PE-RT tube shall conform to Table 2.2.5.15.”

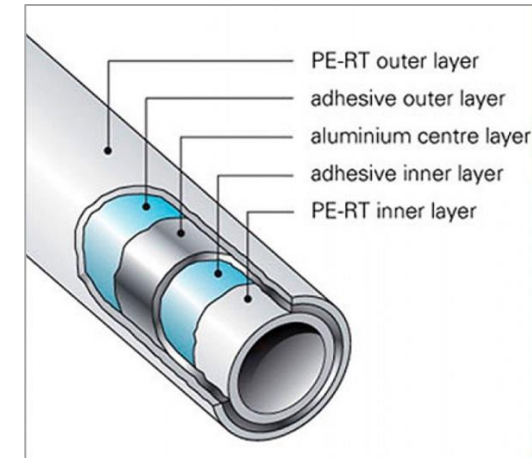


Table 2.2.5.15.
Permitted Uses of Polyethylene of Raised Temperature (PE-RT) Tube
 Forming Part of Sentence 2.2.5.15.(2)

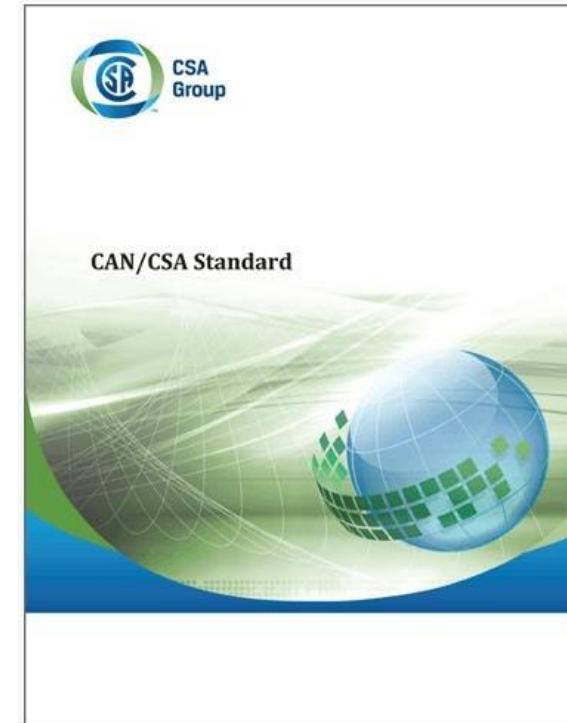
Type of Tube	Plumbing Purposes ⁽¹⁾								
	<i>Drainage System</i>		<i>Building Sewer</i>	<i>Venting System</i>		<i>Potable Water System</i>			
	<i>Aboveground inside building</i>	<i>Underground under building</i>		<i>Above-ground</i>	<i>Under-ground</i>	<i>Cold</i>	<i>Hot</i>	<i>Under building</i>	<i>Outside building</i>
PE-RT	N	N	N	N	N	P	P	P	P

Notes to Table 2.2.5.15.:

(1) P = permitted and N = not permitted.

2.2.5.16.(1), (2), and (3)

- (1) Cellular core PVC pipe shall
 - (a) conform to ASTM F3128, “Standard Specification for Poly(Vinyl Chloride) (PVC) Schedule 40 Drain, Waste, and Vent Pipe with a Cellular Core,” and
 - (b) be light grey, as specified in CSA B181.2, “Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) drain, waste, and vent pipe and pipe fittings.”
- (2) Fittings and solvent cements for cellular core PVC pipe shall conform to CSA B181.2, “Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) drain, waste, and vent pipe and pipe fittings.”
- (3) Cellular core PVC pipe shall only be used in residential buildings containing 1 or 2 dwelling units and in row houses that do not exceed 3 storeys in height.



2.2.7.4.(3)

Changed wording:

(3) Copper tube shall not be used for the *fixture drain* or the portion of the *vent pipe* below the *flood level rim* of **a urinal.**”

Previous wording: “... manually flushing or waterless urinals.”





2.2.10.6.

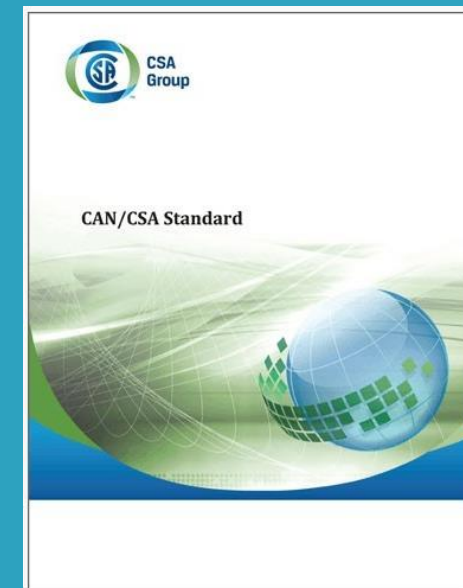
Title of this Article changed to:

Valves, and Supply and Waste Fittings

2.2.10.6.(7)

New referenced Standard.

(7) Manually operated valves of *NPS 4* or less for use in *plumbing systems* shall conform to ASME A112.4.14/CSA B125.14, “Manually Operated Valves for Use in Plumbing Systems.” (See Note A-2.2.10.6.(7).)”





2.2.10.7.(1)

- (1) Except as provided in Sentences (2) and (3), water supplied to **shower heads or bathtubs** shall be controlled by an automatic compensating valve conforming to
 - a) ASME A112.18.1/CSA B125.1, "Plumbing Supply Fittings," or
 - b) ASSE 1016/ASME A112.1016/CSA B125.16, "Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations."
- New wording deleted "**fixed-location**" in regard to shower heads and added bathtubs.
- Clause (b) is a new referenced Standard

2.2.10.7.(2)

This Sentence allows alternative means of temperature control for bathtubs only.

- (2) The requirement in Sentence (1) is permitted to be waived where hot water supplied only to bathtubs is controlled by
 - a) an automatic compensating valve conforming to CSA B125.3, "Plumbing fittings," or
 - b) a temperature-limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70, "Performance requirements for water temperature limiting devices."





2.2.10.7.(3)

This Sentence allows for a single tempered water line for showers and bathtubs.

- (3) The requirement in Sentence (1) is permitted to be waived where the water is supplied by a single tempered water line controlled by an automatic compensating valve conforming to CSA B125.3, "Plumbing fittings."

2.2.10.7.(4)

Additional wording referencing the new Sentence (5).

Showers have been added to this water temperature limit.

- (4) Except as provided in Sentence (5), the temperature of water discharging from a shower head or into a bathtub shall not exceed 49°C.**



2.2.10.7.(5)

New Sentence limiting the temperature discharging from a shower head and into bathtubs to 43 C in healthcare facilities and seniors' residences.

- (5) In healthcare facilities and seniors' residences, the temperature of water discharging from a shower head or into a bathtub shall
- not exceed 43°C, and
 - be adjusted at the shower or bathtub controls.





2.2.10.8.(1)(e)

New Clause with a referenced Standard for direct flush valves.

- (1) Direct flush valves shall
 - (e) conform to ASSE 1037/ASME A112.1037/CSA B125.37, "Performance requirements for pressurized flushing devices for plumbing fixtures."

2.2.10.10.(1)(j),(l),(n) & (q)

Added referenced Standards for backflow preventers for fire protection systems.

Example Clause:

"Except as provided in Sentence (2), back-siphonage preventers and backflow preventers shall conform to

- j) CSA B64.4.1, "Reduced pressure principle backflow preventers for fire protection systems (RPF)," "





2.2.10.10.(2)

New referenced Standard for anti-siphon fill valves.

- (2) Back-siphonage preventers for tank-type water closets (anti-siphon fill valves) shall conform to ASSE 1002/ASME A112.1002/CSA B125.12, "Anti-siphon fill valves for water closet tanks."

2.2.10.18.(1)

New Sentence with a referenced Standard for flexible connectors.

- (1) Flexible water connectors exposed to continuous pressure shall conform to ASME A112.18.6/CSA B125.6, "Flexible water connectors."





2.3.3.4.(1)

New exception for connections made downstream of a building trap.

(1) Except as provided in Sentence 2.4.6.3.(6), running thread and packing nut connections and unions with a gasket seal shall not be used downstream of a *trap weir* in a *drainage system* or in a *venting system*.”

2.3.3.8.

Article title changed to include wall outlet fixtures.

- “Connection of Floor or Wall Outlet Fixtures”





2.3.3.8.(5)

New Sentence that permits water closet bowls to be attached to the floor.

- (5) Water-closet bowls shall be securely attached to the floor flange, floor or wall carrier.

Table 2.3.4.5.

PE-RT added to the Table for support for nominally horizontal piping.

2.3.4.5.		Division B	
Table 2.3.4.5.			
Support for Nominally Horizontal Piping			
Forming Part of Sentence 2.3.4.5.(2)			
Piping Material	Maximum Horizontal Spacing of Supports, m	Additional Support Conditions	
PEX/AL/PEX composite pipe	1.0	At the end of <i>branches</i> or <i>fixture drains</i> and at	
PEX plastic pipe	0.8	None	
PE-RT tube	0.8	None	
PP-R plastic pipe	1.0	At the end of <i>branches</i> and at changes in direction and elevation	
Stainless steel pipe			

2.3.6.5.(1)

Note added to this Sentence to permit use of a non-toxic indicating substance like an aerosol, fluorescent dye, smoke, or an odorant to assist in identifying leaks.

The substance also must be compatible with the piping material.



2.4.6.3.(3)

New Sentence requiring a water- and air-tight cover for a sump or tank.

- (3) Where the sump or tank receives subsurface water from a subsoil drainage pipe, it shall be provided with a water- and air-tight cover.

Division B

A-2.4.7.1.(6)

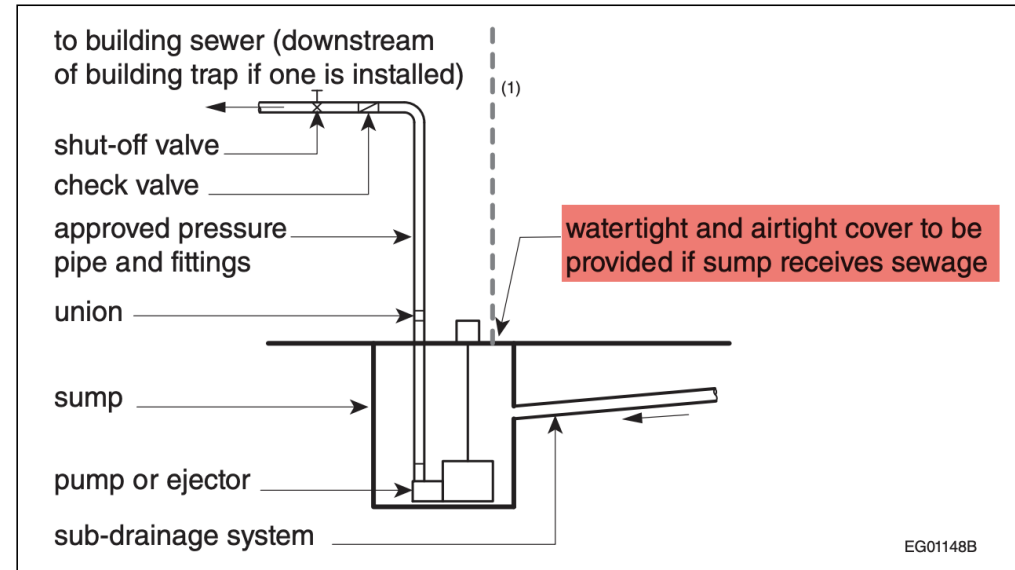


Figure A-2.4.6.3.
Arrangement of piping at sump

Note to Figure A-2.4.6.3.:

(1) See Article 2.5.7.7. for sizing of required vent if sump receives sewage.

2.4.6.4.

Sentence order rearranged.

2.4.7.4.(5)

Added reference to Note.

- (5) Cleanouts serving fixture drains in healthcare facilities, mortuaries, laboratories and similar occupancies, where contamination by hazardous waste is likely, shall be located a minimum of 150 mm above the flood level rim of the fixture. (See Note A-2.4.4.4.(1).)

A-2.4.6.4.(3) Protection from Backflow Caused by Surchage. The requirement in Sentence 2.4.6.4.(3) is intended to apply when, in the opinion of the authority having jurisdiction, there is danger of backup from a public sewer.

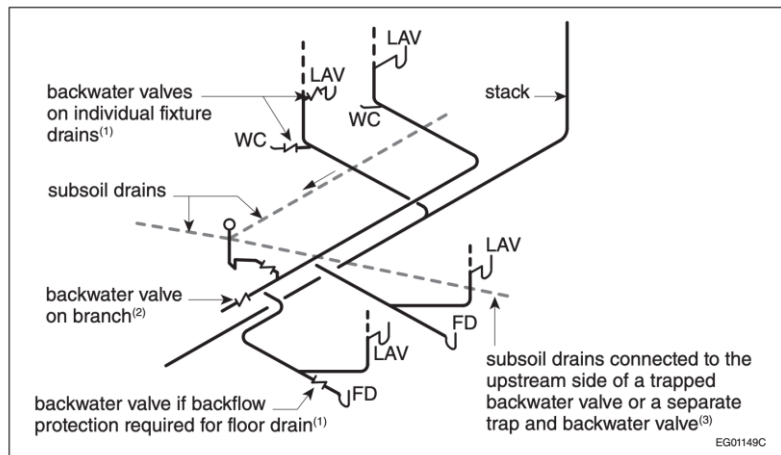


Figure A-2.4.6.4.(3)

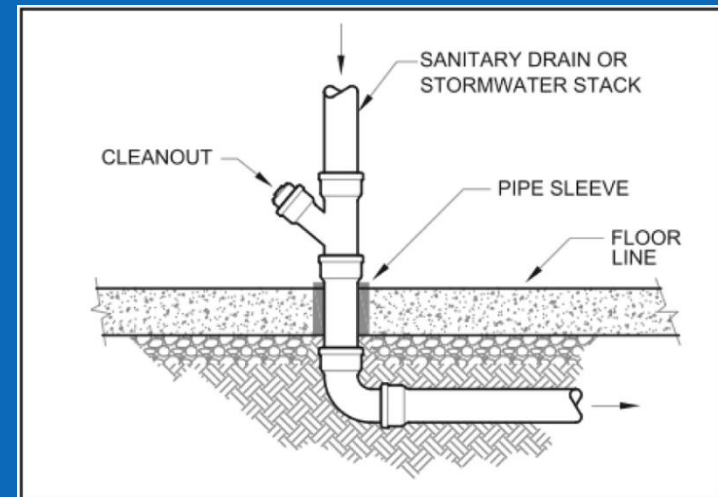


Table 2.4.9.3.

New sizing for shower drains based on litres per minute (LPM) flow.

2.4.9.4.		Division B	
Table 2.4.9.3. (Continued)			
<i>Fixture</i>	<i>Minimum Nominal Pipe Size of Fixture Outlet Pipe, NPS</i>	<i>Hydraulic Load, fixture units</i>	
Shower drain			
Total volume of discharge from all shower heads and body sprays:			
(a) < 9.5 LPM	1½	1½	
(b) 9.5 LPM to 20 LPM	2	3	
(c) > 20 LPM	3	6	
Sink			
(a) domestic and other small types with or without			



2.4.9.3.(3)

Added wording requiring NPS 2 for clothes washers. Not a change – a clarification.

- (3) Where clothes washers do not drain to a laundry tray, the *trap* inlet shall be **not less than NPS 2 and be** fitted with a vertical standpipe that is not less than 600 mm long measured from the *trap weir* and terminates above the *flood level rim* of the clothes washer. (See Note A-2.4.9.3.(3).)

Table 2.5.5.3.(1)

Added neutralizing tanks and substituted “outdoors” for “outside air”.

- (1) *Venting systems* for drain piping, **neutralizing tanks**, or dilution tanks conveying corrosive waste shall extend independently and terminate **outdoors**. (See Article 2.5.7.7. for sizing of these vents.)

2.7.7.7., 2.5.7.7.(1) and (2)

- Added neutralizing tanks in title of Article 2.5.7.7. and Sentences (1) and (2).
- Also changed wording to reflect NPS sizing.

Advanced Plumbing Technology II

ed in a required period. Manufacturers, however, can provide the required size of a neutralizing basin when furnished with the volume of flow and the characteristics of the influent. Table 19-1 is offered as a guide for selecting the size of a neutralizing basin. The sizes shown are standard manufactured basins that are readily available.

Neutralizing basins are generally constructed of plastics and fiberglass. Epoxy-coated steel or stainless steel tanks have also been used. The treatment tank material should be evaluated against the facility’s chemical list. All of the same

Number of Fixtures	Basin Size	
	Diameter, in.	Height, in.
1	12	12
2	18	12
3-6	18	24
7-20	24	36
21-50	30	57
51-100	36	70
51-100	42	52



Table 2.6.2.4.

Article revised to include the new referenced Standards for “F” designated backflow preventers.

Example: either a reduced pressure principle (RP conforming to CSA B64.4) or a reduced pressure principle for fire protection systems (RPF conforming to CSA B64.4.1) may be selected as appropriate.

2.6.2.5.(1)

Previous Code didn't permit interconnection of private and public water supply system.

Change necessary to permit non-potable systems introduced by Section 2.7.

- (1) Where a *private water supply system* or a *non-potable water system* is supplied by a public water supply system, the public water supply system shall be protected in accordance with Article 2.6.2.1.





Table 2.6.3.4.(3)

Change to NPS $\frac{1}{4}$ instead of 6.3 mm wording in previous NPC.

- (3) For *fixtures* listed in Table 2.6.3.2.-A that are permitted to have an **NPS $\frac{3}{8}$** supply pipe, a connector not more than 750 mm long and not less than **NPS $\frac{1}{4}$** may be used to supply water to the *fixture*.

2.6.3.4.(4)

Minor wording change – intent remains the same.



Section 2.7. Non-Potable Water Systems

- Section entirely revised and contains significant changes.
- Rainwater harvesting systems and the potential uses covered in much more detail than past Code editions.
- More information in BOABC conference session that follows.
- More detail to be provided in future presentations.

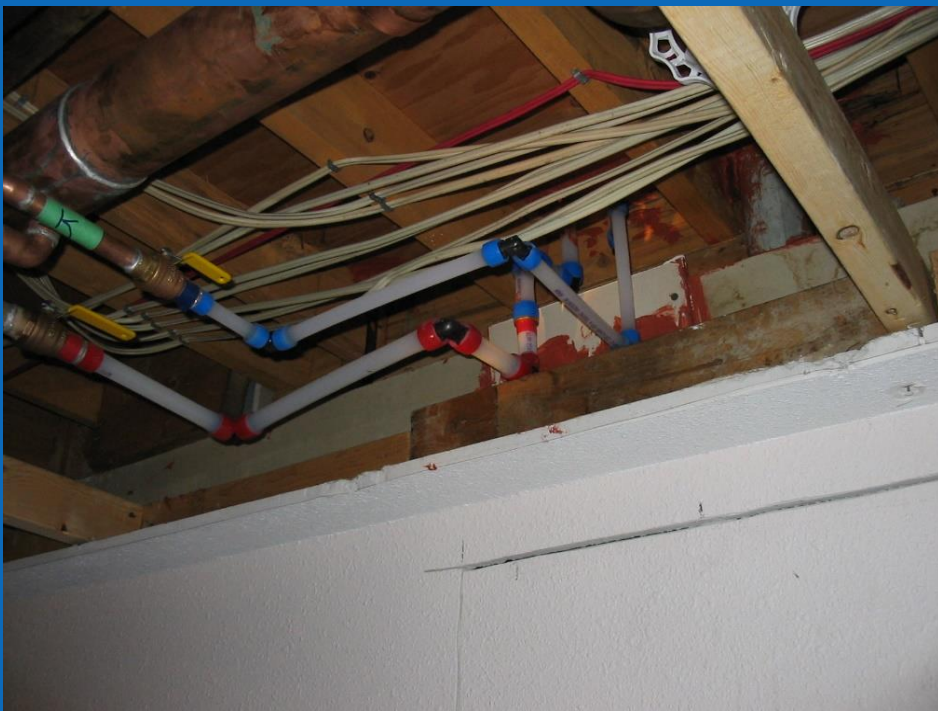


Deletions

- **2.3.4.1.(2)**
 - Floor-mounted and wall-mounted water-closet bowls shall be securely attached to the floor or wall by means of a flange and shall be stable.
- **2.4.6.4.(4)**
 - Where the fixture is a floor drain, a removable screw cap is permitted to be installed on the upstream side of the trap.
- **2.4.7.2.(2)**
 - Cleanout fittings for building drains shall be at least 4 inches in size.
- **Table 2.4.10.2.**
 - 2½" pipe deleted from Table
- **Table 2.4.10.6.-B**
 - 2½" pipe deleted from Table

Plumbing-Related Changes in the National Building Code





3.1.9.4.(2)

Slight wording change (further analysis required)

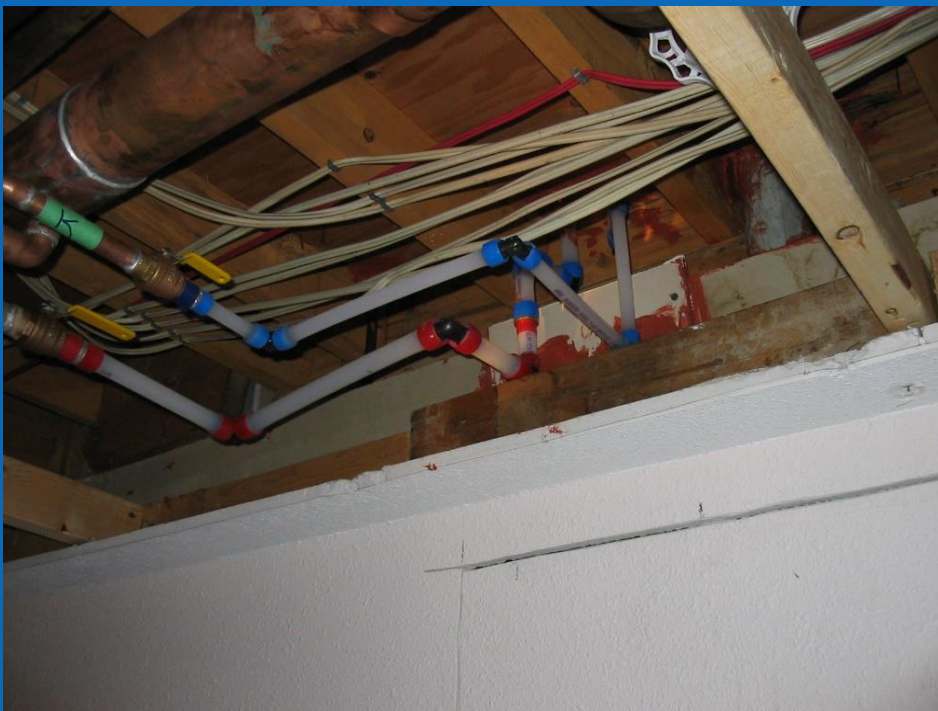
(2) *Combustible* water distribution piping is permitted to penetrate a *fire separation* that is required to have a *fire-resistance rating*, provided the piping is protected at the penetration with a *firestop* in conformance with Clause (4)(a) or (b)."

3.1.9.4.(3)

Two new Sentences added (discussed later)

- (3) Except as permitted by Sentences (4), (5), **(7) and (8)**, *combustible* piping shall not be used in a drain, waste and vent piping system if any part of that system penetrates
- a) a *fire separation* required to have a *fire-resistance rating*, or
 - b) a membrane that forms part of an assembly required to have a *fire-resistance rating*.





3.1.9.4.(4)(a)

The 50 Pa pressure differential is not required for buildings 3 storeys or less.

(4) *Combustible* drain, waste and vent piping is permitted to penetrate a *fire separation* required to have a *fire-resistance rating* or a membrane that forms part of an assembly required to have a *fire-resistance rating*, provided

a) except as provided in Clause (b), the piping is sealed at the penetration by a *firestop* that has an F rating not less than the *fire-resistance rating* required for the *fire separation* when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems,"

3.1.9.4.(4)(b)

Clause (b) has been added (buildings more than 3 storeys)

b) in *buildings* more than 3 *storeys* in *building height*, the piping is sealed at the penetration by a *firestop* that has an F rating not less than the *fire-resistance rating* required for the *fire separation* when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems," with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side, and

c) the piping is not located in a *vertical service space*.



3.1.9.4.(7)

This Sentence seems to permit combustible piping transitions where the penetrations are treated appropriately.

- (7) Except as provided in Sentence (8), penetrations of a *fire separation* that incorporate transitions between *combustible* and *noncombustible* drain, waste and vent piping shall be sealed by a *firestop* that has an F rating not less than the *fire-resistance rating* required for the *fire separation* when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems," with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side.

3.1.9.4.(8)

This Sentence permits combustible *trap arms* and *fixture drains* to connect to the vertical noncombustible piping **within a fire compartment** (taken from the Note). Notice that branches is not italicized and therefore not the defined term.

- (8) Transitions between vertical *noncombustible* drain, waste and vent piping and *combustible* branches for drain, waste and vent piping are permitted on either side of a *fire separation*, provided they are not located in a *vertical service space*. (See Note A-3.1.9.4.(8).)

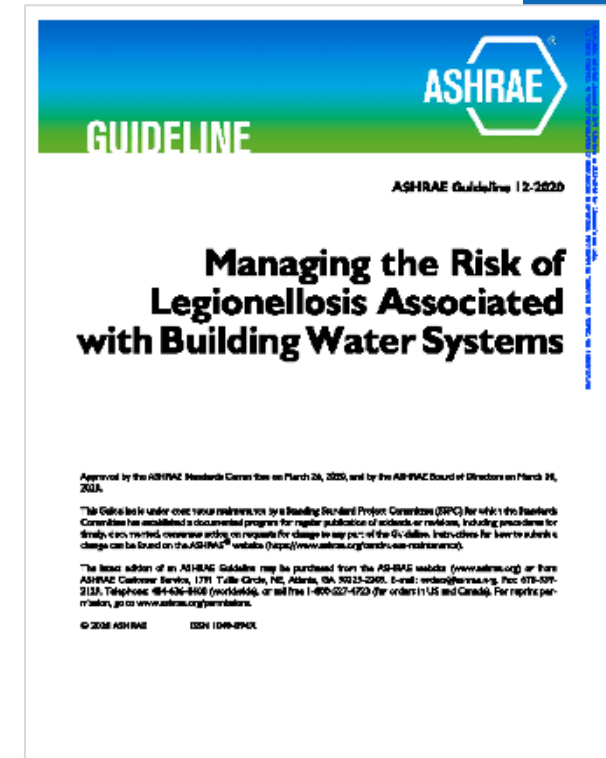


6.2.1.1.(1)(j)

Clause references new document – ASHRAE Guideline 12.

All Building Officials should be familiar with information related to minimizing risk of legionella propagation in water systems.

Changes likely to come in future Code editions to deal with this issue.





Thank you

What questions do you have?

