## 2014 VBBL Book I - Consolidated Changes & Errata: By-laws #10994 to 12104

Revision:September 10, 2018Effective:May 15, 2018 [Housekeeping changes]

### Legend:

Greybar text is Unique to Vancouver Purple text are #11364 changes. Red text are #11687 changes effective May 1, 2017. Blue text are errata to By-laws #11180 & #11687 . Green text are #11748 effective March 1, 2018 & #11776 effective January 1, 2018. Orange text are 11996 & 12013 effective January 1, 2018 & March 1, 2018 for Part 10 changes. Tan text are 12103 & 12104 effective May 15, 2018 & various.

Struckout text is not to be read as part of the by-law, but is provided as an administrative convenience to show where a change has occurred.

Consolidated Set Errata:pg.144b:Updated 3.2.5.5.(3) as per By-law #11996.General:Miscellaneous formatting updates

**Instructions:** Insert pages between successive pages as numbered (i.e. page 4a or 4b is inserted between pages 4 & 5). Specifics instructions may also be included after the header in [backets].

Note: It is recommended that Division C be moved to Volume 2 of Book I to make room for the insert pages.

Consolidated Set - Page i

Consolidated Set - Page ii

Set 1 - Page 4a

## Div. A, 1.1.1.(1) Application of this By-law

1) This By-law applies to any one or more of the following: a) the design and *construction* of a new *building*, b) the *occupancy* of any *building*, c) a change in *occupancy* of any *building*, d) an *alteration* of any *building*, e) an *addition* to any *building*, f) the *demolition* of any *building*, g) the reconstruction of any *building* that has been damaged by fire, earthquake or other cause, h) the correction of an *unsafe condition* in or about any *building*, i) all parts of any *building* that are affected by a change in *occupancy*, j) the work necessary to ensure safety in parts of a building i) that remain after a *demolition*, ii) that are affected by but that are not directly involved in alterations, or iii) that are affected by but not directly involved in additions, k) except as permitted by the Fire By-law, the installation, replacement, or *alteration* of materials or equipment regulated by this By-law, I) the work necessary to ensure safety in a relocated or removed *building* during and after relocation or removal, m) safety during *construction* of a *building*, including protection of the public, n) the design, installation, extension, *alteration*, renewal or repair of *plumbing systems*, o) the *alteration*, rehabilitation and change of *occupancy* of *heritage buildings*, p) the design and *construction* of a *marina*, q) the alteration of a marina, and

r) retaining structures greater than 1.2 m in height.

(See Appendix A).

Set 1 - Page 4b

# **Div. A, 1.1.1.1.(2) Application of this By-law** [Delete Clause (i) in Sentence (2)]

i) [Deleted]

Set 3 - Page 6a

Set 3 - Page 6b

[Add the following new definitions in alphabetical order]

### Acceptable equivalency means:

(a) that the person proposing to use a *plumbing fixture* that does not conform with the specifications in this By-law must, at their expense, ensure that

(i) an independent qualified third party tests the *plumbing fixture* and documents that the *plumbing fixture* meets or exceeds the specifications of this By-law,

(ii) the test procedures and documented results are reviewed and verified by an independent qualified *registered professional*,

(iii) copies of all test procedures, documented results and verification reports are provided to the *Chief Building Official*, and

(b) the test procedures, documented results and verification are acceptable.

Ancillary Residential Building meaning a building entirely of residential occupancy, constructed on the same parcel and smaller than the primary residential building and containing not more than one dwelling unit and its subsidiary uses, such as a laneway house

Set 1 - Page 10a

Set 1 - Page 10b

[Add the following new definitions in alphabetical order]

*Clear-water waste* means waste water with impurity levels that will not be harmful to health and may include cooling water and condensate drainage from refrigeration and air-conditioning equipment and cooled condensate from steam heating systems, but does not include *storm water*. (See Book II, Division A, Appendix A.)

Set 2 - Page 12a

[Add the following new definitions in alphabetical order]

*Conveyor vehicle wash* means a system for washing vehicles where the vehicle moves through a tunnel during the wash and the driver of the vehicle can remain in, or wait outside of, the vehicle.

*Dangerous goods* means those products or substances that are regulated by the "Transportation of Dangerous Goods Regulations." (See Table 3.2.7.1. of Division B of the Vancouver Fire By-law.)

Set 2 - Page 12b

[Add the following new definitions in alphabetical order]

*Drainage system* means an assembly of pipes, fittings, *fixtures, traps* and appurtenances that is used to convey *sewage, clear-water waste* or *storm water* to a public *sewer* or a *private sewage disposal system*, but does not include *subsoil drainage pipes*. (See Figure A-1.4.1.2.(1)-I in Book II, Division A, Appendix A.)

Set 2 - Page 14a

Div. A, 1.4.1.2.(1) Defined Terms [Add the following new definitions in alphabetical order]

*Fixture* (as applying to plumbing) means a receptacle, appliance, apparatus or other device that discharges *sewage* or *clear-water waste*, and includes a *floor drain*.

Set 2 - Page 14b

# Div. A, 1.4.1.2.(1) Defined Terms [Replace the definition as follows]

Greenhouse Gas has the meaning attributed to it in section 559 of the Vancouver Charter.

Set 3 - Page 16a

[Add the following new definitions in alphabetical order]

*In-bay vehicle wash* means a non-domestic vehicle wash where the driver pulls into a bay, parks the vehicle, and the vehicle remains stationary while either a machine moves over the vehicle to clean it or one or more employees of the facility clean the vehicle, instead of the vehicle moving through a tunnel.

Leader means a pipe that is installed to carry storm water from a roof to a storm building drain or sewer or other place of disposal.

Set 3 - Page 16b

**Div. A**, **1.4.1.2.(1) Defined Terms** [Add the following new definition in alphabetical order]

Metering fixture means a self-closing plumbing fixture that dispenses a specific volume of water for each actuation cycle.

Set 3 - Page 18a

[Add the following new definitions in alphabetical order]

*Pre-rinse spray valve* means a handheld device for use with commercial dishwashing and ware washing equipment that sprays water on dishes, flatware, and other food service items for the purpose of removing food residue before cleaning and sanitizing the items.

*Private use* (as applying to the classification of *plumbing fixtures*) means *fixtures* in residences and apartments, in private bathrooms of hotels, and in similar installations in other *buildings* for one family or an individual.

*Public use* (as applying to the classification of *plumbing fixtures*) means *fixtures* in general washrooms of schools, gymnasiums, hotels, bars, public comfort stations and other installations where *fixtures* are installed so that their use is unrestricted.

Set 3 - Page 18b

[Add the following new definitions in alphabetical order]

Self-service vehicle wash means a commercial vehicle wash where a customer washes their own vehicle.

Sewage means any liquid waste other than clear-water waste or storm water.

Shower head means any fitting that transmits water for the purposes of showering and includes rain heads, rain tiles, rain systems, waterfalls, body sprays and jets. A hand-held shower shall be considered a *shower head*.

Set 3 - Page 20a

Div. A, 1.4.1.2.(1) Defined Terms [Add the following new definitions in alphabetical order]

Storm water means water that is discharged from a surface as a result of rainfall or snowfall.

Subsoil drainage pipe means a pipe that is installed underground to intercept and convey subsurface water.

Set 3 - Page 20b

[Add the following new definitions in alphabetical order]

Trap means a fitting or device that is designed to hold a liquid seal that will prevent the passage of gas but will not materially affect the flow of a liquid.

## Div. A, 1.4.2.1.(1) Symbols and Other Abbreviations

[Add the following new abbreviations in alphabetical order]

ERV ..... Energy Recovery Ventilator GHG ..... Greenhouse Gas HRV ..... Heat Recovery Ventilator kWh ..... Kilowatt hour(s)

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Set 3 - Page 22b

Set 3 - Page 36a

## Div. B, 1.1.3.1.(1) Climatic and Seismic Values

1) Except as required by Sentence (3), the climatic and seismic values required for the design of *buildings* under this By-law shall be in conformance with Table 1.1.3.1.A and Table 1.1.3.1.B.

Set 3 - Page 36b

# Div. B, Table 1.3.1.2.(1) Documents Referenced in Book I [Instruction: Replace Table 1.3.1.2. with the following]

	Table 1.3.1.2.     Documents Referenced in the Book I (General) of the Building By-law     Forming part of Sentence 1.3.1.2 (1)			
lssuing Agency	Document Number(1)	Title of Document <sup>(2)</sup>	By-law Reference	
AISI	S201-07	North American Standard for Cold-Formed Steel Framing - Product Data	9.24.1.2.(1)	
ANSI	A208.1-2009	Particleboard	Table 5.10.1.1. 9.23.15.2.(3) 9.29.9.1.(1) 9.30.2.2.(1)	
ANSI/ ASHRAE	62.1-2001 (except Addendum n)	Ventilation for Acceptable Indoor Air Quality	6.2.2.1.(2)	
ansi/ Ashrae/ Iesna	90.1-2010	Energy Standard for Buildings Except Low-Rise Residential Buildings	10.2.1.1.(1)(a)	
ASME	B18.6.1-1981	Wood Screws (Inch Series)	Table 5.10.1.1. 9.23.3.1.(3)	
ASME/CSA	ASME A17.1-2007/CSA B44-10	Safety Code for Elevators and Escalators	3.2.6.7.(2) 3.5.2.1.(3) 3.5.4.2.(1) 3.8.3.10.(1) Table 4.1.5.11.	
ASTM	A 123/A 123M-09	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products	Table 5.10.1.1. Table 9.20.16.1.	
ASTM	A 153/A 153M-09	Zinc Coating (Hot-Dip) on Iron and Steel Hardware	Table 5.10.1.1. Table 9.20.16.1.	
ASTM	A 252-10	Welded and Seamless Steel Pipe Piles	4.2.3.8.(1)	
ASTM	A 283/A 283M-03	Low and Intermediate Tensile Strength Carbon Steel Plates	4.2.3.8.(1)	
ASTM	A 653/A 653M-11	Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process	Table 5.10.1.1. 9.3.3.2.(1)	
ASTM	A 792/A 792M-10	Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process	9.3.3.2.(1)	
ASTM	A 1008/A 1008M-11	Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable	4.2.3.8.(1)	
ASTM	A 1011/A 1011M-10	Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength	4.2.3.8.(1)	
ASTM	C 4-04	Clay Drain Tile and Perforated Clay Drain Tile	Table 5.10.1.1. 9.14.3.1.(1)	
ASTM	C 27-98	Classification of Fireclay and High-Alumina Refractory Brick	9.21.3.4.(1)	
ASTM	C 73-10	Calcium Silicate Brick (Sand-Lime Brick)	Table 5.10.1.1. 9.20.2.1.(1)	
ASTM	C 126-11	Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	Table 5.10.1.1. 9.20.2.1.(1)	
ASTM	C 212-10	Structural Clay Facing Tile	Table 5.10.1.1. 9.20.2.1.(1)	
ASTM	C 260/C 260M-10a	Air-Entraining Admixtures for Concrete	9.3.1.8.(1)	

ASTM	C 411-11	Hot-Surface Performance of High-Temperature Thermal Insulation	3.6.5.4.(4) 3.6.5.5.(1) 9.33.6.4.(4)
ASTM	C 412M-11	Concrete Drain Tile (Metric)	7.33.0.2.(2) Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C 444M-03	Perforated Concrete Pipe (Metric)	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C 494/C 494M-11	Chemical Admixtures for Concrete	9.3.1.8.(1)
ASTM	C 553-11	Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications	Table 5.10.1.1.
ASTM	C 612-10	Mineral Fiber Block and Board Thermal Insulation	Table 5.10.1.1.
ASTM	C 700-11	Vitrified Clay Pipe, Extra Strength, Standard Strength and Perforated	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C 834-10	Latex Sealants	Table 5.10.1.1. 9.27.4.2.(2)
ASTM	C 920-11	Elastomeric Joint Sealants	Table 5.10.1.1. 9.27.4.2.(2)
ASTM	C 954-11	Steel Drill Screws for the Application of Gypsum Panel Products or Meta Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness	19.24.1.4.(1)
ASTM	C 991-08e1	Flexible Fibrous Glass Insulation for Metal Buildings	Table 5.10.1.1.
ASTM	C 1002-07	Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs	Table 5.10.1.1. 9.24.1.4.(1) 9.29.5.7.(1)
ASTM	C 1177/C 1177M-08	Glass Mat Gypsum Substrate for Use as Sheathing	Table 5.10.1.1. Table 9.23.17.2.A
ASTM	C 1178/C 1178M-11	Coated Glass Mat Water-Resistant Gypsum Backing Panel	Table 5.10.1.1. 9.29.5.2.(1)
ASTM	C 1184-05	Structural Silicone Sealants	Table 5.10.1.1. 9.27.4.2.(2)
ASTM	C 1311-10	Solvent Release Sealants	Table 5.10.1.1. 9.27.4.2.(2)
ASTM	C 1330-02	Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants	Table 5.10.1.1. 9.27.4.2.(3)
ASTM	C 1396/C 1396M-11	Gypsum Board	3.1.5.12.(4) Table 5.10.1.1. Table 9.23.17.2.A 9.29.5.2.(1) Table 9.29.5.3.
ASTM	D 323-08	Vapour Pressure of Petroleum Products (Reid Method)	1.4.1.2.(1) <sup>(3)</sup>
ASTM	D 2178-04	Asphalt Glass Felt Used in Roofing and Waterproofing	Table 5.10.1.1.
ASTM	D 2898-10	Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing	J 3.1.5.5.(5) 3.1.5.21.(1) 3.2.2.50.(3) 3.2.3.7.(4) 9.10.14.5.(3) 9.10.15.5.(3)
ASTM	E 90-04	Laboratory Measurement of Airborne Sound Transmission Loss of	5.9.1.1.(1)
		Building Partitions and Elements	9.11.1.1.(1)

ASTM	E 96/E 96M-10	Water Vapour Transmission of Materials	5.5.1.2.(3)
			9.25.4.2.(1)
			9.25.5.1.(1)
			9.30.1.2.(1)
ASTM	E 336-05	Measurement of Airborne Sound Attenuation between Rooms in Buildings	5.9.1.1.(1) 9.11.1.1.(1)
ASTM	E 413-04	Classification for Rating Sound Insulation	5.9.1.1.(1)
			9.11.1.1.(1)
ASTM	E 779-10	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	10.2.2.21.(1)
ASTM	E 2190-10	Insulating Glass Unit Performance and Evaluation	Table 5.10.1.1.
			9.6.1.2.(1)
ASTM	F 476-84	Security of Swinging Door Assemblies	9.7.5.2.(2)
ASTM	F 1667-05	Driven Fasteners: Nails, Spikes, and Staples	9.23.3.1.(1)
			9.26.2.2.(1)
			9.29.5.6.(1)
AWPA	M4-11	Care of Preservative-Treated Wood Products	4.2.3.2.(2)
01		Eter De Leer	
City		Fire By-law	$1.1.1.1.(1)^{(3)}$
			1.1.4.1.(1) 1 / 1 2 (1)(3)
			2 1 1 2 (4)(3)
			3.1.13.1.(1)
			3.2.3.21.(1)
			3.2.4.6.(1)
			3.2.5.16.(1)
			3.3.1.2.(1)
			3.3.1.10.(1)
			3.3.2.3.(1)
			3.3.2.15.(1)
			3.3.4.3.(4) 2.2 E 2 (1)
			3.3.3.2.(1)
			3 3 6 3 (1)
			3.3.6.3.(2)
			3.3.6.4.(1)
			3.3.6.4.(2)
			3.3.6.6.(1)
			6.2.2.6.(1)
			6.2.12.2.(3)
			6.2.12.3.(1)
			0.2.12.4.(1)
			0.1.1.1.(3) 8 1 1 3 (1)
			9 10 1 2 (1)
			9.10.20.4.(1)
			9.10.21.8.(1)
City		Book II (Plumbing Systems) of the By-law	2.1.1.2.(4) <sup>(3)</sup>
			5.6.2.2.(2)
			7.1.2.1.(1)
			9.31.6.2.(1)
BC	R.S.B.C. 1996, c. 17	Architects Act	1.4.1.2.(1) <sup>(3)</sup>

BC     BC<	BC	B.C. Reg. 100/2004	Electrical Safety Regulation	3.3.6.2.(4)
BC     Engineers and Geoscientists Act     14.12 (1)@     BC     BC <td></td> <td>2.0</td> <td></td> <td>3.6.1.2.(1)</td>		2.0		3.6.1.2.(1)
BC     56.27.(1)     56.27.(1)       BC     BC     82.14.(1)     9.31.6.2.(2)       9.33.5.2.(1)     9.33.5.2.(1)     9.33.5.2.(1)       BC     B.C. Reg. 101/2004     Elevating Devices Safety Regulation     3.5.2.1.(2)       BC     R.S.B.C. 1996, c. 116     Engineers and Geoscientists Act     1.4.1.2.(1) <sup>19</sup> BC     B.C. Reg. 103/2004     Gas Safety Regulation     9.21.4.1.(1)       BC     R.S.B.C. 1996, c. 323     Local Government Act     9.31.6.2.(2)       BC     R.S.B.C. 1996, c. 323     Local Government Act     9.31.6.2.(1)       BC     R.S.B.C. 1996, c. 323     Local Government Act     9.21.1.(1) <sup>19</sup> BC     R.S.B.C. 1996, c. 323     Local Government Act     9.21.4.(2)       BC     S.B.C. 2003, c. 39     Safety Standards Act     6.21.4.(1)       BC     B.C. Reg. 104/2004     Regulation     9.33.5.2.(2)       BC     NC 3624115/2007     Power Engineers, Bolier, Pressure Vessel and Refigeration Safety     7.21.4.(2)       BNO     NG 3624115/2007     Polyethylene (PE) Pipe and Fittings - Flexible Pipes for Drainage - Table 5.10.1.1.     9.43.5.2.(2)				3.6.2.1.(6)
BC     BC. Reg. 101/2004     Elevating Devices Safety Regulation     35.2.(1) 9.33.5.2.(1) 9.33.5.2.(1) 9.33.5.2.(1) 9.33.5.2.(1)       BC     B.C. Reg. 101/2004     Engineers and Geoscientists Act     14.1.2.(1)/a       BC     B.C. Reg. 103/2004     Gas Safety Regulation     52.1.(2) 9.33.5.2.(1) 9.03.6.2.(2) 9.33.5.2.(1)       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1.(1)/a       BC     R.C. Reg. 104/2004     Power Engineers, Boller, Pressure Vessel and Retrigeration Safety     62.1.4.(1) 9.31.5.2.(1) 9.33.5.2.(1)       BND     NO 3624-115/2007     Polyethylene (PE) Pipe and Fittings - Flexible Pip				3.6.2.7.(1)
BC     B.C. Reg. 101/2004     Elevating Devices Safety Regulation     35.21 (1) 9.34.1.1 (1)       BC     R.S.B.C. 1996, c. 116     Engineers and Geoscientists Act     14.12 (1) <sup>(0)</sup> BC     R.S.B.C. 1996, c. 116     Engineers and Geoscientists Act     14.12 (1) <sup>(0)</sup> BC     R.S.B.C. 1996, c. 123     Local Government Act     62.14 (1) 9.10 22.1 (1) 9.33 5.2 (1)       BC     R.S.B.C. 1996, c. 323     Local Government Act     62.14 (1) 6.2.14 (1)       BC     R.S.B.C. 1996, c. 233     Local Government Act     62.14 (1) 6.2.14 (2)       BC     R.S.B.C. 1996, c. 293     Mines Act     62.14 (1) 6.2.14 (2)       BC     S.B.C. 2003, c. 39     Safety Standards Act     62.14 (1) 6.2.14 (2)       BC     B.C. Reg. 104/2004     Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety 8.2.14 (2)     9.33 5.2.(1)       BNQ     NO 3624-115/2007     Polyethylene (PE) Pipe and Fittings – Floatible Pipes for Drainage – 9.14 3.1 (1)     74.4 3.1 (1)       CGSFC     NRCC 58435-2011     National Farm Building Code of Canada 1995     1.1.1.1 (4)       CGSB     CANICGSB-1.0.3-92     Artional Farm Building Code of Canada 1995     1.1.1.1 (4)       CGSB     CANICGSB-1.0				6 2 1 4 (1)
BC     BC. Reg. 101/2004     Elevating Devices Safety Regulation     35.2.1 () 924.1.1.(1)       BC     R.S.B.C. 1996, c. 116     Engineers and Geoscientists Act     14.1.2 (1) <sup>(7)</sup> BC     B.C. Reg. 103/2004     Gas Safety Regulation     62.1.4 (I) 9.10.22.1 (I)       BC     R.S.B.C. 1996, c. 323     Local Government Act     22.1.1 (I) <sup>(9)</sup> BC     R.S.B.C. 1996, c. 323     Local Government Act     21.1.1 (I) <sup>(9)</sup> BC     R.S.B.C. 1996, c. 323     Local Government Act     21.1.1 (I) <sup>(9)</sup> BC     R.S.B.C. 1996, c. 323     Local Government Act     62.1.4 (I)       BC     R.S.B.C. 1996, c. 323     Mines Act     62.1.4 (I)       BC     R.S.B.C. 1996, c. 323     Local Government Act     62.1.4 (I)       BC     R.S.B.C. 1996, c. 323     Local Government Act     62.1.4 (I)       BC     R.S.B.C. 1996, c. 323     Nore Engineers, Bolier, Pressure Vessel and Refrigeration Safety     62.1.4 (I)       BC     B.C. Reg. 104/2004     Power Engineers, Bolier, Pressure Vessel and Refrigeration Safety     62.1.4 (I)       BC     B.C. Reg. 104/2007     Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage     114.3.1 (I)				9.31.6.2.(2)
BC     B.C. Reg. 101/2004     Elevating Devices Safety Regulation     35.2.1 (1) 35.2.1 (1) 35.2.1 (2)       BC     R.S.B.C. 1996, c. 116     Engineers and Geoscientists Act     14.1.2 (1)/9       BC     B.C. Reg. 103/2004     Gas Safety Regulation     62.1.4 (1) 9 (10.2.2.1 (1) 9 (10.2.2.1 (1) 9 (10.2.2.2 (1				9 33 5 2 (1)
BC     B. C. Reg. 101/2004     Elevating Devices Safety Regulation     35.2.1.(1) 33.2.1.(2)       BC     R.S.B.C. 1996. c. 116     Engineers and Geoscientists Act     1.1.1.2.(1) <sup>30</sup> .       BC     B.C. Reg. 103/2004     Gas Safety Regulation     6.2.1.4.(1) 9.31.6.2.(2) 9.33.5.2.(1)       BC     R.S.B.C. 1996. c. 323     Local Government Act     2.2.1.1.(1) <sup>30</sup> .       BC     R.S.B.C. 1996. c. 323     Local Government Act     2.2.1.1.(1) <sup>30</sup> .       BC     R.S.B.C. 1996. c. 323     Local Government Act     2.2.1.1.(1) <sup>30</sup> .       BC     R.S.B.C. 2003. c. 39     Safety Standards Act     6.2.1.4.(2) 9.33.5.2.(1)       BC     S.B.C. 2003. c. 39     Safety Standards Act     6.2.1.4.(2) 9.33.5.2.(1)       BNO     NO 3624-115/2007     Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety 9.35.5.2.(1)     9.33.5.2.(2)       BNO     NO 3624-115/2007     Pohyethylene (PE) Pipe and Filtings – Flexible Pipes for Drainage – Characteristics and Test Methods     11.1.1.(4)       CCBFC     NRCC 54435-2011     National Energy Code of Canada 1995     1.1.1.1.(4)       CGSB     CANVCGSB-1.501-M89     Method for Permeance of Coated Wallboard     55.1.2.(2) 9.22.3.(1)       CGSB				9.34.1.1.(1)
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BC     B.C. Reg. 103/2004     Gas Safety Regulation     62.1.4.(1) (9.10.22.1.(1) 9.31.5.2 (2) 9.33.5.2 (1)       BC     R.S.B.C. 1996, c. 323     Local Government Act     2.2.1.1.(1)(4)       BC     R.S.B.C. 1996, c. 223     Mines Act     1.4.1.2.(1)(7)       BC     R.S.B.C. 1996, c. 293     Mines Act     6.2.1.4.(1)       BC     S.B.C. 2003, c. 39     Safety Standards Act     6.2.1.4.(1)       BC     S.B.C. 2003, c. 39     Safety Standards Act     6.2.1.4.(1)       BC     B.C. Reg. 104/2004     Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation     6.2.1.4.(1)       BNO     NO 3624-115/2007     Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage – 11.1.1.(4)     11.1.1.(4)       CCBFC     NRCC 38732     National Energy Code of Canada for Buildings     10.2.2.3.(1)       CGSB     CAN/CGSB-1.501-M89     Method for Permeance of Coaled Wallboard     5.1.2.(2)       GGSB     CAN/CGSB-1.501-M89     Method for Permeance of Coaled Wallboard     9.21.3.4.(1)       GGSB     CAN/CGSB-1.501-M89     Hardboard     1.1.3.4.(2)     9.27.1.(1)       GGSB     CAN/CGSB-1.3.92     Air Setting Refractory Finished, for	BC	R.S.B.C. 1996. c. 116	Engineers and Geoscientists Act	1.4.1.2.(1) <sup>(3)</sup>
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BC     R.S.B.C. 1996, c. 323     Local Government Act     2.2.11.(1)@       BC     R.S.B.C. 1996, c. 293     Mines Act     1.4.1.2 (1) <sup>(2)</sup> BC     R.S.B.C. 1996, c. 293     Mines Act     1.4.1.2 (1) <sup>(2)</sup> BC     S.B.C. 2003, c. 39     Safety Standards Act     6.2.1.4.(1)       BC     S.B.C. 2003, c. 39     Safety Standards Act     6.2.1.4.(2)       9.33.5.2 (2)     9.33.5.2 (2)     9.33.5.2 (2)     9.33.5.2 (2)       BC     B.C. Reg. 104/2004     Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety     6.2.1.4.(1)       9.33.5.2 (2)     Power Engineers and Fittings – Flexible Pipes for Drainage –     Table 5.10.1.1.       9.33.5.2 (1)     Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage –     Table 5.10.1.1.       9.33.5.2 (2)     National Farm Building Code of Canada 1995     1.1.1.1.(4)       CCBFC     NRCC 54435-2011     National Farm Building Code of Canada for Buildings     10.2.2.3       CGSB     CAN/CGSB-1.501-M89     Method for Permeance of Coaled Wallboard     9.2.5.4.2.(5)       CGSB     CAN/CGSB-1.3.92     Air Setting Refractory Mortar     9.21.3.4.(2)       9.21.3.9.(1)     9.2.2.2.		D.0. Reg. 100/2001		9.10.22.1.(1)
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CGSB     CAN/CGSB-12.2-M91     Flat, Clear Sheet Glass     Table 5.10.1.1. 9.6.1.2.(1)     Stat.117A(2)	CGSB		Tempered or Laminated Safety Glass	3 3 1 19 (2)
CGSB   CAN/CGSB-12.2-M91   Flat, Clear Sheet Glass   Table 5.10.1.1. 9.6.1.2.(1)     CGSB   CAN/CGSB-12.3-M91   Flat, Clear Float Glass   Table 5.10.1.1. 9.6.1.2.(1)		0/11/0030 12:1 11/0	Tempered of Edminated outery Glass	3 4 6 15 (1)
CGSB   CAN/CGSB-12.2-M91   Flat, Clear Sheet Glass   Table 5.10.1.1. 9.6.1.2.(1) 9.8.8.7.(1)     CGSB   CAN/CGSB-12.3-M91   Flat, Clear Float Glass   Table 5.10.1.1. 9.6.1.2.(1)				3 4 6 15 (3)
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CGSB CAN/CGSB-12.3-M91 Flat, Clear Float Glass Table 5.10.1.1. 9.6.1.2.(1)		Gr 11 V/ G G G D - 12.2 - 1V17 1		9.6.1.2.(1)
9.6.1.2.(1)	CGSB	CAN/CGSB-12.3-M91	Flat, Clear Float Glass	Table 5.10.1.1.
				9.6.1.2.(1)

1			
CGSB	CAN/CGSB-12.4-M91	Heat Absorbing Glass	Table 5.10.1.1. 9.6.1.2.(1)
CGSB	CAN/CGSB-12.8-97	Insulating Glass Units	Table 5.10.1.1. 9.6.1.2 (1)
CGSB	CAN/CGSB-12.10-M76	Glass, Light and Heat Reflecting	Table 5.10.1.1.
CGSB	CAN/CGSB-12.11-M90	Wired Safety Glass	3.3.1.19.(2) 3.4.6.15.(1) 2.4.6.15 (2)
			Table 5.10.1.1. 9.6.1.2.(1) 9.6.1.4.(1) 9.8.8.7.(1)
CGSB	CAN/CGSB-12.20-M89	Structural Design of Glass for Buildings	4.3.6.1.(1) 9.6.1.3.(1)
CGSB	CAN/CGSB-19.21-M87	Sealing and Bedding Compound, Acoustical	9.11.3.1.(1)
CGSB	CAN/CGSB-19 22-M89	Mildew-Resistant Sealing Compound for Tubs and Tiles	9 29 10 5 (1)
CGSB	CAN/CGSB-34 22-94	Ashestos-Cement Drain Pine	Table 5 10 1 1
			9.14.3.1.(1)
CGSB	CAN/CGSB-37.1-M89	Chemical Emulsifier Type, Emulsified Asphalt for Dampproofing	Table 5.10.1.1. 9.13.2.2.(1)
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		Noncombustible Particulate Solids	
NFPA	96-2011	Ventilation Control and Fire Protection of Commercial Cooking	3.2.4.9.(2)
		Operations	6.2.2.7.(1)
NFPA	101-2012	Life Safety Code	3.3.2.1.(2)
			3.3.2.1.(3)
NFPA	211-2010	Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances	6.3.1.2.(2)
			6.3.1.3.(1)
NFPA	214-2011	Water-Cooling Towers	6.2.3.14.(3)
NLGA	2010	Standard Grading Rules for Canadian Lumber	9.3.2.1.(1)
SMACNA	ANSI/SMACNA 006-2006	HVAC Duct Construction Standards – Metal and Flexible	9.33.6.5.(2)
TC		Canadian Aviation Regulations – Part III	4.1.5.13.(1)
TPIC	2011	Truss Design Procedures and Specifications for Light Metal Plate	9.23.14.11.(6)
		Connected Wood Trusses	
UL	ANSI/UL 300-2005	Fire Testing of Fire Extinguishing Systems for Protection	6.2.2.7.(2)
		of Commercial Cooking Equipment	
ULC	CAN/ULC-S101-07	Fire Endurance Tests of Building Construction and Materials	3.1.5.12.(3)
			3.1.5.12.(4)
			3.1.5.12.(6)
			3.1.7.1.(1)
			3.1.11.7.(1)
			3.2.3.8.(1) 2.2.4 E (4)
			3.2.0.3.(0) 0 10 16 2 (1)
	CAN/ULC \$102.10	Test for Surface Burning Characteristics of Building Materials and	2.10.10.3.(1)
ULC	CAIN/0LC-3102-10	Assomblies	3.1.3.21.(1) 2 1 12 1 (1)
		ASSEIIDIICS	3.1.12.1.(1)
	CAN/ULC_S102.2-07	Test for Surface Burning Characteristics of Flooring, Floor Coverings	3.1.12.1.(2)
ULC	CAN/020-3102.2-07	and Miscellaneous Materials and Assemblies	3.1.12.1.(2)
	CAN/ULC-S102 3-07	Fire Test of Light Diffusers and Lenses	3 1 13 4 (1)
	CAN/ULC \$102.5-07	Fire and Smoke Characteristics of Electrical Wiring and Cables	2 1 5 19 (2)
ULC	CAN/0EC-3102.4-10	The and Shoke Characteristics of Electrical Winny and Cables	3 1 5 20 (2)
	CAN4-S104-M80	Fire Tests of Door Assemblies	3 1 8 4 (1)
			3.2.6.5.(3)
ULC	CAN4-S105-M85	Fire Door Frames Meeting the Performance Required by CAN4-S104	9.10.13.6.(1)
ULC	CAN4-S106-M80	Fire Tests of Window and Glass Block Assemblies	3.1.8.4.(1)
ULC	CAN/ULC-S107-10	Fire Tests of Roof Coverings	3.1.15.1.(1)
ULC	CAN/ULC-S109-03	Flame Tests of Flame-Resistant Fabrics and Films	3.1.6.5.(1)
			3.1.16.1.(1)
			3.6.5.2.(2)
			3.6.5.3.(1)
			9.33.6.3.(1)

	3.6.5.1.(5)		
	9 33 6 2 (2)		
	7.55.0.2.(2)		
	9.33.6.2.(4)		
ULC ULC-S111-0/ Fire Lests for Air Filter Units	6.2.3.13.(1)		
LIL C CAN/ULI C C112.10 Fire Test of Fire Domner Assemblies	9.33.0.14.(1)		
ULC CAN/ULC-STI2-10 Fire Test of Fire-Damper Assemblies	3.1.8.4.(1)		
ULC CAN/ULC-STI2.1-10 Leakage Rated Dampers for Use in Smoke Control Systems	6.2.3.9.(3)		
ULC CAN/ULC-STI3-07 Wood Core Doors Meeting the Performance Required by CAN/ULC S104 for Twenty Minute Fire Rated Closure Assemblies	- 9.10.13.2.(1)		
ULC CAN/ULC-S114-05 Test for Determination of Non-Combustibility in Building Materials	1.4.1.2.(1) <sup>(3)</sup>		
ULC CAN/ULC-S115-11 Fire Tests of Firestop Systems	3.1.5.16.(3)		
	3.1.9.1.(1)		
	3.1.9.1.(2)		
	3.1.9.1.(3)		
	3.1.9.4.(4) 0.10.0.6 (2)		
	9.10.9.7 (3)		
III C CAN/ULC-S124-06 Test for the Evaluation of Protective Coverings for Enamed Plastic	3 1 5 12 (2)		
III C CAN/III C-S126-06 Test for Fire Spread Linder Roof-Deck Assemblies	3 1 14 1 (1)		
III C CAN/III C-S134-92 Fire Test of Exterior Wall Assemblies	3.1.14.1.(1)		
	3.2.2.50.(3)		
	3.2.3.7.(3)		
	9.10.14.5.(2)		
	9.10.15.5.(2)		
	9.10.15.5.(3)		
ULC ULC-S135-04 Test Method for the Determination of Combustibility Parameters of	3.1.5.1.(2)		
Building Materials Using an Oxygen Consumption Calorimeter (Con	e		
UdiOIIIIIelel)	$21 \pm 12 (7)$		
OLC CAIV/OLC-S138-00 TESTION FILE GLOWIT OF ITISUIATED BUILDING PATIERS IT A FUIL-SCALE ROL Configuration	3.1.3.12.(7)		
UII C     UII C.S130.00     Eire Test for Evaluation of Integrity of Electrical Cables	3 2 7 10 (2)		
DEC DEC-5137-00 File rest for Evaluation of integrity of Electrical Cables	3 2 7 10 (3)		
ULC CAN/ULC-S143-09 Fire Tests for Non-Metallic Electrical and Optical Eibre Cable Racev	vav 3.1.5.20.(1)		
Systems			
ULC ULC-S505-1974 Fusible Links for Fire Protection Service	3.1.8.9.(1)		
ULC CAN/ULC-S524-2014 Installation of Fire Alarm Systems	3.1.8.12.(2)		
	3.1.8.12.(3)		
	3.2.4.5.(1)		
	3.2.4.20.(4)		
	3.2.4.21.(7)		
	3.2.4.21.(12)		
	9.10.19.4.(3) 0.10.10.6 (2)		
III C CAN/III C-S531.02 Smoke-Alarms	3.2 / 21 (1)		
	9.10.19.1.(1)		
ULC CAN/ULC-S537-2013 Verification of Fire Alarm Systems	3.2.4.5 (2)		
ULC CAN/ULC-S553-02 Installation of Smoke-Alarms	3.2.4.21.(10)		
	9.10.19.3.(2)		
ULC CAN/ULC-S561-03 Installation and Services for Fire Signal Receiving Centres and Syst	ems 3.2.4.8.(4)		
ULC	CAN/ULC-S572-10	Photoluminescent and Self-Luminous Signs and Path Marking Systems	3.4.5.1.(3) 3.4.5.1.(4)
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			9.9.11.3.(3) 9.9.11.3.(4)
ULC	CAN/ULC-S610-M87	Factory-Built Fireplaces	9.22.8.1.(1)
ULC	ULC-S628-93	Fireplace Inserts	9.22.10.1.(1)
ULC	CAN/ULC-S629-M87	650°C Factory-Built Chimneys	9.33.10.2.(1)
ULC	CAN/ULC-S639-M87	Steel Liner Assemblies for Solid-Fuel Burning Masonry Fireplaces	9.22.2.3.(1)
ULC	CAN/ULC-S647-05	Standard for Exhaust Cleaning and Recirculation Assemblies for Commercial and Institutional Kitchen Exhaust Systems	1.4.1.2
ULC	CAN/ULC-S701-11	Thermal Insulation, Polystyrene, Boards and Pipe Covering	Table 5.10.1.1. 9.15.4.1.(1) Table 9.23.17.2.A 9.25.2.2.(1)
ULC	CAN/ULC-S702-09	Mineral Fibre Thermal Insulation for Buildings	Table 5.10.1.1. Table 9.23.17.2.A 9.25.2.2.(1)
ULC	CAN/ULC-S703-09	Cellulose Fibre Insulation (CFI) for Buildings	Table 5.10.1.1. 9.25.2.2.(1)
ULC	CAN/ULC-S704-11	Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced	Table 5.10.1.1. Table 9.23.17.2.A 9.25.2.2.(1)
ULC	CAN/ULC-S705.1-01	Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density – Material - Specification	Table 5.10.1.1. 9.25.2.2.(1)
ULC	CAN/ULC-S705.2-05	Thermal Insulation – Spray-Applied Rigid Polyurethane Foam, Medium Density — Application	5.3.1.3.(3) Table 5.10.1.1. 9.25.2.5.(1)
ULC	CAN/ULC-S706-09	Wood Fibre Thermal Insulation for Buildings	Table 5.10.1.1. 9.23.16.7.(3) Table 9.23.17.2.A 9.25.2.2.(1) 9.29.8.1.(1)
ULC	CAN/ULC-S741-08	Air Barrier Materials - Specification	5.4.1.2.(1)
ULC	ULC/ORD-C199P-2002	Combustible Piping for Sprinkler Systems	3.2.5.13.(2) 3.2.5.13.(5)
ULC	ULC/ORD-C1254.6-1995	Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units	6.2.2.7.(2)
USACE	USACE	Air Leakage Test Protocol for Building Envelopes, Version 3	10.2.2.21.(1)

#### Notes to Table 1.3.1.2.:

<sup>(1)</sup> Some documents may have been reaffirmed or reapproved. Check with the applicable issuing agency for up-to-date information.

<sup>(2)</sup> Some titles have been abridged to omit superfluous wording.

<sup>(3)</sup> By-law reference is in Division A.

<sup>(4)</sup> By-law reference is in Division C.

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# Div. B, 1.1.4.1.(1) Fire Safety Plan

1) Fire safety plans shall conform to the Vancouver Fire By-law.

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# Div. B, 1.3.2.1.(1) Abbreviations of Proper Names

TPIC Truss Plate Institute of Canada (c/o MiTek Canada Inc., 100 Industrial Road, Bradford, Ontario L3Z 3G7; www.tpic.ca)

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### Div. B, Table 3.1.2.4.(3) Care Facilities

3) A child care facility shall be classified as either a Group C or Group A Division 2 major occupancy as determined by Table 3.1.2.5. provided

a) the fire safety requirements for the major occupancy of Table 3.1.2.5. have been met,

b) all additional requirements in this By-law for new *construction* and the determined *major occupancy* have been

met, <mark>and</mark>

c) for existing buildings, the upgrade requirements under Clause 11.4.2.1.(1)(g) have been met, and

 d) unsprinklered temporary child care facilities shall be provided with two means of egress directly to grade.

# Table 3.1.2.5.

 Table 3.1.2.5. Major Occupancy Classification and Fire Safety Requirements for Child Care Facilities

 Forming part of Sentence 3.1.2.5.(3)

Major Occupancy Determination			Fire Safety Requirements for Major Occupancy					
Age of Children <sup>(6)</sup> (months)	Number of Children <sup>(6)</sup>	<i>Major</i> <i>Occupancy</i> Permitted	Sprinkler ( <i>suite</i> or entire <i>building</i> )	Fire Alarm	Smoke and CO Detectors Alarms	Fire Separation from Remainder of Building	Emergency Lighting	
≥30	≤ 8 and more than 2	C <sup>(1)</sup>	No	No	Yes	No	Yes <sup>(2)</sup>	
<30	≤ 8 and more than 2	C <sup>(1)</sup>	Yes <sup>(5)</sup>	No	Yes <sup>(3)</sup>	No	Yes <sup>(2)</sup>	
≥30	≤ 8 and more than 2	C <sup>(4)</sup>	Yes <sup>(5)</sup>	Yes	Yes <sup>(3)</sup>	1 h	Yes	
<30	≤ 8 and more than 2	C <sup>(4)</sup>	Yes <sup>(5)</sup>	Yes	Yes <sup>(3)</sup>	2 h	Yes	
≥30	> 8	A2	Yes	Yes	Yes <sup>(3)</sup>	1h	Yes	
<30	> 8	A2	Yes	Yes	Yes <sup>(3)</sup>	2 h	Yes	

Notes to Table 3.1.2.5.:

<sup>(1)</sup> Applies to one and two family dwellings or row houses

<sup>(2)</sup> Emergency lighting to conform to Subsections 3.2.7. and 9.9.12. where applicable

<sup>(3)</sup> Coverage to include all areas within the *suite*, except closets and kitchens

<sup>(4)</sup> Applies to *buildings* other than one or two family dwellings or row houses

<sup>(5)</sup> Suite only

<sup>(6)</sup> Children means persons under the age of 13 years.

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# Div. B, 3.1.3.2.(2) Prohibition of Occupancy Combinations

**2)** Except as provided in Article 3.1.3.4. and Subsection 11.4.5., not more than one *suite* of *residential occupancy* shall be contained within a *building* classified as a Group F, Division 2 *major occupancy*.

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#### Div. B, 3.1.4.3.(2) Wires and Cables

**2)** Except as permitted in Sentence (3) and Article 3.6.4.3, optical fibre cables and electrical wires and cables with *combustible* insulation, jackets or sheathes that are used for the transmission of voice, sound or data and are installed in a *plenum* in a *building* permitted to be of *combustible construction* shall exhibit a vertical char of not more than 1.5 m when tested in conformance with the Vertical Flame Test - Cables in Cable Trays in Clause 4.11.4 of CSA C22.2 No. 0.3, "Test Methods forElectrical Wires and Cables," (FT4 rating).

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#### Div. B, 3.1.5.18.(2) Wires and Cables

**2)** Except as permitted in Sentences (3) and (4), optical fibre cables and electrical wires and cables with *combustible* insulation, jackets or sheathes that are used for the transmission of voice, sound or data and are not located in totally enclosed *noncombustible* raceways are permitted to be installed in a *plenum* in a *building* required to be of *noncombustible construction*, provided the wires and cables exhibit a horizontal flame distance of not more than 1.5 m, an average optical smoke density of not more than 0.15, and a peak optical smoke density of not more than 0.5 when tested in conformance with CAN/ULC-S102.4, "Standard Method of Test for Fire and Smoke Characteristics of Electrical Wiring, Cables and Non-Metallic Raceways," (FT6 rating).

#### Div. B, 3.1.5.21.(1) Decorative Wood Cladding

1) On *buildings* required to be of *noncombustible construction*, decorative wood cladding is permitted to be used on the exterior marquee fascias of a *storey* having direct access to a *street* or access route, provided the cladding is *fire-retardant-treated wood* that has been conditioned in conformance with ASTM D 2898, "Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing," before being tested in accordance with CAN/ULC-S102, "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies."

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# Div. B, 3.1.8.4.(1)(c) Determination of Ratings

c) CAN/ULC-S112, "Fire Test of Fire-Damper Assemblies."

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# Div. B, 3.1.12.1.(1) Determination of Ratings

**1)** Except as required by Sentence (2) and as permitted by Sentence (3), the *flame-spread rating* and smoke developed classification of a material, assembly, or structural member shall be determined on the basis of not less than three tests conducted in conformance with CAN/ULC-S102, "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies."

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## Div. B, 3.2.1.1.(1) Exceptions in Determining Building Height

1) A roof-top enclosure shall not be considered as a *storey* in calculating the *building height* if the roof-top enclosure is

a) provided for elevator machinery, a stairway or a service room, and

b) used for no purpose other than for service to the building.

## Div. B, 3.2.1.1.(3) Exceptions in Determining Building Height

**3)** Except as required by Sentence (5), a *mezzanine* need not be considered as a *storey* in calculating the *building height*, provided

a) not less than 60 per cent of the horizontal plane separating the *mezzanine* from the room or floor space in which it is located is open, and

b) except as permitted in Sentences (7) and 3.3.2.12.(3), the space above the *mezzanine* is used as an visually open area without *partitions* or subdividing walls higher than 1 070 mm above the *mezzanine* floor. (See Appendix A)

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## Div. B, 3.2.2.50.(3)(b) Group C, up to 6 Storeys, Sprinklered

**3)** Except as required in Sentence (4), a *building* referred to in Subclause (1) (d)(v) or (d)(vi) shall have an exterior wall assembly

a) protected by noncombustible cladding

b) protected by cladding of *fire-retardant-treated wood* that has been conditioned in conformance with ASTM D 2898, "Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing," before being tested in accordance with CAN/ULC-S102, "Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies," or

c) the interior surfaces of which are protected by a thermal barrier conforming to Sentence 3.1.5.12.(3) and that satisfies the criteria of Sentences 3.1.5.5.(3) and (4) when subjected to testing in conformance with CAN/ULC-S134, "Fire Test of Exterior Wall Assemblies."

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## Div. B, 3.2.3.13.(2) Protection of Exit Facilities

**2)** If any unenclosed exterior single means of egress could be exposed to fire from an opening in the exterior wall of the *building* it serves, the opening in the exterior wall of the *building* shall be protected in conformance with the requirements of Sentence (4) where the opening in the exterior wall of the *building* is within 3 m horizontally and

a) less than 10 m below the exit stair or ramp, or

b) less than 5 m above the *exit* stair or ramp.

## Div. B, 3.2.3.13.(5)(f) Protection of Exit Facilities

5) A sprinkler water curtain for opening protection as permitted in Clause (4)(d) shall a) have quick response upright or pendant type sprinklers,

b) if the opening is 1.8 m or less in width, have one sprinkler head installed at the center of the

opening at a maximum distance of not more than 0.9 m from the vertical edge of the opening,

c) if the opening is more than 1.8 m in width, have multiple sprinkler heads installed at a maximum distance of 1.8 m on center and at a maximum distance of not more than 0.9 m from the sprinklers to the vertical edge of the opening,

d) have sprinklers located between150 mm and 300 mm horizontally from the interior face of the opening at ceiling level and not more than 3.6 m vertically above the floor immediately below,
 e) discharge water at a minimum flow rate of 68L/min (18 usgpm),

f) have sprinkler heads with an orifice size of 12.7 mm and a k factor of nominal 5.7,

g) be designed independently from the *floor area* coverage and be included in the most hydraulically demanding area for the design of the adjacent floor area sprinklers,

h) have sprinkler heads protected from spray and from cold solder effects from adjacent sprinklers (*floor area* or water curtain sprinkler heads) by means of baffles in accordance with NFPA 13, and i) be provided with tempered or laminated safety glass glazed openings where windows are

provided.

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## Div. B, 3.2.4.1.(1) Determination of Requirements for a Fire Alarm System

1) Except as permitted in Sentences (2), (3), (5), (6) and (7), a fire alarm system shall be installed in *buildings* in which an automatic *sprinkler system* is required by this Part.

#### Div. B, 3.2.4.1.(4) Determination of Requirements for a Fire Alarm System

**4)** Except as permitted by Sentences (5) to (7) and Sentence 3.2.4.2.(4), a fire alarm system shall be installed in a *building* that is not *sprinklered* throughout and that contains

a) a contained use area,

b) an impeded egress zone,

c) more than 3 storeys, including the storeys below the first storey,

d) a total occupant load more than 300, other than in open air seating areas,

e) an *occupant load* more than 150 above or below the *first storey*, other than in open air seating areas,

f) a school, college, or *child care facility*, including a daycare facility for *children*, with an *occupant load* more than 40,

g) a *licensed beverage establishment* or a licensed restaurant, with an *occupant load* more than 150,

h) a *medium-hazard industrial occupancy* or a *low-hazard industrial occupancy* with an *occupant load* more than 75 above or below the *first storey*,

i) a residential occupancy with sleeping accommodation for more than 10 persons,

j) a high-hazard industrial occupancy with an occupant load more than 25, or

k) an occupant load more than 300 below an open air seating area.

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## Div. B, 3.2.4.9.(2) Annunciator and Zone Indication

2) Except as permitted by Sentences (6), (8), (9) and (10), the annunciator required by Sentence (1) shall have separate zone indication of the actuation of the alarm initiating devices, *smoke detectors*, *heat detectors*, manual stations and waterflow detecting devices, in each

a) *floor area* so that the area of coverage for each zone in a *building* that is not *sprinklered* is not more than 2 000 m2,

b) floor area so that the area of coverage for each zone is neither

i) more than one storey, nor

ii) more than the system area limits specified in NFPA 13, "Installation of Sprinkler Systems,"

c) shaft required to be equipped with smoke detectors,

d) air-handling system required to be equipped with smoke detectors,

e) <fire extinguishing system required by NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking

Operations,">

f) contained use area,

g) impeded egress zone,

h) fire compartment required by Sentence 3.3.3.5.(2), and

i) floor area required to be equipped with smoke detector or detectors as required by Clause 3.2.4.12.(1)(h) to

i) initiate an alert signal in a 2 stage system or an alarm signal in a single stage system, and
 ii) indicate the actuation of each device separately on the fire alarm system annunciator.

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# Div. B, 3.2.4.21.(1) Smoke Alarms

**1)** Except as required by Sentence (4) and permitted by Sentence (7), *smoke alarms* conforming to CAN/ULC-S531, "Standard for Smoke-Alarms," shall be installed in each *dwelling unit* and, except for *care, treatment* or *detention occupancies* required to have a fire alarm system, in each sleeping room not within a *dwelling unit* or *suite* of *care occupancy*.

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#### Div. B, 3.2.5.5.(3) Location of Access Routes and Paths of Travel

[Errata - Sept 10, 2018: Updated Consolidated text to correctly reflected changes from By-law #11996]

3) Paths of travel for firefighters shall not be more than

a) 45 m from the access route to the entrance door of each *dwelling unit* for *sprinklered buildings* of *residential occupancy* provided each dwelling unit has direct access to an exterior exit facility leading to adjacent *ground level*,

b) 55 m from the access route to the entrance door of each dwelling unit provided that

i) the building is sprinklered to NFPA 13R if Article 3.2.5.12. otherwise permits NFPA 13D, or to NFPA 13 if Article 3.2.5.12. otherwise permits NFPA 13R,

ii) each *dwelling unit* has direct access to an exterior exit facility leading to adjacent ground level,

iii) a strobe light is installed outside the principal entrance of the *dwelling unit*, and is connected to an internal *smoke alarm* within the *dwelling unit*,

iv) *sprinkler systems* are monitored by the fire alarm system and by an off-site monitoring service,

v) [Deleted.]

vi) lighting and emergency lighting is provided along the path of travel for firefighters with a minimum illumination level of 1 lx and average illumination of not less than 10 lx, and vii) the fire alarm system has a graphic annunciator,

c) 65 m from the access route to the entrance door of each *dwelling unit* provided each *dwelling unit* has direct access to an exterior exit facility leading to adjacent ground level, where the *dwelling unit* may contain a *secondary suite* or the *dwelling unit* has not more than one *dwelling unit* on top, if

i) the requirements of Subclauses (b)(i) to (b)(vii) are met,

ii) a 64 mm diameter fire department hose connection is located adjacent to the path of travel for firefighters located not more than 45 m measured from the hose connection to the principal entrance of each of the *dwelling units*,

iii) the location of the fire department hose connections required by Subclause (c)(ii) is indicated on the fire alarm system graphic annunciator, and

iv) the building is sprinklered to NFPA 13, and

d) 45 m from the access route to the entrance door, for non-residential portions of a *building*, which are cut off from and have no internal access to the remainder of the *building*. (See Appendix A.)

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## 3.2.5.6. Design of Access Routes and Paths of Travel

2) The unobstructed path of travel for firefighters from the curb to the main entrance or suite entrance door as required in Sentences 3.2.5.5.(1) to 3.2.5.5.(3) and every access opening as required in Articles 3.2.5.1. and 3.2.5.2. shall be a) no less than

i) [Deleted.]
ii) 1.2 m in width, or
iii) 900 mm in width where serving one *dwelling unit*, *one-family dwelling*, or *one-family dwelling with secondary suite*, and
b) surfaced with concrete, asphalt or similar material.

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## Div. B, 3.2.5.9. Standpipe System Design

[Revise section as follows]

#### 3.2.5.9. Standpipe System Design

**1)** Except as required or permitted by Sentences (2) to (8) and Articles 3.2.5.10. and 3.2.5.11. and Sentence 3.2.4.10.(2), the design, *construction*, installation and testing of a standpipe system shall conform to NFPA 14, "Installation of Standpipe and Hose Systems."

2) A dry standpipe that is not connected to a water supply shall not be considered as fulfilling the requirements of this Article.

3) If more than one standpipe is provided, the total water supply need not be more than 30 L/s.

**4)** A standpipe need not be installed in a *storage garage* conforming to Article 3.2.2.88. provided the *building* is not more than 15 m high.

**5)** The residual water pressure at the design flow rate at the topmost hose connection of a standpipe system that is required to be installed in a *building* is permitted to be less than 690 kPa provided

a) the *building* is *sprinklered* throughout,

b) the water supply at the base of the sprinkler riser is capable of meeting, without a fire pump, the design flow rate and pressure demand of the *sprinkler system*, including the inside and outside hose allowance, and

c) fire protection equipment is available to deliver, by means of the fire department connection, the full demand flow rate at a residual water pressure of 690 kPa at the topmost hose connection of the standpipe system.

(See Appendix A.)

6) A fire department connection shall be provided for every standpipe system.

7) If a standpipe system is required by Sentence 3.2.5.8.(1) and an *exit* stair shaft is not provided in the *building*, a standpipe system may be omitted if

a) a 64 mm diameter fire department hose connection is located adjacent to the path of travel for firefighters and is connected to a fire department connection in conformance with 3.2.5.15., and

b) the hose connection shall be available to reach all portions of the area with 30 m of hose plus 9 m of hose stream distance.

8) A standpipe system may be omitted from *dwelling units* where

a) the building is of residential occupancy throughout,

b) the path of travel may not exceed 15 m from the principal entrance of *suite* to the *fire department* access route,

c) egress from each *suite* complies with Sentence 3.3.4.4.(3)., and

d) the travel distance from any point on the *floor area* to the primary entrance of each *suite* does not exceed 30 m.

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## Div. B, 3.2.5.12.(3) Automatic Sprinkler Systems

2) Instead of the requirements of Sentence (1), NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," is permitted to be used for the design, construction and installation of an automatic sprinkler system installed

a) in a building of Group C major occupancy containing no other major occupancies, that

i) is not more than 4 storeys in building height and conforms to Articles 3.2.2.47., 3.2.2.48., 3.2.2.50. or

3.2.2.53., or

ii) is not more than 3 storeys in building height and conforms to Article 9.10.1.3., or

b) in a *building* of *care occupancy* with not more than 10 occupants that is not more than 3 *storeys* in *building height* and conforms to Articles 3.2.2.42. to 3.2.2.46.

3) Instead of the requirements of Sentence (1), NFPA 13D, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes," is permitted to be used for the design, construction, installation and testing of an automatic sprinkler system installed

a) in a one or two family dwelling including their secondary suites or lock-off units, where

i) each dwelling unit and its respective secondary suite has its own sprinkler water supply, and

ii) a one tank-type water closet is supplied with water from the sprinkler head which is located farthest from the main water supply.

b) in a *building* of *care occupancy*, provided

i) it contains not more than 2 suites of care occupancy,

ii) it has not more than 5 residents throughout, and

iii) a 30-minute water supply demand can be met

c) in a building of residential occupancy throughout that contains only row housing where

all vertical suite separations are constructed as a fire separation having no less than a 1 h fire-resistance rating,

ii) the *fire separation* described in Subclause (i) provides continuous protection from the top of the footing to the underside of the roof deck and any space between the top of the wall and the roof deck is tightly fitted with mineral wool or noncombustible material, iii) each *dwelling unit* has its own sprinkler water supply, and

iv) one tank-type water closet is supplied with water from the sprinkler head which is located farthest from the main water supply; or

d) in an ancillary residential building where

i) each bathroom, clothes closet, linen closet, and pantry must have sprinkler coverage, notwithstanding the exemptions set out in NFPA 13D, and

ii) a one tank-type water closet is supplied with water from the sprinkler head which is located farthest from the main water supply.

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# Div. B, 3.2.5.12.(11) Automatic Sprinkler Systems

**11)** Notwithstanding the requirements of the standards referenced by Sentence (3) regarding the installation of automatic *sprinkler systems*, sprinklers shall be provided in any storage garage attached to a building of residential occupancy where a fire separation is not provided between the storage garage and adjacent floor areas.

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## Div. B, 3.2.5.15. Fire Department Connections

**3.2.5.15. Fire Department Connections** (see Appendix A)

**1)** The fire department connection for a standpipe system shall be located horizontally within 5 m of the principal entrance of a *building*, have unobstructed access and be visible from the *street*.

2) The fire department connection for an automatic *sprinkler system* shall be located horizontally within 5 m of the principal entrance of a, have unobstructed access and be visible from the *street*.

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[This page intentionally left blank]

Set 1 - Page 150b
Set 1 - Page 152a

## Div. B, 3.2.7.3.(1) Emergency Lighting

1) Emergency lighting shall be provided to an average level of illumination not less than 10 lx at floor or tread level in

a) exits,

b) principal routes providing access to exit in open floor areas and in service rooms,

c) corridors used by the public,

d) corridors serving sleeping rooms in a treatment occupancy,

e) corridors serving sleeping rooms in a *care occupancy*, except corridors serving sleeping rooms within individual

suites of care occupancy,

f) corridors serving classrooms,

g) underground walkways,

h) public corridors,

i) floor areas or parts thereof where the public may congregate

i) in Group A, Division 1 occupancies, or

ii) in Group A, Division 2 and 3 occupancies having an occupant load of 60 or more,

j) *floor areas* or parts thereof where persons are cared for that are within daycare facilities, including *child care facilities*, and

k) food preparation areas in commercial kitchens.

Set 1 - Page 152b

Set 1 - Page 154a

### Div. B, 3.2.7.10.(1) Protection of Electrical Conductors

1) Electrical conductors in *buildings* required to conform to Subsection 3.2.6. or Sentence 3.2.7.9.(1), shall be protected against exposure to fire, for a period of no less than 1 h, from the source of the emergency power supply to the branch circuits serving equipment, if the electrical conductors serve

a) fire alarm systems,

b) voice communication systems,

c) the operation of an elevator referred to in Sentence 3.2.6.5.(1),

d) emergency lighting referred to in Articles 3.2.7.3. and 3.2.7.4., except where self-contained emergency lighting units described in Sentence 3.2.7.4.(2) are utilized and remote lamps are located within the same floor area, and

e) electrical equipment required by Clauses 3.2.7.9.(1)(b) to 3.2.7.9.(1)(e). (See Appendix A)

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Set 1 - Page 156a

# Div. B, 3.3.1.1.(5) Separation of Suites

5) Each *suite* other than a residential *suite*, located at ground level and having direct access to the *street* shall be separated from adjoining *suites* and from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* not less than 2 h.

Set 1 - Page 156b

Set 1 - Page 162a

# Div. B, 3.3.1.19.(8) Transparent Doors and Panels

8) An openable window which has a width greater than 380 mm, is located less than 1070 mm above interior floor level, and which opens to a space more than 600 mm below the level of the interior floor, shall be protected by

a) an opening mechanism that limits the unobstructed opening to no more than 100 mm measured either vertically or horizontally, or

b) a guard in conformance with Article 3.3.1.18.

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# Div. B, 3.3.2.7.(1) Doors

1) A door equipped with a latching mechanism in an *access to exit* from a room or *suite* of *assembly occupancy* containing an *occupant load* more than 100 shall be equipped with a device that will release the latch and allow the door to swing wide open when a force not more than that specified in Clause 3.3.1.13.(10)(d) is applied to the device in the direction of travel to the *exit*.

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Set 1 - Page 166b

# Div. B, 3.3.4.2.(1) Fire Separations

**1)** Except as permitted by Sentences (2) and 3.2.2.9.(2), *suites* of *residential occupancy* **including** *secondary suites* and *lock-off suites* shall be separated from each other and the remainder of the *building* by a *fire separation* having a *fire -resistance rating* not less than 1 h.

Set 1 - Page 170a

Set 1 - Page 170b

# Div. B, 3.3.4.9.(1) Resistance to Forced Entry

1) *Dwelling units* shall conform to Article 9.7.2.1. and Subsection 9.7.5.

Set 1 - Page 172a

Set 1 - Page 172b

Set 1 - Page 174a

# Div. B, 3.3.7.3.(1) Doors

1) All entrance and exterior doors to *dwelling units*, doors between *dwelling units* and attached garages, and doors which provide direct or indirect access from *storage garages* to *dwelling units* shall conform to Subsections 9.6.1 and 9.7.3.

### Div. B, 3.3.7.4.(1) Sidelights to Doors

1) All sidelights to doors and all windows adjacent to doors located within 915 mm of the door locks shall conform to Sentence 9.6.1.4.(1)

Set 1 - Page 174b

### Div. B, 3.3.7.7.(2) Security for Storage Garage

2) If access is provided from a *storage garage* to a stair tower or to an elevator through a vestibule, the vestibule shall be constructed

a) with *closures* glazed with clear wired glass in steel frames, which provide the greatest possible unobstructed view from the *storage garage* into the stair tower or vestibule,

b) as a fire separation with a fire -resistance rating of not less than 1 hr,

c) with full or half glazed *closures* with a *fire-protection rating* of not less than 45 min between the *storage garage* 

and the vestibule and between the vestibule and the stair tower, and

d) with a row of sprinkler heads running the full width of the glazing, installed on the garage side of the vestibule at a spacing of 1800 mm on centre parallel to the glass, located between 150 mm to 300 mm perpendicular to the glazing and vertically installed on the garage ceiling in conformance with NFPA requirements.

(see Appendix A.)

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Set 1 - Page 176b

Set 1 - Page 186a

# Div. B, 3.4.6.8.(11) Treads and Risers

11) Stairs shall be provided with tactile warning strips conforming to Article 3.8.3.11. unless the stairs are

a) stairs within or serving *dwelling units*,b) *exit* stairs not normally used for access purposes, orc) fire escape stairs.

Set 1 - Page 186b

Set 3 - Page 196a

### Div. B, 3.6.4.3. Plenum Requirements

**1)** A concealed space used as a *plenum* within a floor assembly or within a roof assembly need not conform to Sentence 3.1.4.3.(1), 3.1.5.15.(1) and Article 3.6.5.1., provided

a) all materials within the concealed space have a *flame-spread rating* not more than 25 and a smoke developed classification not more than 50, except for

i) tubing for pneumatic controls,

ii) optical fibre cables and electrical wires and cables with a flame spread of not more than 1.5 m, a smoke density of no more than 0.5 at peak optical density and a smoke density not more than 0.15 at average optical density when tested in conformance with the Horizontal Flame and Smoke Test referenced in Clause 4.11.6. of CAN/CSA C22.2 No. 0.3, "Test Methods for Electrical Wires and Cables" (FT6 Rating)

iii) totally enclosed non-metallic raceways with an FT6 rating, when tested in accordance with Clause 3.1.5.20.(1)(a), in *buildings* required to be of *noncombustible construction*, and

iv) [Deleted.], and

b) the supports for the ceiling membrane are of *noncombustible* material having a melting point not below 760°C.

Set 3 - Page 196b

# Div. B, 3.6.5.1.(1) Duct Material

**1)** Except as permitted by Sentences (2) to (5) and Article 3.6.4.3., all ducts, duct connectors, associated fittings and *plenums* used in air duct systems shall be constructed of steel, aluminum alloy, copper, clay, asbestos cement or other *noncombustible* material.

Set 1 - Page 198a

Set 1 - Page 198b

Set 1 - Page 200a

# Div. B, 3.7.2.2.(7) Water Closets

7) The number of water closets required for primary schools and *child care facilities* shall be at least one for each 30 males and one for each 25 females.

Set 1 - Page 200b

Set 3 - Page 202a

## Div. B, 3.7.2.9. Bathtubs and Showers

[replace Article 3.7.2.9. as follows]

Div. B, 3.7.2.9. Bathtubs and Showers

1) Where a bathtub is installed in a hotel or a motel, it shall

a) notwithstanding the presence of a water closet or a lavatory, have a clear floor space at least 750 mm wide along its length,

b) have faucets that conform to Clause 3.7.2.3.(4)(b),

c) have grab bars that

i) conform to Sentence 3.7.2.8.(1),

ii) are 1 200 mm long located vertically at the end of the bathtub that is adjacent to the clear floor space, with the lower end between 180 mm and 280 mm above the bathtub rim, and

iii) are 1 200 mm long located horizontally along the length of the bathtub at 180 mm to 280 mm above the bathtub rim, and

d) be open along its length with no tracks mounted on the bathtub rim.

2) A shower door that swings on a vertical axis shall be capable of opening outwards from a shower stall forming part of a site constructed fixture.

Set 3 - Page 202b

### Div. B, 3.7.2.11. Gender Neutral Washroom Requirements

[Add appendix note reference to Article 3.7.2.11.]

#### 3.7.2.11. Gender Neutral Washroom Requirements

1) Individual toilet stalls in gender neutral washroom facilities shall

a) have partition walls and doors that are full height with a clear opening height of no less than 150 mm and no more

than 300 mm, measured from the finished floor to the underside of the partition wall or door, and b) have a locking devices equipped with display mechanisms to indicates on the outside of the stall door if the stall is occupied

occupied.

2) The main entrance door serving the gender neutral washroom facility shall

a) have no door, or

b) have a door with an open transom or louvered grill.

(See Appendix A.)

Set 3 - Page 206a

Set 3 - Page 206b

#### 3.8.2.3. Specific Requirements

1) Except where stated otherwise *buildings* and *occupancies* to which this Subsection applies shall, in addition to the requirements listed for specific *occupancies*, have

a) *access* from the street to at least one main entrance conforming to Article 3.8.3.5.,

b) where off-street parking is provided for *persons with disabilities*, *access* from the parking area to an entrance conforming to Article 3.8.3.5. that serves the parking area unless the entrance in Clause (a) is located so as to conveniently serve both the parking area and the *street*,

c) access to all areas where work functions can reasonably be expected to be performed by *persons with disabilities*,

d) accessible washrooms conforming to Sentence (2), and

e) on each floor area to which *access* is required, egress conforming to Article 3.8.3.19.

Set 3 - Page 208a

Set 3 - Page 208b

Set 1 - Page 214a

# Div. B, 3.8.3.5.(4) Main Entrances

**4)** Power operation that functions for passage in both directions shall be provided for all doors in an *accessible* path of travel at the exterior *accessible* entrances to

a) a hotel,

b) a Group B, Division 2 *major occupancy*,

c) a Group B, Division 3 major occupancy, and

d) any of the following that is more than  $500 \text{ m}^2$  in area:

i) an assembly occupancy,

ii) a business and personal services occupancy, and

iii) a mercantile occupancy.

Set 1 - Page 214b

### Div. B, 3.8.3.10.(1) Floor Levels

**1)** Except for floors and levels specifically excluded in Subsection 3.8.2., floors and levels at different elevations shall be connected by

a) a ramp conforming to Article 3.8.3.3.,

b) an elevator conforming to Appendix E of CAN/CSA B44, "ASME A17.1/CSA B44, "Safety Code for Elevators and Escalators,"

c) an elevating device for persons with disabilities conforming to CAN/CSA-B355, "Lifts for Persons with Physical Disabilities," or

d) other means acceptable to the Chief Building Official.

Set 1 - Page 216a

Set 1 - Page 216b
# Div. B, 3.8.5.1.(3) Application

3) This Subsection does not apply to existing *buildings* except for spaces created by
a) an *addition*,
b) the reconstruction of an existing space, and
c) the conversion of an existing space into a *secondary suite* or *lock-off unit*.

Set 1 - Page 220a

Set 1 - Page 220a

## Div. B, 4.3.6.1.(1) Design Basis for Glass

- 1) Glass used in *buildings* shall be designed in conformance with
- a) CAN/CGSB-12.20-M, "Structural Design of Glass for Buildings," or
- b) ASTM E1300, "Standard Practice for Determining Load Resistance of Glass in Buildings."

## Div. B, 4.4.1.1.(1) Design Basis for Air-Supported Structures

1) The structural design of *air-supported structures* shall conform to CSA S367, "Air-, Cable-, and Frame-Supported Membrane Structures," using the loads stipulated in Section 4.1., in accordance with limit states design in Subsection 4.1.3.

Set 1 - Page 262a

Set 1 - Page 262b

Set 1 - Page 266a

## Div. B, 5.1.2.2.(1) Building Envelope Professional Requirements

**1)** The *Building Envelope Professional* shall conduct reviews, and provide letters as required in Sentences (2) and (3), on *buildings* or portions of *buildings* with a cladding system over wood framing or light steel framing and on all residential *buildings* within the scope of Part 5 with respect to Section 5.4, 5.5, and 5.6. (See Appendix A.)

Set 1 - Page 266b

# **Div. B, Table 5.10.1.1.** [Instruction: Replace Table 5.10.1.1. with the following]

Table 5.10.1.1.									
Standards Applicable to Environmental Separators and Assemblies Exposed to the Exterior Forming part of Sentence 5.10.1.1.(1)									
Issuing Agency	Document Number Title of Document								
ANSI	A208.1	Particleboard							
ASME	B18.6.1	Wood Screws (Inch Series)							
ASTM	A 123/A 123M	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products							
ASTM	A 153/A 153M	Zinc Coating (Hot-Dip) on Iron and Steel Hardware							
ASTM	A 653/A 653M	Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process							
ASTM	C 4	Clay Drain Tile and Perforated Clay Drain Tile							
ASTM	C 73	Calcium Silicate Brick (Sand-Lime Brick)							
ASTM	C 126	Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units							
ASTM	C 212	Structural Clay Facing Tile							
ASTM	C 412M	Concrete Drain Tile (Metric)							
ASTM	C 444M	Perforated Concrete Pipe (Metric)							
ASTM	C 553	Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications							
ASTM	C 612	Mineral Fiber Block and Board Thermal Insulation							
ASTM	C 700	Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength and Perforated							
ASTM	C 834 <sup>(1)</sup>	Latex Sealants							
ASTM	C 920 <sup>(1)</sup>	Elastomeric Joint Sealants							
ASTM	C 991	Flexible Fibrous Glass Insulation for Metal Buildings							
ASTM	C 1002	Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs							
ASTM	C 1177/C 1177M	Glass Mat Gypsum Substrate for Use as Sheathing							
ASTM	C 1178/C 1178M	Coated Glass Mat Water-Resistant Gypsum Backing Panel							
ASTM	C 1184 <sup>(1)</sup>	Structural Silicone Sealants							
ASTM	C 1311 <sup>(1)</sup>	Solvent Release Sealants							
ASTM	C 1330 <sup>(1)</sup>	Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants							
ASTM	C 1396/C 1396M	Gypsum Board							
ASTM	D 2178	Asphalt Glass Felt Used in Roofing and Waterproofing							
ASTM	E 2190	Insulating Glass Unit Performance and Evaluation							
AWPA	M4	Care of Preservative-Treated Wood Products							
BNQ	BNQ 3624-115	Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage – Characteristics and Test Methods							
CGSB	CAN/CGSB-11.3-M	Hardboard							
CGSB	CAN/CGSB-11.5-M	Hardboard, Precoated, Factory Finished, for Exterior Cladding							
CGSB	CAN/CGSB-12.1-M	Tempered or Laminated Safety Glass							
CGSB	CAN/CGSB-12.2-M	Flat, Clear Sheet Glass							
CGSB	CAN/CGSB-12.3-M	Flat, Clear Float Glass							
CGSB	CAN/CGSB-12.4-M	Heat Absorbing Glass							
CGSB	CAN/CGSB-12.8	Insulating Glass Units							

CGSB	CAN/CGSB-12.10-M	Glass, Light and Heat Reflecting					
CGSB	CAN/CGSB-12.11-M	Wired Safety Glass					
CGSB	CAN/CGSB-34.22	Asbestos-Cement Drain Pipe					
CGSB	CAN/CGSB-37.1-M	Chemical Emulsifier Type, Emulsified Asphalt for Dampproofing					
CGSB	CAN/CGSB-37.2-M	Emulsified Asphalt, Mineral-Colloid Type, Unfilled, for Dampproofing and					
		Waterproofing and for Roof Coatings					
CGSB	CAN/CGSB-37.3-M	Application of Emulsified Asphalts for Dampproofing or Waterproofing					
CGSB	CAN/CGSB-37.4-M	Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing					
CGSB	CAN/CGSB-37.5-M	Cutback Asphalt Plastic, Cement					
CGSB	37-GP-6Ma	Asphalt, Cutback, Unfilled, for Dampproofing					
CGSB	CAN/CGSB-37.8-M	Asphalt, Cutback, Filled, for Roof Coating					
CGSB	37-GP-9Ma	Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing					
CGSB	37-GP-12Ma	Application of Unfilled Cutback Asphalt for Dampproofing					
CGSB	CAN/CGSB-37.16-M	Filled, Cutback Asphalt for Dampproofing and Waterproofing					
CGSB	37-GP-18Ma	Tar, Cutback, Unfilled, for Dampproofing					
CGSB	37-GP-21M	Tar, Cutback, Fibrated, for Roof Coating					
CGSB	CAN/CGSB-37.22-M	Application of Unfilled, Cutback Tar Foundation Coating for Dampproofing					
CGSB	37-GP-36M	Application of Filled Cutback Asphalts for Dampproofing and Waterproofing					
CGSB	37-GP-37M	Application of Hot Asphalt for Dampproofing or Waterproofing					
CGSB	CAN/CGSB-37.50-M	Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing					
CGSB	CAN/CGSB-37.51-M	Application for Hot-Applied Rubberized Asphalt for Roofing and Waterproofing					
CGSB	37-GP-52M	Roofing and Waterproofing Membrane, Sheet Applied, Elastomeric					
CGSB	CAN/CGSB-37.54	Polyvinyl Chloride Roofing and Waterproofing Membrane					
CGSB	37-GP-55M	Application of Sheet Applied Flexible Polyvinyl Chloride Roofing Membrane					
CGSB	37-GP-56M	Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing					
CGSB	37-GP-64M	Mat Reinforcing, Fibrous Glass, for Membrane Waterproofing Systems and Built- Up Roofing					
CGSB	41-GP-6M	Sheets, Thermosetting Polyester Plastics, Glass Fiber Reinforced					
CGSB	CAN/CGSB-41.24	Rigid Vinyl Siding, Soffits and Fascia					
CGSB	CAN/CGSB-51.32-M	Sheathing, Membrane, Breather Type					
CGSB	CAN/CGSB-51.33-M	Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction					
CGSB	CAN/CGSB-51.34-M	Vapour Barrier, Polyethylene Sheet for Use in Building Construction					
CGSB	CAN/CGSB-93.1-M	Sheet, Aluminum Alloy, Prefinished, Residential					
CGSB	CAN/CGSB-93.2-M	Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use					
CGSB	CAN/CGSB-93.3-M	Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use					
CGSB	CAN/CGSB-93.4	Galvanized Steel and Aluminum-Zinc Alloy Coated Steel Siding, Soffits and Fascia, Prefinished, Residential					
CSA	A23.1	Concrete Materials and Methods of Concrete Construction					
CSA	CAN/CSA-A82.1-M	Burned Clay Brick (Solid Masonry Units Made from Clay or Shale)					
CSA	A82.4-M	Structural Clay Load-Bearing Wall Tile					
CSA	A82.5-M	Structural Clay Non-Load-Bearing Tile					
CSA	CAN3-A82.8-M	Hollow Clay Brick					
CSA	CAN/CSA-A82.27-M	Gypsum Board					
CSA	A82.30-M	Interior Furring, Lathing and Gypsum Plastering					
CSA	A82.31-M	Gypsum Board Application					
CSA	CAN3-A93-M	Natural Airflow Ventilators for Buildings					
CSA	A123.1/A123.5	Asphalt Shingles Made From Organic Felt and Surfaced with Mineral Granules/Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules					

CSA	CAN/CSA-A123.2	Asphalt-Coated Roofing Sheets
CSA	A123.3	Asphalt Saturated Organic Roofing Felt
CSA	CAN/CSA-A123.4	Asphalt for Constructing Built-Up Roof Coverings and Waterproofing Systems
CSA	A123.17	Asphalt Glass Felt Used in Roofing and Waterproofing
CSA	CAN3-A123.51-M	Asphalt Shingle Application on Roof Slopes 1:3 and Steeper
CSA	CAN3-A123.52-M	Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3
CSA	CAN/CSA-A165.1	Concrete Block Masonry Units
CSA	CAN/CSA-A165.2	Concrete Brick Masonry Units
CSA	CAN/CSA-A165.3	Prefaced Concrete Masonry Units
CSA	CAN3-A165.4-M	Autoclaved Cellular Units
CSA	CAN/CSA A179	Mortar and Grout for Unit Masonry
CSA	CAN/CSA-A220 Series	Concrete Roof Tiles
CSA	CAN/CSA A371	Masonry Construction for Buildings
CSA	CAN/CSA-A3001	Cementitious Materials for Use in Concrete
CSA	CAN/CSA-B182.1	Plastic Drain and Sewer Pipe and Pipe Fittings
CSA	CAN/CSA-G40.21	General Requirements for Rolled or Welded Structural Quality Steel
CSA	CAN/CSA-G401	Corrugated Steel Pipe Products
CSA	CAN/CSA-O80 Series	Wood Preservation
CSA	O115-M	Hardwood and Decorative Plywood
CSA	0118.1	Western Red Cedar Shakes and Shingles
CSA	0118.2	Eastern White Cedar Shingles
CSA	0121	Douglas Fir Plywood
CSA	CAN/CSA-0141	Softwood Lumber
CSA	0151	Canadian Softwood Plywood
CSA	O153-M	Poplar Plywood
CSA	CAN/CSA-O325	Construction Sheathing
CSA	O437.0	OSB and Waferboard
ULC	CAN/ULC-S701	Thermal Insulation, Polystyrene, Boards and Pipe Covering
ULC	CAN/ULC-S702	Mineral Fibre Thermal Insulation for Buildings
ULC	CAN/ULC-S703	Cellulose Fibre Insulation (CFI) for Buildings
ULC	CAN/ULC-S704	Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced
ULC	CAN/ULC-S705.1	Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density –
		Material - Specification
ULC	CAN/ULC-S705.2	Thermal Insulation – Spray-Applied Rigid Polyurethane Foam, Medium Density – Application
ULC	CAN/ULC-S706	Standard for Wood Fibre Thermal Insulation for Buildings

# Notes to Table 5.10.1.1.:

<sup>(1)</sup> See Appendix A.

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Set 1 - Page 274d

Set 1 - Page 278a

#### Div. B, 5.10.2. Windows, Doors, Skylights and Other Glazed Products

[Instruction: Replace the Subsection Headers and Articles 5.10.2.1 through 5.10.2.3.]

#### 5.10.2. Windows, Doors, Skylights and Other Glazed Products

#### 5.10.2.1. General

1) This Subsection applies to windows, doors, skylights, other glazed products and their components that separate

a) interior space from exterior space, or

b) environmentally dissimilar interior spaces.

**2)** For the purposes of this Subsection, the term "skylight" refers to unit skylights, roof windows and tubular daylighting devices.

**3)** Windows, doors, skylights, other glazed products and their components that are required to have a *fire-protection rating* need not conform to this Subsection. (See Appendix A.)

#### 5.10.2.2. Design and Construction

(See Appendix A.)

1) Windows, doors, skylights and their components shall be designed and constructed in accordance with

a) Subsection 5.1.4., Section 5.3., Section 5.4. and Section 5.6., or

b) the following standards:

i) AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights," and
 ii) except as permitted by Sentence (3), CSA A440SI, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration

Standard/Specification for Windows, Doors, and Skylights." (See Appendix A.)

**2)** Other glazed products and their components shall be designed and constructed in accordance with Subsection 5.1.4., Section 5.3., Section 5.4. and Section 5.6. (See Appendix A.)

**3)** For the purposes of conformance with Subclause (1)(b)(ii), loads and procedures from Section 5.2. may be used instead of the loads and procedures set out in the standard. (See Appendix A.)

### 5.10.2.3. [Reserved.]

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#### Div. B, 6.2.1.4.(1) Installations Standards

**1)** Except as provided in Articles 6.2.1.5. and 6.2.1.6., the installation of heating and airconditioning equipment, including mechanical refrigeration equipment, and including provisions for mounting, clearances and air supply, shall conform to the requirements of

a) CAN/CSA-B139, "Installation Code for Oil Burning Equipment," for the installation of oil burning equipment,

b) the BC Safety Standards Act and the following of its regulations:

i) the Gas Safety Regulation for the installation of natural gas and propane burning equipment,

ii) the Electrical Safety Regulation, and

iii) the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation for the installation of boilers, pressure vessels, pressure piping and mechanical refrigeration, and

c) CAN/CSA B365, "Installation Code for Solid-Fuel Burning Appliances and Equipment," for the installation of solid fuel burning equipment.

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### Div. B, 6.2.2.1. Required Ventilation

[At the end of the Article, add the following]

4) For *suites* in *buildings* of 6 *storeys* or less in *building height* and required to conform to Part 10, the outdoor air required by Sentence (3) shall be supplied directly to each *suite* by mechanical ventilation ducting.

## Div. B, 6.2.2.2. Natural Ventilation

**1)** Except as permitted by Sentence (2) and except as required by 6.2.2.1.(4), the ventilation required by Article 6.2.2.1. shall be provided by mechanical ventilation, except that it can be provided by natural ventilation or a combination of natural and mechanical ventilation in a) *buildings* of other than *residential occupancy* having an *occupant load* of not more than one person per 40 m<sup>2</sup> during normal use,

b) *buildings* of *industrial occupancy* where the nature of the processes contained therein permits or requires the use of large openings in the *building* envelope even during the winter, and
 c) seasonal *buildings* not intended to be occupied during the winter.

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#### Div. B, 6.2.2.6.(1) Hazardous Gases, Dusts or Liquids

1) Except as provided in Subsection 6.2.12., systems serving spaces that contain hazardous gases, dusts or liquids shall be designed, constructed and installed to conform to the requirements of the applicable provincial enactments or city by-laws or, in the absence of such enactments or bylaws, to good engineering practice such as that described in the publications of the National Fire Protection Association and in the Fire By-law. (See Appendix A.)

#### Div. B, 6.2.2.7. Commercial Cooking Equipment

**1)** Systems for the ventilation of commercial cooking equipment shall be designed, constructed and installed to conform to NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," except as required by Sentences (3) and (4), Sentence 3.6.3.1.(1) and Article 3.6.4.2.

2) Fire protection systems for commercial cooking equipment referred to in Sentence (1) using vegetable oil or animal fat shall conform to

a) ANSI/UL 300, "Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment," or

b) ULC/ORD-C1254.6, "Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units."

3) The exhaust from a commercial cooking unit shall discharge through an ecology unit or *acceptable* equipment complying with Sentence (5), where the exterior wall termination of the exhaust is within 3 m of a *lane*, property line or street property line. (See Appendix A.)

4) The exhaust from a commercial cooking unit which is discharged from an exterior wall termination shall not

 a) be discharged in a location or manner which causes a concentrated stream of air to fall directly onto pedestrians,

b) be discharged in a location or manner which causes exhaust to accumulate in an area with outdoor seating, and

c) generate a sound pressure level which exceeds noise levels permitted by the Noise Control Bylaw. (See Appendix A.)

5) Equipment provided in compliance with Sentence 6.2.2.7.(3) shall

a) remove 99.97% of the grease entering the equipment,

b) be of continuously welded 1.5 mm thick carbon steel or 1.1 mm stainless steel,

c) prevent the leakage of flame, smoke, or grease from the equipment at normal or abnormal temperatures,

 d) limit the temperature rise of adjacent combustible materials to no more than 97°C above room temperature, and

e) limit the temperature of exhaust air at the exhaust outlet to no more than 138°C.

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## Div. B, 6.2.3.9.(3) Interconnection of Systems

**3)** *Exhaust ducts* referred to in Sentence 6.2.3.8.(10) may exhaust through an enclosed *storage garage* prior to exhausting to the outdoors, provided

a) the storage garage's exhaust system runs continuously,

b) the capacity of the *storage garage*'s exhaust system is equal to or exceeds the volume of the exhaust entering the garage, and

c) a leakage rate 1 smoke/*fire damper* rated in accordance with CAN/ULC-S112.1, "Leakage Rated Dampers for Use in Smoke Control Systems," is provided near the duct outlet location in the *storage garage* to prevent air from the *storage garage* from entering the exhaust ductwork system in the event the *building*'s exhaust fan is shut down.

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## Div. B, 8.1.1.1. Scope

1) The scope of this Part shall be as described in Subsection 1.3.3. of Division A.

2) This Part applies to fire safety and the protection of the public during *construction projects*, including any incompleted or abandoned *building*.

3) Fire safety at *project* sites shall conform to the Fire By-law and Subsection 8.2.6.

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### Div. B, 8.1.3.3. Posting Requirements

1) No *construction* shall commence until a copy of the *Construction Safety Plan* which complies with this subsection is posted on the *project* site in accordance with Sentence (2).

2) The copy of the Construction Safety Plan required by Sentence (1) shall be

a) posted on plywood measuring not less than 600 mm by 600 mm, which is staked into the ground, protected from the weather and visible from the *street*, or b) posted on the exterior of the principal construction site shelter.

b) posted on the exterior of the principal *construction* site shelter.

3) A copy of the *Construction Safety Plan* shall be posted on the *project* site at all times during *construction*.

#### Div. B, 8.1.4.1. Requirement for Construction Safety Officer

1) Where construction of a building includes the services of a Coordinating Registered Professional, a full-time Construction Safety Officer shall be present on the project site at all times during construction.

#### Div. B, 8.2.1.1.(2) Covered Walkways

2) Despite the provisions of Sentence (1) a covered walkway is not required on a sidewalk if

 a) the work is carried out entirely behind fencing, boarding or barricades which separate the *construction* site from the sidewalk, or

b) the *building* is located no less than 2 m from a sidewalk used by pedestrians, except that the *Chief Building Official* may require a covered walkway for a site which contains a *project* if, in the opinion of the *Chief Building Official*, site conditions so warrant.

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## Div. B, 8.2.1.5.(1) Work Shutdown

1) All hazardous areas on a *project* site shall be secured against unauthorized entry at all times when workers are not present on the site.

## Div. B, 8.2.3.1.(1) Safe Passage Past Site

**1)** Except as provided in Article 8.2.3.2., provision shall be made at all times for the safe passage of pedestrian and vehicular traffic past the *project* site.

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## Div. B, 8.2.4.1.(1) Protection of the Public on Public Ways

1) If work on a *project* site creates a traffic hazard on or adjacent to a *public way*, traffic control measures for the duration of the hazard shall include

a) persons to direct construction workers,

b) persons to direct vehicle and pedestrian traffic,

c) appropriate warning signs indicating the presence of *construction* work and flagpersons.

d) warning signs indicating any lane closures,

e) if there is a lane closure of a vehicle travel lane, retro reflective lane control devices set up in a gradual taper to close the vehicle travel lane,

f) if there is a lane closure of a vehicle travel lane at night, yellow flashing lights mounted on retro reflective barricades at the closure point of the vehicle travel lane,

g) retro reflective lane control devices surrounding the closed portion of any public way, and

h) at night, retro reflective barricades with yellow flashing lights in front of any *construction* material or equipment which is not marked with retro reflective sheeting.

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#### Div. B, 8.2.6.1.(1) Application

1) This Subsection applies to fire safety for projects undergoing construction and adjacent projects.

## Div. B, 8.2.6.3.(1) Fire Safety Plan

1) Before the commencement of *construction*, a fire safety plan for the *project* site shall be submitted to and accepted by the *Chief Building Official*.

#### Div. B, 8.2.6.4.(5) Access for Firefighting

5) Where a *project* is enclosed by fencing, boarding or barricades, firefighters shall be provided with 24 hour emergency access for fire department equipment and personnel.

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### Div. B, 8.2.6.14.(2) Requirement for Fire Watch

2) A fire watch as required by Sentence (1) shall include:

a) a complete tour of inspection of the project at least once every hour,

b) facilities to provide a fire warning to occupants, to the satisfaction of the *Chief Building Official*, and

c) facilities to communicate with the fire department in the event of fire, to the satisfaction of the *Chief Building Official*.

## Div. B, 8.2.6.17.(1) Fire Warning in Buildings under Construction

**1)** Facilities shall be provided to alert persons on a *project* to the presence of a fire and such facilities shall be audible throughout the *building*.

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### Div. B, 9.3.1.1.(4) General

**4)** For flat insulating concrete form walls not exceeding 2 *storeys* in *building height* and having a maximum floor to floor height of 3 m, in *buildings* of light-frame construction containing only a single *dwelling unit*, the concrete and reinforcing shall comply with Part 4 or

a) the concrete shall conform to CSA A23.1, "Concrete Materials and Methods of Concrete Construction," with a maximum aggregate size of 19 mm, and

b) the reinforcing shall

i) conform to CAN/CSA-G30.18-M, "Carbon Steel Bars for Concrete Reinforcement,"

ii) have a minimum specified yield strength of 400 MPa, and

iii) be lapped a minimum of 450 mm for 10M bars and 650 mm for 15M bars (See also Articles 9.15.4.5. and 9.20.17.2. to 9.20.17.4.).

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# Div. B, 9.3.1.8.(1) Admixtures

**1)** Admixtures shall conform to ASTM C 260/C 260M, "Air-Entraining Admixtures for Concrete," or ASTM C 494/C 494M, "Chemical Admixtures for Concrete," as applicable.

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# Div. B, 9.3.2.1.(1) Grade Marking

**1)** Lumber for joists, rafters, trusses and beams and for the uses listed in Table 9.3.2.1. shall be identified by a grade stamp to indicate its grade as determined by NLGA 2010, "Standard Grading Rules for Canadian Lumber." (See Appendix A.)

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## Div. B, 9.4.2.1.(1) Application

1) This Subsection applies to light-frame constructions whose wall, floor and roof planes are generally comprised of frames of small repetitive structural members, and where

a) the roof and wall planes are clad, sheathed or braced on at least one side,

b) the small repetitive structural members are spaced not more than 600 mm o.c.,

c) the clear span of any structural member does not exceed 12.2 m,

d) the maximum deflection of the structural roof members conforms to Article 9.4.3.1.,

e) the maximum total roof area, notwithstanding any separation of adjoining *buildings* by *firewalls*, is 4550 m<sup>2</sup>, and

f) for flat roofs, there are no significant obstructions on the roof, such as parapet walls, spaced closer than the distance calculated by

 $D_{o} = 10(H_{o} - 0.8S_{s}/\gamma)$ 

where

D<sub>o</sub> = minimum distance between obstructions, m,

 $H_o$  = height of the obstruction above the roof, m,

 $S_s$  = ground snow load, kPa, and

 $\Upsilon$  = unit weight of snow, kN/m<sup>3</sup>.

(See Appendix A.)

#### Div. B, 9.4.2.2 Specified Snow Loads

9.4.2.2. Specified Snow Loads (see Appendix A.)

1) Except as provided in Sentences (2) and (3), specified snow loads shall be not less than those calculated using the

following formula:  $S = C_b S_s + S_r$ 

where

S = specified snow load,

 $C_b$  = basic snow load roof factor, which is 0.45 where the entire width of the roof does not exceed 4.3 m and 0.55 for

all other roofs,

 $S_{s}$  = 1-in-50-year ground snow load in kPa, determined according to Subsection 1.1.3., and

 $S_r$  = associated 1-in-50-year rain load in kPa, determined according to Subsection 1.1.3. 2) In no case shall the specified snow load be less than 1 kPa.

3) Bow string, arch or semi-circular roof trusses having an unsupported span greater than 6 m shall be designed in

conformance with the snow load requirements in Subsection 4.1.6.

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# Div. B, 9.6.1.1.(1) Application

1) This Section applies to glass, and the protection of glass, in
a) doors, including closet doors and sidelights for doors,
b) windows,
c) skylights as defined in Sentence 9.7.1.1.(2),
d) shower or bathtub enclosures,
e) glazed panels and partitions, or
f) glass guards.
(See Appendix A.)

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# Div. B, 9.6.1.3. Structural Sufficiency of Glass

**1)** Except as permitted by Sentence (2), glass used in *buildings* shall be designed in conformance with

a) CAN/CGSB-12.20-M, "Structural Design of Glass for Buildings," or

b) ASTM E1300, "Standard Practice for Determining Load Resistance of Glass in Buildings."

**2)** Individual panes of glass conforming to Table 9.6.1.3. that are used in doors need not comply with Sentence (1).

Table 9.6.1.3.												
Glass Area for Doors												
Forming part of Sentence 9.6.1.3.(2)												
Glass	Maximum Glass Area, m <sup>2 (1)</sup>											
Thickness,	Type of Glass											
mm	Annealed	Annealed,	Laminated	Wired	Heat-	Fully	Fully					
		Multiple-			Strengthened	Tempered	Tempered,					
		Glazed,					Multiple-					
		Factory-					Glazed,					
		Sealed					Factory-					
		Units					Sealed					
3	0.50	0.70	(2)	(2)	1.00	1.00	2.00					
4	1.00	1.50	(2)	(2)	1.50	4.00	4.00					
5	1.50	1.50	(2)	(2)	1.50	No limit	No limit					
6	1.50	1.50	1.20	1.00	1.50	No limit	No limit					

Notes to Table 9.6.1.3.:

<sup>(1)</sup> See Appendix A.

<sup>(2)</sup> Not generally available.

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# Div. B, 9.7 Windows, Doors and Skylights

[Replace header to Section 9.7 as follows]

9.7 Windows, Doors and Skylights (See Appendix A and A-9.7.4. in Appendix A.)

# Div. B, 9.7.1.1.(3) Application

**3)** For the purpose of this Section, the term "doors" includes glazing in doors and sidelights for doors but does not include vehicular access doors.

# Div. B, 9.7.2.2. [Reserved].

[Replace 9.7.2.2. as follows.]

9.7.2.2. [Reserved].

Page XXb

**Div. B, 9.7.3.1. General Performance Expectations** [Replace Article 9.7.3.1. as follows.]

# 1) [Reserved.]

**2)** Skylights and their components shall be designed, constructed and installed so that they resist snow loads.

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# Div. B, 9.7.3.3. Thermal Characteristics of Windows, Doors and Skylights

[Replace Sentences (1) & (2) as follows]

**1)** Except as permitted in Sentence (2), metal frames, and metal sashes, of windows, doors and skylights shall incorporate a thermal break.

2) Windows and doors described in Sentence (1) do not require a thermal break where they a) are installed as storm windows and doors, or

b) are required to have a *fire-protection rating*.

Div. B, 9.7.4. Manufactured Windows, Doors and Skylights

[Replace the header to Subsection 9.7.4. with the following]

**9.7.4. Design and Construction** (See Appendix A.)

# Div. B, 9.7.4.1. Application

[Replace Article 9.7.4.1. with the following]

9.7.4.1. General

Except as provided by Sentence (2), windows, doors, skylights and their components shall be designed and constructed in accordance with

 a) Article 9.7.4.2., or
 b) Part 5.

**2)** Windows, doors, skylights and their components that are required to have a *fire-protection rating* need not conform to this Subsection. (See Appendix A.)

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# 9.7.4.2. Standards

**1)** Except as permitted by Sentence (2) and Article 9.7.4.3., windows, doors, skylights and their components shall conform to

a) AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights" (Harmonized Standard), and b) A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights." (See Appendix A.)

2) A door designated as a "Limited Water" door in accordance with the standard referenced in Clause (1)(a) shall not be used unless the door

a) separates a dwelling unit from an unconditioned storage garage or a carport,

b) conforms to Clauses 3.3.1.13.(1)(a), (b) and (c) and Sentences 3.3.1.13.(5) and (10), or

c) is not required by Sentence 9.27.3.8.(3) to have flashing installed.

# 9.7.4.3. Performance Requirements

**1)** For the purposes of compliance with the standard referenced in Clause 9.7.4.2.(1)(b), windows, doors and their components in a *building* of no more than 10 m in height, measured from *grade*, may conform to the design pressure, performance grade and water resistance values in Table C-4 of Appendix C instead of the values calculated in the Canadian Supplement.

**2)** For *buildings* described in Sentence 1.3.3.3.(1) of Division A, where design pressure, performance grade and water resistance values are calculated in accordance with the standard referenced in Clause 9.7.4.2.(1)(b), the driving rain wind pressure (DRWP) values in Table A.1 of CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights," shall be used. (See Appendix A.)

# Div. B, 9.7.5. Resistance to Forced Entry

[Replace the header to Subsection 9.7.5. with the following]

# 9.7.5. Resistance to Forced Entry

# Div. B, 9.7.5.1 Application and Compliance

[Replace Article 9.7.5.1. as follows – see next page.]

# Div. B, 9.7.5.2 Resistance to Forced Entry

[Replace Article 9.7.5.1. as follows – see next page.]

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# Div. B, 9.7.5.1 Application and Compliance

[Replace Article as follows]

# 9.7.5.1. Resistance to Forced Entry for Sliding Doors

**1)** This Article applies to sliding doors serving *dwelling units*, other than exterior doors to garages and to other ancillary spaces.

2) Sliding doors shall not permit the removal of the sliding panel when in the locked position.

3) Exterior doors shall

a) have a pin type locking mechanism, with a minimum 9 mm throw into the frame, or an equivalent locking mechanism, operable from the interior without the use of keys, special devices or specialized knowledge of the locking mechanism, or

b) conform to at least Grade 10 in ASTM F842, "Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact."

# Div. B, 9.7.5.2. Resistance to Forced Entry for Swinging Doors

[Replace Article as follows]

# 9.7.5.2. Resistance to Forced Entry for Swinging Doors

1) Except < for exterior doors to garages and to other ancillary spaces, this Article> applies to a) swinging entrance doors to *dwelling units*,

b) swinging doors between *dwelling units* and attached garages or other ancillary spaces, and

c) swinging doors that provide access directly or indirectly from a *storage garage* to a *dwelling unit*. (See Appendix A.)

**2)** Doors, frames and hardware that conform to AAMA 1304, "Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems," are not required to conform to Sentences (3) to (7).

3) Wood doors described in Sentence (1) shall

a) be solid core or stile-and-rail type,

b) be not less than 45 mm thick, and

c) if of the stile-and-rail type, have a panel thickness of not less than 19 mm, with a total panel area not more than half of the door area.

4) Doors described in Sentence (1) shall be provided with

a) a deadbolt lock with a cylinder having no fewer than 5 pins, and

b) a bolt throw not less than 25 mm long, protected with a solid or hardened free-turning ring or bevelled cylinder housing. (See Article 9.9.6.7.)

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**5)** An inactive leaf in double doors used in locations specified in Sentence (1) shall be provided with heavy-duty bolts top and bottom having an engagement of not less than 15 mm.

6) Hinges for doors described in Sentence (1) shall be fastened

a) to wood doors with wood screws not less than 25 mm long and to wood frames with wood screws so that at least

2 screws per hinge penetrate not less than 30 mm into solid wood, or

b) to metal doors and metal frames with machine screws not smaller than No. 10 and not less than 10 mm long.

7) Strikeplates for deadbolts described in Sentence (4) shall be fastened

a) to wood frames with wood screws that penetrate not less than 30 mm into solid wood, or

b) to metal frames with machine screws not smaller than No. 8 and not less than 10 mm long. (See A-9.7.5.2.(6) in Appendix A.)

**8)** Except for storm or screen doors, doors described in Sentence (1) that swing outward shall be provided with hinges or pins so that the doors cannot be removed when they are in the closed position. (See Appendix A.)

**9)** Solid blocking shall be provided on both sides at the lock height between the jambs for doors described in Sentence (1) and the structural framing so that the jambs will resist spreading by force.

**10)** Except as permitted by Sentence (11), a door frame reinforcement plate shall be installed between the jack stud and door frame, and shall be:

a) constructed of minimum 18 gauge steel plate;

b) provided with an integral metal tongue that is:

i) at right angles to the plate located and designed so as to resist the inwards movement of the door when the deadbolt is engaged, and

ii) inset into the door frame to a minimum 15.9 mm depth; and

crewed into the door frame or adjacent jack stud with wood screws that are:

are not smaller than No. 10,

ii) penetrate at least 50 mm into wood studs,

ii) have at least two points of attachment on each side of the deadbolt, and

iv) are located at least 38 mm away from the deadbolt throw.

(See Appendix A)

**11)** Strikeplates required by Clause 9.7.5.2.(7)(a) and installed in a wood door frame without the reinforcement plate of Sentence (10), shall be:

a) constructed from minimum 18 gauge steel plate;

b) provided with an integral door reinforcement by means of a minimum 13 mm long metal tongue inset into the frame at right angles to the strike plate and arranged so as to resist forced entry when the deadbolt is engaged; and

c) attached to the door frame by means of wood screws penetrating at least 30 mm into the wood at least two points of attachment on each side of the deadbolt, at least 38 mm away from the deadbolt throw.

(See Appendix A)

(See Appendix A.)

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Div. B, 9.7.5.2. Resistance to Forced Entry for Swinging Doors [see previous page]

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# Div. B, 9.8.8.1. Required Guards

5) Except as provided in Sentence (6), openable windows in *buildings* of *residential occupancy* shall be protected by

a) a guard, or

b) a mechanism capable of controlling the free swinging or sliding of the openable part of the window so as to limit any clear unobstructed opening to not more than 100 mm measured either vertically or horizontally where the other dimension is greater than 380 mm. (See Appendix A.)

6) Windows need not be protected in accordance with Sentence (5), where

a) the windows serve a dwelling unit that is not located above another suite, or

b) Reserved.

c) openings greater than 100 by 380 mm are

i) located more than 900 mm above the finished floor on one side of the window, and
 ii) construction below the opening does not facilitate climbing, or

d) windows are designed such that

i) the only opening greater than 100 mm by 380 mm is a horizontal opening at the top of the window,

ii) the opening is at least 450 mm above the window sill, and

iii) the window sill is located more than 450 mm above the finished floor on one side of the window, or

e) the window is located in a room or space with the finished floor described in Clause 9.8.8.1.(6)(d) located less than 1 800 mm above the floor or ground on the other side of the window.

(See A-9.8.8.1.(5) in Appendix A.)

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Div. B, 9.8.8.1. Required Guards [Replace Sentences 9.8.8.1.(5) & (6) with the following – see over.]

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# Div. B, 9.9.4.4.(1) Openings Near Unenclosed Exterior Exit Stairs and Ramps

1) Unprotected openings in exterior walls of the *building* shall be protected with wired glass in fixed steel frames, glass block conforming to Articles 9.10.13.5. and 9.10.13.7., or protection complying with the requirements of Sentence 3.2.3.13.(5), where

a) an unenclosed exterior *exit* stair or ramp provides the only *means of egress* from a *suite* or *secondary suite* and is exposed to fire from unprotected openings in the exterior walls of

i) another fire compartment, or

ii) another dwelling unit, and

b) unprotected openings in the exterior walls of the building are within 3 m horizontally and less than 10 m below or 5 m above the exit stair or ramp.

# Div. B, 9.9.4.5.(1) Openings Near Unenclosed Exterior Exit Stairs and Ramps

**1)** Either openings in exterior walls of an *exit* or openings in adjacent exterior walls of the *building* the *exit* serves shall be protected with wired glass in fixed steel frames or glass block installed in accordance with Articles 9.10.13.5. and 9.10.13.7., where

a) the *exit* enclosure has exterior walls that intersect the exterior walls of the *building* at an angle of less than 135° measured on the outside of the *building*, and

b) the openings in the exterior walls of the *building* are within 3 m horizontally and less than 2 m above the openings in the exterior walls of the *exit*.

(See Appendix A.)

2) The opening protection referred to in Sentence (1) may conform to Sentence 3.2.3.13.(4).

# Div. B, 9.9.4.6.(1) Openings Near Exit Doors

**1)** Where an exterior *exit* door in one *fire compartment* is within 3 m horizontally of an *unprotected opening* in another *fire compartment* and the exterior walls of these *fire compartments* intersect at an exterior angle of less than 135°, the opening shall be protected with

a) wired glass in fixed steel frames conforming to Article 9.10.13.5., or

b) glass block conforming to Article 9.10.13.7., or

c) protection complying with the requirements of Sentence 3.2.3.13.(5).

2) The opening protection referred to in Sentence (1) may conform to Sentence 3.2.3.13.(4).

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# Div. B, 9.10.4.4.(1) Roof-Top Enclosures

1) A roof-top enclosure shall not be considered as a *storey* in calculating the *building height* if the roof-top enclosure is

a) provided for elevator machinery, a stairway or a service room, and

b) used for no purpose other than for service to the building.

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# **Div. B**, **9.10.13.2.** Solid Core Wood Door as a Closure [see previous page]

**1)** A 45 mm thick solid core wood door is permitted to be used where a minimum *fire-protection rating* of 20 min is permitted, between a *secondary suite* or *lock-off unit* and its primary *dwelling unit*, or between a *public corridor* and a *suite* provided that the door conforms to CAN/ULC-S113, "Wood Core Doors Meeting the Performance Required by CAN/ULC-S104 for Twenty Minute Fire Rated Closure Assemblies." (See Appendix A.)

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Div. B, 9.10.14.5.(14) Construction of Exposing Building Face and Walls above Exposing Building Face

**14)** Where a residential building is sprinklered, and Table 9.10.14.5.A requires noncombustible construction, the exposing building faces may use a wood stud wall assembly having a 1 hour fire-resistance rating provided the limiting distance is at least 1.0 m and the wall assembly is of noncombustible construction throughout excepting structural elements and sheathing.

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# Div. B, 9.10.15.1.(1) Application

1) This Subsection applies to

a) buildings containing only dwelling units with no dwelling unit above another dwelling unit except as described in (b) or (c),

b) one-family dwellings with secondary suite,

c) *two-family dwellings* having no *dwelling unit* above another *dwelling unit* except *secondary suite* within the principal *dwelling unit*, and

d) laneway houses, and

e) accessory *buildings* that serve a *building* described in Clause (a).

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# Div. B, 9.10.15.5.(3) Limiting Distance and Fire Department Response

**3)** Except as provided in Sentence (4), where the *limiting distance* is equal to or greater than 0.6 m and less than 1.2 m, the *exposing building face* and any exterior wall located above the *exposing building face* that encloses an *attic or roof space* shall have a *fire-resistance rating* of not less than 45 min, and

a) the cladding shall be metal or *noncombustible* cladding installed in accordance with Section 9.20., 9.27. or 9.28. (See A-9.10.14.5.(1) in Appendix A),

b) the cladding shall

i) conform to Subsection 9.27.6., 9.27.7., 9.27.8., 9.27.9., or 9.27.10.,

ii) be installed without furring members, or on furring not more than 25 mm thick, over gypsum sheathing at least 12.7 mm thick or over masonry, and

iii) after conditioning in conformance with ASTM D 2898, "Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing," have a *flame-spread rating* not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2),

c) the cladding shall

i) conform to Subsection 9.27.12.,

ii) be installed with or without furring members over gypsum sheathing at least 12.7 mm thick or over masonry,

iii) have a *flame-spread rating* not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2), and

iv) not exceed 2 mm in thickness exclusive of fasteners, joints and local reinforcements, or

d) the wall assembly shall comply with Sentences 3.1.5.5.(3) and (4) when tested in conformance with CAN/ULC-S134, "Fire Test of Exterior Wall Assemblies."

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Div. B, 9.10.15.5.(13) Construction of Exposing Building Face of Houses

**13)** If a *building* is *sprinklered*, and the maximum percentage of *unprotected openings* complies with

Sentence 9.10.15.4.(7), the *exposing building faces* may be constructed with a wood stud wall assembly provided

a) the exposing building face has a one hour fire-resistance rating,

b) the wall assembly is of non-combustible construction throughout excepting structural elements and sheathing, and

c) the wall assembly is clad with non-combustible cladding.

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# Div. B, 9.10.18.2.(1) Required Smoke Alarms

1) Except as permitted in Sentences (3), (4), and (5), a fire alarm system shall be installed in *buildings* in which a *sprinkler system* is required by this Part. (See Appendix.)

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# Div. B, 9.10.19.1.(1) Required Smoke Alarms

- 1) Smoke alarms conforming to CAN/ULC-S531, "Standard for Smoke Alarms," shall be installed in
- a) each *dwelling unit*, and
- b) each sleeping room not within a *dwelling unit*.

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# Div. B, 9.10.20.3. Fire Department Access to Buildings

**3)** Despite the provisions of Sentence (1), an unobstructed path of travel for firefighters shall be provided to an *ancillary residential building* and the path of travel shall:

a) lead continuously from the street to the lane,

b) have a travel distance of no more than 45 m from the *street* to the principal entrance of the *ancillary residential building*,

c) be at least 900 mm wide,

d) have an overhead clearance of at least 2 m, and

e) consist of concrete, asphalt, or similar material.

**4)** An *ancillary residential building* shall have a strobe light installed and maintained outside the principal entrance, connected to an internal *smoke alarm* within the *ancillary residential building*.

**5)** Despite Clause 9.10.20.3.(3)(b), the path of travel for firefighters towards not more than one *ancillary residential building* on a parcel may exceed 45 m to a maximum of 70 m provided the principal entrance to that *ancillary residential building* is visible from the *street*.

6) If the principal *building* and the *ancillary residential building* are adjacent to a *lane*, the path of foot travel for firefighters to the *ancillary residential building* may be through the *lane* if

a) the travel distance from the *street* to the principal entrance of the *ancillary residential building* is no more than 70 m,

b) the path has an overhead clearance of at least 3 m,

c) the path consists of concrete, asphalt, or similar material, and

d) the principal entrance of the *ancillary residential building* is visible from the *street*.

7) Two adjacent parcels may have a single shared path of travel for firefighters over the common property line and the adjacent specified area to access both, provided

(a) each parcel contains an *ancilliary residential building*,

(b) each parcel is subject to a covenant registered on title which prohibits *construction* upon or obstruction of the common property line and of a specified area adjacent to the property line; and (c) the path of travel meets the requirements of Sentences (3), (4) and (5).

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# Div. B, 9.10.22.2.(2) Vertical Clearances above Cooktops

**2)** The vertical clearance described in Sentence (1) for framing, finishes and cabinets located directly above the location of the *<cooktop>* may be reduced to 600 mm above the level of the elements or burners, provided the framing, finishes and cabinets

a) are noncombustible, or

b) are protected by

i) *noncombustible* cementitious board not less than 6 mm thick, covered with sheet metal not less than 0.33 mm thick, or

ii) a metal hood with a 125 mm projection beyond the framing, finishes and cabinets.

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# **Div. B, 9.13.4. Soil Gas Control** [Replace the header to Subsection 9.13.4. with the following]

9.13.4. Soil Gas Control (See Appendix A.)

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# Div. B, 9.13.4. Soil Gas Control

[Replace Articles 9.13.4.1. through 9.13.4.3. with the following]

#### 9.13.4.1. Application and Scope

**1)** This Subsection applies to

a) wall, roof and floor assemblies separating *conditioned space* from the ground, and

b) the rough-in of a radon vent pipe to allow the future protection of *conditioned space* that is separated from the ground by a wall, roof or floor assembly.

2) This Subsection addresses the leakage of *soil* gas from the ground into the *building*.

# 9.13.4.2. Protection from Soil Gas Ingress

**1)** All wall, roof and floor assemblies separating *conditioned space* from the ground shall be protected by an *air barrier system* conforming to Subsection 9.25.3.

**2)** Except as permitted by Sentence (4), unless the space between the *air barrier system* and the ground is designed to be accessible for the future installation of a subfloor depressurization system, *dwelling units* and *buildings* containing *residential occupancies* shall be provided with the rough-in for a subfloor depressurization system conforming to Article 9.13.4.3.

**3)** Except as permitted by Sentence (4) or (5), where *buildings* are used for *occupancies* other than those described in Sentence (2), and are intended to be occupied on average for greater than 4 hours within a 24 hour period, protection from

radon ingress and the means to address high radon concentrations in the future shall conform to a) Article 9.13.4.3., or

b) Part 5 and 6 (see Article 5.4.1.1. and 6.2.1.1.). (See Appendix A.)

**4)** *Buildings* in locations classified as Radon Area 2 by Table C-3 in Appendix C need not conform to Sentences (2) and (3).

5) Buildings described in Clause 9.16.2.1.(2)(b) need not conform to Sentence (3).

# 9.13.4.3. Rough-in for a Subfloor Depressurization System

(See Appendix A.)

1) Floors-on-ground shall be provided with a rough-in for subfloor depressurization consisting of

a) a gas-permeable layer and a radon vent pipe, as described in Sentence (2), or

b) a gas-permeable layer consisting of coarse clean granular material and a radon vent pipe, as described in Sentence (3).

[See page over]

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2) Where a rough-in referred to in Clause (1)(a) is provided, the rough-in shall include

a) a gas-permeable layer installed in the space between the *air barrier system* and the ground to allow the depressurization of that space, and

b) a radon vent pipe that

i) has one or more inlets that allow for the effective depressurization of the gas-permeable layer (see A-9.13.4.3.(2)(b)(i) and (3)(b)(i) in Appendix A),

ii) terminates outside the *building* in a manner that does not constitute a hazard, and

iii) is clearly labelled "RADON VENT PIPE."

3) Where a rough-in referred to in Clause (1)(b) is provided, the rough-in shall include

a) a gas-permeable layer, consisting of not less than 100 mm of clean granular material containing not more than 10% of material that will pass a 4 mm sieve, installed below the floor-on-ground, and b) a radon vent pipe not less than 100 mm in diameter that is constructed so as to be air-tight and installed through the floor-on-ground such that

i) it opens into each contiguous area of the granular layer required by Clause (a) and not less than 100 mm of granular material projects beyond the terminus of the pipe measured along its axis (see A-9.13.4.3.(2)(b)(i) and (3)(b)(i) in Appendix A),

ii) it terminates not less than 1 m above and not less than 3.5 m in any other direction from any air inlet, door or openable window,

iii) it terminates not less than 2 m above and not less than 3.5 m in any other direction from a roof that supports an *occupancy*,

iv) it terminates not less than 1.8 m from a property line,

v) it is shielded from the weather in accordance with Sentence 6.2.3.12.(3),

vi) it is protected from frost closure by insulating the pipe or by some other manner, if subject to frost closure,

vii) the accumulation of moisture in the pipe is prevented, and

viii) it is clearly labelled "RADON VENT PIPE" every 1.2 m and at every change in direction.

(See Appendix A.)

# Div. B, 9.14.3.1.(1) Material Standards

1) Drain tile and drain pipe for *foundation* drainage shall conform to
a) ASTM C 4, "Clay Drain Tile and Perforated Clay Drain Tile,"
b) ASTM C 412M, "Concrete Drain Tile (Metric),"
c) ASTM C 444M, "Perforated Concrete Pipe (Metric),"
d) ASTM C 700, "Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated,"
e) Deleted.

f) CAN/CSA-B182.1, "Plastic Drain and Sewer Pipe and Pipe Fittings,"

g) CAN/CSA-G401, "Corrugated Steel Pipe Products," or

h) BNQ 3624-115, "Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage – Characteristics and Test Methods.

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# **Div. B, 9.15.3.4.(1) - Table 9.15.3.4.** [Replace Table 9.15.3.4. as follows]

Table 9.15.3.4.         Minimum Footing Sizes         Forming part of Sentence 9.15.3.4.(1)			
No. of Floors Supported	Minimum Width of Supporting Exterior Walls <sup>(2)</sup>	Strip Footings, mm Supporting Interior Walls <sup>(3)</sup>	Minimum Footing Area for Columns Spaced 3 m (9 ft. 10 in.) o.c., <sup>(1)</sup> m <sup>2</sup>
1	250	200	0.4
2	350	350	0.75
3	450	500	1.0

# Notes to Table 9.15.3.4.:

- <sup>(1)</sup> See Sentence 9.15.3.7.(1).
- <sup>(2)</sup> See Sentence 9.15.3.5.(1).
- <sup>(3)</sup> See Sentence 9.15.3.6.(1).

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# Div. B, 9.16.2.1. Required Installation of Granular Material

[Replace Article 9.16.2.1. as follows]

# 9.16.2.1. Required Installation of Material Beneath Floors-on-Ground

**1)** Except as provided in Sentence (2), a drainage layer shall be installed below floors-on-ground. (See Appendix A.)

2) The drainage layer required in Sentence (1) need not be installed below

a) slabs in garages, carports or accessory buildings, or

b) *buildings* of *industrial occupancy* where the nature of the process contained therein permits or requires the use of large openings in the *building* envelope even during the winter.

# Div. B, 9.16.2.2.(4) Support of Floors

**4)** *Fill* beneath floors-on-ground need not be compacted where the material is coarse clean granular material containing not more than 10 {per cent} of material that will pass a 4 mm sieve.

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# Div. B, 9.23.16.5.(2) Lumber Roof Sheathing

2) Lumber roof sheathing shall be installed diagonally, where

a) the seismic spectral response acceleration, Sa(0.2), is greater than 0.70 but not greater than 1.2, or

b) the 1-in-50 hourly wind pressure is equal to or greater than 0.80 kPa but less than 1.20 kPa.

#### Div. B, 9.23.16.7.(3) Thickness or Rating

**3)** Asphalt-coated or asphalt-impregnated fibreboard not less than 11.1 mm thick conforming to CAN/ULC-S706, "Wood Fibre Insulating Boards for Buildings," is permitted to be used as a roof sheathing over supports spaced not more than 400 mm o.c. provided the roofing consists of a) a continuous sheet of galvanized steel not less than 0.33 mm in thickness, or b) a continuous sheet of aluminum not less than 0.61 mm in thickness.

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#### Div. B, 9.25.2.1.(1) Required Insulation

**1)** All walls, ceilings and floors separating heated space from unheated space, the exterior air or the exterior *soil* shall be provided with sufficient thermal insulation to prevent moisture condensation on their room side during the winter and to ensure comfortable conditions for the occupants. (See A-9.1.1.1.(1) in Appendix A and Part 10)

#### Div. B, 9.25.2.2.(1) Insulation Materials

Except as required in Sentence (2), thermal insulation shall conform to the requirements of

 CAN/CGSB-51.25-M, "Thermal Insulation, Phenolic, Faced,"
 CGSB 51-GP-27M, "Thermal Insulation, Polystyrene, Loose Fill,"
 CAN/ULC-S701, "Thermal Insulation, Polystyrene, Boards and Pipe Covering,"
 CAN/ULC-S702, "Mineral Fibre Thermal Insulation for Buildings,"
 CAN/ULC-S703, "Cellulose Fibre Insulation (CFI) for Buildings,"
 CAN/ULC-S704, "Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced,"
 CAN/ULC-S705.1, "Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density – Material - Specification," or
 CAN/ULC-S706, "Wood Fibre Insulating Boards for Buildings."

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### Div. B, 9.25.2.3.(6) Installation of Thermal Insulation

6) Where insulation is exposed to the weather and subject to mechanical damage, it shall be protected with not less

than

a) Deleted.

b) 6 mm preservative-treated plywood, or

c) 12 mm cement parging on wire lath applied to the exposed face and edge.

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#### Div. B, 9.26.2.1.(1) Material Standards

1) Roofing materials shall conform to

a) CAN/CGSB-37.4-M, "Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing,"

b) CAN/CGSB-37.5-M, "Cutback Asphalt Plastic, Cement,"

c) CAN/CGSB-37.8-M, "Asphalt, Cutback, Filled, for Roof Coating,"

d) CGSB 37-GP-9Ma, "Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing,"

e) CGSB 37-GP-21M, "Tar, Cutback, Fibrated, for Roof Coating,"

f) CAN/CGSB-37.50-M, "Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing,"

g) CGSB 37-GP-52M, "Roofing and Waterproofing Membrane, Sheet Applied, Elastomeric,"

h) CAN/CGSB-37.54, "Polyvinyl Chloride Roofing and Waterproofing Membrane,"

i) CGSB 37-GP-56M, "Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing,"

j) CGSB 41-GP-6M, "Sheets, Thermosetting Polyester Plastics, Glass Fiber Reinforced,"

k) CAN/CGSB-51.32-M, "Sheathing, Membrane, Breather Type,"

I) CSA A123.1/A123.5, "Asphalt Shingles Made From Organic Felt and Surfaced with Mineral Granules/

Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules,"

m) CAN/CSA-A123.2, "Asphalt-Coated Roofing Sheets,"

n) CSA A123.3, "Asphalt Saturated Organic Roofing Felt,"

o) CAN/CSA-A123.4, "Asphalt for Constructing Built-Up Roof Coverings and Waterproofing Systems,"

p) CSA A123.17, "Asphalt Glass Felt Used in Roofing and Waterproofing,"

q) CAN/CSA-A220 Series, "Concrete Roof Tiles,"

r) CSA O118.1, "Western Red Cedar Shakes and Shingles," or

s) CSA O118.2, "Eastern White Cedar Shingles."

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Div. B, 9.26.3.1.(1) Slope Replace Table 9.26.3.1. as follows

Table 9.26.3.1.Roofing Types and Slope LimitsForming part of Sentence 9.26.3.1.(1)			
Type of Roofing	Minimum Slope	Maximum Slope	
Asbestos Cement Corrugated Sheets	<del>1 in 4</del>	<del>no limit</del>	
Asphalt Shingles			
Low slope application	1 in 6	no limit	
Normal application	1 in 3	no limit	
Built-up Roofing			
Asphalt base (without gravel)	1 in 25	1 in 2	
Asphalt base (gravelled)	1 in 50 <sup>(1)</sup>	1 in 4	
Coal-tar base (gravelled)	1 in 50 <sup>(1)</sup>	1 in 25	
Cold process	1 in 25	1 in 1.33	
Cedar Shakes	1 in 3	no limit	
Clay Tile	1 in 2	no limit	
Glass Fibre Reinforced Polyester Roofing Panels	1 in 4	no limit	
Modified Bituminous Membranes	1 in 50	1 in 4	
Profiled Metal Roofing	1 in 4 <sup>(1)</sup>	no limit	
Roll Roofing			
480 mm wide selvage asphalt roofing	1 in 6	no limit	
Cold application felt	1 in 50	1 in 1.33	
Smooth and mineral surfaced	1 in 4	no limit	
Sheet Metal Shingles	1 in 4 <sup>(1)</sup>	no limit	
Slate Shingles	1 in 2	no limit	
Wood Shingles	1 in 4	no limit	

### Notes to Table 9.26.3.1.:

<sup>(1)</sup> See Sentence 9.26.3.1.(3).

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### Div. B, 9.26.17.1.(1) Installation

**1)** Except as provided in Sentence 9.23.16.1.(1), concrete roof tiles shall be installed according to CAN/CSA-A220 Series, "Concrete Roof Tiles." (See Appendix A.)

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### Div. B, 9.27.8.5.(1) Lapped Strip Siding

1) Plywood applied in horizontal lapped strips shall have not less than a 2 mm gap provided at the butted ends, which shall be caulked.

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### Div. B, 9.29.8.1.(1) Material Standard

1) Insulating fibreboard shall conform to CAN/ULC-S706, "Wood Fibre Insulating Boards for Buildings."

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### Div. B, 9.30.5.1.(1) Materials

 Resilient flooring used on concrete slabs supported on ground shall consist of asphalt, rubber, vinyl asbestos, unbacked vinyl or vinyl with an inorganic type backing.

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#### **Div. B, 9.31.2.4. Site Constructed Fixtures** [Add new Article as follows]

9.31.2.4. Site Constructed Fixtures

 A shower door that swings on a vertical axis shall be capable of opening outwards from a shower stall forming part of a site constructed fixture.

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### Div. B, 9.32.3.7.(1) Kitchen and Bathroom Ventilation Exhaust Fan Capacity Ratings

 Kitchen and bathroom ventilation exhaust fan capacity ratings shall be based on air flow performance at 50 pa external static pressure as determined in accordance with

 a) HVI 916, "Airflow Test Procedure," or
 b) CAN/CSA-C260-M, "Rating the Performance of Residential Mechanical Ventilating Equipment."

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#### Div. B, 9.33.5.1.(1) Capacity of Heating Appliances

**1)** The required capacity of heating *appliances* located in a *dwelling unit* and serving only that *dwelling unit*, shall be determined in accordance with CSA F280, "Determining the Required Capacity of Residential Space Heating and Cooling Appliances," except that the design temperatures shall conform to Subsection 9.33.3.

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#### Div. B, 9.34.1.1.(2) Standard for Electrical Installations

**2)** In addition to the requirements of Sentence (1), electrical installations in a *one-family dwelling* required to conform to Article 9.37.3.1. shall also comply with the following:

a) the electrical service size shall be based on the demand load calculated on the total area of the *dwelling unit*, provided that:

i) for each electrical range additional to the first range, 6kw demand shall be added for a rating of 12 kw or less, plus 40 per cent of the amount by which the rating of the range exceeds 12 kw, and

ii) except for the first electrical range referred to in (a)(i), for each electrical appliance exceeding 1500 watts additional to those provided for one-family use, 100 per cent of the rating of such appliance shall be added,

b) general circuit branch wiring may be interconnected between outlets located in the principal dwelling and the *secondary suite*, and

c) except as permitted by Sentence 11.4.3.1.(5), a single panel board may supply electrical loads of the principal dwelling and the secondary suite, provided that it is located within the building in a common area accessible to all occupants of the building.

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#### Div. B, 9.37.3.1.(1) Specific Requirements

1) In addition to the requirements of this Part, a *one-family dwelling with secondary suite* or a *lock-off unit* shall be constructed in conformance with

a) the fire compartmentation requirements in Sentence 9.10.9.14.(1),

b) the installation of smoke alarms in Subsection 9.10.19., and

c) the installation of electrical facilities in Subsection 9.34.1.

#### Div. B, 9.37.4.1.(3) Specific Requirements

**3)** Each *dwelling unit* and its *secondary suite* or *lock-off unit* shall be separated from each other by a) a *fire separation* complying with Sentence 9.10.9.14.(1), and

b) tightly fitted building service penetrations.

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## Part 10 Energy and Water Efficiency

### Section 10.1. General

10.1.1. Application 10.1.2. Definitions

Section 10.2. Energy Efficiency

10.2.1. Energy Design Building Classification

- **10.2.2.** Design Measures for Energy Efficiency
- Section 10.3. Water Efficiency
- 10.3.1. Design and Installation

### Section 10.4. Electric Vehicle Charging

**10.4.3.** Electric Vehicle Charging for Buildings

### Section 10.5. Objectives and Functional Statements

**10.5.1. Objectives and Functional Statements** 

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Part 10 Energy and Water Efficiency

### Section 10.1. General

#### 10.1.1. Application

10.1.1.1. Scope

1) The scope of this Part shall be as described in Subsection 1.3.3. of Division A.

#### 10.1.1.2. Application

**1)** The application of this Part shall be as described in Subsection 1.3.3. of Division A.

#### 10.1.2. Definitions

#### 10.1.2.1. Defined Terms

1) Words that appear in italics are defined in Article 1.4.1.2. of Division A.

### Section 10.2. Energy Efficiency

#### **10.2.1.** Energy Design Building Classification

#### 10.2.1.1. Application

1) Except as permitted by Sentence (2), a *building* shall be designed and constructed in conformance with this Subsection for the purpose of energy efficiency.

**2)** A structure that cannot be identified by the characteristics of a *building* in this Subsection shall comply with the requirements of 10.2.1.2., or as deemed *acceptable* to the Chief Building Official.

**3)** To meet the energy efficiency requirements of Articles 10.2.1.2. to 10.2.1.5., the design requirements of Subsection 10.2.2. shall form an integral part of this Subsection.

# **10.2.1.2.** Residential Buildings Over 6 Storeys in Building Height and Commercial Buildings (with or without Residential Components)

**1)** All *buildings* other than those designed in accordance with 10.2.1.3 through 10.2.1.5., shall

a) be designed in accordance with Article 10.2.2.2. or Article 10.2.2.3.,

- b) Reserved,
- c) Reserved,
- d) Reserved,
- e) be provided with vestibules for all doors in accordance with Article 10.2.2.8.,
- f) be provided with metering equipment in compliance with Article 10.2.2.9,
- g) be provided with lighting controls in conformance with Article 10.2.2.10.,

h) be provided with mechanical equipment complying with Articles 10.2.2.11. through 10.2.2.14.,

i) conform with Article 10.2.2.15. where fire places are provided, and j) conform with Article 10.2.2.17. where heat recovery ventilators are provided.

#### 10.2.1.3. Residential Buildings of 4 to 6 Storeys (other than 1 or 2 Family Dwellings)

1) Except as otherwise required by this Subsection, a *building,* other than a 1 or 2 Family Dwelling, which is 4 to 6 *storeys* in building height and which is classified as Group C *major occupancy* containing no other *major occupancies,* excluding Group F Division 3 (Storage Garage) occupancy subsidiary to the Group C *major occupancy,* shall

a) [Reserved.]

b) be designed in compliance with the enhanced energy requirements of: i) Article 10.2.2.5., or

ii) Energy standards as per Articles 10.2.2.2. or 10.2.2.3., and thermal insulation conforming with 10.2.2.6., windows and doors conforming with 10.2.2.7., and be provided with heat recovery ventilators conforming with 10.2.2.17.,

c) [Reserved.]

d) [Reserved.]

e) be provided with vestibules for all doors in accordance with Article 10.2.2.8.,
f) be provided with metering equipment in compliance with Article 10.2.2.9.,
g) be provided with lighting controls in conformance with Article 10.2.2.10.,
h) be provided with mechanical equipment complying with Articles 10.2.2.11.
through 10.2.2.14.,

i) conform with Article 10.2.2.15. where domestic gas fireplaces are provided,
j) provide documentation in conformance with Article 10.2.2.20, and
k) provide airtightness testing in accordance with Article 10.2.2.21.

#### 10.2.1.4. Residential Buildings of 1 to 3 Storeys (other than 1 or 2 Family Dwellings)

**1)** Except as otherwise required in this Subsection, a *building*, other than a 1 or 2 *Family Dwelling*, which is less than 4 *storeys* in *building height*, and which is entirely classified as Group C *major occupancy*, excluding Group F Division 3 (Storage Garage) *occupancy* subsidiary to the Group C *major occupancy*, shall

a) be provided with thermal insulation in conformance with Article 10.2.2.6.,

b) be provided with windows and doors conforming with Article 10.2.2.7.,

c) be provided with vestibules for all doors in accordance with Article 10.2.2.8.,

d) be provided with metering equipment in compliance with Article 10.2.2.9.,

e) be provided with lighting controls in conformance with Article 10.2.2.10.,f) where provided, domestic hot water heating shall comply with Article 10.2.2.11.through 10.2.2.13. as applicable,

g) comply with Article 10.2.2.14. where domestic gas heated furnaces or makeup air units are provided,

h) comply with Article 10.2.2.15. where domestic gas fireplaces are provided, i) be provided with and heat recovery ventilators in conformance with Article 10.2.2.17..

j) be designed with a solar photovoltaic ready pipe run in accordance with Article 10.2.2.19.,

k) provide documentation and a rating system audit in accordance with Article 10.2.2.20., and

I) provide airtightness testing in accordance with Article 10.2.2.21.

#### 10.2.1.5. One and Two Family Dwellings

**1)** Except as otherwise required in this Subsection, a *one family dwelling* and *two-family dwelling*, with or without *secondary suites* or *lock-off units*, and including *laneway houses*, shall

a) be designed with thermal insulation in conformance with Article 10.2.2.6.,
b) be designed with windows and doors conforming with Article 10.2.2.7.,
c) be provided with metering equipment in compliance with Article 10.2.2.9.,
d) be provided with lighting controls in conformance with Article 10.2.2.10.,
e) where provided, domestic hot water heating shall comply with Article 10.2.2.10.,
e) where provided, domestic das applicable,
f) where provided, domestic gas heated furnaces or make-up air units shall comply with Article 10.2.2.14.,
g) where provided, domestic fireplaces shall comply with Article 10.2.2.15. and 10.2.2.16. as applicable,
h) be provided with heat recovery ventilators in conformance with Article 10.2.2.17.,
i) be designed with a solar ready pipe run in accordance with Article 10.2.2.18.,

j) provide documentation and a rating system audit in accordance with Article 10.2.2.20., and

I) provide airtightness testing in accordance with Article 10.2.2.21.

#### **10.2.2.** Design Measures for Energy Efficiency

#### 10.2.2.1. Application

**1)** This Subsection applies to all *buildings* and parts of the *buildings* that are required to be energy efficient under Subsection 10.2.1.

#### 10.2.2.2. ANSI/ASHRAE/IESNA 90.1

**1)** A building designed in accordance with this Article shall, be designed and constructed in accordance with ANSI/ASHRAE/IESNA 90.1, "Energy Standard for Buildings, except Low-Rise Residential Buildings", and with

a) a climate zone of 5,

b) ventilation in conformance with ASHRAE 62 (except addendum n),
c) the 5 per cent in Table 11.3.1.5. Building Envelope, Exception a., being replaced by 2 per cent, if designed in accordance with ASHRAE 90.1, Section 11,

d) no requirement to comply with the Fenestration Orientation provisions of ASHRAE 90.1, Article 5.5.4.5.,

e) no requirement to comply with Automatic Receptacle Control, per ASHRAE 90.1, Article 8.4.2., and

f) lighting control per ASHRAE 90.1 Article 9.4.1.3.(b), except that the maximum period of no activity shall be reduced to 20 min.

#### 10.2.2.3. National Energy Code of Canada for Buildings

**1)** A *building* designed in accordance with this Article shall be designed and constructed in accordance with the National Energy Code of Canada for Buildings (NECB), except that the provisions of this By-law shall apply where the NECB refers to the National Building Code of Canada (NBCC), and shall be designed with

a) a climate zone of 4,

b) ventilation in conformance with ASHRAE 62 (except addendum n),c) window-to-wall and skylight-to-roof area ratios of the

reference building identical to area ratios of the proposed building,

d) a vertical glazing Solar Heat Gain Coefficient which does not exceed an assembly maximum of 0.40,

e) a Skylight Solar Heat Gain Coefficient without curb, or with curb and glass, which does not exceed an assembly maximum of 0.49, where the ratio of the aggregate skylight area to roof area is less than or equal to 2.0 per cent, f) a Skylight Solar Heat Gain Coefficient without curb, or with curb and glass, which does not exceed an assembly maximum of 0.39, where the ratio of the aggregate skylight area to roof area is greater than 2.0 per cent and less than or equal to 5.0 per cent, and

g) a Skylight Solar Heat Gain Coefficient with curb and plastic which does not exceed an assembly maximum of 0.77, where the ratio of the aggregate skylight area to roof area is less than or equal to 2.0 per cent.

#### 10.2.2.4. Reserved.

#### 10.2.2.5. Building Energy and Emissions Performance

**1)** A *building* designed with this Article, shall be simulated in accordance with the City of Vancouver Energy Modelling Guidelines and demonstrate the performance values of the proposed building not exceeding an annual site energy use intensity of 110 kWh/m<sup>2</sup>, and an annual *greenhouse gas* emissions intensity of 5.5 kg/m<sup>2</sup>, and an annual *thermal energy demand intensity* of 25 kWh/m<sup>2</sup>.

#### **10.2.2.6. Building Envelope Opaque Elements**

**1)** Except as otherwise required in this Subsection, a *building* required to comply with this Article shall be provided with thermal insulation complying with the values in Table 10.2.2.6., between

a) heated space and unheated space,

- b) heated space and exterior air,
- c) heated space and exterior soil,
- d) heating floor assemblies and heated space,
- e) heating floor assemblies and unheated space,

f) heating floor assemblies and exterior air, and

g) heating floor assemblies and exterior soil.

Table 10.2.2.6.	
Minimum Effective Thermal Resistance of Assemblies in Buildings of Group C Major	
Occupancy Containing No Other Major Occupancies	
Forming part of Sentences 10.2.2.6.(1)	
Building Assembly	Assembly Minimum RSI Value (m <sup>2</sup> °K/W)

	(m 'r/w)
Attic Space other than one and two family dwellings <sup>(1)</sup>	8.5
Attic Space for one and two family dwellings <sup>(1)</sup>	8.5
Roof Joist Assemblies for one and two family dwellings	4.3
(Cathedral Ceilings/Flat Roofs)	
Roof Assemblies other than one and two family dwellings	5.28

(Cathedral Ceilings / Flat Roofs)		
Frame Walls other than one and two family dwellings (including	3.85	
frame crawl space walls)		
Frame Walls for one and two family dwellings (including frame	3.85	
crawl space walls)		
Concrete or Masonry Walls (other than foundation walls)	3.85	
Suspended Floors (framed)	4.2	
Suspended Floors (concrete slab)	4.2	
Foundation Walls	3.85	
Concrete Slabs on Ground at, above, or below grade (insulation	2.5	
under all slab area and around edge of slab))		
Radiant Heating Suspended Floor Assembly Over Heated Area	2.5	
(insulation between heated floor and heated area below) <sup>(2)</sup>	2.5	
Concrete Balconies, Eyebrows, and Exposed Slab Edge	0.42	
(wrapped or using manufacturer thermal break in structure)		

#### Notes to Table 10.2.2.6.:

<sup>(1)</sup> The thermal resistance rating of attic space insulation may be reduced to value required for frame walls for a distance of 1.0 m from the exterior wall.

<sup>(2)</sup> Not applicable when heating elements or piping are located within a concrete topping on a suspended floor assembly or within an internally heated suspended slab.

**2)** Insulation and the installation of insulation in a *building* designed to the requirements of Part 9 shall conform to Subsection 9.25.2. or Part 5.

**3)** The effective total "R" value of the opaque envelope area, the non-opaque envelope area, and the overall envelope area, calculated by a design professional, shall be submitted as part of an application for a *building permit*.

#### 10.2.2.7. Building Envelope Windows, Skylights, Doors and Other Glazed Products

**1)** Except as otherwise required in this Subsection and as permitted by Sentence (2), exterior windows, skylights, and doors shall have a maximum thermal transmittance (u-value) in conformance with Table 10.2.2.7.(1) and shall be labeled accordingly. (See Appendix A)

Table 10.2.2.7.(1)           Maximum Thermal Transmittance of Exterior Closures           Forming part of Sentence 10.2.2.7.(1)		
Type of Closure	Maximum Thermal Transmittance (W/(m <sup>2</sup> K))	
Windows and sliding doors or folding doors with	1.4	
glazing		
Doors with or without glazing <sup>(1)</sup>	1.8	
Doors with a required fire resistance rating	Exempt	
Roof access hatches	2.9	
Tubular daylight devices	2.6	
Skylights larger than 1220mm in two directions	2.95	
Skylights, roof windows and sloped glazing	2.4	
systems		
Curtainwall and window wall assemblies	1.4	

Notes to Table 10.2.2.7.(1):

Includes doors swinging on a vertical axis with or without glazing, door transoms, and sidelites.

**2)** Entry doors consisting of one or two leafs installed in the principle entrance of a building, together with attached transoms and sidelites, need not comply with Table 10.2.2.2.(1), where constructed of thermally broken metal or wood with multiple panes of glass, which may be argon filled, or coated with a low-e coating, and shall be labeled or suitably documented so as to clearly identify their thermal transmittance. (See Appendix A)

**3)** The thermal transmittance of factory glazed products within the scope of existing certification programs shall be indicated by labels applied to the products at the manufacturing location. The thermal transmittance of site glazed products and products outside the scope of existing certification programs shall be suitably documented. (See Appendix A)

#### 10.2.2.8. Building Envelope Vestibules

**1)** Except as permitted in Sentence (2), in a *building* required to comply with this Article there shall be an enclosed vestibule in all *building* entrances separating a conditioned space from the exterior, designed such that

a) all doors opening into and out of the vestibule shall be equipped with selfclosing devices,

b) the interior and exterior doors of the vestibule shall be separated by no less than 2.1 m when closed,

c) the exterior envelope of a conditioned vestibule shall comply with the design requirements for a conditioned space, and

d) the interior and exterior envelope of an unconditioned vestibule shall comply with the design requirements for a semi heated space.

2) An enclosed vestibule is not required for

a) a *building* entrance with revolving doors,

b) a door not intended to be used as the building entrance,

c) a door opening directly to the exterior from a dwelling unit,

d) a *building* entrance, in a *building* less than 278.7  $m^2$  in gross *floor area*, e) a door which is separate from the *building* entrance and opens directly to the exterior from a space that is less than 278.7  $m^2$  in gross *floor area*, and f) a building pursuing certification with the Passive House (PHI) standard.

#### 10.2.2.9. Building Services Submetering

**1)** Every *building* shall be equipped with metering equipment capable of collecting *building* energy performance data for the *building* and for every portion of the *building* which supports a separate use or *occupancy*.

2) Submetering required by this Article shall include the following

a) hot water generated by a central hot water generation system

b) natural gas used for air handling systems in common areas, and

c) natural gas used for domestic hot water in amenity spaces, pools and spas.

#### 10.2.2.10. Lighting Controls in Residential Buildings

10.2.2.11

1) Where a portion of a residential <i>building</i> or a portion of a multi- use <i>building</i> located above a garage or on an adjacent grade contains more than 20 residential <i>suites</i> , the <i>building</i> shall be designed with
a) <i>occupancy</i> based lighting sensor controls, located in all <i>exit</i> stair shafts and parking garages, compatible with the requirements of Sentence 3.2.7.3.(1) of Division B. and
b) a switch near the principal entrance of each residential <i>suite</i> that controls all overhead lighting fixtures within the <i>suite</i> , except overhead lights serving corridors and stairs within the <i>suite</i> .
<ul> <li>2) Except as permitted by Sentence (3) and except for exterior lighting along paths of pedestrian and vehicular travel, fire department access, and signage and equipment lighting, the permanent ancillary exterior lighting of a <i>building</i> of <i>residential occupancy</i> that is required to conform to this Article shall <ul> <li>a) be provided with fixtures that are fully shielded or full cut-off optics that:</li> <li>i) do not emit light upwards or horizontally beyond the property line, and</li> <li>ii) limit backlighting of building walls, roofs, or reflective surfaces to not more than4 lux at any given point;</li> </ul> </li> <li>b) minimize lighting of adjacent exterior properties;</li> <li>c) not exceed an illumination level of 2 lux average on any reflective surface; and d) conform with the exterior lighting power requirements of ASHRAE 90.1 of NECB.</li> </ul>
<b>3)</b> Exterior directional lighting designed with integral automatic motion sensing devices need not comply with the requirements of Sentence (2) provided it shuts off within 5 minutes.
(see Appendix A)
Hot Water Tank Piping
<b>1)</b> In a <i>building</i> required to comply with this Article, except <i>row housing</i> that have no natural gas appliances, the first 3 m of non-recirculating hot water piping leading from both electrically heated and gas heated hot water tanks, and the last 1 m of piping leading to the hot water tank connection, shall have insulation with a minimum RSI value of 0.35.
<b>2)</b> Notwithstanding Sentence (1), a hot water piping system designed to constantly recirculate shall have insulation with a minimum RSI value of 0.35.
<b>3)</b> In a <i>building</i> required to comply with this Article, and except for 1 and 2 Family Dwellings, drain water heat recovery devices conforming to CSA B55.2, "Drain water heat recovery units", shall be installed that
a) serve the principal shower in each dwelling unit,

c) have a steady state efficiency of 42% or greater when tested in accordance with CSA B55.1, "Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units.".

#### 10.2.2.12. Domestic Gas-Heated Hot Water Heaters

**1)** In a *building* required to comply with this Article , gas-heated appliances providing domestic hot water only shall have a uniform energy factor of not less than 0.78 or alternatively a thermal efficiency of not less than 90%, except that existing homes may have a uniform energy factor of not less than 0.62, as determined by the following

a) CSA P.3-04, "Testing Method for Measuring Energy Consumption and Determining Efficiencies of Gas-Fired Storage Water Heaters",
b) CSA P.7-10, "Testing Method for Measuring Energy Loss of Gas-Fired Instantaneous Water Heaters",

c) CSA C191-04, "Performance of electric storage tank water heaters for domestic hot water service", or

d) CSA 4.3/ANSI Z21.10.3, "Gas Water Heaters Volume III, Storage Water Heaters, with Input Ratings above 75,000 Btu per hour, Circulating and Instantaneous".

#### 10.2.2.13. Domestic Gas-Heated Boilers

**1)** In a *building* required to comply with this Article, domestic gas-heated boilers providing heat, or heat and domestic hot water, shall have an Annual Fuel Utilization Efficiency (AFUE) rating of not less than 92 per cent, as tested using CSA P.2-07, "Testing Method for Measuring the Annual Fuel Utilization Efficiency of Residential Gas-fired Furnaces and Boilers".

#### 10.2.2.14. Domestic Gas-Heated Furnaces or Make Up Air Units

**1)** In a *building* required to comply with this Article, domestic gas-heated furnaces or make up air units shall have an Annual Fuel Utilization Efficiency (AFUE) rating of not less than 92 per cent, as tested using CSA 2.6/ANSI Z83.8, "Gas unit heaters, gas packaged heaters, gas utility heaters and gas-fired duct furnaces".

#### 10.2.2.15. Domestic Gas-Fired Fireplaces

**1)** In a *building* required to comply with this Article, domestic gas-fired fireplaces in conditioned spaces shall be equipped with

a) intermittent pilot ignition (IPI) systems,

b) on-demand ignition systems that automatically shut off within

i) 7 days of appliance non-use in a one or two family dwelling building, or

ii) 6 hours of appliance non-use in a multifamily dwelling, or

c) match ignition.

**2)** In a *building* required to comply with this Article, domestic gas-fired fireplaces shall be direct vented.

**3)** In a *building* required to comply with this Article, domestic gas-fired fireplaces must be on a timer.

**4)** Where exterior gas fireplaces are provided as ancillary equipment to a *building* required to comply with this Article, then the exterior fireplaces shall be considered as part of the *building* for the purposes of this Part (see Appendix A).

#### 10.2.2.16. Domestic Wood Burning Heating Appliances

	<ol> <li>In a <i>building</i> required to comply with this Article, and except for cooking stoves and ranges, a wood domestic burning heating appliance installed in a residential <i>dwelling unit</i> shall be tested in accordance with CAN/CSA B415.1-10 "Performance Testing of Solid-Fuel-Burning Heating Appliances" or EPA Title 40, Part 60, Subpart AAA - "Standards of Performance for New Residential Wood Heaters", and shall</li> <li>a) produce not more than 2.5 grams per hour of particulate air contaminant emissions for catalytic appliances, or</li> <li>b) produce not more than 4.5 grams per hour of particulate air contaminant emissions for non-catalytic appliances.</li> <li>2) Open masonry fireplaces and factory-built fireplaces are not permitted.</li> </ol>
10.2.2.17.	Domestic Heat Recovery Ventilators
	1) In a <i>building</i> required to comply with this Article, each dwelling unit shall be
	, J , J , J , J , J , J , J , J , J , J

served by a heat recovery ventilator located in

a) each dwelling unit, or

b) a commonly accessible location if serving multiple dwelling units.

2) In a *building* required to comply with this Article, components of mechanical ventilation systems not specifically described in this Subsection shall be designed, constructed and installed in accordance with good engineering practice and as described in the ASHRAE Handbooks and Standards, HRAI Digest, TECA Ventilation Guideline, Hydronics Institute Manuals or the SMACNA manuals.

3) In a *building* required to comply with this Article, a heat recovery ventilator (HRV) shall

a) be sized to run at its rated speed for continuous operation while achieving a 65 per cent sensible heat recovery efficiency (65 per cent Minimum SRE at 0°C) and be designed and tested in conformance with CSA 22.2 No. 113M-1984,

b) be designed and tested to meet the CSA International Standard CAN/CSA-F326-M91, "Residential Mechanical Ventilation Systems",

c) be installed and commissioned by persons trained by the Thermal

Environmental Comfort Association (TECA) or the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) or equivalent,

d) supply outdoor air directly to the principal living area, to each bedroom, and to any floor area without a bedroom, including similar rooms within secondary suites and *lock-off units*, directly or indirectly, through a central recirculation system with a continuously operating fan.

e) be designed to run continuously to comply with the minimum ventilation rates of Table 9.32.3.3.A of Division B,

f) not be connected to kitchen and bathroom exhaust fans,

g) except for mechanical ducts cast into concrete structure, have exterior connected supply-air ducts and exhaust ducts insulated to not less than RSI 0.75 (R 4.25) and shall have an effective vapour barrier,

h) have balanced HRV supply and exhaust air flows within plus or minus 20 per cent of the actual normal operating exhaust capacity,

i) be labelled with tested supply and exhaust air flows for high and low settings, measured in CFM, and

j) be located within *conditioned space* and fully serviceable space in the dwelling unit for access.

**4)** In a *building* required to comply with this Article, the HRV system contractor or installer shall provide a completed Mechanical Ventilation Checklist to the Chief Building Official.

**5)** In a *building* required to comply with this Article, a contractor trained in the installation of energy recovery ventilators (ERV) may install an ERV in lieu of a heat recovery ventilator (HRV).

#### 10.2.2.18. Solar Ready Pipe Run

**1)** In a *building* required to comply with this Article, a solar ready pipe chase, consisting of at least two 50 mm PVC pipes, capped at both ends and having at least a 20° angle measured above the horizontal level, shall extend from a location near the *service water heater*, to the attic space.

#### 10.2.2.19. Solar Photovoltaic Ready Pipe Run

**1)** In a *building* required to comply with this Article, a solar ready pipe chase, consisting of at least one 25 mm pipe or liquid tight flexible electrical conduit or electrical metallic tubing capped at both ends and having at least a 20° angle measured above the horizontal level, shall extend from a location near the electrical panel, to the attic space.

**10.2.2.20.** Passive House Planning Package (PHPP), EnerGuide, or Other Energy Documentation

**1)** In a *building* required to comply with this Article, at the time of building permit application, and at the time of final inspection, the owner shall provide to the Chief Building Official *acceptable* documentation, in the form of

a) a PHPP file from a Certified Passive House Consultant or Designer, or b) an EnerGuide Rating System Audit, or

c) for *buildings* ineligible for an EnerGuide Rating System Audit, a Hot2000 file modelled in general mode and using the same baseload assumptions as Energuide for New Homes mode, or equivalent energy modelling documentation, *acceptable* to the Chief Building Official.

**2)** In a *building* required to comply with this Article, and where a *one family dwelling* or *two family dwelling*, with or without secondary suites or lock-off units, contains conditioned space of more than 325 m<sup>2</sup>, including suites that are not strata titled, the owner shall

a) provide a calculation utilizing the EnerGuide rating system to demonstrate that the proposed home has a greenhouse gas (GHG) footprint that is no more than the greenhouse gas (GHG) footprint of a 325 m<sup>2</sup> home built to the minimum standards in the Building Bylaw, and

b) meet the requirements of the modeling guidelines for large homes.
#### 10.2.2.21. Building and Dwelling Unit Airtightness Testing

**1)** In a *building* required to comply with this Article, the *building* and *dwelling units* shall be tested for airtightness in accordance with

a) ASTM E 779, Standard Test Method for Determining Air Leakage Rate by Fan Pressurization,

b) USACE Version 3, Air Leakage Test Protocol for Building Envelopes, or c) airtightness protocol recognized by Natural Resources Canada for use in homes and buildings labeled under the EnerGuide for New Homes program.

**2)** A *building* required to comply with this Article shall have maximum tested air leakage rates in conformance with Table 10.2.2.21., or sealed to the satisfaction of the Chief Building Official.

Table 10.2.2.21.Maximum Tested Air Leakage RatesForming part of Sentence 10.2.2.21.(2)		
Building Classification	Maximum Tested Air Leakage Rate	
Buildings, excluding 1 or 2 Family Dwellings and 1 to 3 Storey Residential	2.03 L/s/m <sup>2</sup> at 75 pascals	
Ground-oriented dwelling units	3.5 air changes per hour at 50 pascals	

# Section 10.3. Water Efficiency

#### 10.3.1. Design and Installation

#### 10.3.1.1. Compliance

**1)** In addition to the requirements in this section, all *plumbing fixtures* must comply with Book II Division B, Part 2 of this By-law.

**2)** In addition to the requirements of this By-law, all water uses and discharges are subject to Water Works By-law 4848 and Sewer and Watercourse By-law 8093.

#### **10.3.1.2. Plumbing 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 10.3.1.2.

Table 10.3.1.2.(1)         Maximum Flow Rate         Forming part of Sentence 10.3.1.2.(1)			
Fitting Maximum Flow Rate (L/min) Test Pressure (kPa			
Lavatory Faucet (for private use)	5.7	415	

Lavatory Faucet (for public use)	1.9 <sup>(1)(2)</sup>	415
Kitchen Faucet (non-residential)	8.3	415
Kitchen Faucet (residential)	8.3	415
Shower Head	7.6 <sup>(3)</sup>	550
Pre-Rinse Spray Valve	4.8 <sup>(4)</sup>	415
Wash Fountain, per <i>plumbing fixture</i> fitting	6.8 <sup>(5)</sup>	415

#### Notes to Table 10.3.1.2.(1):

- <sup>(1)</sup> A *metering fixture* faucet is limited to 1.0 L per cycle.
- <sup>(2)</sup> A lavatory faucet in a health care facility is permitted a maximum flow rate of 8.3 L/min (at 415 kPa test pressure). The *Chief Building Official* may, for human health reasons, permit exemptions within other facilities, to a maximum flow rate of 8.3 L/min (at 415 kPa test pressure).
- <sup>(3)</sup> Emergency and safety *shower heads* and *shower heads* in health care facilities and correctional facilities are exempted from this requirement.
- <sup>(4)</sup> Each *pre-rinse spray valve* must be equipped with an automatic shut-off.
- (5) A maximum flow rate of 6.8 L/min is permitted for each 508 mm of rim space. For a wash fountain with *metering fixture* faucets, a maximum of one *metering fixture* faucet is permitted for each 508 mm of rim space. A *metering fixture* faucet is limited to 1.0 L per cycle.

#### 10.3.1.3. Plumbing Fixture Efficiency

**1)** The flush cycle for the installation of a water closet or urinal must not exceed the flush cycle listed for that *plumbing fixture* in Table 10.3.1.3.(1)

Table 10.3.1.3.(1)Maximum Flush CycleForming part of Sentence 10.3.1.3.(1)		
Plumbing Fixture         Maximum Flush Cycle (L)		
Water Closet (Tank Type)	4.8 <sup>(1)(2)</sup>	
Water Closet (Direct Flush) 4.8 <sup>(1)</sup>		
Urinal (Tank Type) 1.9 <sup>(3)</sup>		
Urinal (Direct Flush)	1.9	

#### Notes to Table 10.3.1.3.(1):

- A maximum flush cycle of 6.0 L may be permitted where, in the opinion of the *Chief Building Official*, the existing *plumbing system* cannot accommodate and cannot be updated to accommodate the required flush cycle.
- A water closet with a dual flush cycle of 4.1 L or less and 6.0 L complies with this requirement.
   The water supply to flush tanks equipped for automatic flushing shall be controlled with a timing
  - device that limits operation to the period during which the building is normally occupied.

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

#### **10.3.1.4 Residential Landscape Irrigation Systems**

**1)** Residential landscape irrigation systems that apply herbicides, fungicides, insecticides, fertilizers, soil amendments or other chemicals or pesticides by means of irrigation water are prohibited.

**2)** Residential landscape irrigation systems shall be equipped with a shut-off valve, which shall be located upstream of the backflow preventer and provided with unobstructed access.

**3)** Where the water pressure supplied to a property exceeds 550 kPa, the residential landscape irrigation system shall be equipped with a pressure reducing valve providing a maximum supplied pressure of 415 kPa and located downstream of the backflow preventer.

#### **10.3.1.5 Geoexchange Systems**

**1)** Make-up water for a closed loop geoexchange (geothermal) ground heat exchanger must be provided by a feeder tank isolated from the domestic water supply

**2)** The use of a direct connection to the domestic water supply as a source of make-up water for a closed loop geoexchange (geothermal) ground heat exchanger is prohibited.

#### 10.3.1.6. Vehicle Wash Facilities

**1)** The maximum flow rate of a spray wand, foamy brush or similar *plumbing fixture* shall not exceed 11.4 L/min at a *self-service vehicle wash*.

**2)** A water recycling system that recycles and reuses at least 60% of the water and rinse water shall be installed, used and maintained at a *conveyor vehicle wash* or *in-bay vehicle wash*.

# Section 10.4. Electric Vehicle Charging

#### **10.4.3.** Electric Vehicle Charging for Buildings

**10.4.3.1.** Electrical Service and Capacity (See Appendix A)

1) The electrical installations, including the service capacity of the installation, the number and distribution of circuits and receptacles, shall meet the requirements of the "Electrical Safety Regulation."

**2)** Except as provided by Sentence (3), each storage garage or carport in onefamily dwellings, two-family dwellings, one-family dwellings or two family dwellings with secondary suites or lock-off units, or laneway houses shall be provided with an electrical outlet, a receptacle or electric vehicle supply equipment where applicable, supplied by a branch circuit rated not less than 40 A at the nominal voltage of 208 V or 240 V as applicable and labelled to identify its intended use with the electric vehicle supply equipment. **3)** Where the requirements of Sentence (2) would cause the dwelling unit calculated load to exceed 200 A, the installation of a 40 A branch circuit may be omitted provided that a minimum nominal trade size of 21 raceway supplied with pull string leading from the dwelling unit panelboard to an electrical outlet box is installed in the storage garage or carport and is labelled to identify its intended use with the electric vehicle supply equipment.

**4)** One residential parking stall in each group of five residential parking stalls, and, one residential parking stall in any group of less than five residential parking stalls, in a multi-family building or in the multi-family component of a mixed use building that includes three or more dwelling units shall be provided with an electrical outlet, a receptacle or electric vehicle supply equipment where applicable, for the use of electric vehicle charging.

**5)** One commercial parking stall in each group of 10 commercial parking stalls, and one commercial parking stall in any group of less than 10 commercial parking stalls, in a commercial building, including the commercial component of a mixed use building shall be provided with an electrical outlet, a receptacle or electric vehicle supply equipment where applicable, for the use of electric vehicle charging.

**6)** The electrical outlet, receptacle or supply equipment described in Sentences (4) and (5) shall be supplied by a branch circuit rated not less than 40 A at the nominal voltage of 208 V or 240 V as applicable.

#### 10.4.3.2. Electrical Rooms

**1)** In a multi-family building or the multi-family component of a mixed use building, with three or more dwelling units, an electrical room or space provided to facilitate the installation of power supply to the electric vehicle supply equipment shall be designed with sufficient space for the future installation of electrical equipment necessary to support electric vehicle charging in all residential parking stalls.

# Section 10.5. Objectives and Functional Statements

### **10.5.1.** Objectives and Functional Statements

#### **10.5.1.1.** Attribution to Acceptable Solutions

**1)** For the purposes of compliance with this By-law as required in Clause 1.2.1.1.(1)(b) of Division A of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 10.5.1.1. (See Appendix Note A-1.1.1.2.(1) of Division A in Appendix A)

#### Table 10.5.1.1.

Table 10.5.1.1. is located in Volume 2, Attribution Tables.

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#### Div. B, 11.2.1.2.(2) & (3) General Requirements

2) Except as provided in Sentences (3) to (9) inclusive, and Articles 11.2.1.3. to 11.2.1.11. inclusive, where an *alteration* is made to an *existing building*, the *alteration* shall comply with this By-law and the *existing building* shall be

a) upgraded to an *acceptable* level as defined in the *existing building* upgrade mechanism model in Division B Appendix A (See Appendix Note A-11.2.1.2.), except that existing lighting exceeding the Lighting Power Density of ASHRAE 90.1 -2007 shall be removed within existing spaces of a *suite* within the scope of a *project*, or

b) upgraded to the satisfaction of the *Chief Building Official* where the *owner* demonstrates that the design levels, as defined by the upgrade mechanism model in Division B Appendix A, present a hardship for the *owner*.

3) Except as required by Sentence (9) and changes of major occupancy in a small suite, where an alteration does not involve an addition or a change in major occupancy, except for a change of major occupancy to a small suite, further upgrading to an existing building is not a requirement of this By-law provided

a) *construction* or a full upgrade of the *building* occurred by means of a *building permit* issued on or after November 1, 1999,

b) all *unsafe conditions* are corrected to the satisfaction of the *Chief Building Official*, and
 c) all new work is in compliance with this By-law.

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#### Div. B, 11.2.1.2.(8) & (9) General Requirements

7) Where there is a temporary change of *major occupancy* to an *assembly occupancy* for an *arts and culture indoor event* in a *building* which is classified as Group D offices, Group E retail, Group F Division 2 production or rehearsal studio, wholesale, warehouse, or factory, or Group F Division 2 artist studio without living accommodations, the upgrade requirements shall be based solely on Section 11.6.

**8)** Where there is a change of *major occupancy* in a *building*, and the aggregate area of the change in *major occupancy* within any 5 year period is greater than 50 per cent of the *building area* in a one *storey building* or greater than 100 per cent of the *building area* in a *building* of more than one *storey*, the entire *building* shall be upgraded to design upgrade levels F4, S4, N4, A4 and E3 as detailed in the upgrade mechanism model in Division B Appendix A.

**9)** The upgrade requirements for energy efficiency to *existing buildings* shall conform to the upgrade mechanism model in Division B Appendix A for energy efficiency except for

a) *buildings* designed and constructed in conformance with ASHRAE 90.1-2007 or as deemed *acceptable* to the *Chief Building Official*,

b) *buildings* designed and constructed in conformance with Article 9.25.2.1. Division B of Building By-law No. 9419, and

c) *buildings* where the *alteration* is limited to the upgrade of energy related specific equipment, as listed in Table 11.2.1.2., provided the replacement equipment complies with industry standards for "high efficiency".

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#### Div. B, Table 11.2.1.3. [Replace Table 11.2.1.3. with the following]

Table 11.2.1.3.					
Spr	Sprinkler Installation Determination Where Dwelling Units are Added				
Existing		New DUs <sup>(1)</sup> A	dded Over Any 5	year Period <sup>(2)</sup>	
Dwelling	1	2-3	4-5	6	>6
Units					
0-1	Spr R <sup>(3)</sup>	Spr R	Spr R	Spr R	Spr R
2-4	-	Spr R	Spr R	Spr R	Spr R
5-10	-	-	Spr R	Spr R	Spr R
11-20	-	-	-	Spr R	Spr R
>20	-	-	-		Spr R

Notes to Table 11.2.1.3.:

<sup>(1)</sup> Dwelling Units

<sup>(2)</sup> The creation of dwelling units over the previous 5 years from the date of the proposed building permit application

<sup>(3)</sup> Sprinklers Required

### Div. B, 11.2.1.4.(1) Upgrade Requirements for One and Two Family Dwellings

**1)** Except as required in Sentence (4) and Subsection 11.4, where an *alteration* is made to a *one-family dwelling* or *two-family dwelling*, the level of upgrade shall conform to Sentence (2), provided

a) the alteration is not a change of major occupancy,

b) the alteration does not create more dwelling units,

c) all new work is in compliance with this By-law, and

d) the value of the *alteration* is less than or equal to 50 per cent of the replacement value of the *existing building*. (see Appendix A)

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Div. B, 11.2.1.11.(5) Specific Upgrade Requirements for Float Homes and Marinas

5) A *marina* shall have an *occupancy* classification as specified in Sentences 12.2.2.1.(4) and (5) of Group F Division 3.

#### Div. B, 11.3.2.1.(1) Group A1 up to 600 Auditorium Occupants

**1)** A Group A, Division 1 *occupancy* having an *occupant load* of no more than 600 may be permitted within the *first storey* and second *storey* of a *building* provided the *building* conforms to Sentence (2).

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#### Div. B, 11.3.2.2.(1) Group A1 up to 300 Auditorium Occupants

**1)** A Group A, Division 1 *occupancy* having an auditorium *occupant load* of no more than 300, may be permitted within the *first storey* and second *storey* of a *building*, provided the *building* conforms to Sentence (2).

#### Div. B, 11.3.2.3.(1) Group A2 in Building More Than 3 Storeys

1) A Group A, Division 2 *occupancy* may be permitted within the first 3 *storeys* of a *building* which is more than three *storeys* in *building height*, provided the *building* conforms to Sentence (2), and provided

a) where the *occupancy* is located on the third *storey* or where the *building area* exceeds 400 m2, the entire *building* shall be *sprinklered* or

b) where the *occupancy* is located on the *first storey* or second *storey*, the *building* shall be *sprinklered* up to and including the *storey* containing the Group A2 *occupancy*.

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#### Div. B, 11.4.2.2.(9) Alternative Acceptable Solutions

**9)** Manual stations are not required if the fire alarm system and the sprinkler water flow alarm are designed in accordance with Article 3.2.4.8.

#### Div. B, 11.4.3.1.(5) & (6) Alternative Acceptable Solutions

5) Where a single existing panel board is located in a common area within the *building* accessible to all occupants of the building, the panel board may supply electrical loads for both the principal dwelling and the *secondary suite* or *lock-off unit*.

**6)** For the purposes of determining <u>building height</u>, a one family dwelling constructed pursuant to a building permit issued prior to July 01, 1994 which is four *storeys* or less in height may be considered as 3 *storeys* in *building height*.

#### Div. B, 11.4.3.1. Alternative Acceptable Solutions

Replace Table 11.4.3.1. as follows

Item	Item Details	Alternative Acceptable Solution
Windows	Existing and new	Original openings may remain and New openings to conform to Part 9
	Between the principal dwelling and its associated secondary suite or lock-off unit	Fire resistant combustible construction(1)
	Between each principal dwelling and its associated secondary suite or lock-off unit and the adjoining principal dwelling and its associated secondary suite or lock-off unit	Fire separation with a 1 hr fire-resistance rating
Fire Containment (Separation)	Heating ducts that penetrate fire separations	fire dampers not required
	Plumbing and sprinkler plastic piping that penetrate fire separations	fire stopping not required
	<i>Suite</i> entry doors between the principal dwelling and the <i>secondary suite</i> or <i>lock-off unit</i>	Existing unglazed solid core doors and frames or glazed solid core doors with wired glass in good condition are <i>acceptable</i> . Doors to be provided with closers
Exits	Egress from each suite	At least one conforming <i>exit</i> is required from the principal dwelling and the <i>secondary suite</i> or <i>lock -off unit</i> .
	Windows adjacent to exits	No requirements
Flows Coread Dating	Exits	≤150
Flame Spread Rating	Remainder of building	No requirement
	One family dwelling with a secondary suite or lock- off unit	Sprinklers not required provided the value of the <i>alteration</i> is less than or equal to 50 per cent of the replacement value <sup>(3)</sup> of the <i>existing building</i>
Sprinklers	<i>Two family dwelling with a secondary suite</i> or <i>lock-off unit</i> in one or both of the primary suites	Sprinklers not required provided a) the value of the <i>alteration</i> is less than or equal to 50 per cent of the replacement value <sup>(3)</sup> of the <i>existing</i> <i>building</i> , and b) the separation between each <i>dwelling unit</i> and its

		secondary suite is a fire separation with a 1 hr fire- resistance rating
Heating Systems	Furnace room enclosure	Separation not required except that combustion air requirements and clearance from all equipment is required <sup>(2)</sup>
Smoke Alarms	Entire <i>building</i>	Interconnected <i>smoke alarms</i> to be installed on each <i>storey</i> including basements, in each sleeping room and in a location between the sleeping room and the remainder of the <i>storey</i> and if the sleeping room is served by a hallway, the <i>smoke alarm</i> to be located in the hallway. Installed by permanent connections to an electrical circuit in conformance with Subsection 9.10.19. Division B. Provided with battery backup and manual silencing devices which will silence the alarm in conformance with Article 9.10.19.6.
Stairs and Handrails	Entire <i>building</i>	If existing stairs are considered an <i>unsafe condition</i> as determined by <i>Chief Building Official</i> , stair tread, rise and run requirements to conform to Section 9.8 All existing stairs to have at least one handrail in conformance with Subsection 9.8.7.
Guardrail Protection	Entire building	<i>Guards</i> to be provided around all stairways, balconies, landings, decks, and porches in conformance with Subsection 9.8.8. and Article 4.1.5.14. Existing <i>guards</i> may be retained provided they are structurally sound and ≥900 mm high.
Existing Headroom	Entire building	Headroom may be reduced to 1980 mm over 80 per cent of the <i>suite</i> area and all egress routes.
Unsafe Conditions	Entire building	Any condition within or around the <i>building</i> which could cause undue hazard or risk to persons to be corrected as directed by the <i>Chief Building Official</i> .
Sound Separation	Between each principal <i>dwelling</i> and its associated secondary suite or lock-off unit and the adjoining principal <i>dwelling</i> and its associated secondary suite or lock-off unit	50 STC

#### Notes to Table 11.4.3.1.:

<sup>(1)</sup> Fire resistant *combustible construction* means existing lath and plaster in good condition, or minimum 13 mm gypsum wallboard on wood studs at maximum 450 mm on centre.
 <sup>(2)</sup> The Gas Code places restrictions on locating gas furnaces adjacent to sleeping rooms or bathrooms.

<sup>(3)</sup> see Appendix note A-11.2.1.4.(1)(d)

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# Div. B, 11.4.7.1. Alternative Acceptable Solutions

1) An *existing building* or parcel may be converted into 2 or more strata lots, if the entire *building* is a) upgraded to design upgrade levels F4, S4, N4, A4 and E4 as detailed in the upgrade mechanism model in Division B Appendix A, and b) fully *sprinklered*.}

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#### Div. B, 11.6.2.1.(1) Alternative Acceptable Solutions

1) Where the *occupancy* of an *existing building* or portion of an *existing building* is classified as Group D offices, Group E retail, Group F Division 2 production or rehearsal studio, wholesale, warehouse, or factory, or Group F Division 2 *artist studio* without living accommodations, the *major occupancy* may be changed to a temporary Group A Division 2 *major occupancy* for an *arts and culture indoor event* if

a) the maximum *occupant load* is no more than 250 persons, <del>or not more than 60 persons in an artist studio,</del>

b) the *arts and culture indoor event* is located in the *first storey* or the *storey* below the *first storey* and has at least one *exit* that conforms to Clauses 3.8.3.19.(1)(d) or (e),

c) emergency lighting is provided in washrooms and in locations leading from the arts and culture indoor event to the street as described in Sentence 3.2.7.3.(1),

i) inside washrooms or, in the case of a single toilet room, immediately outside the entrance door and visible under the closed toilet room door, and

ii) in locations leading from *arts and culture indoor event* to the *street* as described in Sentence 3.2.7.3.(1),

d) portable fire extinguishers are installed in accordance with the Fire By-law, with at least one extinguisher at the main entrance and at each egress door leading from the *arts and culture indoor event floor area*,

e) an *approved* fire emergency procedures and security plan with *approved* maximum *occupant load* is posted beside each portable extinguisher at the main entrance and at each egress door leading from the *arts and culture indoor event*,

f) the *building* is equipped with a fire alarm system, or *supervisory staff* are designated to monitor egress and *exit* doors and to carry out an emergency evacuation in accordance with *approved* fire emergency procedure, and

g) the storey below the first storey used for an arts and culture indoor event is equipped with a sprinkler system,

h) the arts and culture indoor event has at least one accessible entrance, and

i) the arts and culture indoor event has a means of egress in accordance with Article 3.8.3.19.

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# Div. C, 1.4.1.5.(5) Compliance with By-law and other enactments

5) The *owner* shall ensure that all underground storage tanks on the subject property that are intended for the storage of heating oil but have not been used for over 2 years are removed and any associated contamination is remediated to the applicable standards as prescribed in the Contaminated Sites Regulation. All work must be completed in accordance with the requirements of the Vancouver Fire By-law.

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### Div. C, 1.5.4.2.(1) Scope of Orders

1) The Chief Building Official may order

a) a person who contravenes any provision of this By-law, to comply with the provision within a specified time,

b) a person to allow the *Chief Building Official* to enter any *building* or premises at any reasonable time for the purpose of administering and enforcing this By-law,

c) work to stop on a *building* or any part thereof, if such work is proceeding in contravention of a provision of this By-law or another enactment, or if there is deemed to be an *unsafe condition*,

d) the removal of an unauthorized encroachment on public property,

e) the removal of any *building* or part thereof constructed in contravention of a provision of this Bylaw,

f) the cessation of any occupancy in contravention of a provision of this By-law,

g) the cessation of any occupancy if an unsafe condition exists, and

h) the correction of an unsafe condition.

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# Div. C, 1.5.4.6.(1) Delivery of Order

# 1) The Chief Building Official may deliver an order

a) by mailing the order by registered mail and by regular mail to the owner at the owner's address as it appears on the records of the Assessment Authority of British Columbia, and posting the order on the premises which are the subject of the order.
b) by sending the order by electronic mail to the electronic mail address of the *owner* or a representative of the *owner*, or
c) by delivery of the order by hand to the *owner* or a representative of the *owner*.

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#### Div. C, 1.8.6.1.(1) Ornamental Projections Defined

In this Subsection, ornamental projections mean new and *existing building* appurtenances and fixtures which encroach in a *street*, and include

 a) cornices,
 b) copings, and

c) belt courses and other minor architectural trim such as water tables, column capitals and bases.

#### Div. C, 1.8.6.3. Ornamental Projections in Streets [Replace Article 18.6.3. as follows]

**1)** For the purposes of this Article 1.8.6.3., the height of an ornamental projection shall be determined by vertical measurement from the lowest point of the encroachment to the *street* level immediately below.

**2)** Subject to the provisions of Sentence 1.8.6.3.(3), an ornamental projection may encroach into a *street* which is at least 10 m wide, no more than:

a) 75mm for a projection located below 2.75m above the street,

b) 500mm for a projection located between 2.75m and 5.2m above the street,

c) 915mm for a projection located between 5.2m and 7.62m above the street, and

d) 1370mm for a projection located more than 7.62m above the street.

**3)** The provisions of Sentence 1.8.6.3.(2) do not apply to an existing encroaching ornamental projection which is designated by by-law as protected heritage property or is the subject of a heritage revitalization agreement.

4) An ornamental projection may encroach in a street which is less than 10 m wide, if

a) it is located no less than 7.62 m above the street,

b) it does not encroach more than 915 mm beyond the property line, and

c) it does not interfere with overhead public utilities.

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## Div. C, 1.8.8.1.(1) Canopy Defined

1) In this Subsection, a canopy means a structure encroaching in a *street*, that provides pedestrian weather protection and has a covering of glass, metal or other rigid material on a fixed detachable rigid frame that is attached to and entirely supported by a *building*.

#### Div. C, 1.8.8.3.(2) Clearances

**2)** The horizontal distance from the outer edge of a canopy to the outer face of the *street* curb shall be no less than 750 mm.

#### Div. C, 1.8.8.3. Clearances

[Add the following at the end of Article 1.8.6.3.]

5) A canopy shall be no less than 600 mm from a utility pole or lamp standard.

#### **Div. C, 1.8.8.7. Structural Design of Canopies** [Add the following after Article 1.8.8.6.]

1.8.8.7. Structural Design of Canopies

A canopy shall be designed to

 a) support the expected loads due to weather, and
 b) withstand seismic design loads.

### Div. C, 1.8.9. Mechanical Apparatus

[see page 600a & b]

# Div. C, 1.8.10. Emergency Exits [see page 600a & b]

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#### Div. C, 1.8.9. Mechanical Apparatus

[Replace Subsection 1.8.9. & 1.8.10. as follows]

# 1.8.9. Solar Shading Device

#### 1.8.9.1. Solar Shading Device Defined

1) In this Subsection, a solar shading device means a structure encroaching in a *street*, that prevents solar heat gain through windows and has a fixed detachable rigid frame that is attached to and entirely supported by a *building*.

#### 1.8.9.2. Requirements for Materials

1) A solar shading device shall be

a) constructed of noncombustible materials, except as provided in Sentence (2) and Clause (3)(c),

b) supported entirely by the building to which the solar shading device is attached, and

c) constructed so that its removal conforms to Sentence 1.8.3.3.(1).

**2)** Despite Clause (1)(a), if the *building* or the exterior wall to which the solar shading device is attached is of *combustible construction*, a solar shading device may be constructed of *combustible* materials.

3) The solar shading device shall

a) if constructed of glass, use wired or laminated safety glass,

b) if constructed of metal, shall be no less than 0.56 mm in thickness, or

c) if constructed of wood plank, shall be no less than 60 mm in thickness, sheathed on the top and the soffit with metal or other *noncombustible* material, and constructed and fire stopped to the satisfaction of the *Chief Building Official*.

**4)** Solar shading devices shall be of *noncombustible* construction where installed on an exposing wall face required to be *noncombustible* in accordance with Division B, Subsection 3.2.3.7.

### 1.8.9.3. Clearances

1) The horizontal distance from the outer edge of a solar shading device to the outer face of the *street* curb shall be no less than 600 mm.

**2)** For the purposes of this Article 1.8.9.3., the height of a solar shading device shall be determined by vertical measurement from the lowest point of the encroachment to the *street* level immediately below.

**3)** The maximum projection of a solar shading device into a *street* which is at least 10 m wide, shall be

a) 500mm for a solar shading device located between 2.75 and 5.2m above the street,

b) 915mm for a solar shading device located between 5.2m and 7.62m above the street, and

c) 1370mm for a solar shading device located more than 7.62m above the street except that a solar shading device must also conform to the requirements of Sentence 1.8.9.3.(1).

4) A solar shading device may encroach in a street which is less than 10 m wide, if

a) it is located no less than 7.62 m above the *street*,

b) it does not encroach more than 915 mm beyond the property line, and

c) it does not interfere with overhead public utilities.

5) A solar shading device shall be no less than 600 mm from an adjoining property line or from the production of the property line into the *street*, unless the solar shading device is constructed entirely of *noncombustible* materials.

6) Despite the provisions of Sentence (5), if a property line is adjacent to a *lane*, a solar shading device shall be located no less than 600 mm from the production of the property line into the *street*.

## 1.8.9.4. Solar Shading Device Not to Span Unprotected Openings

1) A solar shading device shall not span unprotected openings in separate fire compartments.

### 1.8.9.5. Structural Design of Solar Shading Device

- 1) A solar shading device shall be designed to
- a) support the expected loads due to weather,
- b) withstand seismic design loads, and
- c) shed snow and ice in a manner that minimizes risk to persons and property below.

# 1.8.10. Mechanical Apparatus

### 1.8.10.1. Clearances

Exterior hose connections for fire-fighting equipment, ventilation intakes and outlets, *chimneys* and air conditioning units shall not encroach in a street unless permitted by the *City Engineer*.
 Fire alarm bells and fire gongs may encroach up to 300 mm in a *street*, except that such encroachments shall be located no less than 2.6 m above the *street* surface or established *building* grade.

# 1.8.11. Emergency Exits

### 1.8.11.1. Stairways and Fire Escapes

**1)** The *Chief Building Official* may permit stairways and balconies for fire escapes to encroach in a *street*, except that the lowest part of such stairways and balconies shall be no less than 5.2 m above the *street* surface.

### 1.8.11.2. Emergency Exit Doors

**1)** Emergency *exit* doors may encroach no more than 300 mm in a *street* which is no less than 10 m in width.

2) Despite Sentence (1), the *City Engineer* may permit an emergency *exit* door to encroach in a *street* which is less than 10 m in width, provided that such door does not encroach more than 300 mm in the *street*.

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#### Div. C, 2.2.9.1.(1) Exemptions from Flood Construction Level Requirements

1) Flood construction level requirements do not apply to:

a) alteration of an existing building, not including reconstruction as defined in this By-law. (See Appendix A),

b) alteration of an existing building to increase the building area by less than 25 per cent of the total building area existing as of July 29, 1999, if

i) the number of dwelling units is not increased,

ii) there is no further encroachment into setbacks required by this By-law, and

iii) there is no further reduction in the flood construction level,

c) enclosed parking areas, including bicycle and residential storage areas, in a multiple dwelling, if there is

i) an unobstructed non-mechanized means of pedestrian ingress and egress to the areas, above the *flood construction level*, and

ii) a sign posted at all entry points warning of the risk of flood damage,

d) buildings and portions of buildings used as a carport or garage,

e) non-residential accessory buildings, and

f) loading facilities used for water oriented industry.

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**Div. C, Part 2 Schedule B** [Replace Schedule B – Page 1 with the following]

BUILDING BY-LAW 2014 – CITY OF VAN	COUVER
	***************************************
SCHEDULE B	
Forming Part of Subsection 2.2.7, Div. C of the	Building Permit No.
Building By-law	(for Ruliding Official a use)
ASSURANCE OF PROFESSIONAL D	SIGN AND
COMMITMENT FOR FIELD RE	VIEW
Notes: (i) This letter must be submitted prior to the commencement of construction below.	on activities of the components identified
A separate letter must be submitted by each registered professional of	record.
(ii) This letter is endorsed by: Architectural institute of B.C., Association of Geoscientists of B.C.	Professional Engineers and a set of the set
(iii) In this letter the words in Italics have the same meaning as in the Build	ing By-law.
To: The Chief Building Official	
	en e
Re	
Name of Project (Print)	
Address of During (Data)	· · · · · · · · · · · · · · · ·
Address of Project (Print)	
	and the second sec
The undersigned hereby gives assurance that the design of the	
of record. All the disciplines will not necessarily be employed on every project.)	
SIRUGIURAL	
MECHANICAL	
PLUMBING	
FIRE SUPPRESSION SYSTEMS	
GEOTECHNICAL — temporary	
GEOTECHNICAL — permanent	(Professional's Seal and Signature)
	1
A Constant of the second s	,Date
All and a second se	
components of the plans and supporting documents prepared by this register	ered professional in support of the
application to the building permit as outlined below substantially comply will applicable enactments respecting safety except for <i>construction</i> safety aspe	ects.
The undersigned hereby undertakes to be responsible for <i>field reviews</i> of the construction as indicated on the "SUMMARY OF DESIGN AND FIELD REV	e above referenced components during
	L
1 of A	CRP's Initial
דוסו	
Rev. 2018-Jan-01	

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**Div. C, Part 2 Schedule B** [Replace Schedule B – Page 2 with the following]

Schedule B - Continued		
		Building Permit No (fer Building Officiel's use)
		Project Address
		Discipline
The undersigned also undertakes to notify undersigned's contract for <i>field review</i> is te	the Chief Building Official in writing or minimized at any time during consti	g as soon as possible if the ruction.
I certify that I am a registered professional	as defined in the Building By-law.	an 1995 - San
Registered Professional's Name (Print)		
Address (Print)		
· · · · · · · · · · · · · · · · · · ·		
Phone No.		
		(Professional's Seal and Signature)
	in a start and a start and a start and a start a	
		Date
(If the Registered Professional of Record is	s a member of a firm, complete the	following.)
I am a member of the firm and I sign this letter on behalf of the firm.	(Print name of	firm)
Note: The above letter must be signed by a Building By-law defines a registered profes	a registered professional of record, ssional to mean	who is a registered professional. The
(a) a person who is registered or (b) a person who is registered or	licensed to practise as an architect licensed to practise as a profession	t under the Architects Act, or nal engineer under the Engineers and
Geoscientists Act.		
	2 of 4	

Set 3 - Page 626b

**Div. C, Part 2 Schedule B** [Replace Schedule B – Page 3 with the following]

BUILDING BY-LAW 2014 – CITY OF VANCO	DUVER
Schedule B - Continued	
	Building Permit No
	(for Building Official's use)
· · · · · · · · · · · · · · · · · · ·	Project Address
	,
	Discipline
	REQUIREMENTS
(Initial applicable discipline below and cross out and initial only those items not applicable	le to the project.)
1.1 Fire resisting assemblies	
1.2 Fire separations and their continuity	
1.4 Egress systems, including access to exit within suites and floor areas	
1.5 Performance and physical safety features (guardrails, handrails, etc.)	
<ol> <li>Structural capacity of architectural components, including anchorage and 1.7 Sound control</li> </ol>	seismic restraint
1.8 Landscaping, screening and site grading	
1.9 Provisions for firefighting access	
1.10 Access requirements for persons with disabilities	
1.12 Functional testing of architecturally related fire emergency systems and	
devices	Ne de la companya de
1.13 Development Permit and conditions therein 1.14 Interior signage, including acceptable materials, dimensions and	
locations	
1.15 Review of all applicable shop drawings	
1.10 Interior and exterior infisites 1.17 Dampproofing and/or waterproofing of walls and slabs below grade	
1.18 Roofing and flashings	
1.19 Wall cladding systems	
1.21 Exterior glazing	(Professional's Seal and Signature)
1.22 Integration of building envelope components	สายแหน่งหนังของหนังแหน่งหายากแหน่งหายเหน่าอาการการการการการการการการการการการการการ
1.23 Environmental separation requirements (Part 5)	aments Date
1.25 Building envelope, testing, confirmation or both as per Part 10 requireme	nts
OTDUOTUDAJ	
2.1 Structural capacity of structural components of the building, including and	horage and seismic restraint
2.2 Structural aspects of deep foundations	
2.3 Review of all applicable shop drawings	truction
2.4 Structural aspects of unbolided post-tensioned concrete design and conc	a delon
	P - 1 F
3.1 HVAU systems and devices, including high building requirements where	applicable
3.3 Continuity of <i>fire separations</i> at HVAC penetrations	
3.4 Functional testing of mechanically related fire emergency systems and de	evices
3.6 Structural capacity of mechanical components, including anchorage and	seismic restraint
3.7 Review of all applicable shop drawings	
3.8 Mechanical systems, Part 10 - ASHRAE 90.1 or NECB requirements	nents
	none
	CRP's Initials
3 of 4	
Rev. 2018-Jan-01	

Set 3 - Page 626c

**Div. C, Part 2 Schedule B** [Replace Schedule B – Page 4 with the following]

BUILDING BY-LAW 2014 – CITY OF VANCO	DUVER
Schedule B - Continued	
· .	
	(for Boliding Official's use)
•	Project Address
· · · · · · · · · · · · · · · · · · ·	Discipline
PLUMBING	
4.1 Koot drainage systems 4.2 Site and foundation drainage systems	
4.2 Site and foundation oraling e systems 4.3 Plumbing systems and devices	
4.4 Continuity of fire separations at plumbing penetrations	
4.5 Functional testing of plumbing related fire emergency systems and device	es des
4.6 Maintenance manuals for <i>plumbing systems</i>	alemic restraint
4.8 Review of all applicable shop drawings	some resudent
4.9 Plumbing systems, Part 10 - ASHRAE 90.1 or NECB requirements	the state of the second se
4.10 Plumbing systems, testing, confirmation, or both as per Part 10 requirem	ients
FIRE SUPPRESSION SYSTEMS	
5.1 Suppression system classification for type of <i>occupancy</i>	
5.2 Design coverage, including concealed or special areas	
5.3 Compatibility and location of electrical supervision, ancillary alarm and c	ontrol devices
5.4 Evaluation of the capacity of city (municipal) water supply versus system including numping devices where necessary	i demands and domestic demand,
5.5 Qualification of welder, quality of welds and material	in the second
5.6 Review of all applicable shop drawings	
5.7 Acceptance testing for "Contractor's Material and Test Certificate" as pe	r NFPA Standards
5.8 Maintenance program and manual for suppression systems	ismic restraint
5.10 For partial systems — confirm sprinklers are installed in all areas where	required
5.11 Fire Department connections and hydrant locations	
5.12 Fire hose standpipes	
5.13 Freeze protection measures for hire suppression systems	
6.1 Electrical systems and devices, including high building requirements where a continuity of fire senarations at electrical penetrations.	ere applicable
6.3 Functional testing of electrical related fire emergency systems and devic	es
6.4 Electrical systems and devices maintenance manuals	1990 1991 1991 1991 1991 1991 1991 1991
6.5 Structural capacity of electrical components, including anchorage and	
6.6 Clearances from <i>buildings</i> of all electrical utility equipment	
6.7 Fire protection of wiring for emergency systems	
6.8 Review of all applicable shop drawings	
6.9 Electrical systems, Part 10- ASHRAE 90.1 or NECB requirements 6.10 Electrical systems, testing, confirmation, or both as per Part 10 requirements	ante
o, ro chound a yaterra, teating, committation, or both as per ratt to requirem	
GEOTECHNICAL — Temporary	
7.1 Excavation	
7.2 Shoring 7.3 Underninning	
7.4 Temporary construction dewatering	
GEOTECHNICAL — Permanent	(Professional's Seal and Signature)
8.2 Geotechnical aspects of <i>deep foundations</i>	
8.3 Compaction of engineered fill	
8.4 Structural considerations of soil, including slope stability and seismic loa	ding Date
8.5 Backfill	
o.o rermanent dewatering 8.7 Permapent underninning	
4 of 4	CRP's Initials
Rev. 2018-Jan-01	······································

Set 3 - Page 626d
Div. C, Part 2 Schedule C-A [Replace Schedule C-A with the following]

	BUILDING BY-LAW 2014 – CITY OF	VANCOUVER
	SCHEDULE C-	A
	Forming Part of Subsection 2.2.7, Divis Building By-law	ion C of the Building Permit N
	ASSURANCE OF COORD PROFESSIONAL FIELD	INATION OF D REVIEW
Notes: (i (i (i	<ul> <li>This letter must be submitted after completion of the project bi or a final inspection is made, by the <i>Chief Building Official</i>.</li> <li>This letter is endorsed by: Architectural Institute of B.C., Assoc Geoscientists of B.C.</li> <li>In this letter the words in italics have the same meaning as in the same meaning as in</li></ul>	ut before the <i>occupancy permit</i> is issued, ciation of Professional Engineers and the Building By-law.
To: The Chie	əf Building Official	
Re:		
Name of	f Project (Print)	
Address	of Project (Print)	
Legal De	escription of Project (Print)	
(The coordi	inating registered professional shall complete the following	(a
Name (F	Print)	(Professional's Seal and Signature)
Address	(Print)	
		n na hAran ann an Anna an Anna an Anna an Anna an Anna A Anna Anna
		Dat
Phone N	4o.	_
l hereby g	ive assurance that	1
(a)   p S (b)   s (c)   r (d)	have fulfilled my obligations for coordination of <i>field review</i> roject as outlined in Subsection 2.2.7, Division C of the Bu Schedule A, "CONFIRMATION OF COMMITMENT BY OW PROFESSIONAL," have coordinated the functional testing of the fire protection ubstantially comply in all material respects with (i) the applicable requirements of the Building By-law a safety, not including construction safety aspects, and (ii) the plans and supporting documents submitted in su have coordinated the field reviews to ascertain that the pre spects with (i) the applicable requirements of Part 10, and (ii) the plans and supporting documents submitted in su am a <i>registered professional</i> as defined in the Building By	w of the <i>registered professionals</i> required for the uilding By-law and in the previously submitted VNER AND BY COORDINATING REGISTERED on and life safety systems to ascertain that they and other applicable enactments respecting d upport of the application for the <i>building</i> permit, oject substantially complies in all material upport of the application for the building permit, -faw.
(If the <i>regi</i>	istered professional is a member of a firm, complete the fo	llowing:)
l am a me	mber of the firm	
and I sign	this letter on behalt of the firm. (	Print name of firm)
Note: The profession	above letter must be signed by a coordinating registered pal. The Building By-law defines a registered professional	<i>professional</i> , who is also a <i>registered</i> to mean
(a) a (b) a G	person who is registered or licensed to practise as an arc person who is registered or licensed to practise as a prof Beoscientists Act.	chitect under the Architects Act, or essional engineer under the Engineers and
	1 of 1	

Set 3 - Page 630b

#### Appendix A of Div. B, Appendix Note A-1.2.1.2.(1)

**A-1.2.1.2.(1) Responsibility of Owner** Sentence 1.1.1.1.(1) is not intended to imply that a person who becomes the owner of a building must bring the entire building into compliance with the Code. The Code applies only in the cases and to the extent specified by Article 1.1.1.1. and Part 11, and the owner of a building is therefore made responsible for ensuring the building complies with the Code by Sentence 1.2.1.2.(1) only in the cases and to the extent specified by Article 1.1.1.1. and Part 11. If none of the provisions in Sentence 1.1.1.1.(1) and Part 11 apply to the building, the owner is not required to make any changes to the building.

Set 1 - Page 638a

Set 1 - Page 638b

## Appendix A of Div. B, Appendix Note A-1.3.1.2.(1) [Replace Table A-1.3.1.2.(1)]

Table A-1.3.1.2.(1)           Documents Referenced in Appendices A, B and C of Book I (General) of the Building By-law           Forming part of Appendix Note A-1.3.1.2.(1)			
Issuing Agency	Document Number <sup>(1)</sup>	Title of Document <sup>(2)</sup>	By-law Reference
AAMA	1304-02	Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems	9.7.5.2.(2)
ASCE	SEI/ASCE 8-02	Design of Cold-Formed Stainless Steel Structural Members	A-4.3.4.2.(1)
ANSI/ ASHRAE	62-2001	Ventilation for Acceptable Indoor Air Quality (except Addendum n)	A-9.25.5.2.
ANSI/UL	199	Standard for Safety of Automatic Sprinklers for Fire- Protection Service	A-3.2.5.12.(8)
ANSI/UL	1626	Standard for Safety of Residential Sprinklers for Fire- Protection Service	A-3.2.5.12.(8)
ASME	B18.6.1-1981	Wood Screws (Inch Series)	A-9.23.3.1.(3)
ASME/CSA	ASME A17.1-2010/CSA B44-10	Safety Code for Elevators and Escalators	A-3.5.2.1.(1)
ASTM	A 390-06	Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)	Table A-9.10.3.1.B
ASTM	C 516-08	Vermiculite Loose Fill Thermal Insulation	A-9.25.2.4.(5)
ASTM	C 1193-11a	Use of Joint Sealants	A-Table 5.10.1.1. A-9.27.4.2.(1)
ASTM	C 1299-03	Selection of Liquid-Applied Sealants	A-Table 5.10.1.1. A-9.27.4.2.(1)
ASTM	C 1472-10	Calculating Movement and Other Effects When Establishing Sealant Joint Width	A-Table 5.10.1.1. A-9.27.4.2.(1)
ASTM	D 1037-06a	Evaluating Properties of Wood-Base Fiber and Particle Panel Materials	A-9.23.15.2.(4)
ASTM	D 1143/D 1143M-07e1	Deep Foundations Under Static Axial Compressive Load	A-4.2.7.2.(2)
ASTM	E 336-05	Measurement of Airborne Sound Attenuation between Rooms in Buildings	A-9.11.1.1.(1)
ASTM	E 492-09	Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using The Tapping Machine	A-9.11.1.1.(1)
ASTM	E 597-95	Determining a Single Number Rating of Airborne Sound Insulation for Use in Multi-Unit Building Specifications	A-9.11.1.1.(1)
ASTM	E 736-00	Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members	Table A-9.10.3.1.B
ASTM	E 1007-11e1	Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures	A-9.11.1.1.(1)
ASTM	E 1300-04e1	Standard Practice for Determining Load Resistance of Glass in Buildings	4.3.6.1.(1) 9.6.1.3.(1)
ASTM	F 842-04	Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing	9.7.5.1.(3)

		Impact	
Vancouver		Book II (Plumbing Systems)	A-2.2.1.1.(1) <sup>(3)</sup>
			A-3.2.1.1.(1) <sup>(3)</sup>
			A-4.1.6.4.(3)
			Appendix C
BC	B.C. Reg. 100/2004	Electrical Safety Regulation	A-3.2.4.21.(6)(a)
	5	5 5	A-9.34.2.
			A-9.35.2.2.(1)
BC	B.C. Reg. 101/2004	Elevating Devices Safety Regulation	A-3.5.2.1.(1)
BC	S.B.C. 1998, c. 43	Strata Property Act	A-9.37.1.1.
CCBFC	NRCC 35951	Guidelines for Application of Part 3 of the National Building	A-1.1.1.2.(1) <sup>(3)</sup>
		Code of Canada to Existing Buildings	
CCBFC	NRCC 38732	National Farm Building Code of Canada 1995	A-1.4.1.2.(1) <sup>(3)</sup>
		5	A-Table 4.1.2.1.
			A-5.1.2.1.(1)
CCBFC	NRCC 40383	User's Guide – NBC 1995, Fire Protection, Occupant	A-1.1.1.2.(1) <sup>(3)</sup>
		Safety and Accessibility (Part 3)	
CCBFC	NRCC 43963	User's Guide – NBC 1995, Application of Part 9 to Existing	A-1.1.1.2.(1) <sup>(3)</sup>
		Buildings	
CCBFC	NRCC 48192	User's Guide – NBC 2005, Structural Commentaries (Part	A-1.1.1.2.(1)
		4 of Division B)	A-4.1.1.3.(1)
		· ·	A-4.1.1.3.(2)
			A-3.2.5.12.(8)
			A-4.1.3.4.(1)
			A-4.1.3.5.(1)
			A-4.1.3.5.(3)
			A-Table 4.1.8.5.
			A-Table 4.1.8.6.
			A-5.1.4.2.
			Appendix C
CCBFC	NRCC 53303	National Fire Code of Canada 2010	A-1.1.1.2.(1) <sup>(3)</sup>
			A-2.2.1.1.(1) <sup>(3)</sup>
			A-3.1.2.3.(1)
			A-3.2.1.1.(1) <sup>(3)</sup>
			A-3.2.4.7.(2)
			A-3.2.7.8.(3)
			A-3.3.
			A-3.3.1.2.(1)
			A-3.3.1.7.(1)
			A-3.3.3.1.(1)
			A-3.3.6.1.(1)
			B-3.2.6.
CCBFC	NRCC 53543	User's Guide – NBC 2010, Structural Commentaries (Part	A-1.1.1.2.(1) <sup>(3)</sup>
		4 of Division B)	A-4.1.1.3.(1)
			A-4.1.1.3.(2)
			A-4.1.2.1.
			A-4.1.2.1.(1)
			A-4.1.3.
			H-4.1.3.2.(Z)
			H-4.1.3.2.(4)

	A-4.1.3.2.(5)
	A-4.1.3.3.(2)
	A-4.1.3.4.(1)
	A-4135(1)
	$\Lambda 1 2 5 (2)$
	$\Lambda^{-4}$ , 1.3.3.(3) A 4 1 2 4 (1)
	A-4.1.3.0.(1)
	A-4.1.3.6.(2)
	A-4.1.3.6.(3)
	A-4.1.5.8.
	A-4.1.5.17.
	A-4.1.6.2.
	A-4.1.6.2.(4)(b)
	A-4163(2)
	$\Delta_{-4} = 16.4$ (1)
	$\Lambda^{-1}$ . 1.0.4.(1) A $\Lambda$ 1 7 1 (1) to (2)
	A = 4, 1, 7, 1, (1) (U(3))
	A-4.1.7.1.(5)(d) (U (C)
	A-4.1.7.1.(5)(d)
	A-4.1.7.1.(6)(a)
	A-4.1.7.1.(6)(c)
	A-4.1.7.1.(6)(d) and
	4.1.7.2.(1)(b)
	A-4.1.7.2.(1) and (2)
	A-4.1.7.3.(1)
	A-4.1.8.2.(1)
	A-4 1 8 3 (4)
	$\Delta_{-4}$ 1 8 3 (6)
	$\Lambda 4 1 9 2 (7)(h)$ and (c)
	A = 4.1.0.3.(7)(0) and (0)
	A-4.1.0.3.(0)
	A-4.1.8.4.(3) and Table
	4. I.8.4.A.
	A-Table 4.1.8.5.
	A-Table 4.1.8.6.
	A-4.1.8.7.(1)
	A-4.1.8.9.(4)
	A-4.1.8.9.(5)
	A-4.1.8.11.(3)
	A-4.1.8.12.(1)(a)
	A-4.1.8.12.(1)(b)
	A-4 1 8 12 (3)
	$\Delta_{-4} = 1812(4)(a)$
	$\Lambda = 12.(7)(4)$
	(-4.1.0.13.(4))
	A-4.1.0.10.(1)
	A-4.1.8.15.(4)
	A-4.1.8.15.(5)
	A-4.1.8.15.(6)
	A-4.1.8.15.(7)
	A-4.1.8.16.(1)
	A-4.1.8.16.(3)(a)
	A-4.1.8.16.(4)
	A-4.1.8.16.(5)(a)

[			T 1
			A-4.1.8.16.(7)
			A-4.1.8.17.(1)
			A-4.1.8.18.
			A-4.2.4.1.(3)
			A-4.2.4.1.(5)
			A-4.2.5.1.(1)
			A-4.2.6.1.(1)
			A-4.2.7.2.(1)
			A-5.1.4.2.
			Appendix C
CGSB	CAN/CGSB-7.2-94	Adjustable Steel Columns	A-9.17.3.4.
CGSB	CAN/CGSB-12.20-M89	Structural Design of Glass for Buildings	A-9.6.1.3.(1)
CGSB	CAN/CGSB-71.26-M88	Adhesive for Field-Gluing Plywood to Lumber Framing for	Table A-9.23.4.2.(2)C
		Floor Systems	
CGSB	CAN/CGSB-82.6-M86	Doors, Mirrored Glass, Sliding or Folding, Wardrobe	A-9.6.1.2.(2)
CGSB	CAN/CGSB-93.1-M85	Sheet, Aluminum Alloy, Prefinished, Residential	A-9.27.11.1.(3) and (4)
CGSB	CAN/CGSB-93.2-M91	Prefinished Aluminum Siding, Soffits, and Fascia, for	A-9.27.11.1.(3) and (4)
		Residential Use	
CISC	2009	Crane-Supporting Steel Structures: Design Guide	A-4.1.3.2.(2)
СМНС	1993	Testing of Fresh Air Mixing Devices	A-9.32.3.4.
СМНС	1988	Air Permeance of Building Materials	A-5.4.1.2.(1) and (2)
			Table A-9.25.5.1.(1)
CMHC/HC	2007	Radon: A Guide for Canadian Homeowners	A-5 4 1 1
	2007		A-6211
			A-9 13 4 3
CSA	CAN/CSA-A23 3-04	Design of Concrete Structures	A - 4 + 1 + 3 + 2 + (4)
00/1	011110011120.001		A-4 3 3 1 (1)
CSA	Δ23.4-09	Precast Concrete – Materials and Construction	Δ-4 3 3 1 (1)
CSA	A82 31-M1980	Gynsum Board Application	Table A-9 10 3 1 A
0011	//02.31 W1700	Oypour Dourd Application	Table A-9 10 3 1 B
420	CAN/CSA-A370-04	Connectors for Masonry	$\Delta_{-}0.21 / 5 (2)$
		NAES North American Econostration	Λ-7.21.4.3.(2)
CSA		NAES - NULLITAILIELICAL FELESILATION Standard/Specification for Windows, Doors, and Skylights	A-3.3.1.2. A 0 7 <i>A</i> 2 (1)
	101/1.3.2/A440-00	standard/specification for windows, boors, and skylights, as updated by Update No. 1 (July 2012)	A-7.7.4.2.(1)
<u> </u>	A440S1 00	Canadian Supplement to AAMA/M/DMA/CSA	Δ Ε 10 2 2
CSA	A44031-09	Canadian Supplement to AAMA/WDMA/CSA	A-3.10.2.2. A 0 7 <i>A</i> 2 (1)
		Standard/Specification for Windows, Doors, and Skylights	A-9.7.4.2.(1)
<u> </u>	D111 1071	Stanuaru/Specification for Windows, Doors, and Skylights	A Table 0.22.2 F D
		Wile Ivalis, Spikes and Staples	A-Table 9.23.3.3.D.
CSA	CAIN/COA-R302-01	Installation Code for Solid-Fuel-Burning Appliances and	А-У.33.1.1.(Z) А 0 22 E 2
004		Equipment Desidential Mechanical Mentilation Contents	A-9.33.5.3.
CSA	CAIN/CSA-F326-M91	Residential Mechanical Ventilation Systems	A-Y.3Z.3.
			A-9.32.3.1.(1)
			A-Y.3Z.3.5.
			A-Y.3Z.3.7.
			A-9.32.3.8.
			A-9.33.6.13.
CSA	U86-09	Engineering Design in Wood	A-9.15.2.4.(1)
			A-9.23.4.2.
CSA	0112.9-10	Evaluation of Adhesives for Structural Wood Products	Table A-9.10.3.1.B

		(Exterior Exposure)	
CSA	0112.10-08	Evaluation of Adhesives for Structural Wood Products	Table A-9.10.3.1.B
		(Limited Moisture Exposure)	
CSA	0141-05	Softwood Lumber	A-9.3.2.1.(1)
CSA	0437.0-93	OSB and Waferboard	A-9.23.15.4.(2)
CSA	CAN/CSA-S6-06	Canadian Highway Bridge Design Code	A-Table 4.1.5.3.
			A-Table 4.1.5.9.
CSA	S16-09	Design of Steel Structures	A-4.1.5.11.
			A-4.3.4.1.(1)
CSA	S304.1-04	Design of Masonry Structures	A-5.1.4.1.(5)(b) and (c)
CSA	CAN/CSA-S406-92	Construction of Preserved Wood Foundations	A-9.15.2.4.(1)
CSA	Z32-04	Electrical Safety and Essential Electrical Systems in	A-3.2.7.6.(1)
		Health Care Facilities	
CSA	CAN/CSA-Z240 MH Series-09	Manufactured Homes	A-1.1.1.1.(3) <sup>(3)</sup>
CSA	Z240.2.1-09	Structural Requirements for Manufactured Homes	A-1.1.1.(3) <sup>(3)</sup>
CSA	Z240.10.1-08	Site Preparation, Foundation, and Anchorage of	A-1.1.1.(3) <sup>(3)</sup>
014/0	1007	Manufactured Homes	
CWC	1997	Introduction to Wood Building Technology	A-9.27.3.8.(4)
CWC	2000	Wood Reference Handbook	Table A-9.27.3.8.(4)
CWC	2009	The Span Book	A-9.23.4.2.
CWC	2009	Engineering Guide for Wood Frame Construction	A-9.4.1.1. A-9.23.13.1
EC	CEPA 1988	Canadian Environmental Protection Act. Section 8. Part 1	A-6.2.1.7.(2)
EPA	625/R-92/016 (1994)	Radon Prevention in the Design and Construction of Schools and Other Large Buildings	A-5.4.1.1.
FM Approvals	2008	Approval Standard for Suppression Mode [Early Suppression – Fast Response (ESFR)] Automatic Sprinklers	A-3.2.5.12.(7)
FPI	Project 43-10C-024 (1988)	Deflection Serviceability Criteria for Residential Floors	A-9.23.4.2.(2)
HC	2004	Fungal Contamination in Public Buildings: Health Effects and Investigation Methods	A-5.5.1.1.
НС	2008	Guide for Radon Measurements in Public Buildings	A-5.4.1.1.
		(Schools, Hospitals, Care Facilities, Detention Centres)	A-6.2.1.1.
HC	2008	Guide for Radon Measurements in Residential Dwellings (Homes)	A-9.13.4.3.
ISO	7010:2003	Graphical symbols – Safety colours and safety signs – Safety signs used in workplaces and public areas	A-3.4.5.1.(2)(c)
ISO	7731:2003(E)	Ergonomics – Danger signals for public and work areas – Auditory danger signals	A-3.2.4.22.(1)(b)
ISO	8201:1987(E)	Acoustics – Audible emergency evacuation signal	A-3.2.4.19.(2)
NFPA	2001 Edition	Fire Protection Guide to Hazardous Materials	A-6.2.2.6.(1)
NFPA	FPH 2008-2008	Fire Protection Handbook	A-3.2.2.2.(1) A-3.6.2.7.(5)
NFPA	13-2013	Installation of Sprinkler Systems	A-3.2.4.10.(3)(f) A-3.2.5.12.(1) A-3.2.5.12.(6) A-3.2.5.13.(1)

			A-3.2.8.2.(3)
NFPA	13D-2010	Installation of Sprinkler Systems in One- and Two-Family	A-3.2.5.12.(6)
		Dwellings and Manufactured Homes	A-3.2.5.12.(7)
			A-3.2.5.13.(1)
NFPA	13R-2010	Installation of Sprinkler Systems in Residential	A-3.2.5.12.(6)
		Occupancies up to and Including Four Stories in Height	A-3.2.5.12.(7)
	00.0010		A-3.2.5.13.(1)
NEPA	20-2010	Installation of Stationary Pumps for Fire Protection	A-3.2.4.10.(3)(f)
	30-2008	Flammable and Combustible Liquids Code	A-6.2.2.6.(1)
	30A-2008	Motor Fuel Dispensing Facilities and Repair Garages	A-6.2.2.6.(1)
	32-2007	Urycleaning Plants	A-6.2.2.6.(1)
NEPA	33-2007	Materials	A-0.2.2.0.(1)
NFPA	34-2007	Dipping and Coating Processes Using Flammable or Combustible Liquids	A-6.2.2.6.(1)
NFPA	35-2005	Manufacture of Organic Coatings	A-6.2.2.6.(1)
NFPA	36-2009	Solvent Extraction Plants	A-6.2.2.6.(1)
NFPA	40-2007	Storage and Handling of Cellulose Nitrate Film	A-6.2.2.6.(1)
NFPA	51-2007	Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes	A-6.2.2.6.(1)
NFPA	51A-2006	Acetylene Cylinder Charging Plants	A-6.2.2.6.(1)
NFPA	55-2005	Storage, Use, and Handling of Compressed Gases and	A-6.2.2.6.(1)
		Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks	
NFPA	61-2008	Prevention of Fires and Dust Explosions in Agricultural an Food Processing Facilities	dA-6.2.2.6.(1)
NFPA	68-2007	Explosion Protection by Deflagration Venting	A-3.6.2.7.(5)
			A-6.2.2.6.(1)
NFPA	69-2008	Explosion Prevention Systems	A-3.6.2.7.(5)
			A-6.2.2.6.(1)
NFPA	72-2007	National Fire Alarm and Signaling Code	A-3.2.4.22.(2)
NFPA	80-2007	Fire Doors and Other Opening Protectives	A-3.1.8.1.(2) A-3.2.8.2.(3)
NFPA	80A-2007	Protection of Buildings from Exterior Fire Exposures	A-3
NFPA	85-2007	Boiler and Combustion Systems Hazards Code	A-6.2.2.6.(1)
NFPA	86-2007	Ovens and Furnaces	A-6.2.2.6.(1)
NFPA	88A-2007	Parking Structures	A-6.2.2.6.(1)
NFPA	91-2004	Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids	A-6.2.2.6.(1)
NFPA	96-2008	Ventilation Control and Fire Protection of Commercial	A-3.3.1.2.(2)
		Cooking Operations	A-6.2.2.6.(1)
			A-9.10.1.4.(1)
NFPA	101-2009	Life Safety Code	A-3.3.2.1.(2)
NFPA	204-2007	Smoke and Heat Venting	A-6.2.2.6.(1)
NFPA	303-2006	Marinas and Boatyards	A-6.2.2.6.(1)
NFPA	307-2006	Construction and Fire Protection of Marine Terminals,	A-6.2.2.6.(1)
		Piers, and Wharves	
NFPA	409-2004	Aircraft Hangars	A-6.2.2.6.(1)
NFPA	415-2008	Airport Terminal Buildings, Fueling, Ramp Drainage,	A-6.2.2.6.(1)

		Loading Walkways	
NFPA	484-2009	Combustible Metals	A-6.2.2.6.(1)
NFPA	654-2006	Prevention of Fire and Dust Explosions from the	A-6.2.2.6.(1)
		Manufacturing, Processing, and Handling of Combustible	
		Particulate Solids	
NFPA	655-2007	Prevention of Sulfur Fires and Explosions	A-6.2.2.6.(1)
NFPA	664-2007	Prevention of Fires and Explosions in Wood Processing	A-6.2.2.6.(1)
		and Woodworking Facilities	
NFPA	1142-2007	Standard for Water Supply for Suburban and Rural Fire	A-3.2.5.7.(1)
		Fighting	
NFPA	1710-2004	Organization and Deployment of Fire Suppression	A-3.2.3.1.(8)
		Operations, Emergency Medical Operations, and Special	
	0007	Operations to the Public by Career Fire Departments	
NLGA	2007	Standard Grading Rules for Canadian Lumber	A-9.3.2.1.(1)
			A-9.3.2.8.(1)
	CDC 1 2007	Fine entries of Chrysterical Lymphon	A-9.23.10.4.(1)
NLGA	SPS-1-2007	Fingerjoined Structural Lumber	1adie A-9.10.3.1.A
	505 2 2007	Eingeriained Wortical Stud Use Only' Lymber	A-9.23.10.4.(1) Tabla A 0 10 2 1 A
NLGA	SPS-3-2007	ringerjoineu vertical stud use Only Lumber	1dDIE A-9.10.3.1.A
	2005	The NIPCA Waterproofing Manual	A-9.23.10.4.(1)
	2005	The NECA Waterproving Wanual Mombrane Deef Systems	A-5.0.2.1. A 5 6 2 1
		Airtight Houses and Carbon Monovide Deisoning	A-0.0.2.1.
	CBD 222	Antight houses and Calbor Monovide Poisoning	$A = 9.33 \cdot 1 \cdot 1 \cdot (2)$ A 1 1 1 2 (1)(3)
	CBD 230	Moisture Droblems in Houses	Λ 0 25 2 1 <i>(</i> 1)
	1000	Deformance and Accentability of Wood Floors Forintek	A = 9.23.3.1.(1)
INKU-IKU	1900	Studies	A-9.23.4.2.(2)
NYCDOHMH	2008	Guidelines on Assessment and Remediation of Fungi in	A-5.5.1.1.
		Indoor Environments	
OMMAH	2006	2006 Building Code Compendium, Volume 2,	A-9.8.8.2.
		Supplementary Standard SB-7, Guards for Housing and	
		Small Buildings	
SMACNA	6th Edition	Architectural Sneet Metal Manual	A-5.6.2.1.
IC TWO	SUR/2008-34	Iransportation of Dangerous Goods Regulations (TDGR)	A-3.3.1.2.(1)
TWC	1993	Details of Air Barrier Systems for Houses	Table A-9.25.5.1.(1)
	1995		A-5.6.2.1.
ULC	CAN/ULC-S101-07	Fire Endurance Tests of Building Construction and	A-3.1.5.12.(2)(e)
		Materiais	A-9.10.3.1.B
		Fire Test of Fire Demos Assemblies	D-3.2.0.3.(0)(0)
		File Test of File-Damper Assemblies	TADIE B-3.2.0.0.(T)U
ULC	CAIV/ULC-STI3-U/	CAN/ULC S104 for Twenty Minute Fire Dated Closure	A-9.10.9.3.(2) A 0.10.12.2.(1)
		Assemblies	A-9.10.13.2.(1)
ULC	CAN/ULC-S124-06	Test for the Evaluation of Protective Coverings for Foamed	A-3.1.5.12.(2)(e)
		Plastic	
ULC	ULC-S332-93	Burglary Resisting Glazing Material	A-9.7.5.2.(1)
ULC	CAN/ULC-S524-06	Installation of Fire Alarm Systems	A-3.2.4.19.(8)
			A-3.2.4.21.(7)
ULC	CAN/ULC-S526-07	Visible Signal Devices for Fire Alarm Systems, Including	A-3.2.4.20.(2)

		Accessories	
ULC	CAN/ULC-S572-10	Photoluminescent and Self-Luminous Signs and Path	A-3.4.5.1.(4)
		Marking Systems	
ULC	CAN/ULC-S702-09	Mineral Fibre Thermal Insulation for Buildings	A-5.10.1.1.(1)
WCLIB	No. 17 (2004)	Standard Grading Rules	A-Table 9.3.2.1.
WWPA	2011	Western Lumber Grading Rules	A-Table 9.3.2.1.

Notes to Table A-1.3.1.2.(1):

- <sup>(1)</sup> Some documents may have been reaffirmed or reapproved. Check with the applicable issuing agency for up-to-date information.
- <sup>(2)</sup> Some titles have been abridged to omit superfluous wording.
- <sup>(3)</sup> By-law reference is in Division A.

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#### Appendix A of Div. B, 3.1.2.1.(2) Major Occupancy Classification

[Replace Group A, Division 2 as follows]

#### Group A, Division 2

Art galleries Auditoria Bowling alleys Child Care Facilities Churches and similar places of worship Clubs, nonresidential Community halls Courtrooms Dance halls Exhibition halls (other than classified in Group E) Gymnasia Lecture halls Libraries Licensed beverage establishments Museums Passenger stations and depots Recreational piers Restaurants Schools and colleges, nonresidential Undertaking premises

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#### Appendix A of Div. B, Appendix Note A-3.1.2.5.(3)

A-3.1.2.5.(3) Daycare Facilities for Children A daycare facility for children is typically occupied for a period of less than 24 hours each day (i.e., is not a residential facility). The term "daycare" is not meant to exclude facilities that provide short term care during the night for a period of less than 24 hours each day. (See also A-3.3.2.16.)

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Appendix A of Div. B, Appendix Note A-3.2.2.15.(2). [Add the following note]

**A-3.2.2.15.(2) Storeys below Ground** Occupancies located below grade represent an unusual level of challenge for both occupant egress and emergency response since the availability of paths of travel to enter or leave the underground space is usually limited. This may subject occupants to a greater risk of exposure to untenable conditions during evacuation. Similarly, emergency responders must share limited means of egress with occupants which could further impact occupant evacuation, impede an effective response, or expose first responders to unsafe conditions.

It is not the intent of the Building By-law to limit the inclusion of occupancies below grade where they can be shown to demonstrate an appropriate level of fire and life safety. Rather the intent of this requirement is to cause a conscientious review of certain underground occupancies to ensure that they are sufficiently protected, and that the arrangement can provide an acceptable level of emergency response for a variety of conditions. The measures described in Sentence 3.2.2.15.(2) provide a minimum for fire safety under many circumstances, but may not be sufficient to address all potential uses or occupancies below grade. It should be confirmed that the proposed use and building design is acceptable to the Chief Building Official.

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#### Appendix A of Div. B, Appendix Note A-3.2.5.12.(7).

A-3.2.5.12.(7) Fast-Response Sprinklers Several types of sprinkler will respond to a fire faster than a conventional standard response sprinkler. The Response Time Index (RTI) is used to quantify the sensitivity of the sprinkler link for any given sprinkler. The RTI for the group of fast-response sprinklers described below will on average range from 22 s<sup>0.5</sup>·m<sup>0.5</sup> to 33 s<sup>0.5</sup>·m<sup>0.5</sup>. RTI values for standard response sprinklers will typically be in the range of 83 s<sup>0.5</sup>·m<sup>0.5</sup> to 110 s<sup>0.5</sup>·m<sup>0.5</sup>.

Any confusion as to the appropriate type of fast-response sprinkler for different types of building should be alleviated by considering the testing criteria described below and the reference to the appropriate NFPA installation standards.

Although the By-law specifies where fast response sprinklers are required it does not prevent the appropriate use of fast-response sprinklers in other occupancies.

Residential sprinklers are tested in accordance with ANSI/UL-1626, "Residential Sprinklers for Fire-Protection Service." They are installed in accordance with NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," with NFPA 13D, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes." and with Section 5-4.5 of NFPA 13, "Installation of Sprinkler Systems," for residential occupancies and for dwelling units.

Quick-response sprinklers are tested in accordance with ANSI/UL-199, "Automatic Sprinklers for Fire-Protection Service." They are installed in accordance with NFPA 13, "Installation of Sprinkler Systems," for spacing, density and location. They are acceptable for limited use as described in NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," but are not permitted for use under NFPA 13D, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes."

Early suppression fast-response sprinklers are tested in accordance with FM 2008, "Early Suppression -Fast-Response Sprinklers." They are installed in accordance with NFPA 13, "Installation of Sprinkler Systems," but are not accepted for use under either NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," or NFPA 13D, "Installation of Sprinkler Systems in Oneand Two-Family Dwellings and Manufactured Homes."

Quick response extended coverage sprinklers are tested in accordance with ANSI/UL 199, "Automatic Sprinklers for Fire-Protection Service." They are installed in accordance with NFPA 13, "Installation of Sprinkler Systems," for spacing, density and location. They are acceptable for limited use as permitted by NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," but are not permitted for use under NFPA 13D, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes."

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#### Appendix A of Div. B, Appendix Note A-3.2.5.13.(1).

A-3.2.5.13.(1) Hazard Classification for Sprinkler Selection The reference to light hazard occupancies is based on the descriptions of these occupancies given in NFPA 13, "Installation of Sprinkler Systems," and is intended only for use in the design of sprinkler systems. These descriptions should not be confused with the occupancy classifications in the By-law.

In NFPA 13, a light hazard occupancy is one in which the quantity or combustibility of contents is low and fires with relatively low rates of heat release are expected. Typical buildings or parts of buildings include: churches; clubs; eaves and overhangs, if of combustible construction with no combustibles beneath; educational buildings; hospitals; institutional buildings; libraries, except very large stack rooms; museums; nursing or convalescent homes; offices, including data processing rooms; residential buildings; restaurant seating areas; theatres and auditoria, excluding stages and proscenia; and unused attics.

Although NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," and NFPA 13D, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes," as referenced by NFPA 13, are concerned with specific types of residential occupancy, namely apartment buildings up to four storeys, one and two family dwellings, and mobile homes, for the purpose of acceptance of combustible sprinkler piping these occupancies are considered to be included in the category of residential buildings under light hazard occupancies.

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#### Appendix A of Div. B, Appendix Note A-3.3.2.16.

A-3.3.2.16. Daycare Facilities with Children under 30 Months These daycare facilities are subject to additional requirements to address the unique profile of the occupants. (See also A-3.1.2.5.(3))

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Appendix A of Div. B, Appendix Note A-3.3.7.7.(2)

**A-3.3.7.7.(2)** Security for Storage Garage The requirements of Sentence 3.3.7.7.(2) are intended to provide improved visibility into or out of a stair tower or vestibule which might otherwise occlude the line of sight of building occupants as a result of intervening construction. Glazing must provide the maximum practical improvement to visibility to improve occupant safety. The term 'stair tower' used in this Sentence is intended to apply to vertical stair enclosures connecting more than one floor or containing superimposed flights of stairs.

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#### Appendix A of Div. B, Appendix Note A-3.7.2.2.(1). [Replace Note A-3.7.2.2.(1) with the following]

# A-3.7.2.2.(1) Water Closets Other than where gender neutral washrooms (see 3.7.2.11.) are provided, Sentence 3.7.2.2.(1) assumes that there will be a sufficient number of persons in the building to justify the provision of separate water closet facilities for both males and females. In some circumstances overall low occupant loads would not require more than one water closet for males and one water closet for females and yet the building has more than one storey. It is deemed that rooms each containing a single water closet available for both males and females would satisfy the intent of the By-law. The total number of water closets must be adequate for the total number of occupants. In the case of universal and gender neutral washroom facilities, the acceptable number of water closets should be based upon the equivalent number of fixtures that would otherwise be provided.

Requirements for barrier free accessibility also need to be considered. If the entrance storey is accessible and the upper storeys are not required to be accessible, a room in the accessible storey must meet the requirements of Section 3.8. and can serve both males and females. If provided, a nonaccessible room, designed to serve both males and females, in each nonaccessible upper storey would be acceptable. Sentence 3.7.2.2.(4) permits a single water closet to serve both males and females if the total occupant load is low.

#### Appendix A of Div. B, Appendix Note A-3.7.2.2.(1). [After Note A-3.7.2.10.(10)(h) add the following]

**A-3.7.2.11. Gender Neutral Washroom Requirements** The gender neutral washroom requirements of the Building Bylaw introduce a new option for owners, operators, and employers to provide washroom facilities that do not impose unreasonable restrictions on persons who wish to use the washroom facility. The requirements of the Building Bylaw represent the minimum level of performance necessary to achieve the goals of personal security and functionality for all persons.

The intent of the gender neutral washroom is that they may replace washrooms that would otherwise be required by the Building By-law. Where gender neutral washrooms are provided, these are to be assigned proportionally as male or female, for the purposes of determining the building washroom capacity under Section 3.7 of the Building By-law. It is not intended that the gender neutral washrooms be assigned solely as contributing to the male or female washroom capacity exclusively, nor were these to be considered supplemental to the minimum washroom requirements of the building.

Signage for gender neutral washrooms are to reflect the intended use not only by persons outside the gender binary, but also by people with disabilities, the elderly, and anyone else who may require the assistance from someone of another gender. As such, signage denoting this use is recommended to be neutral in tone and nature. Likewise, the iconography associated with these signs is also suggested to be indicative of the facility usage and function, and not of the individual who may use the facility.

The provision of regulations for gender neutral washrooms does not mean the elimination of gender-type washrooms. Typed washrooms, such as men's or women's multi-stall washrooms, and universal single-user washrooms may remain. It is up to each person to self-determine which washroom is most appropriate for them based on their gender identity. Further clarifying text may be added to washroom signage to signal that all persons are welcome.

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#### Appendix A of Div. B, Appendix Note A-4.1.5.8.

**A-4.1.5.8. Tributary Area** Information on tributary area can be found in the Commentary entitled Live Loads in the User's Guide – NBC 2010, Structural Commentaries (Part 4 of Division B).

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#### Appendix A of Div. B, Appendix Note A-5.10.2.2.

#### A-5.10.2.2. Windows, Doors, Skylights and Other Glazed Products

#### Design Values

CSA A440S1 requires that the individual performance levels achieved by the product for structural resistance, water penetration resistance and air leakage resistance be reported on the product's performance label.

#### Storm Doors and Windows

Where storm doors and storm windows are not incorporated in a rated window or door assembly, they should be designed and constructed to comply with the applicable requirements of Part 5 regarding such properties as appropriate air leakage and structural loads.

#### Forced Entry Test

Even though the performance label on rated windows, doors and skylights does not explicitly indicate that the product has passed the forced entry resistance test, products are required to pass this test in order to be rated.

#### Installation and Field Testing of Windows, Doors, Skylights and Other Glazed Products

Windows, doors, skylights, other glazed products and their components require installation details that are appropriately designed and constructed to provide acceptable overall performance of a building envelope assembly. Proper design of installation details provides the information necessary to integrate the window, door or skylight's structure, air barrier, vapour barrier and water barrier functions into the overall design of the building envelope assembly for these functions. Proper construction of these details is necessary to achieve an appropriate level of long term performance. Further guidance on installation detailing for windows, doors, skylights and other glazed products and their components can be found in CSA A440.4, "Window, Door and Skylight Installation."

Field testing of installed windows, doors and skylights during construction can be an invaluable tool for verifying acceptable levels of performance for the installed system. Although not required by this Code, field testing early in the envelope construction phase is considered favourable such that discontinuities in the system can be readily identified and corrections made before construction of the entire assembly is completed. Additional field testing during the construction phases can also be used to monitor installation consistency. Further guidance on methods and guidelines for the field testing of windows, doors and skylights can be found in CSA A440.4, "Window, Door and Skylight Installation, Annex D – Field Testing of Window and Door Installations." While this document does list previously identified industry performance data values, it is important to note that the user should utilize current specific performance requirements for а project as governed by the values developed in the referenced standard AAMA/WDMA/CSA101/I.S.2/A440, "NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights."

Field test procedures should be in accordance with referenced test standards, such as ASTM E783, "Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors" and ASTM E1105, "Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference."

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Appendix A of Div. B, Appendix Note A-5.10.2.2. [Article notes - see over]

#### A-5.10.2.2.(1) to (3) Design and Construction [Add the following]

**A-5.10.2.2.(1) Two Compliance Paths** It is intended that any fenestration product that conforms to this Part may choose to comply with either Clause (a) or Clause (b) of Sentence 5.10.2.2.(1). Even if a product is in scope of the standards referenced via Clause (b) (NAFS and the Canadian Supplement to NAFS), the compliance path in Clause (a) may be used. However, it is not intended that the compliance path in Clause (b) be used where fenestration products are not within the scope of the referenced standards.

**A-5.10.2.2.(2)** Other Glazed Products Glazed products such as curtain walls or sloped glazing that are not typically considered windows but are installed as part of a separation described in Sentence 5.10.2.1.(1) are not within the scope of the referenced standards and therefore must conform to Subsection 5.1.4. and Sections 5.3., 5.4. and 5.6.

A-5.10.2.2.(3) Loads and Procedures For windows within the scope of the "Canadian Supplement" referred to in Sentence 5.10.2.2.(1), structural and wind loads are included and may be calculated in accordance with that standard. As an alternative, structural and wind loads from Section 5.2. may be used to select fenestration products that are appropriate for the point of installation. Values derived from the referenced standard, which uses a simplified calculation method, are typically higher than those derived from calculations done in conformance with Section 5.2.

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### Appendix A of Div. B, Appendix Note A-6.2.2.1.(4)

[Add appendix note as follows]

A-6.2.2.1.(4) Ventilation Air Supplied to Suites The indirect supply of required outdoor ventilation air to normally occupied spaces through corridor pressurization or other indirect systems is not permitted.

#### Appendix A of Div. B, Appendix Note A-6.2.2.6.(1)

## A-6.2.2.6.(1) NFPA Publications Pertaining to the Heating, Ventilating and Air-Conditioning of Spaces Containing Hazardous Gases, Dusts or Liquids

NFPA 30, "Flammable and Combustible Liquids Code"

NFPA 30A, "Motor Fuel Dispensing Facilities and Repair Garages"

NFPA 32, "Drycleaning Plants"

NFPA 33, "Spray Application Using Flammable or Combustible Materials"

NFPA 34, "Dipping and Coating Processes Using Flammable or Combustible Liquids"

NFPA 35, "Manufacture of Organic Coatings"

NFPA 36, "Solvent Extraction Plants"

NFPA 40, "Storage and Handling of Cellulose Nitrate Film"

NFPA 51, "Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes"

NFPA 51A, "Acetylene Cylinder Charging Plants"

NFPA 55, "Compressed Gases and Cryogenic Fluids Code"

NFPA 61, "Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities"

NFPA 68, "Explosion Protection by Deflagration Venting"

NFPA 69, "Explosion Prevention Systems"

NFPA 85, "Boiler and Combustion Systems Hazards Code"

NFPA 86, "Ovens and Furnaces"

NFPA 88A, "Parking Structures"

NFPA 91, "Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids"

NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations"

NFPA 204, "Smoke and Heat Venting"

NFPA 303, "Marinas and Boatyards"

NFPA 307, "Construction and Fire Protection of Marine Terminals, Piers, and Wharves"

NFPA 409, "Aircraft Hangars"

NFPA 415, "Airport Terminal Buildings, Fueling, Ramp Drainage, Loading Walkways"

NFPA 484, "Combustible Metals"

NFPA 654, "Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate

Solids"

NFPA 655, "Prevention of Sulfur Fires and Explosions"

NFPA 664, "Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities"

NFPA "Fire Protection Guide to Hazardous Materials"

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#### Appendix A of Div. B, Appendix Note A-9.3.2.1.(1)

[Replace the 1<sup>st</sup> paragraph following Table A-9.3.2.1.(1)A as follows]

Canadian lumber is graded to the NLGA 2010, "Standard Grading Rules for Canadian Lumber," published by the National Lumber Grades Authority. The NLGA rules specify standard grade names and grade name abbreviations for use in grade marks to provide positive identification of lumber grades. In a similar fashion, standard species names or standard species abbreviations, symbols or marks are provided in the rules for use in grade marks.

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#### Appendix A of Div. B, Appendix Note A-9.3.2.8.(1)

A-9.3.2.8.(1) Non-Standard Lumber NLGA 2010, "Standard Grading Rules for Canadian Lumber," permits lumber to be dressed to sizes below the standard sizes ( $38 \times 89$ ,  $38 \times 140$ ,  $38 \times 184$ , etc.) provided the grade stamp shows the reduced size. This Sentence

permits the use of the span tables for such lumber, provided the size indicated on the stamp is not less than 95% of the corresponding standard size. Allowable spans in the tables must be reduced a full 5% even if the undersize is less than the 5% permitted.

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## Appendix A of Div. B, Appendix Note A-9.4.2.1.(1) [Renumber A-9.4.2.1.(1) as A-9.4.2.2.]

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### Appendix A of Div. B, Appendix Note A-9.6.1.1.(1)

A-9.6.1.1.(1) Application. The scope of this Section includes glass installed on the interior or on the exterior of a building.

Appendix A of Div. B, Appendix Note A-9.6.1.3.(1) [Delete A-9.6.1.3.(1) (including tables A through F)]

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### Appendix A of Div. B, Appendix Note A-9.7.

**A-9.7. Windows, Doors and Skylights.** This section applies only to windows, doors and skylights as defined in the scope of the standards referenced in Article 9.7.4.2. Other glazed products, such as site-built windows, curtain walls or sloped glazing, are required to conform to Part 5.

It is also permitted for fenestration products within the scope of the NAFS standard to conform to Part 5. This option is typically used for windows and doors that are impractical to subject to the testing requirements of NAFS due to their size or for custom configurations.

### Appendix A of Div. B, Appendix Note A-9.7.4.

**A-9.7.4. Design and Construction.** Garage doors, sloped glazing, curtain walls, storefronts, commercial entrance systems, site-built or site-glazed products, revolving doors, interior windows and doors, storm windows, storm doors, sunrooms and commercial steel doors are not in the scope of NAFS.

All windows, doors and skylights installed to separate conditioned space from unconditioned space or the exterior must also conform to Section 9.36.

### Appendix A of Div. B, Appendix Note A-9.7.4.2.(1)

### A-9.7.4.2.(1) Standards Referenced for Windows, Doors and Skylights

### General

Doors between an unconditioned garage and a dwelling unit are considered to be in scope of the standard referenced in this Sentence. Although the standard refers to windows in "exterior building envelopes", a note to the definition of "building envelope" clarifies that for the purpose of application of the standard, in some cases a building envelope may consist of 2 separate walls (such as a wall between garage and dwelling unit as well as the exterior wall of the garage itself).

A door leading to the exterior from an unconditioned garage is also within scope of the referenced standard, as it is also part of the exterior building envelope. However, because the scope of the **Building By-law** takes precedence, these doors are not required to conform to "NAFS". This Subsection of the **By-law** does not apply to a door separating two unconditioned spaces.

### Canadian Requirements in the Harmonized Standard

In addition to referencing the Canadian Supplement, CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights," the Harmonized Standard, AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights," contains some Canada-specific test criteria.

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### Standards Referenced for Excluded Products

Clause 1.1, General, of the Harmonized Standard defines the limits to the application of the standard with respect to various types of fenestration products. A list of exceptions to the application statement identifies a number of standards that apply to excluded products. Compliance with those standards is not required by the By-law; the references are provided for information purposes only.

### Label Indicating Performance and Compliance with Standard

The Canadian Supplement requires that a product's performance ratings be indicated on a label according to the designation

requirements in the Harmonized Standard and that the label include

- design pressure, where applicable,
- negative design pressure, where applicable,
- · water penetration test pressure, and
- the Canadian air infiltration and exfiltration levels.

It should be noted that, for a product to carry a label in Canada, it must meet all of the applicable requirements of both the Harmonized Standard and the Canadian Supplement, including the forced entry requirements.

### Water Penetration Resistance

For the various performance grades listed in the Harmonized Standard, the corresponding water penetration resistance test pressures are a percentage of the design pressure. For R class products, water penetration resistance test pressures are 15 per cent of design pressure. In Canada, driving rain wind pressures (DRWP) have been determined for the locations listed in Division B - Part 1 of the By-law. These are listed in the Canadian Supplement. The DRWP given in the Canadian Supplement must be used for all products covered in the scope of the Harmonized Standard when used in buildings within the scope of Part 9.

To achieve equivalent levels of water penetration resistance for all locations, the Canadian Supplement includes a provision for calculating specified DRWP at the building site considering building exposure. Specified DRWP values are, in some cases, greater than 15 per cent of design pressure and, in other cases, less than 15 per cent of design pressure. For a fenestration product to comply with the By-law, it must be able to resist the structural and water penetration loads at the building site. Reliance on a percentage of design pressure for water penetration resistance in the selection of an acceptable fenestration product will not always be adequate. Design pressure values are reported on a secondary designator, which is required by the Canadian Supplement to be affixed to the window.

As an alternative to the above noted provision in the Canadian Supplement for calculating specified DRWP, the Water Resistance values listed in Table C-4 of Appendix C may be used.

### **Uniform Load Structural Test**

The Harmonized Standard specifies that fenestration products be tested at 150 per cent of design pressure for wind (specified wind load) and that skylights and roof windows be tested at 200 per cent of design pressure for snow (specified snow load). With the change in the NBC 2005 to a 1-in-50 return period for wind load, a factor of 1.4 rather than 1.5 is now applied for wind. The NBC has traditionally applied a factor of 1.5 rather than 2.0 for snow. Incorporating these lower load factors into the By-law requirements for fenestration would better reflect acceptable minimum performance levels; however, this has not been done in order to avoid adding complexity to the By-law, to recognize the benefits of Canada-US harmonization, and to recognize that differentiation of products that meet the Canadian versus the US requirements would add complexity for manufacturers, designers, specifiers and regulatory officials.

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The required design pressure and Performance Grade (PG) rating of doors and windows has been listed for each of the geographic locations found in the Code in Table C-4. These may be used as an alternative to the specified wind load calculations in the Canadian Supplement.

### Condensation Resistance

The Harmonized Standard identifies three test procedures that can be used to determine the condensation resistance of windows and doors. Only the physical test procedure given in CSA A440.2, which is referenced in Table 9.7.3.3., can be used to establish Temperature Index (I) values. Computer simulation tools can also be used to estimate the relative condensation resistance of windows, but these methods employ different expressions of performance known as Condensation Resistance Factors (CR). I and CR values are not interchangeable.

Where removable multiple glazing panels (RMGP) are installed on the inside of a window, care should be taken to hermetically seal the RMGP against the leakage of moisture-laden air from the interior into the cavity on the exterior of the RMGP because the moisture transported by the air could lead to significant condensation on the interior surface of the outside glazing.

#### **Basement Windows**

Clause 8.4.2, Basement Windows, of the Harmonized Standard refers to products that are intended to meet By-law requirements for ventilation and emergency egress. The minimum test size of 800 mm x 360 mm (total area of 0.288 m2) specified in the standard will not provide the minimum openable area required by the By-law for bedrooms (i.e. 0.35 m2 with no dimension less than 380 mm) and the means to provide minimum open area identified in the standard is inconsistent with the requirements of the By-law (see Subsection 9.9.10. for bedroom windows). The minimum test size specified in the standard will also not provide the minimum ventilation area of 0.28 m2 required for non-heating-season natural ventilation (see Article 9.32.2.2.).

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# Appendix A of Div. B, Appendix Note A-9.7.4.2.(1) [see previous page]

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### Appendix A of Div. B, Appendix Note A-9.7.4.3.(2)

**A-9.7.4.3.(2) Performance Requirements.** If the option of calculating design pressure performance grade and water resistance values using the Canadian Supplement is chosen, the DRWP values in Table A.1 of that standard must be used for all buildings within the scope of Part 9 of the Building By-law. This requirement applies whether the windows, doors and skylights are designed to conform to Article 9.7.4.2. or to Part 5.

Appendix A of Div. B, Appendix Note A-9.7.5.2.(2). [Delete A-9.7.5.2.(2).]

Appendix A of Div. B, Appendix Note A-9.7.5.2.(10) & (11). [Add new appendix note - see next page]

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A-9.7.5.2.(10) & (11) Resistance to Forced Entry Statistical evidence by Vancouver Police has identified that a frequently exploited point of entry in break-ins exists at the residential entry doors due to inherent weaknesses in wood door frame materials, and the location of strikeplate screws located along the grain and near to the deadbolt throw, which contribute to inability for the frame to resist forced entry.

The installation of a metal frame reinforcement plate (see Figures A-9.7.5.2.(10)-A & -B below) directly attached to the backside of a door frame before installation with increased spacing for the points of attachment would significantly increase the resistance of the door to forced entry. This will result reduced incidence of crime and significantly reduce potential costs to owners.



Figure A-9.7.5.2.(10)-A Typical Location of Door Frame Reinforcement



Figure A-9.7.5.2.(10)-B Frame Reinforcement (Example)

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### Appendix A of Div. B, Appendix Note A-9.10.3.1.B

[Replace Note 12 to Table A-9.10.3.1.B with the following]

<sup>(12)</sup> Except where assemblies with wood I-joists are tested according to CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials," the fire-resistance rating values apply only to I-joists that have been fabricated with a phenolic-based structural wood adhesive complying with CSA O112.10, "Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure)." For I-joists with flanges made of laminated veneer lumber (LVL), the fire-resistance rating values apply only where the adhesive used in the LVL fabrication is a phenolic-based structural wood adhesive complying with CSA O112.9, "Evaluation of Adhesives for Structural Wood Products (Exterior Exposure)."

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### Appendix A of Div. B, Appendix Note A-9.13.4.

[Revise 2<sup>nd</sup> Paragraph of A-9.13.4. as follows]

Sentence 9.13.4.2.(1), which requires the installation of an air barrier system, addresses the protection from all soil gases, while the remainder of Article 9.13.4.2. along with Article 9.13.4.3., which require the provision of the means to depressurize the space between the air barrier system and the ground, specifically address the capability to mitigate high radon concentrations in the future, should this become necessary.

### Appendix A of Div. B, Appendix Note A-9.13.4.3.

### A-9.13.4.3.

# Providing Performance Criteria for the Depressurization of the Space Between the Air Barrier System and the Ground

Article 9.13.4.3. contains two sets of requirements: Sentence (2) describes the criteria for subfloor depressurization systems using performance-oriented language, while Sentence (3) describes one particular acceptable solution using more prescriptive language. In some cases, subfloor depressurization requires a solution other than the one described in Sentence (3), for example, where compactable fill is installed under slab-on-grade construction.

### Completion of a Subfloor Depressurization System

The completion of a subfloor depressurization system may be necessary to reduce the radon concentration to a level below the guideline specified by Health Canada. In this case, to complete the system, the radon vent pipe is mechanically assisted to enable effective depressurization of the space between the air barrier system and the ground. An electrically powered fan is typically installed somewhere along the radon vent pipe. Further information on protection from radon ingress can be found in the following Health Canada publications:

- "Radon: A Guide for Canadian Homeowners" (CMHC/HC), and
- "Guide for Radon Measurements in Residential Dwellings (Homes)."

### Appendix A of Div. B, Appendix Note A-9.13.4.3.(2)(b)(i) and (3)(b)(i)

A-9.13.4.3.(2)(b)(i) and (3)(b)(i) Effective Depressurization To allow effective depressurization of the space between the air barrier system and the ground, the extraction opening (the pipe) should not be blocked and should be arranged such that air can be extracted from the entire space between the air barrier system and the ground. This will ensure that the extraction system can maintain negative pressure underneath the entire floor (or in heated crawl spaces underneath the air barrier). The arrangement and location of the extraction system inlet(s) may have design implications where the footing layout separates part of the space underneath the floor.

Appendix A of Div. B, A-9.13.4.3.(3)(b) [see next page]

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Appendix A of Div. B, A-9.13.4.3.(3)(b) [Add new appendix note]

A-9.13.4.3.(3)(b) Vent Terminals To prevent soil gases from entering a building through air intakes, windows, and other openings in the building envelope, radon vent pipe terminations should be installed in a similar manner to plumbing vent terminals. (See A-2.5.6.5.(4) in Appendix A of Division B to Book II of the Code.)

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Appendix A of Div. B, Appendix Note A-9.16.2.1.(1) [Add new appendix note]

**A-9.16.2.1.(1) Drainage Layer Beneath Floors-on-Ground** A drainage layer required by Sentence 9.16.2.1.(1) shall also be gas-permeable and conform to Article 9.13.4.3. in *buildings* to which that Article applies.

### Appendix A of Div. B, Appendix Note A-9.19.2.1.(1)

A-9.19.2.1.(1) Access to Attic or Roof Space The term "open space" refers to the space between the insulation and the roof sheathing. Sentence 9.19.2.1.(1) requires the installation of an access hatch where the open space in the attic or roof is large enough to allow visual inspection. Although the dimensions of an uninsulated attic or roof space may meet the size that triggers the requirement for an access hatch to be installed, most of that space will actually be filled with insulation and may therefore not be easily inspected, particularly in smaller buildings or under low-sloped roofs.

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### Appendix A of Div. B, Appendix Note A-9.23.3.1.(2)

**A-9.23.3.1.(2)** Alternative Nail Sizes Where power nails or nails with smaller diameters than required by Table 9.23.3.4. are used to connect framing, the following equations can be used to determine the required spacing or required number of nails.

The maximum spacing can be reduced using the following equation:

Where  $S_{adj}$  = adjusted nail spacing  $\geq$  20 x nail diameter,  $S_{table}$  = nail spacing required by Table 9.23.3.4.,  $D_{red}$  = smaller nail diameter than required by Table 9.23.3.1., and  $D_{table}$  = nail diameter required by Table 9.23.3.1.

The number of nails can be increased using the following equation:

Nadj \_ Ntable • (Dtable / Dred)<sup>2</sup>

Where

 $N_{adj}$  = adjusted number of nails,  $N_{table}$  = number of nails required by Table 9.23.3.4.,  $D_{table}$  = nail diameter required by Table 9.23.3.1., and  $D_{red}$  = smaller nail diameter than required by Table 9.23.3.1.

Note that nails should be spaced sufficiently far apart—preferably no less than 55 mm apart—to avoid splitting of framing lumber.

Appendix A of Div. B, Appendix Note A-9.23.3.1.(3) [Add note as follows]

**A-9.23.3.1.(3)** Standard for Screws The requirement that wood screws conform to ASME B18.6.1, "Wood Screws (Inch Series)," is not intended to preclude the use of Robertson head screws. The requirement is intended to specify the mechanical properties of the fastener, not to restrict the means of driving the fastener.

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### Appendix A of Div. B, Appendix Note A-Table 9.23.4.3.

**A-Table 9.23.4.3. Spans for Steel Beams** The spans provided in Table 9.23.4.3. reflect a balance of engineering and acceptable proven performance. The spans have been calculated based on the following assumptions:

- simply supported beam spans
- laterally supported top flange
- yield strength 350 MPa
- deflection limit L/360
- live load: first floor = 1.9 kPa; second floor = 1.4 kPa
- dead load = 1.5 kPa (0.5 kPa floor + 1.0 kPa partition)

The calculation used to establish the specified maximum beam spans also applies a revised live load reduction factor to account for the lower probability of a full live load being applied over the supported area in Part 9 buildings.

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### Appendix A of Div. B, Appendix Note A-9.23.10.4.(1)

**A-9.23.10.4.(1)** Fingerjoined Lumber NLGA 2010, "Standard Grading Rules for Canadian Lumber," referenced in Article 9.3.2.1., refers to two special product standards, SPS-1, "Fingerjoined Structural Lumber," and SPS-3, "Fingerjoined 'Vertical Stud Use Only' Lumber," produced by NLGA. Material identified as conforming to these standards is considered to meet the requirements in this Sentence for joining with a structural adhesive. Lumber fingerjoined in accordance with SPS-3 should be used as a vertical end-loaded member in compression only, where sustained bending or tension-loading conditions are not present, and where the moisture content of the wood will not exceed 19%. Fingerjoined lumber may not be visually regraded or remanufactured into a higher stress grade even if the quality of the lumber containing fingerjoints would otherwise warrant such regrading.

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### Appendix A of Div. B, Appendix Note A-9.27.3.1.

**A-9.27.3.1.** Second Plane of Protection As specified in Sentence 9.27.3.1.(1), the second plane of protection consists of a drainage plane with an appropriate material serving as the inner boundary and flashing to dissipate rainwater or meltwater to the exterior.

### Drainage Plane

Except for masonry walls, the simplest configuration of a drainage plane is merely a vertical interface between materials that will allow gravity to draw the moisture down to the flashing to allow it to dissipate to the exterior. It does not necessarily need to be constructed as a clear drainage space (air space).

For masonry walls, an open rainscreen assembly is required; that is, an assembly with first and second planes of protection where the drainage plane is constructed as a drained and vented air space. Such construction also constitutes best practice for walls other than masonry walls.

Section 9.20. requires drainage spaces of 25 mm for masonry veneer walls and 50 mm for cavity walls. In other than masonry walls, the drainage space in an open rainscreen assembly should be at least 9.5 mm deep. Drainage holes must be designed in conjunction with the flashing.

### Sheathing Membrane

The sheathing membrane described in Article 9.27.3.2. is not a waterproof material. When installed to serve as the inner boundary of the second plane of protection, and when that plane of protection includes a drainage space at least 9.5 mm deep, the performance of the identified sheathing membrane has been demonstrated to be adequate. This is because the material is expected to have to handle only a very small quantity of water that penetrates the first plane of protection.

If the 9.5 mm drainage space is reduced or interrupted, the drainage capacity and the capillary break provided by the space will be reduced. In these cases, the material selected to serve as the inner boundary may need to be upgraded to provide greater water resistance in order to protect moisture-susceptible materials in the backing wall.

### Appropriate Level of Protection

It is recognized that many cladding assemblies with no space or with discontinuous space behind the cladding, and with the sheathing membrane material identified in Article 9.27.3.2., have provided acceptable performance with a range of precipitation loads imposed on them. Vinyl and metal strip siding, and shake and shingle cladding, for example, are installed with discontinuous drained spaces, and have demonstrated acceptable performance in most conditions. Lapped wood and composite strip sidings, depending on their profiles, may or may not provide discontinuous spaces, and generally provide little drainage. Cladding assemblies with limited drainage capability that use a sheathing membrane meeting the minimum requirements are not recommended where they may be exposed to high precipitation loads or where the level of protection provided by the cladding is unknown or questionable. Local practice with demonstrated performance should be considered. (See also Article 9.27.2.2. and Appendix Note A-9.27.2.2.)

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[Replace existing insert pages 878a & 878b with the following]

Appendix A of Div. B, Appendix Note A-10.2.2.2. [Replace A-10.2.2.2. with the following]

**A-10.2.2.2.(1) Lighting Controls in Residential Buildings** The objective of Sentence 10.2.2.2.(1) is to require a master switch that will permit non-essential lighting to be turned off when an occupant leaves the premises. As this was only intended to consider residential portions of a building, it is considered acceptable to consider each portion of the building structure located above the parkade slab constructed to Article 3.2.1.2. on an individual basis given that the cost-effectiveness of such energy saving features would not be as significant for smaller structures with proportionally larger exterior wall and roof surface areas relative to their volume.

A-10.2.2.7. Windows, Glass Doors and Skylights Compliance with the energy performance requirements of the By-law is demonstrated by means of labels affixed to the products at the manufacturing location.

The energy performance labels recognized for By-law compliance are the labels required by the BC Energy Efficiency Act (BCEEA). The BCEEA requires all manufactured windows, sliding glass doors and skylights to bear labels certifying the product U-values determined according to the NFRC 100-2010 or CSA A440.2-09 standards. Each product shall bear two labels: a removable "temporary" label indicating the product U-value, and a non-removable "permanent" marking or label identifying the certification entity and the manufacturer. All windows, sliding glass doors and skylights sold in BC are required to bear such labels.

Valid labels must bear the trademark of a third-party verifier. The following verification agencies are recognized for this purpose, and provide a permanent label:

- Canadian Standards Association (CSA) International, Toronto, ON, www.csa-international.org
- Intertek Testing Services NA Ltd. (Warnock Hersey), Coquitlam, B.C., 604-520-3321 www.interteketlsemko.com
- Quality Auditing Institute Ltd. (QAI), Port Moody, B.C., 604 527-8378, www.qai.org
- Agencies accredited by the National Fenestration Rating Council (NFRC), Greenbelt, MD, www.nfrc.org. These agencies include: WDMA, NAMI, Keystone and AAMA.

In the case of products complying with the By-law under the "flexibility provision", Professional engineers, and architects authorized to practice in British Columbia are designated for the purpose of verifying energy performance in the same manner as in BCEEA 4 (1.2) (a) and (b).

The certification programs that verify U-values according to these standards require these labels to be applied at the factory. They do not permit labels to be applied at the jobsite without prior authorization of the certifier.

Fenestration products may have more than one U-value label applied to them. For example, a window with an operable casement beside a fixed lite commonly has two labels: one on the fixed lite, another on the casement. The U-value of the operable component is typically higher. When there is more than one label on a fenestration product, the one with the highest U-value is used to represent the performance of the product.

Permanent markings serve to identify the energy performance verifier, the product manufacturer, and the product line after the temporary labels are removed. They confirm that the product's energy performance has been verified, and allows records about that product line's energy performance to be retrieved by the verifier. Permanent markings may be in the form of an inconspicuous label adhered to the window or sliding

door frame, sometimes on the edge of a sash so as to be less visible. They may also be etched into the glass at one of the corners of a pane.

The CEA shall verify that each fenestration product has a permanent marking from the same verifier as shown on the temporary label. A product that does not have such a permanent marking in addition to the temporary label is not verified, and does not comply with the By-law.

Products may comply with the By-law under a "flexibility provision" and demonstrate compliance with an energy performance certification accompanied by supporting documentation. This provision may be used to establish and report the average overall U-value of all the fenestration products in the home. This provision also provides a path by which a designer can provide "suitable documentation" of U-values for products that cannot be labeled because they are outside the scope of existing energy performance certification programs. Such products include site glazed windows, doors, curtainwalls and sloped glazing assemblies, as well as factory glazed curtainwalls and window wall assemblies. Under the flexibility provision, a qualified registered professional may determine the U-value of one or more individual fenestration products or assemblies by means of an *energy performance certification*.

The energy performance certification shall be affixed to a prominent fenestration product at the jobsite in a visible location. The CEA shall remove the energy performance certification and submit it to the City with the [insert name] inspection report.

The energy performance certification should include the following:

- 1. A cover letter on the professional's letterhead that includes:
  - a. The professional's identity and contact information.
  - b. The physical and legal addresses of the building.
  - c. The area weighted overall average U-value of all the fenestration in the building (where applicable).
  - d. A verification by the professional that the information provided in the energy performance certification and accompanying documentation supports the U-value of the fenestration assembly or assemblies identified in the report.
  - e. The name, address and contact information of the fenestration product supplier(s).
  - f. The name, address and contact information of the glass supplier, if different from the fenestration product supplier.
  - g. The name, address and contact information of any individuals or firms that carried out energy performance simulations, if different from the professional.
  - h. A complete list of the supporting documentation attached to the letter.
  - i. The professional's seal and signature.
- 2. An attached documentation package that includes:
  - a. A list of each fenestration product type, quantity, size, area, description, and NFRC 100-2010/CSA A440.2-09 U-value.
  - b. The sizes and configurations of the simulated products as shown by frame elevations and/or shop drawings, keyed to the list.
  - c. A table of the area-weighting calculations performed to determine the overall average Uvalue (where applicable).
  - d. A description of each framing system used, including manufacturer name, series, and model numbers, as well as frame material and any internal reinforcing used.

- e. A complete description of the glazing, including overall glass thickness, number of panes, pane thicknesses, gap widths, low-E coating manufacturer and type, low-E coating emissivity, and surfaces to which coatings are applied, type of gap fill with percentages of inert gas, complete description of spacer by make, series, and model, and its constituent materials, and insulating glass edge sealant materials.
- f. Isotherms for each unique framing member used in each system covered by the letter (heads, sills, jambs, mullions).

A-10.2.2.15.(4) Exterior Fireplaces Exterior fireplaces connected to building services are to be considered a part of that building for the purposes of meeting the energy targets of Part 10 of the Building By-law. The expectation is that buildings incorporating such features are to be designed under the modelling path.

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# Appendix A of Div. B, Appendix Note A-10.2.2.12.(2)

[Replace A-10.2.2.12.(2) with the following]

A-10.2.2.21. Alternative to the Prescribed Air Change Requirements Acceptance of Division B Sentence 10.2.2.21. may be obtained by demonstrating that the dwelling has been sealed according to good engineering practice. Prior to the insulation inspection stage, a Certified Energy Advisor (CEA) must perform a visual inspection of the dwelling and provide the Chief Building Official with a letter of assurance with the CEA's signature indicating that the dwelling has been sealed according to good engineering practice based on a visual inspection. The CEA's letter must be accompanied with a completed "Energy Star Thermal Bypass Checklist" or a thermal scan of the dwelling identifying locations of air leakage or a predrywall blower door test.

### Appendix A of Div. B, Appendix Note A-10.2.3.1.

**A-10.2.3.1 Electric Vehicle Charging for Buildings** The Canadian Electrical Code, Part I contains the requirements of electric vehicle charging systems, the requirements of Rule 86-300(2) and (3) recognize the use of load management technologies via the manual transfer or automated control in a branch circuit that supplies the electric vehicle supply equipment load and other loads. This Rule requires that, where the electric vehicle supply equipment load and other loads are installed, only one load can be operated at any one time and the branch circuit must be based on the calculated demand in accordance with Section 8. All references to the electrical installation including receptacle, supply equipment and rating of voltage and ampere in Article 10.2.3.1 are intended to align with the requirements of SAE AC Level 2 charging requirements, whether in applying load managed solutions or separate branch circuits for each charging point. In addition to the requirements of Article 10.2.3.1, the installation of electric vehicle charging systems and electric vehicle supply equipment must meet the requirements of the Canadian Electrical Code, Part I and the manufacturer's instructions.

### Appendix A of Div. B, Appendix Note A-11.2.1.2.

[Revised scope of work dsecriptions - Rehabilitation Projects as follows]

**Repair** – Repair pertains to a limited scope of interior or exterior renovation work to replace existing building components with functionally equivalent components. Repair work may not include work that increases the usable floor area of a building, creates an interconnected floor space, supports an addition or change of use, or the consolidation of more than one existing suite into a single tenant space. If the rehabilitation includes other categories of work or project types such as a change of major occupancy classification or an addition, then the most restrictive upgrade levels from all project types would be applied. For Repairs, an E1 level of energy upgrade shall be applied.

[continued on page following]

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### Appendix A of Div. B, Appendix Note A-11.2.1.2.

[Revised scope of work descriptions – Rehabilitation Projects as follows]

[see previous page for "Repair" scope of work]

**Small Suite** – The upgrade trigger Small Suite pertains to limited renovation work within a small suite as defined in Division A, Article 1.4.1.2. Small Suite work may include reconfiguration of the interior space of the suite, but may not include work on more than level (storey or mezzanine), interconnected floor spaces, exterior renovations, or the consolidation of more than one existing suite into a single new tenant space. If the renovation includes other categories of work or project types such as a change of major occupancy classification or an addition, then the most restrictive upgrade levels from all project types would be applied. For Small suite renovations, an E2 level of energy upgrade shall be applied.

Major Renovation – Major renovations means work which may include (singly or in combination): Interior re-configuration of multiple tenant spaces, interconnected floor spaces, exterior alterations, or alterations that create more than one new tenant space. However, where such renovation includes a change of major occupancy classification or a new mezzanine, this work would not be considered as a major renovation. New mezzanines are considered to be additions. If the renovation includes other categories of work or project types such as a change of major occupancy classification or an addition (mezzanine) then the most restrictive upgrade levels from all project types would be applied.

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### Appendix A of Div. B, Appendix 11.2.1.2.

Revise Figure A-11.2.1.2-A1 (Flow Chart #1) as follows

### FLOW CHART NO. 1



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### Appendix A of Div. B, Appendix 11.2.1.2.

Revised scope of work descriptions – Change of Occupancy Classification Projects as follows

**Change of Major Occupancy** Classification — Change of major occupancy classification means a change of use within a building, a suite, or its constituent floor areas where the proposed use is outside of the defined uses of the existing major occupancy classification permitted for the building, the suite, or its constituent floor areas.

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### Appendix A of Div. B, Appendix 11.2.1.2.

Revised scope of work descriptions – Change of Occupancy Classification Projects as follows

**Small Suite Change of Major Occupancy Classification** — Small suite change of major occupancy classification means a change of use within a small suite, or its constituent floor areas where the occupant load for the entire suite does not exceed 60 persons and the small suite is limited to a Group A, Division 2, Group D, Group E, Group F, Division 2 (wholesale showroom), or Group F, Division 3 major occupancy.

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**Appendix A of Div. B**, **Appendix 11.2.1.2**. Revised scope of work descriptions – Addition Projects as follows

**Horizontal Addition** — Horizontal additions include both "minor" and "major" horizontal additions. A minor horizontal addition is any expansion of a floor area beyond the extents of the existing floor area in which it is located by not more than 25 per cent of the existing building area, or by not more than 500 m<sup>2</sup> in aggregate floor area. A major horizontal addition is any expansion of a floor area beyond the extents of the existing floor area in which it is area that exceeds the limits permitted by a minor horizontal addition. Any construction creates new floor area that in-fills existing roof or deck areas, or is superimposed over existing building structure or floor area is not considered a horizontal addition.

Vertical Addition — Vertical additions include both "minor" and "major" vertical additions. A minor vertical addition is the addition of new floor area (storey or mezzanine) that in-fills existing roof or deck areas, or is superimposed over existing building structure or floor area, with an aggregate floor area increase of not more than 25 per cent of the building area, or by not more than 500 m<sup>2</sup> in aggregate floor area. A major vertical addition is an addition that increases the aggregate floor areas or mezzanine area increase that exceeds the limits permitted by a minor vertical addition.

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### Appendix A of Div. B, Appendix 11.2.1.2. Revise Figure A-11.2.1.2-A3 (Flow Chart #3) as follows

### FLOW CHART NO. 3



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### Appendix A of Div. B, Appendix 11.2.1.2.

Revised 3<sup>rd</sup> paragraph, of Step 3 - Procedure for Using the Upgrade Mechanism Model as follows

The alternative acceptable solution for energy efficiency requires that the determined E design upgrade level is used to enter Table A-11.2.1.2.C to obtain a solution. The solution column in Table A-11.2.1.2.C provides the L level to enter Table A-11.2.1.2.D. Within the L Level row of Table A-11.2.1.2.D the user is provided with various Section rows under the Section column. Each Section row provides one or more alternative acceptable solutions under the Alternative Acceptable Solution Options column. Each alternative acceptable solutions for each Section row. The "Select 1-L\*" solution in Table A-11.2.1.2.C means that only one (1) of the alternative solutions in the Alternative Acceptable Solution Options column in Table A-11.2.1.2.D are required to meet the objective. It is up to the user to determine which Section(s) in the Section column and corresponding alternative acceptable solution in the Alternative Acceptable Solution in the Alternative Acceptable Solution is determined to satisfy the objective. Within any 5 year period, when an alternative acceptable solution has been used previously within the project area, then that option is not permitted to be used as an alternative acceptable solution.

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Appendix A of Div. B, Appendix 11.2.1.2. Revise S3, N3, & N4 rows under Table 11.2.1.2.B as follows

S3	The building structure shall be upgraded to an acceptable level in order to provide a minimum level of property and life safety to unreinforced masonry or other buildings having less than 30 percent of the current required seismic resistance. Falling hazards that may impact adjacent properties and over <i>public</i> <i>ways</i> must be addressed.	Entire Building — Bolting floor and roof structure to bearing walls and strengthening of floor and roof diaphragms as required to safely distribute lateral forces to bearing walls (i.e., Bolts Plus) All falling hazards such as cornices, parapets and awnings located above a <i>public way</i> , shared exits and sidewalks must be restrained to resist forces due to a seismic event.
N3	Building exits and paths of travel to acceptable open space to be reviewed to ensure safety from overhead falling hazards.	Entire Building Exits - Restrain interior partition walls. Restrain all ceiling supporting frames, T-bars assemblies, ceiling gypsum wall boards, all overhead mechanical equipment and services, overhead electrical equipment and services. Restrain falling hazards from cladding, veneer, parapets, canopies and ornaments over exit and extended to 5 m on either side of exit.
<u>N4</u>	Entire Building and paths of travel to acceptable open space to be reviewed to ensure safety from overhead falling hazards.	Entire Building - Restrain interior partition walls. Restrain all ceiling supporting frames, T-bars assemblies, ceiling gypsum wall boards, all overhead mechanical equipment and services, overhead electrical equipment and services. Restrain falling hazards from cladding, veneer, parapets, canopies and ornaments attached to the exterior of the building.

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### Appendix A of Div. B, Appendix 11.2.1.2.

Revise note 1 of Table 11.2.1.2.C as follows

(1) The solution column in Table A-11.2.1.2.C provides the solution that will satisfy the objective. The solution column in Table A-11.2.1.2.C provides an L level to enter Table A-11.2.1.2.D. Within the L Level row the user is provided with various Section rows under the Section column. Each Section row provides one or more alternative acceptable solutions under the Alternative Acceptable Solutions Options column. Each alternative acceptable solution is identified as a separate numeric solution. There are one or more alternative acceptable solutions for each Section row. The "Select 1-L<sup>\*</sup>" solution in Table A-11.2.1.2.C means that only one (1) of the alternative solutions in the Alternative Acceptable Solutions Options column in Table A-11.2.1.2.D are required to meet the objective. It is up to the user to determine which Section(s) in the Section column and corresponding alternative acceptable solution in the Alternative Acceptable Solution Option column is (are) used to satisfy the objective. Within any 5 year period, when an alternative acceptable solutions has been used previously within the project area, then that option is not permitted to be used as an alternative acceptable solution. administered a) the BOMA BFSt certification is by BOMA, b) BOMA BESt Path 1 - BOMA BESt (Level 1, 2, 3, 4) provides proof of a valid Certification and

b) BOMA BESt Path 1 - BOMA BESt (Level 1, 2, 3, 4) provides proof of a valid Certification and ongoing commissioning per BOMA's BESt Practice Q.3 (Preventative Maintenance Program), and c) BOMA BESt Path 2 - BOMA BESt (Level 1-AL2, 2, 3, 4) provides proof of a first-time Certification (to at least Level 1 with an ASHRAE Level 2 audit) within the previous 18 months, or a valid Certification and an increase in BOMA BESt's Energy Performance Benchmark Scale by at least one level within the previous 18 months, or advancing Certification (from one level to another) within the previous 18 months.

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Appendix A of Div. B, Appendix 11.2.1.2. Revise L2 HVAC Sub-row of Table 11.2.1.2.D as follows

L2	HVAC <sup>(3)</sup>	1) Clean and Balance all Air Systems (per 6.7.2.3.2 of ASHRAE 90.1 - 2010)		
		2) Balance all Hydronic Systems (per 6.7.2.3.3 of ASHRAE 90.1 - 2010)		
		3) Remove Wood-Burning Fireplace unit		
		4) Replace gas fireplace pilot light with electronic ignition unit with energy rating over 50		
		5) Install makeup air supply per code to balance exhaust fan(s) over 300 cfm		

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Appendix A of Div. B, Appendix 11.2.1.2. Revise L2 Lighting Sub-row of Table 11.2.1.2.D as follows

L2	Lighting	1) Upgrade to incorporate Automatic Lighting Shutoff (per 9.4.1.1 of ASHRAE 90.1 - 2010)		
		2) Upgrade to incorporate Space Control systems (per 9.4.1.2 of ASHRAE 90.1 - 2010)		
		3) Upgrade to control Parking Garage Lighting (per 9.4.1.3 of ASHRAE 90.1 - 2010)		
		<b>4)</b> Upgrade all Automatic Daylighting Controls for Primary Sidelighted Areas (per 9.4.1.4 of ASHRAE 90.1 - 2010)		
		5) Upgrade all Automatic Daylighting Controls for Toplighting (per 9.4.1.5 of ASHRAE 90.1 - 2010)		
		<b>6)</b> Upgrade to incorporate Additional Controls for specialized lighting (per 9.4.1.6 of ASHRAE 90.1 - 2010)		
		7) Exterior Lighting Control (per 9.4.1.7 of ASHRAE 90.1 - 2010)		
		8) Upgrade all hard wired lighting within scope of work area to High Efficiency light systems		
		9) Upgrade all hard wired lighting within an occupied space to High Efficiency light systems		
		<b>10)</b> Reduce total Skylight Fenestration/Glazing Area to 5% of gross roof area (per 5.5.4.2.2. of ASHRAE 90.1 - 2010)		

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Appendix A of Div. B, Appendix 11.2.1.2. Revise L3 Lighting Sub-row of Table 11.2.1.2.D as follows

L3	Lighting	<ul> <li>1) Provide a comprehensive Lighting System Assessment Report to be signed and sealed by a design professional <ul> <li>Report to include: systems reviews, upgrade options, with estimates for energy savings and cost paybacks.</li> </ul> </li> </ul>
		2) Upgrade total Exterior Lighting Power (per 9.4.3 of ASHRAE 90.1 - 2010) of the building.
		<b>3)</b> Meet the interior lighting power allowance by the Building Area Method (per 9.5 of ASHRAE 90.1 - 2010) of the suite.
		<b>4)</b> Meet the interior lighting power allowance by the Space-by-Space Method (per 9.6 of ASHRAE 90.1 - 2010)

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### Appendix A of Div. B, Appendix Note A-11.2.1.4.(1)(d) [Following Appendix Note A-11.2.1.3., add the following]

A-11.2.1.4.(1)(d) Replacement Value The term "replacement value" is used in several places in Part 11, as a baseline for determining of the applicability of specific upgrade requirements. The term refers to an assessed cost to replace the structure in its current state, the net asset value. This is similar to what would be considered the 'book value' in financial terms, in that it considers the depreciated cost of the asset. This is not intended to be an assessment of the construction, planning, and ancillary costs that could be incurred if the structure in question was built as new construction.

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## Appendix C of Div. B, Table C-4 [Add new table as follows]

Required Performance of Windows and Doors in Part 9 Buildings Forming Part of Appendix C								
Location	Climatic Data		Specified Loads			NAFS		
	1/5 DRWP	1/50 HWP	DRWP	Win	d Load	Requi P	red Fen erforma	estration nce
	Pa	kPA	Pa	Pa	(psf)	DP	PG	Water
								Resist.
Vancouver – Burnaby (Simon Fraser Univ.)	160	0.47	160	952	19.88	960	20	180
Vancouver – North	160	0.45	160	911	19.03	960	20	180
Vancouver								
Vancouver – Richmond	160	0.45	160	911	19.03	960	20	180
West Vancouver	160	0.48	160	972	20.30	1200	25	180

# Table C-4

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## Appendix D of Div. B, 1.4.2.1.(2) Table D-1.1.2. [Replace Table D-1.1.2. as shown]

	Table D-1.1.2.           Documents Referenced in Appendix D Fire-Performance Ratings           Forming part of Sentence (1)					
Issuing Agency Document Number <sup>(1)</sup> Title of Document <sup>(2)</sup>			Reference			
ANSI	A208.1-2009	Particleboard	Table D-3.1.1.A.			
ASTM	C 330-09	Lightweight Aggregates for Structural Concrete	D-1.4.3.(2)			
ASTM	C 1396/C 1396M-11	Gypsum Board	D-1.5.1. Table D-3.1.1.A.			
CCBFC	NRCC 30629	Supplement to the National Building Code of Canada 1990	D-6.2. D-6.3. D-6.4.			
CGSB	4-GP-36M-1978	Carpet Underlay, Fiber Type	Table D-3.1.1.B.			
CGSB	CAN/CGSB-4.129-97	Carpets for Commercial Use	Table D-3.1.1.B.			
CGSB	CAN/CGSB-11.3-M87	Hardboard	Table D-3.1.1.A.			
CGSB	CAN/CGSB-92.2-M90	Trowel or Spray Applied Acoustical Material	D-2.3.4.(5)			
CSA	A23.1-09/A23.2-09	Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete	D-1.4.3.(1)			
CSA	CAN/CSA-A23.3-04	Design of Concrete Structures	D-2.1.5.(2) D-2.6.6.(1) Table D-2.6.6.B. D-2.8.2.(1) Table D-2.8.2.			
CSA	A82.5-M1978	Structural Clay Non-Load-Bearing Tile	Table D-2.6.1.A.			
CSA	A82.22-M1977	Gypsum Plasters	Table D-3.1.1.A.			
CSA	CAN/CSA-A82.27-M91	Gypsum Board	D-1.5.1. Table D-3.1.1.A.			
CSA	A82.30-M1980	Interior Furring, Lathing and Gypsum Plastering	D-1.7.2.(1) D-2.3.9.(1) Table D-2.5.1.			
CSA	A82.31-M1980	Gypsum Board Application	D-2.3.9.(1) D-2.3.9.(6)			
CSA	CAN/CSA-A165.1-04	Concrete Block Masonry Units	Table D-2.1.1.			
CSA	O86-09	Engineering Design in Wood	D-2.11.2.(1) D-2.11.2.(2)			
CSA	0121-08	Douglas Fir Plywood	Table D-3.1.1.A.			
CSA	O141-05	Softwood Lumber	D-2.3.6.(2) Table D-2.4.1.			
CSA	0151-09	Canadian Softwood Plywood	Table D-3.1.1.A.			
CSA	O153-M1980	Poplar Plywood	Table D-3.1.1.A.			
CSA	CAN/CSA-O325-07	Construction Sheathing	D-3.1.1.A.			
CSA	0437.0-93	OSB and Waferboard	Table D-3.1.1.A.			
CSA	S16-09	Design of Steel Structures	D-2.6.6.(1) D-2.6.6.(3)			

			Table D-2.6.6.B.
NFPA	80-2010	Fire Doors and Other Opening Protectives	D-5.2.1.(1)
			D-5.2.1.(2)
ULC	CAN/ULC-S101-07	Fire Endurance Tests of Building Construction and	D-1.1.1.(4)
		Materials	D-1.12.1.
			D-2.3.2.
ULC	CAN/ULC-S102-10	Test for Surface Burning Characteristics of Building Materials and Assemblies	D-1.1.1.(5)
ULC	CAN/ULC-S102.2-10	Test for Surface Burning Characteristics of Flooring,	D-1.1.1.(5)
		Floor Coverings, and Miscellaneous Materials and Assemblies	Table D-3.1.1.B.
ULC	CAN/ULC-S114-05	Test for Determination of Non-Combustibility in	D-1.1.1.(6)
		Building Materials	D-4.1.1.(1)
			D-4.2.1.
ULC	ULC-S505-1974	Fusible Links for Fire Protection Service	D-5.3.2.
ULC	CAN/ULC-S702-09	Mineral Fibre Thermal Insulation for Buildings	Table D-2.3.4.A.
			Table D-2.3.4.D.
			D-2.3.5.(2)
			D-2.3.5.(4)
			Table D-2.6.1.E.
ļ			D-6.4.
ULC	CAN/ULC-S703-09	Cellulose Fibre Insulation (CFI) for Buildings	D-2.3.4.(5)
ULC	CAN/ULC-S706-09	Wood Fibre Thermal Insulation for Buildings	Table D-3.1.1.A.

### Notes to Table D-1.1.2.:

<sup>(1)</sup> Some documents may have been reaffirmed or reapproved. Check with the applicable issuing agency for up-to-date information.

<sup>(2)</sup> Some titles have been abridged to omit superfluous wording.

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### Appendix D of Div. B, Appendix Note D-1.4.3. Description of Aggregates

2) Increasing the proportion of sand as fine aggregate in low density concretes requires increased thicknesses of material to produce equivalent fire-resistance ratings. Low density aggregates for Type L and Types L-S concretes used in loadbearing components shall conform to ASTM C 330/C 330M, "Lightweight Aggregates for Structural Concrete."

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### Appendix D of Div. B, Appendix Note D-4.3.1. Typical Examples

Noncombustible materials include brick, ceramic tile, concrete made from Portland cement with noncombustible aggregate, asbestos cement, plaster made from gypsum with noncombustible aggregate, metals commonly used in buildings, glass, granite, sandstone, slate, limestone and marble.

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## Div. B, Table 3.9.1.1. (Attribution Tables of Division B) [Insert in numerical sequence the following]

3.2.5.19.	Radio Antennae Systems	
(1)	[F12, F13 – OS1.2,OS1.5] [F12,F13 – OS3.7]	
	[F12, F13- OP1.2]	

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## Div. B, Table 3.9.1.1. (Attribution Tables of Division B) [Insert in numerical sequence the following]

3.3.2.16. Daycare Facilities with Children under 30 Months			
(1)	(a) [F02,F03,F05-OS1.2,OS1.3]		
	(b) [F10-OS1.5]		
(2)	[F11-OS1.5]		
(3)	[F11-OS1.5]		
(4)	[F11-OS1.5]		
	[F81-OS1.4]		
(5)	[F11-OS1.5]		
	[F81-OS1.4]		

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Div. B, Table 6.4.1.1. (Attribution Tables of Division B) [Strikeout the following]

6.2.1.7. Outdoor Design Conditions		
<del>(2)</del>	[F40,F44,F50-OH1.1]	
	[F44 OS3.4]	

**Div. B, Table 6.4.1.1. (Attribution Tables of Division B)** [Replace the Attributions to Article 6.2.2.1. in Table 6.4.1.1. as follows]

6.2.2.1. Required Ventilation			
(1)	[F50, F31, F63, F51, F54, F52-OS1.1]		
	[F50, F31, F63, F51, F54, F52-OP1.1]		
(2)	[F50-OH1.1]		
(4)	[F50-OH1.1]		

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**Div. B, Table 9.38.1.1. (Attribution Tables of Division B)** [Replace the Attributions to Article 9.7.5.2. in Table 9.38.1.1. as follows]

9.7.5.2. Resistance to Forced Entry			
(2)	[F34-OS4.1]		
(3)	[F20-OS4.1]		
(4)	[F34-OS4.1]		
(5)	[F34-OS4.1]		
(6)	[F20-OS4.1]		
(7)	[F20-OS4.1]		
(8)	[F34-OS4.1]		
(9)	[F20-OS4.1]		
(10)	[F34-OS4.1]		
(11)	[F34-OS4.1]		

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## **Div. B, Table 10.4.1.1. (Attribution Tables of Division B)** [Replace Table as 10.4.1.1. with the following]

Table 10.5.1.1.           Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 10           Forming part of Septence 10.5.1.1 (1)		
Acceptable Solutions	Functional Statements and Objectives <sup>(1)</sup>	
10.2.2.2. ANSI/ASHRAE	/IESNA 90.1	
(1)	[F85, F86-OE1]	
10 2 2 3 National Energy	v Code of Canada for Buildings	
(1)		
10.2.2.5 Enhanced Energy Efficiency		
(1)	[F85_F86-QE1]	
10.2.2.6. Building Envelope Opague Elements		
(1)	[F85-OE1]	
(2)	[F85-OE1]	
10.2.2.7. Windows, Glass Doors and Skylights		
(1)	[F85-OE1]	
10.2.2.8. Building		
Envelope Vestibules		
(1)	[F85-OE1]	
10.2.2.9. Sub-metering in Buildings		
(1)	[F86, OE1]	
(2)	[F86, OE1]	
10.2.2.10. Lighting Cont	rols in Residential Buildings	
(1)	[F86, OE1]	
10.2.2.11. Hot Water Tai	nk Piping	
(1)	[F85, F86-OE1]	
10.2.2.12. Domestic Gas	s-Heated Hot Water Heaters	
(1)	[F86-OE1]	
10.2.2.13. Domestic Gas	-Heated Boilers	
(1)	[F86-OE1]	
10.2.2.14. Domestic Gas	-Heated Furnaces	
(1)	[F86-OE1]	
10.2.2.15. Domestic Gas	Fired Fireplaces	
(1)		
	[F41, F44-OS3.4]	
	[F44-OH1.1]	
(2)		
(3)		
(4) 10.2.2.16 Demostic We	[F86-0E1]	
10.2.2.16. Domestic wo		
10.2.2.17 Domostic Hos	n Recovery Ventilators	
(1)	IF85-OF1	
(2)	[F85-OF1]	
(3)	[F85-OF1]	
10.2.2.20. Passive Hous	e Planning Package (PHPP), EnerGuide, or Other Energy Documentation	
(1)	[F85-OF1]	
( ' )		

(2)	[F85-OE1]	
10.2.2.21. Building and Dwelling Unit Airtightness Testing		
(1)	[F85-OE1]	
(2)	[F85-OE1]	
10.3.1.1. Fixture Fitting Maximum Flow Rates		
(1)	[F84-OE2]	
10.3.1.2. Fixture Efficiency		
(1)	[F83-OE2]	
(2)	[F83-OE2]	

Notes to Table 10.5.1.1.: (1) See Parts 2 and 3 of Division A.

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### Appendix A of Div. C, Appendix Note A-2.2.7.3.

[amend Scenarios 1 & 2 under the heading "3.2.4. Fire Suppression" as follows]

Scenario 1

• The engineer of record undertakes the complete detailed design prior to the building permit application.

• The engineer of record submits Schedule B with the BP application.

• The engineer of record provides field reviews during construction and submits a Schedule C-B prior to Occupancy Permit.

Scenario 2 (where acceptable to the Chief Building Official)

• The engineer of record provides a detailed performance specification for the sprinkler design, as well as sufficient drawings to demonstrate/assure layout feasibility and interface with other components.

• The engineer of record submits Schedule B with the BP application for overall coordination of the sprinkler design. Schedule B can be annotated "For Performance Specification Only."

• The performance specifications may include a requirement that a separate sprinkler design engineer be responsible for detailed sprinkler design, preparation of sprinkler shop drawings and hydraulic calculations, letters of assurance Schedule B (for field review during construction), and Schedule C-B (for Detailed Design) prior to Occupancy Permit."

• The engineer of record reviews the detailed sprinkler design and shop drawings to ascertain that they substantially comply with the performance specifications.

• The engineer of record provides a Schedule C-B prior to Occupancy Permit to confirm overall coordination of the sprinkler design and installation. Schedule C-B can be annotated "For Performance Specification Only." The engineer of record is entitled to rely upon the professional seal of the sprinkler design engineer for the detailed design and field review of the sprinkler system.

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