

National Building Code of Canada 2005

Revisions and Errata

Issued by the Canadian Commission on Building and Fire Codes

The tables that follow identify revisions, errata and information updates that apply to the National Building Code of Canada 2005. Code pages containing revisions issued on 08-06-20 have been updated for your convenience; they are provided following the tables.

The revisions have been approved by the Canadian Commission on Building and Fire Codes. The following symbol appears following the title of an Article, Appendix Note, Table or Figure containing text that is affected by a revision: ★

The errata are corrections that have been identified; they are provided to facilitate the use of the Code. The following symbol appears following the title of an Article, Appendix Note, Table or Figure containing text that is affected by an erratum: ◇

The information updates have been included for information purposes only; they are not flagged in the Code.

Contact your local authority having jurisdiction to find out if these revisions and errata apply in your province or territory.

The intent and application statements affected by these revisions and errata have been updated, as applicable, on the CD-ROM version of the Code.

Revisions

Table of Revisions — National Building Code 2005

Provision	Revision	Date of Issue
2 0 0 7		
Division B, Volume 1		
Table 1.3.1.2.	The following entry was added after ASTM E 413-87: ASTM, E 2190-02, Insulating Glass Unit Performance and Evaluation, Table 5.10.1.1., 9.7.3.1.(1)	07-12-01
Table 5.10.1.1.	The following standard was added after ASTM D 2178: ASTM, E 2190, Insulating Glass Unit Performance and Evaluation	07-12-01
9.7.3.1.(1)	The following Clause was added after Clause (g): h) ASTM E 2190, "Insulating Glass Unit Performance and Evaluation."	07-12-01
9.31.6.1.	Article 9.31.6.1. was revised as follows: 9.31.6.1. Hot Water Supply 1) Where hot water is required to be supplied in accordance with Article 9.31.4.2., equipment shall a) provide an adequate supply of hot water, and b) be installed in conformance with Part 7.	07-12-01

Table of Revisions — National Building Code 2005 (Continued)

Provision	Revision	Date of Issue
Table 9.36.1.1.	<p>Entries for 9.7.3.1.(1): 2nd attribution was changed to read “(e),(h)...”</p> <p>Title of Article 9.31.6.1. was revised to read “Hot Water Supply”</p> <p>Functional statement-objective attributions for Sentence 9.31.6.1.(1) were replaced with the following: (a) [F40–OH2.1,OH2.4] [F71–OH2.3]</p>	07–12–01
2 0 0 8		
Division B, Volume 1		
Table 1.3.1.2.	<p>For revisions made to this Table, see the updated Code pages provided.</p> <p>The following Code reference was added to the entry for ASTM C 1396/C 1396M: Table 9.29.5.3.</p> <p>The following entry was added after CSA O80.34: CSA O80.36-05, Preservative Treatment of Wood Products for Light-Duty Above-ground Residential Uses by Pressure Processes, 9.3.2.9.(5)</p>	08–06–20
3.1.8.12.(2) and (3)	Words “Appendix B of” were deleted before NFPA 80	08–06–20
9.3.1.1.(4)	The words “in <i>building height</i> ” were added to the first part of the Sentence, so it reads “... walls not exceeding 2 storeys in <i>building height</i> ...”	08–06–20
9.3.2.9.(5)	The following Clause was added after Clause (e): f) CSA O80.36, “Preservative Treatment of Wood Products for Light-Duty Above-ground Residential Uses by Pressure Processes.”	08–06–20
9.15.1.1.(1)(c)(i)	The bearing pressure value was changed to “75 kPa or greater”	08–06–20
9.17.1.1.(1)(b)(iv)	This Subclause was deleted	08–06–20
Table 9.29.5.3.	<p>Text in the first row under the header row was changed to “Gypsum board conforming to Sentence 9.29.5.2.(1) (except Sections 9 and 12 of ASTM C 1396/C 1396M)”</p> <p>Text in the fifth row under the header row was changed to “Gypsum ceiling board conforming to Clause 9.29.5.2.(1)(c) (only Section 12 of ASTM C 1396/C 1396M)”</p> <p>(Note that 2 updated pages are provided for this revision; choose the one that suits your copy of the Code.)</p>	08–06–20
Division B, Volume 2		
Table A-1.3.1.2.(1)	For revisions made to this Table, see the updated Code pages provided.	08–06–20
Table D-1.1.2.	For revisions made to this Table, see the updated Code pages provided.	08–06–20

Errata

Table of Errata — National Building Code 2005

Provision	Erratum	Date of Issue
2 0 0 7		
Division B, Volume 1		
3.1.9.4.(2)	Reference at the end of the Sentence was corrected to read “Clause 3.1.9.1.(1)(a)”	07–12–01
3.2.3.20.(4)(b)	The word “occupancies” was italicized	07–12–01
Table 3.9.1.1.	<p>Entry for 3.8.1.2.(1): 2nd attribution was deleted</p> <p>Entry for 3.8.3.12.(1): 4th attribution was changed as follows: “(b) [F74-OA2] Applies to portion of Code text: “ ... b) ... a door capable of being locked from the inside ...”</p>	07–12–01
4.1.8.11.(7)	The limit shown under the sum symbol (Σ) in the equation was corrected to read $i = x$	07–12–01

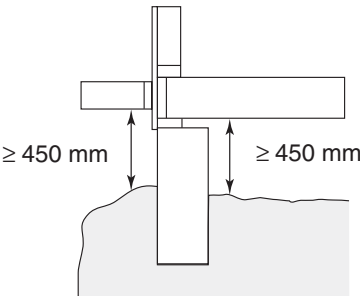
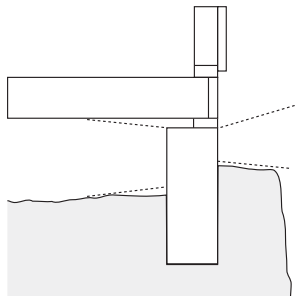
Table of Errata — National Building Code 2005 (Continued)

Provision	Erratum	Date of Issue
4.1.8.16.(3) and (5)	The word “caissons” was italicized	07–12–01
Table 4.5.1.1.	Entry for 4.2.5.2.(1): The attribution was changed to “[F21-OP4.1]”	07–12–01
Table 5.10.1.1.	The document number for CSA O141 was changed to CAN/CSA-O141	07–12–01
Table 6.2.9.3.	Text under Table title was changed to read “Forming Part of Articles 6.2.7.1. and 6.2.9.3., and Sentence 6.2.8.1.(2)”	07–12–01
Table 6.4.1.1.	<p>Entry for 6.2.3.2.(2): “OH1.3” was deleted from the attribution</p> <p>Entry for 6.2.3.2.(3): 1st attribution: “OH1.2,OH1.3” was deleted</p> <p>Entry for 6.2.3.2.(4): “OH1.3” was deleted from the attribution</p> <p>Entry for 6.2.3.3.(1): 1st attribution: “OH1.3” was deleted</p> <p>Entry for 6.2.3.4.(3): 1st attribution: “OH1.3” was deleted 2nd attribution “[F81-OH1.2]” was deleted</p> <p>Entries for 6.2.3.5.(1): “b)” was added before the 1st attribution “c)” was added before the 2nd attribution and “OH1.2,OH1.3” was deleted “a)” was added before the 3rd attribution</p> <p>Entry for 6.2.3.8.(6): “OH1.2,OH1.3” was deleted from the attribution</p> <p>Entry for 6.2.4.1.(2): The attribution was changed to “(a),(b),(d) [F44-OS3.4] (c) [F81-OS3.4]”</p>	07–12–01
8.1.1.1.(3)	Reference to “Section 5.8.” was changed to “Section 5.6.”	07–12–01
9.8.7.1.(1)(b)	The word “curved” was added before “ramps”	07–12–01
9.8.8.3.(5)	The word “handrail” was changed to “guard”	07–12–01
Table 9.10.8.1.	A horizontal line was added to the Table to separate the first row, which applies to “Residential (Group C),” from the two rows applying to “All other occupancies”	07–12–01
9.10.9.3.(1)	Reference to “Article 9.10.9.5.” was changed to read “Articles 9.10.9.5., 9.10.9.6. and 9.10.9.7.”	07–12–01
9.10.14.4.(1)(c)(ii)	Subclause was corrected to read “half the limiting distance squared...”	07–12–01
Table 9.12.2.2.	Table Note (3) was moved from the 2nd column heading to the last entry in that column, i.e. “1.2 m ⁽³⁾ ”, and from the 4th column heading to the last two entries in that column, i.e. “Below the depth of frost penetration ⁽³⁾ ” and “1.2 m but not less than the depth of frost penetration ⁽³⁾ ”	07–12–01
9.20.1.2.(1) and (2)	S _a (2.0) was changed to read S _a (0.2)	07–12–01
9.20.6.2.(2)	Sentence was changed to read “...shall be not less than 50 mm and not greater than 150 mm.”	07–12–01
9.20.7.3.(1)(a)	The words “measured from centre to centre” were deleted	07–12–01
9.25.1.2.(4)(b)	Last part of Clause was changed to read “...does not have the capacity to reduce the average monthly relative humidity to 35% or less over that period.”	07–12–01
9.25.4.2.(1)	The following text was added to the beginning of the Sentence: “Except as provided in Sentences (2) and (3), vapour barriers...”	07–12–01
9.26.3.1.(4)(b)	Last part of Clause was changed to read “... by more than pickets or posts.”	07–12–01
9.27.3.2.(1)	Standard designation was corrected to read “CAN/CGSB-51.32-M”	07–12–01

Table of Errata — National Building Code 2005 (Continued)

Provision	Erratum	Date of Issue
9.29.5.9.(5)	Reference to Table A-9.10.3.1.B. was deleted	07-12-01
9.33.6.4.(8)	Italics on “closures” was removed	07-12-01
Table 9.36.1.1.	<p>A change bar was added to the entire Table</p> <p>Entries for 9.3.1.3.(1): 3rd attribution: “OH1” was changed to “OH1.1”</p> <p>Entries for 9.3.3.2.(1): 4th attribution: “OH4.1” was changed to “OH4”</p> <p>Entries for 9.7.2.1.(1): 3rd attribution was split into three lines as follows: [F55,F61,F62,F63-OH1.1] [F81-OH1.1] Applies to windows that provide required non-heating-season ventilation. [F54,F55,F61,F62,F63-OH1.2] [F63,F61,F62-OH1.3]</p> <p>Entry for 9.13.2.5.(1): 2nd attribution, 1st line: “OH1” was changed to “OH1.1”</p> <p>Entry for 9.13.3.3.(1): 2nd attribution, 2nd line: “OH1” was changed to “OH1.1”</p> <p>Entry for 9.13.3.4.(1): 2nd attribution, 2nd line: “OH1” was changed to “OH1.1”</p> <p>Entry for 9.13.3.4.(2): 2nd attribution, 2nd line: “OH1” was changed to “OH1.1”</p> <p>Entry for 9.13.3.5.(1): 2nd attribution, 2nd line: “OH1” was changed to “OH1.1”</p> <p>Entry for 9.20.2.4.(1): The following attribution was added on a separate row: “[F80-OS1.2] Applies to masonry used in chimneys and fireplaces.”</p> <p>Entry for 9.20.3.1.(1): 3rd attribution: “OH4” was changed to “OS3.1”</p> <p>Entries for 9.23.10.6.(3): 6th attribution: the second line of that attribution was split into 2 lines before the second “(b)” and the dollar signs were deleted</p> <p>Entry for 9.24.2.4.(4): “F03” was deleted from the attribution</p> <p>Entries for 9.25.2.4.(4): 3rd attribution was split into 2 lines before the second “(c)” and the dollar signs were deleted 7th attribution was split into 2 lines before the second “(c)” and the dollar signs were deleted</p> <p>Entry for 9.27.5.1.(1): 4th attribution: “OH4.1” was changed to “OH4”</p> <p>Entries for 9.27.5.2.(1): 3rd attribution was split into 2 lines before the “@” and the “@” and dollar sign were deleted</p> <p>Entries for 9.29.5.9.(3): Reference to Table 9.10.3.1. in 2nd and 5th attributions was changed to “... Table A-9.10.3.1.A. in Appendix A.”</p> <p>Entries for 9.32.2.2.(4): 1st attribution was deleted as it was a duplicate of the second attribution</p> <p>Entries for 9.32.3.4.(2): “[F51,F81-OH1.2]” was added to 2nd attribution</p>	07-12-01

Table of Errata — National Building Code 2005 (Continued)

Provision	Erratum	Date of Issue
Division B, Volume 2		
Table A-1.3.1.2.(1)	Document number for “CAN/ULC-S526-02” was corrected to read “ULC-S526-02”	07-12-01
A-3.2.4.19.(1)	Standard designation “CAN/ULC-S526” was corrected to read “ULC-S526”	07-12-01
A-6.2.4.1.(2)(c)	“Carbon Monoxide Alarms” was added as the title of the Appendix Note	07-12-01
Figure A-9.3.2.9.(1)-B	<p>This Figure was replaced with the following one:</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>clear height of 450 mm between structural wood elements and finished ground directly below</p> </div> <div style="text-align: center;">  <p>supporting elements visible to permit inspection (for height of structural wood elements not directly above finished ground, see Article 9.23.2.3.)</p> </div> </div> <p align="right" style="font-size: small;">EG02050B</p>	07-12-01
Appendix C, Table C-2	Entry for Yukon, Whitehorse under column heading Seismic Data: value of $S_a(1.0)$ was changed to 0.10	07-12-01
Division C, Volume 1		
2.2.4.6.(1)(b)	The terms “allowable bearing pressures” and “allowable loads” were changed to “factored bearing pressures” and “factored loads” respectively	07-12-01
2 0 0 8		
Division B, Volume 1		
Table 3.9.1.1.	Entry for 3.2.2.40.(1): 2nd attribution was changed to the following: [F02,F04-OP1.2,OP1.3] Applies to portion of Code text: “... a) ... the <i>building</i> is sprinklered throughout ...”	08-06-20
4.1.8.11.	Reference in title of Article was corrected to read “Article 4.1.8.7.”	08-06-20
Table 4.5.1.1.	Entry for Article 4.1.8.11.: Title was corrected to read “Equivalent Static Force Procedure for Structures Satisfying the Conditions of Article 4.1.8.7.”	08-06-20
9.3.1.3.(1)	Clause reference was corrected to read “Clause 4.1.1.6”	08-06-20
9.8.9.1.(1)	Reference to Articles was corrected to read “Articles 9.8.9.4. and 9.8.9.5.”	08-06-20
9.15.3.4.(2)	Definition of variable $\sum s_{js}$ was corrected to read “sum of the supported joist spans on each <i>storey</i> ...”	08-06-20
Table 9.36.1.1.	Entries for 9.10.8.1.(1): 1st attribution: “OS1.3” was changed to “OP1.3”	08-06-20
Division B, Volume 2		
A-5.3.1.2.(1)	The last sentence of the second paragraph was corrected to read “If the interior air is 20°C and 55% RH, the dew point will be 11°C.”	08-06-20
A-5.9.1.1.(1)	The Table reference in the last part of the Appendix Note was corrected to read “Tables A-9.10.3.1.A. and A-9.10.3.1.B.”	08-06-20

Information Updates

Updated Information — National Building Code 2005

Provision	Information Update	Date of Issue
Preface, Volume 1		
Relationship of the NBC to Standards Development and Conformity Assessment	In the third paragraph under the heading Certification, “American Plywood Association (APA)” was changed to “APA Engineered Wood Association”	07-12-01
Division B, Volume 1		
1.3.2.1.(1)	Under the entry for TPIC, the contact person’s name was corrected to read “Attn: Kenneth Koo”	07-12-01
Division B, Volume 2		
Table A-9.3.2.1.(1)B.	This Table has been updated in the second printing and on the CD-ROM version of the Code	07-12-01
Appendix C, Table C-2	Under entries for New Brunswick, Chatham was changed to Miramichi	07-12-01

Table 1.3.1.2.
Documents Referenced in the National Building Code of Canada 2005 ★
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document	Code Reference
ANSI	A208.1-1999	Particleboard, Mat-Formed Wood	Table 5.10.1.1. 9.23.14.2.(3) 9.29.9.1.(1) 9.30.2.2.(1)
ANSI/ ASHRAE	62-2001	Ventilation for Acceptable Indoor Air Quality	6.2.2.1.(2)
ANSI/ ASME	B18.6.1-1981	Wood Screws (Inch Series)	Table 5.10.1.1. 9.23.3.1.(2)
ASME/ CSA	ASME A17.1-2007/CSA B44-07 ⁽³⁾	Safety Code for Elevators and Escalators	3.2.6.7.(2) 3.5.2.1.(1) 3.5.2.1.(2) 3.5.2.1.(3) 3.5.4.2.(1) Table 4.1.5.12.
ASTM	A 123/A 123M-02	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-05	Zinc Coating (Hot-Dip) on Iron and Steel Hardware	Table 5.10.1.1. Table 9.20.16.1.
ASTM	A 252-98	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-06a	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-06a	Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process	9.3.3.2.(1)
ASTM	A 1008/A 1008M-07	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-06b	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 4-04e1	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 126-99	Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	Table 5.10.1.1. 9.20.2.1.(1)
ASTM	C 212-00	Structural Clay Facing Tile	Table 5.10.1.1. 9.20.2.1.(1)
ASTM	C 260-06	Air-Entraining Admixtures for Concrete	9.3.1.8.(1)
ASTM	C 411-05	Hot-Surface Performance of High-Temperature Thermal Insulation	3.6.5.4.(4) 3.6.5.5.(1) 9.33.6.4.(4) 9.33.8.2.(2)
ASTM	C 412M-05a	Concrete Drain Tile (Metric)	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-05a	Chemical Admixtures for Concrete	9.3.1.8.(1)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
ASTM	C 700-07	Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C 1002-04	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-06	Glass Mat Gypsum Substrate for Use as Sheathing	Table 5.10.1.1. Table 9.23.16.2.A.
ASTM	C 1178/C 1178M-06	Coated Glass Mat Water-Resistant Gypsum Backing Panel	Table 5.10.1.1. 9.29.5.2.(1)
ASTM	C 1396/C 1396M-06a ⁽²⁾	Gypsum Board	3.1.5.12.(4) Table 5.10.1.1. Table 9.23.16.2.A. 9.29.5.2.(1) Table 9.29.5.3.
ASTM	D 323-06	Vapor Pressure of Petroleum Products (Reid Method)	1.4.1.2.(1) ⁽¹⁾
ASTM	D 2178-04	Asphalt Glass Felt Used in Roofing and Waterproofing	Table 5.10.1.1.
ASTM	D 2898-07	Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing	3.1.5.5.(4) 3.1.5.21.(1)
ASTM	E 90-04	Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements	5.9.1.1.(1) 9.11.1.1.(1)
ASTM	E 96/E 96M-05	Water Vapor Transmission of Materials	5.5.1.2.(3) 9.25.1.2.(1) 9.25.4.2.(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 2190-02	Insulating Glass Unit Performance and Evaluation	Table 5.10.1.1. 9.7.3.1.(1)
ASTM	F 476-84	Security of Swinging Door Assemblies	9.6.8.10.(1)
AWPA	M4-06	Care of Preservative-Treated Wood Products	4.2.3.2.(2) Table 5.10.1.1.
BNQ	BNQ 3624-115/2007	Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage – Characteristics and Test Methods	Table 5.10.1.1. 9.14.3.1.(1)
CCBFC	NRCC 47667	National Fire Code of Canada 2005	1.1.4.1.(1) 2.1.1.2.(4) ⁽¹⁾ 3.1.13.1.(1) 3.2.3.21.(1) 3.2.5.17.(1) 3.3.1.2.(1) 3.3.1.10.(1) 3.3.2.3.(1) 3.3.5.2.(1) 6.2.2.5.(1) 8.1.1.1.(3) 8.1.1.3.(1) 9.10.20.4.(1) 9.10.21.8.(1)
CCBFC	NRCC 47668	National Plumbing Code of Canada 2005	2.1.1.2.(4) ⁽¹⁾ 5.6.2.2.(2) 7.1.2.1.(1) 9.31.6.2.(1)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
CCBFC	NRCC 38732	National Farm Building Code of Canada 1995	1.1.1.1.(3) ⁽¹⁾
CGSB	CAN/CGSB-1.501-M89	Method for Permeance of Coated Wallboard	5.5.1.2.(2) 9.25.4.2.(6)
CGSB	CAN/CGSB-7.1-98	Lightweight Steel Wall Framing Components	9.24.1.2.(1)
CGSB	CAN/CGSB-7.2-97	Adjustable Steel Columns	9.17.3.4.(1)
CGSB	CAN/CGSB-10.3-92	Air Setting Refractory Mortar	9.21.3.4.(2) 9.21.3.9.(1) 9.22.2.2.(2)
CGSB	CAN/CGSB-11.3-M87	Hardboard	Table 5.10.1.1. 9.27.10.1.(2) 9.29.7.1.(1) 9.30.2.2.(1)
CGSB	CAN/CGSB-11.5-M87	Hardboard, Precoated, Factory Finished, for Exterior Cladding	Table 5.10.1.1. 9.27.10.1.(1)
CGSB	CAN/CGSB-12.1-M90	Tempered or Laminated Safety Glass	3.3.1.19.(2) 3.4.6.14.(1) 3.4.6.14.(3) Table 5.10.1.1. 9.6.6.2.(2) 9.7.3.1.(1) 9.8.8.7.(1)
CGSB	CAN/CGSB-12.2-M91	Flat, Clear Sheet Glass	Table 5.10.1.1. 9.7.3.1.(1)
CGSB	CAN/CGSB-12.3-M91	Flat, Clear Float Glass	Table 5.10.1.1. 9.7.3.1.(1)
CGSB	CAN/CGSB-12.4-M91	Heat Absorbing Glass	Table 5.10.1.1. 9.7.3.1.(1)
CGSB	CAN/CGSB-12.8-97	Insulating Glass Units	Table 5.10.1.1. 9.7.3.1.(1)
CGSB	CAN/CGSB-12.10-M76	Glass, Light and Heat Reflecting	Table 5.10.1.1. 9.7.3.1.(1)
CGSB	CAN/CGSB-12.11-M90	Wired Safety Glass	3.3.1.19.(2) 3.4.6.14.(1) 3.4.6.14.(3) Table 5.10.1.1. 9.6.6.2.(2) 9.7.3.1.(1) 9.8.8.7.(1)
CGSB	CAN/CGSB-12.20-M89	Structural Design of Glass for Buildings	4.3.6.1.(1) 9.7.3.2.(1)
CGSB	19-GP-5M-1984	Sealing Compound, One Component, Acrylic Base, Solvent Curing	Table 5.10.1.1. 9.27.4.2.(2)
CGSB	CAN/CGSB-19.13-M87	Sealing Compound, One-Component, Elastomeric, Chemical Curing	Table 5.10.1.1. 9.27.4.2.(2)
CGSB	19-GP-14M-1984	Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing	Table 5.10.1.1. 9.27.4.2.(2)
CGSB	CAN/CGSB-19.22-M89	Mildew-Resistant Sealing Compound for Tubs and Tiles	9.29.10.5.(1)
CGSB	CAN/CGSB-19.24-M90	Multicomponent, Chemical-Curing Sealing Compound	Table 5.10.1.1. 9.27.4.2.(2)
CGSB	CAN/CGSB-34.4-M89	Siding, Asbestos-Cement, Shingles and Clapboards	Table 5.10.1.1. 9.27.8.1.(1)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
CGSB	CAN/CGSB-34.5-M89	Sheets, Asbestos-Cement, Corrugated	Table 5.10.1.1. 9.27.8.1.(1)
CGSB	CAN/CGSB-34.14-M89	Sheets, Asbestos-Cement, Decorative	Table 5.10.1.1. 9.27.8.1.(1)
CGSB	CAN/CGSB-34.16-M89	Sheets, Asbestos-Cement, Flat, Fully Compressed	Table 5.10.1.1. 9.27.8.1.(1)
CGSB	CAN/CGSB-34.17-M89	Sheets, Asbestos-Cement, Flat, Semicompressed	Table 5.10.1.1. 9.27.8.1.(1)
CGSB	CAN/CGSB-34.21-M89	Panels, Sandwich, Asbestos-Cement with Insulating Cores	Table 5.10.1.1. 9.27.8.1.(1)
CGSB	CAN/CGSB-34.22-94	Asbestos-Cement Drain Pipe	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)
CGSB	CAN/CGSB-37.2-M88	Emulsified Asphalt, Mineral-Colloid Type, Unfilled, for Dampproofing and Waterproofing and for Roof Coatings	Table 5.10.1.1. 9.13.2.2.(1) 9.13.3.2.(1)
CGSB	CAN/CGSB-37.3-M89	Application of Emulsified Asphalts for Dampproofing or Waterproofing	5.8.2.3.(1) Table 5.10.1.1. 9.13.2.3.(1) 9.13.3.3.(1)
CGSB	CAN/CGSB-37.4-M89	Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	CAN/CGSB-37.5-M89	Cutback Asphalt Plastic, Cement	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	37-GP-6Ma-1983	Asphalt, Cutback, Unfilled, for Dampproofing	5.8.2.2.(6) 5.8.2.2.(7) Table 5.10.1.1. 9.13.2.2.(1)
CGSB	CAN/CGSB-37.8-M88	Asphalt, Cutback, Filled, for Roof Coating	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	37-GP-9Ma-1983	Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	37-GP-12Ma-1984	Application of Unfilled Cutback Asphalt for Dampproofing	5.8.2.3.(2) Table 5.10.1.1. 9.13.2.3.(1)
CGSB	CAN/CGSB-37.16-M89	Filled, Cutback Asphalt for Dampproofing and Waterproofing	Table 5.10.1.1. 9.13.2.2.(1) 9.13.3.2.(1)
CGSB	37-GP-18Ma-1985	Tar, Cutback, Unfilled, for Dampproofing	5.8.2.2.(6) 5.8.2.2.(7) Table 5.10.1.1. 9.13.2.2.(1)
CGSB	37-GP-21M-1985	Tar, Cutback, Fibrated, for Roof Coating	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	CAN/CGSB-37.22-M89	Application of Unfilled, Cutback Tar Foundation Coating for Dampproofing	5.8.2.3.(2) Table 5.10.1.1. 9.13.2.3.(1)
CGSB	37-GP-36M-1976	Application of Filled Cutback Asphalts for Dampproofing and Waterproofing	5.8.2.3.(1) Table 5.10.1.1.

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
CGSB	37-GP-37M-1977	Application of Hot Asphalt for Dampproofing or Waterproofing	5.8.2.3.(1) Table 5.10.1.1.
CGSB	CAN/CGSB-37.50-M89	Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	CAN/CGSB-37.51-M90	Application for Hot-Applied Rubberized Asphalt for Roofing and Waterproofing	5.6.1.3.(1) 5.8.2.3.(1) Table 5.10.1.1. 9.26.15.1.(1)
CGSB	37-GP-52M-1984	Roofing and Waterproofing Membrane, Sheet Applied, Elastomeric	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	CAN/CGSB-37.54-95	Polyvinyl Chloride Roofing and Waterproofing Membrane	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	37-GP-55M-1979	Application of Sheet Applied Flexible Polyvinyl Chloride Roofing Membrane	5.6.1.3.(1) Table 5.10.1.1. 9.26.16.1.(1)
CGSB	37-GP-56M-1985	Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	37-GP-64M-1977	Mat Reinforcing, Fibrous Glass, for Membrane Waterproofing Systems and Built-Up Roofing	Table 5.10.1.1.
CGSB	41-GP-6M-1983	Sheets, Thermosetting Polyester Plastics, Glass Fiber Reinforced	Table 5.10.1.1. 9.26.2.1.(1)
CGSB	CAN/CGSB-41.24-95	Rigid Vinyl Siding, Soffits and Fascia	Table 5.10.1.1. 9.27.13.1.(1)
CGSB	CAN/CGSB-51.25-M87	Thermal Insulation, Phenolic, Faced	Table 5.10.1.1. Table 9.23.16.2.A. 9.25.2.2.(1)
CGSB	51-GP-27M-1979	Thermal Insulation, Polystyrene, Loose Fill	Table 5.10.1.1. 9.25.2.2.(1)
CGSB	CAN/CGSB-51.32-M77	Sheathing, Membrane, Breather Type	Table 5.10.1.1. 9.20.13.9.(1) 9.26.2.1.(1) 9.27.3.2.(1)
CGSB	CAN/CGSB-51.33-M89	Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction	Table 5.10.1.1. 9.25.4.2.(5)
CGSB	CAN/CGSB-51.34-M86 (Amended 1988)	Vapour Barrier, Polyethylene Sheet for Use in Building Construction	Table 5.10.1.1. 9.13.2.2.(1) 9.13.4.2.(1) 9.18.6.2.(1) 9.25.3.2.(2) 9.25.4.2.(4)
CGSB	CAN/CGSB-51.71-95	The Spillage Test: Method to Determine the Potential for Pressure-Induced Spillage from Vented, Fuel-Fired, Space Heating Appliances, Water Heaters and Fireplaces	9.32.3.8.(9)
CGSB	CAN/CGSB-63.14-M89	Plastic Skylights	5.10.1.1.(4) Table 5.10.1.1. 9.7.7.1.(1) 9.7.7.2.(1)
CGSB	CAN/CGSB-82.1-M89	Sliding Doors	Table 5.10.1.1. 9.6.5.2.(1)
CGSB	CAN/CGSB-82.5-M88	Insulated Steel Doors	Table 5.10.1.1. 9.6.5.3.(1)

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Issuing Agency	Document Number	Title of Document	Code Reference
CGSB	CAN/CGSB-82.6-M86	Doors, Mirrored Glass, Sliding or Folding, Wardrobe	9.6.6.3.(1)
CGSB	CAN/CGSB-93.1-M85	Sheet, Aluminum Alloy, Prefinished, Residential	Table 5.10.1.1. 9.27.12.1.(4)
CGSB	CAN/CGSB-93.2-M91	Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use	Table 5.10.1.1. 9.27.12.1.(3)
CGSB	CAN/CGSB-93.3-M91	Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use	Table 5.10.1.1. 9.27.12.1.(2)
CGSB	CAN/CGSB-93.4-92	Galvanized Steel and Aluminum-Zinc Alloy Coated Steel Siding, Soffits and Fascia, Prefinished, Residential	Table 5.10.1.1. 9.27.12.1.(1)
CSA	CAN/CSA-6.19-01	Residential Carbon Monoxide Alarming Devices	6.2.4.1.(2) 9.32.3.8.(6) 9.32.3.9.(2)
CSA	CAN/CSA-A23.1-04	Concrete Materials and Methods of Concrete Construction	4.2.3.6.(1) 4.2.3.9.(1) Table 5.10.1.1. 9.3.1.1.(4) 9.3.1.3.(1) 9.3.1.4.(1)
CSA	A23.3-04	Design of Concrete Structures	Table 4.1.8.9. 4.3.3.1.(1)
CSA	CAN/CSA-A82.1-M87	Burned Clay Brick (Solid Masonry Units Made from Clay or Shale)	Table 5.10.1.1. 9.20.2.1.(1)
CSA	A82.3-M1978	Calcium Silicate (Sand-Lime) Building Brick	Table 5.10.1.1. 9.20.2.1.(1)
CSA	A82.4-M1978	Structural Clay Load-Bearing Wall Tile	Table 5.10.1.1. 9.20.2.1.(1)
CSA	A82.5-M1978	Structural Clay Non-Load-Bearing Tile	Table 5.10.1.1. 9.20.2.1.(1)
CSA	CAN3-A82.8-M78	Hollow Clay Brick	Table 5.10.1.1. 9.20.2.1.(1)
CSA	CAN/CSA-A82.27-M91	Gypsum Board	3.1.5.12.(4) Table 5.10.1.1. Table 9.23.16.2.A. 9.29.5.2.(1)
CSA	A82.30-M1980	Interior Furring, Lathing and Gypsum Plastering	Table 5.10.1.1. 9.29.4.1.(1)
CSA	A82.31-M1980	Gypsum Board Application	Table 5.10.1.1. 9.10.12.4.(3) 9.29.5.1.(2)
CSA	CAN3-A93-M82	Natural Airflow Ventilators for Buildings	Table 5.10.1.1. 9.19.1.2.(5)
CSA	A123.1-05/A123.5-05	Asphalt Shingles Made From Organic Felt and Surfaced with Mineral Granules/Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules	Table 5.10.1.1. 9.26.2.1.(1)
CSA	CAN/CSA-A123.2-03	Asphalt-Coated Roofing Sheets	Table 5.10.1.1. 9.26.2.1.(1)
CSA	A123.3-05	Asphalt Saturated Organic Roofing Felt	Table 5.10.1.1. 9.26.2.1.(1)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
CSA	CAN/CSA-A123.4-04	Asphalt for Constructing Built-Up Roof Coverings and Waterproofing Systems	Table 5.10.1.1. 9.13.2.2.(1) 9.13.3.2.(1) 9.26.2.1.(1)
CSA	A123.17-05	Asphalt Glass Felt Used in Roofing and Waterproofing	Table 5.10.1.1. 9.26.2.1.(1)
CSA	CAN3-A123.51-M85	Asphalt Shingle Application on Roof Slopes 1:3 and Steeper	5.6.1.3.(1) Table 5.10.1.1. 9.26.1.2.(1)
CSA	CAN3-A123.52-M85	Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3	5.6.1.3.(1) Table 5.10.1.1. 9.26.1.2.(1)
CSA	A165.1-04	Concrete Block Masonry Units	Table 5.10.1.1. 9.15.2.2.(1) 9.17.5.1.(1) 9.20.2.1.(1) 9.20.2.6.(1)
CSA	A165.2-04	Concrete Brick Masonry Units	Table 5.10.1.1. 9.20.2.1.(1)
CSA	A165.3-04	Prefaced Concrete Masonry Units	Table 5.10.1.1. 9.20.2.1.(1)
CSA	CAN3-A165.4-M85	Autoclaved Cellular Units	Table 5.10.1.1. 9.20.2.1.(1)
CSA	A179-04	Mortar and Grout for Unit Masonry	Table 5.10.1.1. 9.15.2.2.(3) 9.20.3.1.(1)
CSA	CAN/CSA-A220.0-06	Performance of Concrete Roof Tiles	Table 5.10.1.1. 9.26.2.1.(1)
CSA	CAN/CSA-A220.1-06	Installation of Concrete Roof Tiles	Table 5.10.1.1. 9.26.17.1.(1)
CSA	CAN/CSA-A324-M88	Clay Flue Liners	9.21.3.3.(1)
CSA	CAN/CSA-A371-04	Masonry Construction for Buildings	5.6.1.3.(2) Table 5.10.1.1. 9.15.2.2.(3) 9.20.3.2.(7) 9.20.15.2.(1)
CSA	CAN/CSA-A405-M87	Design and Construction of Masonry Chimneys and Fireplaces	9.21.3.5.(1) 9.22.1.4.(1) 9.22.5.2.(2)
CSA	CAN/CSA-A438-00	Concrete Construction for Housing and Small Buildings	9.3.1.1.(1)
CSA	CAN/CSA-A440-00	Windows	5.10.1.1.(3) Table 5.10.1.1. 9.7.2.1.(1) 9.7.2.1.(2) 9.7.6.1.(1)
CSA	CAN/CSA-A440.1-00	User Selection Guide to CSA Standard CAN/CSA-A440-00, Windows	5.10.1.1.(3) Table 5.10.1.1. 9.7.2.1.(1)
CSA	CAN/CSA-A660-04	Certification of Manufacturers of Steel Building Systems	4.3.4.3.(1)
CSA	CAN/CSA-A3001-03	Cementitious Materials for Use in Concrete	Table 5.10.1.1. 9.3.1.2.(1) 9.28.2.1.(1)

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Issuing Agency	Document Number	Title of Document	Code Reference
CSA	B51-03	Boiler, Pressure Vessel, and Pressure Piping Code	6.2.1.4.(1) 9.31.6.2.(2) 9.33.5.2.(1)
CSA	B52-05	Mechanical Refrigeration Code	6.2.1.4.(1) 9.33.5.2.(1)
CSA	CAN/CSA-B72-M87	Installation Code for Lightning Protection Systems	6.3.1.4.(1)
CSA	B111-1974	Wire Nails, Spikes and Staples	9.23.3.1.(1) 9.26.2.2.(1) 9.29.5.6.(1)
CSA	B139-04	Installation Code for Oil-Burning Equipment	6.2.1.4.(1) 9.31.6.2.(2) 9.33.5.2.(1)
CSA	CAN/CSA-B149.1-05	Natural Gas and Propane Installation Code	6.2.1.4.(1) 9.10.22.1.(1) 9.31.6.2.(2) 9.33.5.2.(1)
CSA	B182.1-06	Plastic Drain and Sewer Pipe and Pipe Fittings	Table 5.10.1.1. 9.14.3.1.(1)
CSA	CAN/CSA-B214-07	Installation Code for Hydronic Heating Systems	6.2.1.1.(1)
CSA	CAN/CSA-B355-00	Lifts for Persons with Physical Disabilities	3.8.3.5.(1)
CSA	CAN/CSA-B365-01	Installation Code for Solid-Fuel-Burning Appliances and Equipment	6.2.1.4.(1) 9.22.10.2.(1) 9.31.6.2.(2) 9.33.5.3.(1)
CSA	C22.1-06	Canadian Electrical Code, Part I	3.6.1.2.(1) 3.6.2.1.(6) 3.6.2.7.(1) 6.2.1.4.(1) 9.31.6.2.(2) 9.33.5.2.(1) 9.34.1.1.(1)
CSA	C22.2 No. 0.3-01	Test Methods for Electrical Wires and Cables	3.1.4.3.(1) 3.1.5.18.(1) 3.6.4.3.(1)
CSA	C22.2 No.113-M1984	Fans and Ventilators	9.32.3.10.(7)
CSA	C22.2 No.141-02	Unit Equipment for Emergency Lighting	3.2.7.4.(2) 9.9.11.3.(6)
CSA	C22.2 No. 211.0-03	General Requirements and Methods of Testing for Nonmetallic Conduit	3.1.5.20.(1)
CSA	CAN/CSA-C260-M90	Rating the Performance of Residential Mechanical Ventilating Equipment	9.32.3.10.(1) 9.32.3.10.(2) Table 9.32.3.10.B.
CSA	CAN/CSA-C282-05	Emergency Electrical Power Supply for Buildings	3.2.7.5.(1)
CSA	CAN/CSA-C439-00	Rating the Performance of Heat/Energy-Recovery Ventilators	9.32.3.10.(4) 9.32.3.10.(5)
CSA	CAN/CSA-C448 Series-02	Design and Installation of Earth Energy Systems	9.33.5.2.(1)
CSA	CAN/CSA-F280-M90	Determining the Required Capacity of Residential Space Heating and Cooling Appliances	9.33.5.1.(1)
CSA	CAN/CSA-F326-M91	Residential Mechanical Ventilation Systems	9.32.3.1.(1)
CSA	CAN/CSA-G30.18-M92	Billet-Steel Bars for Concrete Reinforcement	9.3.1.1.(4)

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Issuing Agency	Document Number	Title of Document	Code Reference
CSA	CAN/CSA-G40.21-04	Structural Quality Steel	4.2.3.8.(1) Table 5.10.1.1. 9.23.4.3.(2)
CSA	G401-01	Corrugated Steel Pipe Products	Table 5.10.1.1. 9.14.3.1.(1)
CSA	O80 Series-97	Wood Preservation	3.1.4.4.(1) 4.2.3.2.(1) 4.2.3.2.(2) Table 5.10.1.1.
CSA	O80.1-97	Preservative Treatment of All Timber Products by Pressure Processes	Table 5.10.1.1. 9.3.2.9.(5)
CSA	O80.2-97	Preservative Treatment of Lumber, Timber, Bridge Ties, and Mine Ties by Pressure Processes	4.2.3.2.(1) Table 5.10.1.1. 9.3.2.9.(5)
CSA	O80.3-97	Preservative Treatment of Piles by Pressure Processes	4.2.3.2.(1)
CSA	O80.9-97	Preservative Treatment of Plywood by Pressure Processes	Table 5.10.1.1. 9.3.2.9.(5)
CSA	O80.15-97	Preservative Treatment of Wood for Building Foundation Systems, Basements, and Crawl Spaces by Pressure Processes	4.2.3.2.(1) Table 5.10.1.1. 9.3.2.9.(5)
CSA	O80.34-97	Pressure Preservative Treatment of Lumber and Timbers with Borates for Use Out of Ground Contact and Continuously Protected from Liquid Water	Table 5.10.1.1. 9.3.2.9.(5) 9.3.2.9.(6)
CSA	O80.36-05	Preservative Treatment of Wood Products for Light-Duty Above-ground Residential Uses by Pressure Processes	9.3.2.9.(5)
CSA	CAN/CSA-O86-01 (Including Supplement CAN/CSA-O86S1-05)	Engineering Design in Wood	Table 4.1.8.9. 4.3.1.1.(1)
CSA	O115-M1982	Hardwood and Decorative Plywood	Table 5.10.1.1. 9.27.9.1.(1) 9.30.2.2.(1)
CSA	O118.1-97	Western Cedars Shakes and Shingles	Table 5.10.1.1. 9.26.2.1.(1) 9.27.7.1.(1)
CSA	O118.2-M1981	Eastern White Cedar Shingles	Table 5.10.1.1. 9.26.2.1.(1) 9.27.7.1.(1)
CSA	O121-M1978	Douglas Fir Plywood	Table 5.10.1.1. 9.23.14.2.(1) 9.23.15.2.(1) Table 9.23.16.2.A. 9.27.9.1.(1) 9.30.2.2.(1) Table A-13 Table A-14 Table A-15
CSA	CAN/CSA-O122-06	Structural Glued-Laminated Timber	Table A-11 Table A-16
CSA	CAN/CSA-O132.2 Series-90	Wood Flush Doors	Table 5.10.1.1. 9.6.5.1.(1)
CSA	CAN/CSA-O141-05	Softwood Lumber	Table 5.10.1.1. 9.3.2.6.(1)

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Issuing Agency	Document Number	Title of Document	Code Reference
CSA	O151-04	Canadian Softwood Plywood	Table 5.10.1.1. 9.23.14.2.(1) 9.23.15.2.(1) Table 9.23.16.2.A. 9.27.9.1.(1) 9.30.2.2.(1) Table A-13 Table A-14 Table A-15
CSA	O153-M1980	Poplar Plywood	Table 5.10.1.1. 9.23.14.2.(1) 9.23.15.2.(1) Table 9.23.16.2.A. 9.27.9.1.(1) 9.30.2.2.(1)
CSA	CAN/CSA-O177-06	Qualification Code for Manufacturers of Structural Glued-Laminated Timber	4.3.1.2.(1) Table A-11 Table A-16
CSA	CAN/CSA-O325.0-92	Construction Sheathing	Table 5.10.1.1. 9.23.14.2.(1) 9.23.14.4.(2) Table 9.23.14.5.B. 9.23.15.2.(1) 9.23.15.3.(2) Table 9.23.15.7.B. Table 9.23.16.2.B. 9.29.9.1.(2) 9.29.9.2.(5) Table A-13 Table A-14 Table A-15
CSA	O437.0-93	OSB and Waferboard	Table 5.10.1.1. 9.23.14.2.(1) 9.23.14.4.(2) 9.23.15.2.(1) 9.23.15.3.(2) Table 9.23.16.2.A. 9.27.11.1.(1) 9.29.9.1.(2) 9.30.2.2.(1) Table A-13 Table A-14 Table A-15
CSA	CAN/CSA-S16-01 CONSOLIDATION	Limit States Design of Steel Structures	Table 4.1.8.9. 4.3.4.1.(1)
CSA	CAN/CSA-S136-01 (Including Supplement CAN/CSA-S136S1-04)	North American Specification for the Design of Cold-Formed Steel Structural Members (using the Appendix B provisions applicable to Canada)	4.3.4.2.(1)
CSA	CAN/CSA-S157-05/ S157.1-05	Strength Design in Aluminum/Commentary on CSA S157-05, Strength Design in Aluminum	4.3.5.1.(1)
CSA	S269.1-1975	Falsework for Construction Purposes	4.1.1.3.(4)
CSA	CAN/CSA-S269.2-M87	Access Scaffolding for Construction Purposes	4.1.1.3.(4)
CSA	CAN/CSA-S269.3-M92	Concrete Formwork	4.1.1.3.(4)
CSA	S304.1-04	Design of Masonry Structures	Table 4.1.8.9. 4.3.2.1.(1)

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Issuing Agency	Document Number	Title of Document	Code Reference
CSA	S307-M1980	Load Test Procedure for Wood Roof Trusses for Houses and Small Buildings	9.23.13.11.(5)
CSA	S350-M1980	Code of Practice for Safety in Demolition of Structures	8.1.1.3.(1)
CSA	CAN3-S367-M81	Air-Supported Structures	4.4.1.1.(1)
CSA	CAN/CSA-S406-92	Construction of Preserved Wood Foundations	9.15.2.4.(1) 9.16.5.1.(1)
CSA	S413-07	Parking Structures	4.4.2.1.(1)
CSA	Z32-04	Electrical Safety and Essential Electrical Systems in Health Care Facilities	3.2.7.3.(4) 3.2.7.6.(1)
CSA	CAN/CSA-Z240.2.1-92	Structural Requirements for Mobile Homes	9.12.2.2.(6) 9.15.1.3.(1)
CSA	Z240.10.1-94	Site Preparation, Foundation, and Anchorage of Mobile Homes	9.15.1.3.(1) 9.23.6.3.(1)
CSA	CAN/CSA-Z317.2-01	Special Requirements for Heating, Ventilation, and Air Conditioning (HVAC) Systems in Health Care Facilities	6.2.1.1.(1)
CSA	Z7396.1-06 ⁽⁴⁾	Medical Gas Pipeline Systems – Part 1: Pipelines for Medical Gases and Vacuum	3.7.3.1.(1)
CWC	2004	Engineering Guide for Wood Frame Construction	9.4.1.1.(1)
EPA	EPA 402-R-93-003	Protocols for Radon and Radon Decay Product Measurements in Homes	9.13.4.6.(6)
HC	H46-2/90-156E	Exposure Guidelines for Residential Indoor Air Quality	9.13.4.6.(9)
HVI	HVI 915	Procedure for Loudness Rating of Residential Fan Products	9.32.3.10.(2)
HVI	HVI 916	Airflow Test Standard	9.32.3.10.(1)
ISO	8201:1987(E)	Acoustics – Audible emergency evacuation signal	3.2.4.18.(2)
NFPA	13-2007	Installation of Sprinkler Systems	3.2.4.8.(2) 3.2.4.15.(1) 3.2.5.13.(1) 3.3.2.13.(3)
NFPA	13D-2007	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	3.2.5.13.(3)
NFPA	13R-2007	Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height	3.2.5.13.(2)
NFPA	14-2007	Installation of Standpipe and Hose Systems	3.2.5.9.(1) 3.2.5.10.(1)
NFPA	20-2007	Installation of Stationary Pumps for Fire Protection	3.2.5.19.(1)
NFPA	80-2007	Fire Doors and Other Opening Protectives	3.1.8.5.(2) 3.1.8.10.(2) 3.1.8.12.(2) 3.1.8.12.(3) 3.1.8.14.(1) 9.10.13.1.(1)
NFPA	82-2004	Incinerators and Waste and Linen Handling Systems and Equipment	6.2.6.1.(1) 9.10.10.5.(2)
NFPA	96-2004	Ventilation Control and Fire Protection of Commercial Cooking Operations	6.2.2.6.(1)
NFPA	211-2006	Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances	6.3.1.2.(2) 6.3.1.3.(1)
NFPA	214-2005	Water-Cooling Towers	6.2.3.14.(3)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
NLGA	2007	Standard Grading Rules for Canadian Lumber	9.3.2.1.(1)
SMACNA	ANSI/SMACNA 006-2006	HVAC Duct Construction Standards – Metal and Flexible, 3rd Edition	9.33.6.5.(2)
TC		Canadian Aviation Regulations – Part III	4.1.5.14.(1)
TPIC	2007	Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses	9.23.13.11.(6)
UL	ANSI/UL 300-2005	Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment	6.2.2.6.(2)
ULC	CAN/ULC-S101-04	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) 3.2.6.5.(6)
ULC	CAN/ULC-S102-03	Test for Surface Burning Characteristics of Building Materials and Assemblies	3.1.5.21.(1) 3.1.12.1.(1)
ULC	CAN/ULC-S102.2-03	Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies	3.1.12.1.(2) 3.1.13.4.(1)
ULC	ULC-S102.3-M82	Fire Test of Light Diffusers and Lenses	3.1.13.4.(1)
ULC	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-S107-03	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)
ULC	CAN/ULC-S110-M86	Test for Air Ducts	3.6.5.1.(2) 3.6.5.1.(5) 9.33.6.2.(2) 9.33.6.2.(4)
ULC	ULC-S111-95	Fire Tests for Air Filter Units	6.2.3.13.(1) 9.33.6.15.(1)
ULC	CAN/ULC-S112-M90	Fire Test of Fire-Damper Assemblies	3.1.8.4.(1)
ULC	CAN/ULC-S112.1-M90	Leakage Rated Dampers for Use in Smoke Control Systems	6.2.3.9.(3)
ULC	CAN/ULC-S113-07	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) ⁽¹⁾
ULC	CAN/ULC-S115-05	Fire Tests of Firestop Systems	3.1.5.16.(3) 3.1.9.1.(1) 3.1.9.1.(2) 3.1.9.4.(4) 9.10.9.7.(3)

Table 1.3.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
ULC	CAN/ULC-S124-06	Test for the Evaluation of Protective Coverings for Foamed Plastic	3.1.5.12.(2)
ULC	CAN/ULC-S126-06	Test for Fire Spread Under Roof-Deck Assemblies	3.1.14.1.(1) 3.1.14.2.(1)
ULC	CAN/ULC-S134-92	Fire Test of Exterior Wall Assemblies	3.1.5.5.(1)
ULC	ULC-S135-04	Test Method for the Determination of Combustibility Parameters of Building Materials Using an Oxygen Consumption Calorimeter (Cone Calorimeter)	3.1.5.1.(2)
ULC	CAN/ULC-S138-06 ⁽⁵⁾	Test for Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration	3.1.5.12.(7)
ULC	ULC-S505-1974	Fusible Links for Fire Protection Service	3.1.8.9.(1)
ULC	CAN/ULC-S524-06	Installation of Fire Alarm Systems	3.2.4.5.(1)
ULC	CAN/ULC-S531-02	Smoke-Alarms	3.2.4.20.(1) 9.10.19.1.(1)
ULC	CAN/ULC-S537-04	Verification of Fire Alarm Systems	3.2.4.5.(2)
ULC	CAN/ULC-S553-02	Installation of Smoke-Alarms	3.2.4.20.(7)
ULC	CAN/ULC-S561-03	Installation and Services for Fire Signal Receiving Centres and Systems	3.2.4.7.(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-S701-05	Thermal Insulation, Polystyrene, Boards and Pipe Covering	Table 5.10.1.1. 9.15.4.1.(1) Table 9.23.16.2.A. 9.25.2.2.(1)
ULC	CAN/ULC-S702-97	Mineral Fibre Thermal Insulation for Buildings	Table 5.10.1.1. Table 9.23.16.2.A. 9.25.2.2.(1)
ULC	CAN/ULC-S703-01	Cellulose Fibre Insulation (CFI) for Buildings	Table 5.10.1.1. 9.25.2.2.(1)
ULC	CAN/ULC-S704-03	Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced	Table 5.10.1.1. Table 9.23.16.2.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-S705.2-98	Thermal Insulation – Spray-Applied Rigid Polyurethane Foam, Medium Density, Installer’s Responsibilities – Specification	5.3.1.3.(3) Table 5.10.1.1. 9.25.2.5.(1)
ULC	CAN/ULC-S706-02	Wood Fibre Thermal Insulation for Buildings	Table 5.10.1.1. 9.23.15.7.(3) Table 9.23.16.2.A. 9.25.2.2.(1) 9.29.8.1.(1)
ULC	ULC/ORD-C199P-2002	Combustible Piping for Sprinkler Systems	3.2.5.14.(2) 3.2.5.14.(5)
ULC	ULC/ORD-C1254.6-1995	Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units	6.2.2.6.(2)

Notes to Table 1.3.1.2.:

- (1) Code reference is in Division A.
 (2) ASTM C 1396/C 1396M-06a replaces ASTM C 36/C 36M-03, ASTM C 37/C 37M-01, ASTM C 79/C 79M-04, ASTM C 442/C 442M-04, ASTM C 588/C 588M-03, ASTM C 630/C 630M-03, ASTM C 931/C 931M-04, ASTM C 960/C 960M-04, and ASTM C 1395/C 1395M-04.
 (3) ASME A17.1-2007/CSA B44-07 replaces CSA B44-00.
 (4) CSA Z7396.1-06 replaces CAN/CSA-Z305.1-92.
 (5) CAN/ULC-S138-06 replaces ULC/ORD-C376-1995.

1.3.2. Organizations**1.3.2.1. Abbreviations of Proper Names**

1) The abbreviations of proper names in this Code shall have the meanings assigned to them in this Article (the appropriate addresses of the organizations are shown in brackets).

ACGIH	.....	American Conference of Governmental Industrial Hygienists (1330 Kemper Meadow Drive, Cincinnati, Ohio 45240-1634 U.S.A.; www.acgih.org)
ANSI	.....	American National Standards Institute (25 West 43rd Street, 4th Floor, New York, New York 10036 U.S.A.; www.ansi.org)
ASCE	.....	American Society of Civil Engineers (1801 Alexander Bell Drive, Reston, Virginia 20191-4400 U.S.A.; www.asce.org)
ASHRAE	.....	American Society of Heating, Refrigerating and Air-Conditioning Engineers (1791 Tullie Circle, N.E., Atlanta, Georgia 30329-2305 U.S.A.; www.ashrae.org)
ASME	.....	American Society of Mechanical Engineers (22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007-2900 U.S.A.; www.asme.org)
ASTM	.....	American Society for Testing and Materials International (100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959 U.S.A.; www.astm.org)
AWPA	.....	American Wood-Preservers' Association (P.O. Box 388, Selma, Alabama 36702-0388 U.S.A.; www.awpa.com)
BIA	.....	Brick Industry Association (11490 Commerce Park Drive, Reston, Virginia 20191-1525 U.S.A.; www.bia.org)
BNQ	.....	Bureau de normalisation du Québec (333, rue Franquet, Sainte-Foy (Québec) G1P 4C7; www.bnq.qc.ca)
CAN	.....	National Standard of Canada designation. (The number or name following the CAN designation represents the agency under whose auspices the standard is issued. CAN1 designates CGA, CAN2 designates CGSB, CAN3 designates CSA, and CAN4 designates ULC.)
CCBFC	.....	Canadian Commission on Building and Fire Codes (National Research Council of Canada, Ottawa, Ontario K1A 0R6; www.nationalcodes.ca)
CGSB	.....	Canadian General Standards Board (Place du Portage III, 6B1 11 Laurier Street, Gatineau, Quebec K1A 1G6; www.pwgsc.gc.ca/cgsb)
CMHC	.....	Canada Mortgage and Housing Corporation (700 Montreal Road, Ottawa, Ontario K1A 0P7; www.cmhc.ca)
CRCA	.....	Canadian Roofing Contractors' Association (2430 Don Reid Drive, Suite 100, Ottawa, Ontario K1H 1E1; www.roofingcanada.com)
CSA	.....	Canadian Standards Association (5060 Spectrum Way, Suite 100, Mississauga, Ontario L4W 5N6; www.csa.ca)
CWC	.....	Canadian Wood Council (99 Bank Street, Suite 400, Ottawa, Ontario K1P 6B9; www.cwc.ca)
EPA	.....	Environmental Protection Agency (Office of Radiation and Indoor Air, 1200 Pennsylvania Avenue, NW, 6609G, Washington, D.C. 20460 U.S.A.; www.epa.gov)

FCC	Forintek Canada Corporation (319, rue Franquet, Sainte-Foy (Québec) G1P 4R4; www.forintek.ca)
FM Global ...	FM Global (1151 Boston-Providence Turnpike, P.O. Box 9102, Norwood, Massachusetts 02062 U.S.A.; www.fmglobal.com)
HC	Health Canada (Communications Directorate, Ottawa, Ontario K1A 0K9; www.hc-sc.gc.ca)
HI	Hydronics Institute (35 Russo Place, Berkley Heights, New Jersey 07922 U.S.A.; www.gamanet.org)
HRAI	Heating, Refrigeration and Air Conditioning Institute of Canada (5045 Orbitor Drive, Building 11, Suite 300, Mississauga, Ontario L4W 4Y4; www.hrai.ca)
HVI	Home Ventilating Institute (1000 N. Rand Road, Suite 214, Wauconda, Illinois 60084 U.S.A.; www.hvi.org)
IRC	Institute for Research in Construction (National Research Council of Canada, Ottawa, Ontario K1A 0R6; irc.nrc-cnrc.gc.ca)
ISO	International Organization for Standardization (Standards Council of Canada, 270 Albert Street, Suite 200, Ottawa, Ontario K1P 6N7; www.iso.org)
NBC	National Building Code of Canada 2005 (see CCBFC)
NCMA	National Concrete Masonry Association (13750 Sunrise Valley Drive, Herndon, Virginia 20171-4662 U.S.A.; www.ncma.org)
NFC	National Fire Code of Canada 2005 (see CCBFC)
NFPA	National Fire Protection Association (1 Batterymarch Park, Quincy, Massachusetts 02169-7471 U.S.A.; www.nfpa.org)
NLGA	National Lumber Grades Authority (406 - First Capital Place, 960 Quayside Drive, New Westminster, British Columbia V3M 6G2; www.nlga.org)
NRC	National Research Council of Canada (Ottawa, Ontario K1A 0R6; www.nrc-cnrc.gc.ca)
NRCA	National Roofing Contractors Association (10255 W. Higgins Road, Suite 600, Rosemont, Illinois 60018-5607 U.S.A.; www.nrca.net)
NYCDH	New York City Department of Health and Mental Hygiene (Environmental and Occupational Disease Epidemiology, 253 Broadway, Suite 402, CN-34C, New York, New York 10007-2333 U.S.A.; www.nyc.gov/html/doh)
OMMAH	Ontario Ministry of Municipal Affairs and Housing (777 Bay Street, 2nd Floor, Toronto, Ontario M5G 2E5; www.obc.mah.gov.on.ca)
ONHWP	Ontario New Home Warranty Program (now Tarion Warranty Corporation, 5150 Yonge Street, Concourse Level, Toronto, Ontario M2N 6L8; www.tarion.com)
SFPE	Society of Fire Protection Engineers (7315 Wisconsin Avenue, Suite 620E, Bethesda, Maryland 20814 U.S.A.; www.sfpe.org)
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association (4201 Lafayette Center Drive, Chantilly, Virginia 20151-1209 U.S.A.; www.smacna.org)
TC	Transport Canada (Public Affairs, Tower C, Place de Ville, 330 Sparks Street, Area B, 19th Floor, Ottawa, Ontario K1A 0N5; www.tc.gc.ca)
TPIC	Truss Plate Institute of Canada (c/o 16 Nixon Road, Bolton, Ontario L7E 1K3, Attn: Kenneth Koo; www.tpica.ca)
UL	Underwriters Laboratories Inc. (333 Pfingsten Road, Northbrook, Illinois 60062-2096 U.S.A.; www.ul.com)
ULC	Underwriters' Laboratories of Canada (7 Underwriters Road, Toronto, Ontario M1R 3B4; www.ulc.ca)

1.3.2.1.**Division B**

WCLIB West Coast Lumber Inspection Bureau (P.O. Box 23145, Portland, Oregon 97281 U.S.A.; www.wclib.org)

WWPA Western Wood Products Association (522 SW Fifth Avenue, Suite 500, Portland, Oregon 97204-2122 U.S.A.; www.wwpa.org)

4) A *noncombustible* duct that penetrates a *fire separation* that separates a *vertical service space* from the remainder of the *building* need not be equipped with a *fire damper* at the *fire separation* provided

- a) the duct has a melting point above 760°C, and
- b) each individual duct exhausts directly to the outside at the top of the *vertical service space*.

5) A continuous *noncombustible* duct having a melting point above 760°C that penetrates a vertical *fire separation* as required by Sentence 3.3.1.1.(1) between *suites* of other than *residential* or *care or detention occupancy* need not be equipped with a *fire damper* at the *fire separation*.

6) A duct that serves commercial cooking equipment and penetrates a required *fire separation* need not be equipped with a *fire damper* at the *fire separation*. (See also Article 6.2.2.6.)

3.1.8.9. Installation of Fire Dampers

1) A *fire damper* shall be arranged so as to close automatically upon the operation of a fusible link conforming to ULC-S505, "Fusible Links for Fire Protection Service," or other heat-actuated or smoke-actuated device.

- 2)** A heat-actuated device referred to in Sentence (1) shall
- a) be located where it is readily affected by an abnormal rise in temperature in the duct, and
 - b) have a temperature rating approximately 30°C above the maximum temperature that would exist in the system, whether it is in operation or shut down.

3) A *fire damper* shall be installed in the plane of the *fire separation* so as to stay in place should the duct become dislodged during a fire.

4) A *fire damper* tested in the vertical or horizontal position shall be installed in the position in which it was tested.

5) A tightly fitted access door shall be installed for each *fire damper* to provide access for the inspection of the damper and the resetting of the release device. (See Appendix A.)

3.1.8.10. Twenty-Minute Closures

1) A door assembly having a *fire-protection rating* not less than 20 min is permitted to be used as a *closure* in

- a) a *fire separation* not required to have a *fire-resistance rating* more than 1 h, located between
 - i) a *public corridor* and a *suite*,
 - ii) a corridor and adjacent sleeping rooms, or
 - iii) a corridor and adjacent classrooms, offices and libraries in Group A, Division 2 *major occupancies*, or
- b) a *fire separation* not required to have a *fire-resistance rating* more than 45 min, located in a *building* not more than 3 *storeys* in *building height*.

2) The requirements for *noncombustible* sills and *combustible* floor coverings in NFPA 80, "Fire Doors and Other Opening Protectives," do not apply to a door described in Sentence (1).

3) A door described in Sentence (1) shall have clearances of not more than 6 mm at the bottom and not more than 3 mm at the sides and top.

3.1.8.11. Self-closing Devices

1) Except as permitted by Sentence (2), every door in a *fire separation*, other than doors to freight elevators and dumbwaiters, shall be equipped with a self-closing device designed to return the door to the closed position after each use.

- 2) A self-closing device need not be provided on a door that is located between
 - a) a classroom and a corridor providing *access to exit* from the classroom in a *building* that is not more than 3 *storeys* in *building height*,
 - b) a *public corridor* and an adjacent room of *business and personal services occupancy* in a *building* that is not more than 3 *storeys* in *building height* provided the door is not located in a dead-end portion of the corridor,
 - c) a patients' sleeping room and a corridor serving the patients' sleeping room, provided the room and corridor are within a *fire compartment* in a hospital or nursing home that complies with the requirements of Article 3.3.3.5., or
 - d) a patients' sleeping room and an adjacent room that serves the patients' sleeping room, provided these rooms are within a *fire compartment* in a hospital or nursing home that complies with the requirements of Article 3.3.3.5.

3.1.8.12. Hold-Open Devices ★

1) A hold-open device is permitted on a door in a required *fire separation*, other than an *exit* door in a *building* more than 3 *storeys* in *building height*, and on a door for a vestibule required by Article 3.3.5.7., provided the device is designed to release the door in conformance with Sentences (2), (3) and (4).

2) Except as required by Sentence (3), a hold-open device permitted by Sentence (1) shall be designed to release by a signal from

- a) an automatic sprinkler system,
- b) a heat-actuated device, or
- c) a *smoke detector* located as described in NFPA 80, "Fire Doors and Other Opening Protectives."

3) A hold-open device permitted by Sentence (1) shall be designed to release upon a signal from a *smoke detector* located as described in NFPA 80, "Fire Doors and Other Opening Protectives," if used on

- a) an *exit* door,
- b) a door opening into a *public corridor*,
- c) an egress door referred to in Sentence 3.4.2.4.(2),
- d) a door serving
 - i) an *assembly occupancy*,
 - ii) a *care or detention occupancy*, or
 - iii) a *residential occupancy*, or
- e) a door required to function as part of a smoke control system.

4) A hold-open device permitted by Sentence (1) shall be designed to release upon a signal from the *building* fire alarm system if a fire alarm system is provided, except that this requirement does not apply to

- a) a hold-open device on a door located between a corridor used by the public and an adjacent sleeping room in a hospital or nursing home, or
- b) a hold-open device that is designed to release by a heat-actuated device in conformance with Sentence (2).

3.1.8.13. Door Latches

1) Except as permitted by Article 3.3.3.5., a swing-type door in a *fire separation* shall be equipped with a positive latching mechanism designed to hold the door in the closed position after each use.

3.1.8.14. Wired Glass and Glass Block

1) Except as permitted by Articles 3.1.8.16. and 3.1.8.17. for the separation of *exits*, an opening in a *fire separation* having a *fire-resistance rating* not more than 1 h is permitted to be protected with fixed wired glass assemblies or glass blocks installed in conformance with NFPA 80, "Fire Doors and Other Opening Protectives."

2) Wired glass assemblies permitted by Sentence (1) and described in Appendix D are permitted to be used as *closures* in vertical *fire separations* without being tested in accordance with Sentence 3.1.8.4.(1).

Part 9

Housing and Small Buildings

Section 9.1. General

9.1.1. Application

9.1.1.1. Application

1) The application of this Part shall be as described in Subsection 1.3.3. of Division A. (See Appendix A regarding application to seasonally and intermittently occupied *buildings*.)

Section 9.2. Definitions

9.2.1. General

9.2.1.1. Defined Words

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

Section 9.3. Materials, Systems and Equipment

9.3.1. Concrete

9.3.1.1. General ★

1) Except as provided in Sentence (2), nominally unreinforced concrete shall be designed, mixed, placed, cured and tested in accordance with CAN/CSA-A438, "Concrete Construction for Housing and Small Buildings."

2) Nominally unreinforced site-batched concrete shall be designed, mixed, placed and cured in accordance with Articles 9.3.1.2. to 9.3.1.9.

3) Except as provided in Sentence (4), reinforced concrete shall be designed to conform to the requirements of Part 4.

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 CAN/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, "Billet-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.).

9.3.1.2. Cement

1) Cement shall meet the requirements of CAN/CSA-A3001, "Cementitious Materials for Use in Concrete."

9.3.1.3. Concrete in Contact with Sulphate Soil ◊

1) Concrete in contact with sulphate *soil*, which is deleterious to normal cement, shall conform to the requirements in Clause 4.1.1.6 of CAN/CSA-A23.1, "Concrete Materials and Methods of Concrete Construction."

9.3.1.4. Aggregates

- 1) Aggregates shall
- consist of sand, gravel, crushed *rock*, crushed air-cooled blast *furnace* slag, expanded shale or expanded clay conforming to CAN/CSA-A23.1, "Concrete Materials and Methods of Concrete Construction," and
 - be clean, well-graded and free of injurious amounts of organic and other deleterious material.

9.3.1.5. Water

1) Water shall be clean and free of injurious amounts of oil, organic matter, sediment or any other deleterious material.

9.3.1.6. Compressive Strength

(See also Article 9.12.4.1., Sentence 9.15.4.2.(1) and Article 9.18.6.1.)

- 1) Except as provided elsewhere in this Part, the compressive strength of unreinforced concrete after 28 days shall be not less than
- 15 MPa for walls, columns, fireplaces and *chimneys*, footings, *foundation* walls, grade beams and piers,
 - 20 MPa for floors other than those in garages and carports, and
 - for garage and carport floors, and the exterior steps,
 - 32 MPa, or
 - 30 MPa where indigenous aggregates do not achieve 32 MPa with a 0.45 water to cementing material ratio.

2) Concrete used for garage and carport floors and exterior steps shall have air entrainment of 5 to 8%.

9.3.1.7. Concrete Mixes

- 1) For site-batched concrete, the concrete mixes described in Table 9.3.1.7. shall be considered acceptable if the ratio of water to cementing materials does not exceed
- 0.70 for walls, columns, fireplaces and *chimneys*, footings, *foundation* walls, grade beams and piers,
 - 0.65 for floors other than those in garages and carports, and
 - 0.45 for garage and carport floors, and exterior steps.

9.3.2.7. Panel Thickness Tolerances

1) The thicknesses specified in this Part for plywood, hardboard, particleboard, OSB and waferboard shall be subject to the tolerances permitted in the standards referenced for these products unless specifically indicated herein.

9.3.2.8. Undersized Lumber

1) Joist, rafter, lintel and beam members up to 5% less than the actual Canadian standard sizes are permitted to be used provided the allowable spans for the grade and species of lumber under consideration are reduced 5% from those shown in the span tables for full size members. (See Appendix A.)

9.3.2.9. Termite and Decay Protection ★

- 1)** In localities where termites are known to occur,
- a) clearance between structural wood elements and the finished ground level directly below them shall be not less than 450 mm and, except as provided in Sentence (2), all sides of the supporting elements shall be visible to permit inspection, or
 - b) structural wood elements, supported by elements in contact with the ground or exposed over bare soil, shall be pressure-treated with a chemical that is toxic to termites.

(See Appendix A.)

2) In localities where termites are known to occur and *foundations* are insulated or otherwise finished in a manner that could conceal a termite infestation,

- a) a metal or plastic barrier shall be installed through the insulation and any other separation or finish materials above finished ground level to control the passage of termites behind or through the insulation, separation or finish materials, and
- b) all sides of the finished supporting assembly shall be visible to permit inspection.

3) Structural wood elements shall be pressure-treated with a preservative to resist decay,

- a) where the vertical clearance between structural wood elements and the finished ground level is less than 150 mm (see also Articles 9.23.2.2. and 9.23.2.3.), or
- b) where
 - i) the wood elements are not protected from exposure to precipitation,
 - ii) the configuration is conducive to moisture accumulation, and
 - iii) the moisture index is greater than 1.00.

(See Appendix A.)

4) Structural wood elements used in retaining walls and cribbing shall be pressure-treated with a preservative to resist decay, where

- a) the retaining wall or cribbing supports ground that is critical to the stability of *building foundations*, or
- b) the retaining wall or cribbing is greater than 1.2 m in height.

(See Appendix A.)

5) Where wood is required by this Article to be treated to resist termites or decay, such treatment shall be in accordance with the requirements of

- a) CSA O80.1, "Preservative Treatment of All Timber Products by Pressure Processes,"
- b) CSA O80.2, "Preservative Treatment of Lumber, Timber, Bridge Ties, and Mine Ties by Pressure Processes,"
- c) CSA O80.9, "Preservative Treatment of Plywood by Pressure Processes,"
- d) CSA O80.15, "Preservative Treatment of Wood for Building Foundation Systems, Basements, and Crawl Spaces by Pressure Processes,"

- e) CSA O80.34, "Pressure Preservative Treatment of Lumber and Timbers with Borates for Use Out of Ground Contact and Continuously Protected from Liquid Water," or
- f) CSA O80.36, "Preservative Treatment of Wood Products for Light-Duty Above-ground Residential Uses by Pressure Processes."

6) Where wood is protected in accordance with CSA O80.34, "Pressure Preservative Treatment of Lumber and Timbers with Borates for Use Out of Ground Contact and Continuously Protected from Liquid Water," the wood shall be

- a) protected from direct exposure to moisture during and after the completion of construction, and
- b) separated from permeable supporting materials by a moisture barrier that is resistant to all expected mechanisms of deterioration in the service environment if the vertical clearance to the ground is less than 150 mm.

7) Wood that is required by this Article to be treated to resist termites or decay shall be identified by a mark to indicate its conformance to the relevant required standard.

9.3.3. Metal

9.3.3.1. Sheet Metal Thickness

1) Minimum thicknesses for sheet metal material that are stated in this Part refer to the actual minimum base metal thicknesses measured at any point of the material and, in the case of galvanized steel described in Sentence 9.3.3.2.(1), include the thickness of the galvanizing coating unless otherwise indicated.

9.3.3.2. Galvanized Sheet Steel

1) Where sheet steel is required to be galvanized, it shall be metallic-coated with zinc or an alloy of 55% aluminum-zinc meeting the requirements of

- a) ASTM A 653/A 653M, "Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process," or
- b) ASTM A 792/A 792M, "Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process."

2) Where galvanized sheet steel is intended for use in locations exposed to the weather or as a flashing material, it shall have a zinc coating not less than the G90 [Z275] coating designation or an aluminum-zinc alloy coating not less than the AZM150 coating designation, as referred to in Sentence (1).

Section 9.4. Structural Requirements

9.4.1. Structural Design Requirements and Application Limitations

9.4.1.1. General

(See Appendix A.)

1) Subject to the application limitations defined elsewhere in this Part, structural members and their connections shall

- a) conform to requirements provided elsewhere in this Part,
- b) be designed according to good engineering practice such as that provided in the "Engineering Guide for Wood Frame Construction," published by the Canadian Wood Council, or
- c) be designed according to Part 4 using the loads and deflection and vibration limits specified in
 - i) Part 9, or
 - ii) Part 4.

2) Where floor framing is designed in accordance with Clause (1)(b) or (c), and where supporting wall framing and fastenings, or footings, are designed according to Clause (1)(a), the specified *live load* on the floor shall not exceed 2.4 kPa.

3) The top half of joints referred to in Sentence (2) shall be covered with sheathing paper, 0.10 mm polyethylene or No. 15 asphalt or tar-saturated felt.

4) The top and sides of drain pipe or tile shall be covered with not less than 150 mm of crushed stone or other coarse clean granular material containing not more than 10% of material that will pass a 4 mm sieve.

9.14.4. Granular Drainage Layer

9.14.4.1. Type of Granular Material

1) Granular material used to drain the bottom of a *foundation* shall consist of a continuous layer of crushed stone or other coarse clean granular material containing

- not more than 10% of material that will pass a 4 mm sieve, and
- no pyritic material in a concentration that will damage the *building* to a degree that would adversely affect its stability or the performance of assemblies (see A-9.4.4.4.(1) in Appendix A).

9.14.4.2. Installation

1) Granular material described in Article 9.14.4.1. shall be laid on undisturbed or compacted *soil* to a minimum depth of not less than 125 mm beneath the footing of the *building* and extend not less than 300 mm beyond the outside edge of the footings.

9.14.4.3. Grading

1) The bottom of an *excavation* drained by a granular layer shall be graded so that the entire area described in Article 9.14.4.2. is drained to a sump conforming to Article 9.14.5.2.

9.14.4.4. Wet Site Conditions

1) Where because of wet site conditions *soil* becomes mixed with the granular drainage material, sufficient additional granular material shall be provided so that the top 125 mm are kept free of *soil*.

9.14.5. Drainage Disposal

9.14.5.1. Drainage Disposal

1) *Foundation* drains shall drain to a sewer, drainage ditch or dry well.

9.14.5.2. Sump Pits

1) Where a sump pit is provided it shall be

- not less than 750 mm deep,
- not less than 0.25 m² in area, and
- provided with a cover.

2) Covers for sump pits shall be designed to resist removal by children.

3) Where gravity drainage is not practical, an automatic sump pump shall be provided to discharge the water from the sump pit described in Sentence (1) into a sewer, drainage ditch or dry well.

9.14.5.3. Dry Wells

1) Dry wells may be used only when located in areas where the natural *groundwater level* is below the bottom of the dry well.

2) Dry wells shall be not less than 5 m from the *building foundation* and located so that drainage is away from the *building*.

9.14.6. Surface Drainage**9.14.6.1. Surface Drainage**

1) The *building* shall be located or the *building* site graded so that water will not accumulate at or near the *building*.

9.14.6.2. Drainage away from Wells or Septic Disposal Beds

1) Surface drainage shall be directed away from the location of a water supply well or septic tank disposal bed.

9.14.6.3. Window Wells

1) Every window well shall be drained to the footing level or other suitable location.

9.14.6.4. Catch Basin

1) Where runoff water from a driveway is likely to accumulate or enter a garage, a catch basin shall be installed to provide adequate drainage.

9.14.6.5. Downspouts

1) Downspouts shall conform to Article 9.26.18.2.

Section 9.15. Footings and Foundations**9.15.1. Application****9.15.1.1. General ★**

(See Appendix A and A-9.4.4.6. and 9.15.1.1. in Appendix A.)

- 1) Except as provided in Articles 9.15.1.2. and 9.15.1.3., this Section applies to
 - a) concrete or unit masonry *foundation* walls and concrete footings not subject to surcharge
 - i) on stable *soils* with an allowable bearing pressure of 75 kPa or greater, and
 - ii) for *buildings* of wood-frame or masonry construction,
 - b) wood-frame *foundation* walls and wood or concrete footings not subject to surcharge
 - i) on stable *soils* with an allowable bearing pressure of 75 kPa or greater, and
 - ii) for *buildings* of wood-frame construction, and
 - c) flat insulating concrete form *foundation* walls and concrete footings not subject to surcharge (see A-9.15.1.1.(1)(c) and 9.20.1.1.(1)(b) in Appendix A)
 - i) on stable *soils* with an allowable bearing pressure of 75 kPa or greater, and
 - ii) for *buildings* of light-frame or flat insulating concrete form construction that are not more than 2 *storeys* in *building height*, with a maximum floor to floor height of 3 m, and containing only a single *dwelling unit*.

2) *Foundations* for applications other than as described in Sentence (1) shall be designed in accordance with Section 9.4.

9.15.1.2. Permafrost

1) *Buildings* erected on permafrost shall have *foundations* designed by a *designer* competent in this field in accordance with the appropriate requirements of Part 4.

9.16.4.2. Topping Course

- 1) When a topping course is provided for a concrete floor slab, it shall consist of 1 part cement to 2.5 parts clean, well graded sand by volume, with a water/cement ratio approximately equal to that of the base slab.
- 2) When concrete topping is provided, it shall not be less than 20 mm thick.

9.16.4.3. Thickness

- 1) Concrete slabs shall not be less than 75 mm thick exclusive of concrete topping.

9.16.4.4. Bond Break

- 1) A bond-breaking material shall be placed between the slab and footings or *rock*.

9.16.5. Wood**9.16.5.1. Wood-Frame Floors**

- 1) Floors-on-ground constructed of wood shall conform to CAN/CSA-S406, "Construction of Preserved Wood Foundations."

Section 9.17. Columns

9.17.1. Scope**9.17.1.1. Application ★**

- 1) This Section applies to columns used to support
 - a) beams carrying loads from not more than 2 wood-frame floors where
 - i) the supported length of joists bearing on such beams does not exceed 5 m, and
 - ii) the *live load* on any floor does not exceed 2.4 kPa (see Table 4.1.5.3.),
 - b) beams or header joists carrying loads from not more than 2 levels of wood-frame balconies, decks or other accessible exterior platforms, or 1 level plus the roof, where
 - i) the supported length of joists bearing on such beams or joists does not exceed 5 m,
 - ii) the sum of the specified snow and *occupancy* loads does not exceed 4.8 kPa (see Sentence 9.4.2.3.(1) for the determination of load on platform-type constructions), and
 - iii) the platform serves only a single *suite of residential occupancy*, or
 - c) carport roofs (see Section 9.35.).
- 2) Columns for applications other than as described in Sentence (1) shall be designed in accordance with Part 4.

9.17.2. General**9.17.2.1. Location**

- 1) Columns shall be centrally located on a footing conforming to Section 9.15.

9.17.2.2. Lateral Support

- 1) Columns shall be securely fastened to the supported member to reduce the likelihood of lateral differential movement between the column and the supported member. (See also Article 9.23.6.2.)

2) Except as permitted by Sentence (3), columns shall be laterally supported to resist racking

- directly, or
- by connection to the supported members.

(See Appendix A.)

3) Columns need not be provided with lateral support as described in Sentence (2), where

- the distance from finished ground to the underside of the joists is not more than 600 mm, and
- the columns support a deck with no superstructure.

9.17.3. Steel Columns

9.17.3.1. Size and Thickness

1) Except as permitted in Sentence (2), steel pipe columns shall have an outside diameter of not less than 73 mm and a wall thickness of not less than 4.76 mm.

2) Columns of sizes other than as specified in Sentence (1) are permitted to be used where the *loadbearing* capacities are shown to be adequate.

9.17.3.2. End Bearing Plates

1) Except as permitted in Sentence (2), steel columns shall be fitted with not less than 100 mm by 100 mm by 6.35 mm thick steel plates at each end, and where the column supports a wooden beam, the top plate shall extend across the full width of the beam.

2) The top plate required in Sentence (1) need not be provided where a column supports a steel beam and provision is made for the attachment of the column to the beam.

9.17.3.3. Paint

1) Exterior steel columns shall be treated on the outside surface with at least one coat of rust-inhibitive paint.

9.17.3.4. Design of Steel Columns

(See Appendix A.)

1) Where the imposed load does not exceed 36 kN, adjustable steel columns shall conform to CAN/CGSB-7.2, "Adjustable Steel Columns."

2) Steel columns other than those described in Sentence (1) shall be designed in accordance with Part 4.

9.17.4. Wood Columns

9.17.4.1. Column Sizes

1) The width or diameter of a wood column shall be not less than the width of the supported member.

2) Except as provided in Article 9.35.4.2., columns shall be not less than 184 mm for round columns and 140 mm by 140 mm for rectangular columns, unless calculations are provided to show that lesser sizes are adequate.

9.17.4.2. Materials

1) Wood columns shall be either solid, glued-laminated or built-up.

2) Built-up columns shall consist of not less than 38 mm thick full-length members

- bolted together with not less than 9.52 mm diam bolts spaced not more than 450 mm o.c., or
- nailed together with not less than 76 mm nails spaced not more than 300 mm o.c.

Table 9.29.3.1.
Size and Spacing of Furring
 Forming Part of Sentence 9.29.3.1.(1)

Maximum Spacing of Furring, mm	Minimum Size of Furring, mm		
	Maximum Spacing of Furring Supports		
	Continuous Supports	400 mm (o.c.)	600 mm (o.c.)
300	19 x 38	19 x 38	19 x 64
400	19 x 38	19 x 38	19 x 64
600	19 x 38	19 x 64	19 x 89

9.29.3.2. Fastening

1) Furring shall be fastened to the framing or to wood blocks with not less than 51 mm nails.

9.29.4. Plastering

9.29.4.1. Application

1) Application of plaster wall and ceiling finishes, including installation of metal or gypsum lath, shall conform to CSA A82.30-M, "Interior Furring, Lathing and Gypsum Plastering."

9.29.5. Gypsum Board Finish (Taped Joints)

9.29.5.1. Application

1) The requirements for application of gypsum board in this Subsection apply to the single layer application of gypsum board to wood furring or framing using nails or screws.

2) Gypsum board applications not described in this Subsection shall conform to CSA A82.31-M, "Gypsum Board Application."

9.29.5.2. Materials

- 1)** Gypsum products shall conform to
 - a) CAN/CSA-A82.27-M, "Gypsum Board,"
 - b) ASTM C 1178/C 1178M, "Coated Glass Mat Water-Resistant Gypsum Backing Panel," or
 - c) ASTM C 1396/C 1396M, "Gypsum Board."

9.29.5.3. Maximum Spacing of Supports

1) Maximum spacing of supports for gypsum board applied as a single layer shall conform to Table 9.29.5.3.

Table 9.29.5.3.
Spacing of Supports for Gypsum Board ★
 Forming Part of Sentence 9.29.5.3.(1)

Thickness, mm	Orientation of Board to Framing	Maximum Spacing of Supports, mm o.c.		
		Walls	Ceilings	
			Painted Finish	Water-Based Texture Finish
Gypsum board conforming to Sentence 9.29.5.2.(1) (except Sections 9 and 12 of ASTM C 1396/C 1396M)				
9.5	parallel	—	—	—
	perpendicular	400	400	—
12.7	parallel	600	400	—
	perpendicular	600	600	400
15.9	parallel	600	400	—
	perpendicular	600	600	600
Gypsum ceiling board conforming to Clause 9.29.5.2.(1)(c) (only Section 12 of ASTM C 1396/C 1396M)				
12.7	parallel	600	400	—
	perpendicular	600	600	600

9.29.5.4. Support of Insulation

- 1) Gypsum board supporting insulation shall be not less than 12.7 mm thick.

9.29.5.5. Length of Fasteners

- 1) The length of fasteners for gypsum board shall conform to Table 9.29.5.5., except that lesser depths of penetration are permitted for assemblies required to have a *fire-resistance rating* provided it can be shown, on the basis of fire tests, that such depths are adequate for the required rating.

Table 9.29.5.5.
Fastener Penetration into Wood Supports
 Forming Part of Sentence 9.29.5.5.(1)

Required <i>Fire-Resistance Rating</i> of Assembly	Minimum Penetration, mm			
	Walls		Ceilings	
	Nails	Screws	Nails	Screws
Not required	20	15	20	15
45 min	20	20	30	30
1 h	20	20	45	45
1.5 h	20	20	60	60

9.29.5.6. Nails

- 1) Nails for fastening gypsum board to wood supports shall conform to CSA B111, "Wire Nails, Spikes and Staples."

Table 9.29.5.3.
Spacing of Supports for Gypsum Board ★
 Forming Part of Sentence 9.29.5.3.(1)

Thickness, mm	Orientation of Board to Framing	Maximum Spacing of Supports, mm o.c.		
		Walls	Ceilings	
			Painted Finish	Water-Based Texture Finish
Gypsum board conforming to Sentence 9.29.5.2.(1) (except Sections 9 and 12 of ASTM C 1396/C 1396M)				
9.5	parallel	—	—	—
	perpendicular	400	400	—
12.7	parallel	600	400	—
	perpendicular	600	600	400
15.9	parallel	600	400	—
	perpendicular	600	600	600
Gypsum ceiling board conforming to Clause 9.29.5.2.(1)(c) (only Section 12 of ASTM C 1396/C 1396M)				
12.7	parallel	600	400	—
	perpendicular	600	600	600

9.29.5.4. Support of Insulation

- 1) Gypsum board supporting insulation shall be not less than 12.7 mm thick.

9.29.5.5. Length of Fasteners

- 1) The length of fasteners for gypsum board shall conform to Table 9.29.5.5., except that lesser depths of penetration are permitted for assemblies required to have a *fire-resistance rating* provided it can be shown, on the basis of fire tests, that such depths are adequate for the required rating.

Table 9.29.5.5.
Fastener Penetration into Wood Supports
 Forming Part of Sentence 9.29.5.5.(1)

Required <i>Fire-Resistance Rating</i> of Assembly	Minimum Penetration, mm			
	Walls		Ceilings	
	Nails	Screws	Nails	Screws
Not required	20	15	20	15
45 min	20	20	30	30
1 h	20	20	45	45
1.5 h	20	20	60	60

9.29.5.6. Nails

- 1) Nails for fastening gypsum board to wood supports shall conform to CSA B111, “Wire Nails, Spikes and Staples.”

9.29.5.7. Screws

1) Screws for fastening gypsum board to wood supports shall conform to 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."

9.29.5.8. Spacing of Nails

- 1)** For single-layer application on a ceiling, nails shall be spaced
 - a) not more than 180 mm o.c. on ceiling supports, or
 - b) every 300 mm o.c. along ceiling supports, in pairs about 50 mm apart.
- 2)** Where the ceiling sheets are supported by the wall sheets around the perimeter of the ceiling, this support may be considered as equivalent to nailing at this location.
- 3)** Except as required by Sentence (4), for single-layer application on walls, nails shall be spaced
 - a) not more than 200 mm o.c. on vertical wall supports, or
 - b) every 300 mm o.c. along vertical wall supports, in pairs about 50 mm apart.
- 4)** For single-layer application on walls, where gypsum board is required to provide bracing, lateral support or fire protection, nails shall be spaced not more than 200 mm o.c. on
 - a) vertical wall supports, and
 - b) top and bottom plates.(See Article 9.23.10.2., Section 9.10., and A-9.23.10.2. in Appendix A.)
- 5)** The uppermost nails on vertical wall supports shall be not more than 200 mm below the ceiling.
- 6)** Nails shall be located not less than 10 mm from the side or edge of the board.
- 7)** Nails shall be driven so that the heads do not puncture the paper.

9.29.5.9. Spacing of Screws ◇

- 1)** For single-layer application on a ceiling, screws shall be spaced not more than 300 mm o.c. on ceiling supports.
- 2)** Where the ceiling sheets are supported by the wall sheets around the perimeter of the ceiling, this support may be considered as equivalent to screwing at this location.
- 3)** Except as required by Sentence (4), for single-layer application on walls, screws shall be spaced
 - a) not more than 300 mm o.c. on vertical wall supports where the supports are more than 400 mm o.c., or
 - b) not more than 400 mm o.c. on vertical wall supports where the supports are not more than 400 mm o.c.
- 4)** Except as provided in Sentence (5), for single-layer application on walls, where gypsum board is required to provide bracing, lateral support or fire protection, screws shall be spaced not more than 300 mm o.c. on
 - a) vertical wall supports, and
 - b) top and bottom plates.(See Article 9.23.10.2., Section 9.10., and A-9.23.10.2. in Appendix A.)
- 5)** Where a *fire-resistance rating* is determined based on Table A-9.10.3.1.A. in Appendix A, Sentence (4) need not apply for the purpose of fire protection.
- 6)** Screws shall be located not less than 10 mm from the edge of the board.
- 7)** Screws shall be driven so that the heads do not puncture the paper.

9.29.5.10. Low Temperature Conditions

1) In cold weather, heat shall be provided to maintain a temperature not below 10°C for 48 h prior to taping and finishing and maintained for not less than 48 h thereafter.

Appendix A

Explanatory Material

A-1.1.2.1.(1) Objectives and Functional Statements Attributed to Acceptable Solutions.

The objectives and functional statements attributed to each Code provision are shown in Tables at the end of each Part in Division B.

Many provisions in Division B serve as modifiers of or pointers to other provisions, or serve other clarification or explanatory purposes. In most cases, no objectives and functional statements have been attributed to such provisions, which therefore do not appear in the above-mentioned tables.

For provisions that serve as modifiers of or pointers to other referenced provisions and that do not have any objectives and functional statements attributed to them, the objectives and functional statements that should be used are those attributed to the provisions they reference.

A-1.1.3.1.(1) Climatic and Seismic Values. Climatic values for municipalities not listed in Appendix C may be obtained by writing to the Meteorological Service of Canada, Environment Canada, 4905 Dufferin Street, Toronto, Ontario M3H 5T4.

Seismic values for municipalities not listed in Appendix C may be obtained through the Natural Resources Canada Web site at www.EarthquakesCanada.ca, or by writing to the Geological Survey of Canada at 7 Observatory Crescent, Ottawa, Ontario K1A 0Y3, or at P.O. Box 6000, Sidney, B.C. V8L 4B2.

A-1.1.3.1.(2) Winter Design Temperatures. The 2.5% values referred to in Sentence 1.1.3.1.(2) are the least restrictive temperatures that can be used. A designer may choose to use the 1% values given in Appendix C, which are in excess of the Code minimums but are considered acceptable.

A-1.3.1.2.(1) Applicable Editions. Where documents are referenced in Appendices A, B and C of this Code, they shall be the editions designated in Table A-1.3.1.2.(1).

Table A-1.3.1.2.(1)
Documents Referenced in Appendices A, B and C of the National Building Code of Canada 2005 ♦ ★

Issuing Agency	Document Number	Title of Document	Code Reference
ANSI/ASHRAE	62-2001	Ventilation for Acceptable Indoor Air Quality	A-9.25.1.2.
ASCE	SEI/ASCE 8-02	Design of Cold-Formed Stainless Steel Structural Members	A-4.3.4.2.(1)
ASME	ANSI/ASME B18.6.1-1981	Wood Screws (Inch Series)	A-9.23.3.1.(2)
ASME/CSA	ASME A17.1-2007/CSA B44-07 ⁽²⁾	Safety Code for Elevators and Escalators	A-3.5.2.1.(1)
ASTM	C 516-02	Vermiculite Loose Fill Thermal Insulation	A-9.25.2.4.(5)
ASTM	D 1037-06a	Evaluating Properties of Wood-Base Fiber and Particle Panel Materials	A-9.23.14.2.(4)
ASTM	D 1143/D 1143M-07	Deep Foundations Under Static Axial Compressive Load	A-4.2.7.2.(2)

This Appendix is included for explanatory purposes only and does not form part of the requirements. The numbers that introduce each Appendix Note correspond to the applicable requirements in this Division.

Table A-1.3.1.2.(1) (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
ASTM	E 336-05	Measurement of Airborne Sound Attenuation between Rooms in Buildings	A-9.11.1.1.(1)
ASTM	E 492-04	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 1007-04e1	Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures	A-9.11.1.1.(1)
ASTM	F 476-84	Security of Swinging Door Assemblies	A-9.6.8.10.(1)
CCBFC	NRCC 30629	Supplement to the National Building Code of Canada 1990	Appendix C
CCBFC	NRCC 35951	Guidelines for Application of Part 3 of the National Building Code of Canada to Existing Buildings	A-1.1.1.1.(1) ⁽¹⁾
CCBFC	NRCC 47667	National Fire Code of Canada 2005	A-1.1.1.1.(1) ⁽¹⁾ A-3.1.2.3.(1) A-3.2.4.6.(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) B-3.2.6.
CCBFC	NRCC 47668	National Plumbing Code of Canada 2005	A-4.1.6.4.(3) Appendix C
CCBFC	NRCC 38732	National Farm Building Code of Canada 1995	A-1.4.1.2.(1) ⁽¹⁾ A-Table 4.1.2.1. A-5.1.2.1.(1)
CCBFC	NRCC 40383	User's Guide – NBC 1995, Fire Protection, Occupant Safety and Accessibility (Part 3)	A-1.1.1.1.(1) ⁽¹⁾
CCBFC	NRCC 48192	User's Guide – NBC 2005, Structural Commentaries (Part 4 of Division B)	A-1.1.1.1.(1) ⁽¹⁾ 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. A-4.1.3.2.(2) A-4.1.3.2.(3) A-4.1.3.2.(4) A-4.1.3.3.(2) A-4.1.3.4.(1) A-4.1.3.5.(1) A-4.1.3.5.(3) A-4.1.3.6.(1) A-4.1.3.6.(2) A-4.1.3.6.(3) A-4.1.5.9. A-4.1.5.18. A-4.1.6.2. A-4.1.6.2.(4)(b) A-4.1.6.3.(2) A-4.1.6.4.(1) A-4.1.7.1.(1) to (3)

Table A-1.3.1.2.(1) (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
CCBFC	NRCC 48192 (continued)	User's Guide – NBC 2005, Structural Commentaries (Part 4 of Division B)	A-4.1.7.1.(5)(a) to (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-4.1.7.3.(1) A-4.1.8.2.(1) A-4.1.8.3.(4) A-4.1.8.3.(6) A-4.1.8.3.(7)(b) and (c) A-4.1.8.3.(8) A-4.1.8.4.(3) and Table 4.1.8.4.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) A-4.1.8.12.(4)(a) A-4.1.8.13.(4) A-4.1.8.15.(1) A-4.1.8.15.(2) A-4.1.8.15.(3) A-4.1.8.15.(4) A-4.1.8.15.(5) 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) A-4.1.8.16.(7) A-4.1.8.17.(8)(f) 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
CCBFC	NRCC 43963	User's Guide – NBC 1995, Application of Part 9 to Existing Buildings	A-1.1.1.1.(1) ⁽¹⁾
CGSB	CAN/CGSB-7.2-97	Adjustable Steel Columns	A-9.17.3.4.
CGSB	CAN/CGSB-12.20-M89	Structural Design of Glass for Buildings	A-9.7.3.2.(1)
CGSB	CAN/CGSB-71.26-M88	Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems	Table A-9.23.4.2.(2)C.
CGSB	CAN/CGSB-82.6-M86	Doors, Mirrored Glass, Sliding or Folding, Wardrobe	A-9.6.6.3.(1)
CGSB	CAN/CGSB-93.1-M85	Sheet, Aluminum Alloy, Prefinished, Residential	A-9.27.12.1.(3) and (4)
CGSB	CAN/CGSB-93.2-M91	Prefinished Aluminum Siding, Soffits, and Fascia, for Residential Use	A-9.27.12.1.(3) and (4)

Table A-1.3.1.2.(1) (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
CMHC	1993	Testing of Fresh Air Mixing Devices	A-9.32.3.4.
CMHC	1988	Air Permeance of Building Materials	A-5.4.1.2.(1) and (2) Table A-9.25.1.2.B.
CSA	A23.3-04	Design of Concrete Structures	A-4.1.3.2.(3) A-4.3.3.1.(1)
CSA	A23.4-05	Precast Concrete – Materials and Construction	A-4.3.3.1.(1)
CSA	A82.31-M1980	Gypsum Board Application	Table A-9.10.3.1.A. Table A-9.10.3.1.B.
CSA	CAN/CSA-A277-01	Procedure for Certification of Factory-Built Houses	A-1.1.1.1.(2) ⁽¹⁾
CSA	CAN/CSA-A370-04	Connectors for Masonry	A-9.21.4.5.(2)
CSA	CAN/CSA-A440-00	Windows	A-9.7.2.1.(1)
CSA	CAN/CSA-A440.1-00	User Selection Guide to CSA Standard CAN/CSA-A440-00, Windows	A-9.7.2.1.(1)
CSA	CAN/CSA-B149.1-05	Natural Gas and Propane Installation Code	A-9.10.22.
CSA	CAN/CSA-B365-01	Installation Code for Solid-Fuel-Burning Appliances and Equipment	A-9.33.1.1.(2) A-9.33.5.3.
CSA	C22.1-06	Canadian Electrical Code, Part I	A-3.1.4.3.(1)(b)(i) A-9.10.22.
CSA	CAN/CSA-C282-05	Emergency Electrical Power Supply for Buildings	A-3.2.7.6.(1)
CSA	CAN/CSA-F326-M91	Residential Mechanical Ventilation Systems	A-6.2.2.2.(1) A-9.32.3.1.(1) A-9.32.3.5. A-9.32.3.7. A-9.32.3.8. A-9.33.6.14.
CSA	CAN/CSA-O86-01 (Including Supplement CAN/CSA-O86S1-05)	Engineering Design in Wood	A-9.15.2.4.(1) A-9.23.4.2.
CSA	O141-05	Softwood Lumber	A-9.3.2.1.(1)
CSA	O437.0-93	OSB and Waferboard	A-9.23.14.4.(2)
CSA	CAN/CSA-S6-06	Canadian Highway Bridge Design Code	A-Table 4.1.5.10.
CSA	CAN/CSA-S16-01 CONSOLIDATION	Limit States Design of Steel Structures	A-4.1.5.12. 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-9.13.4.1.(4) A-9.15.2.4.(1)
CSA	Z32-04	Electrical Safety and Essential Electrical Systems in Health Care Facilities	A-3.2.7.6.(1)
CSA	CAN/CSA-Z240 MH Series-92	Mobile Homes	A-1.1.1.1.(2) ⁽¹⁾
CWC	2004	The Span Book	A-9.23.4.2.
CWC	2004	Engineering Guide for Wood Frame Construction	A-9.4.1.1. A-9.4.1.1.(3)

Table A-1.3.1.2.(1) (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
FCC	Project 43-10C-024 (1988)	Deflection Serviceability Criteria for Residential Floors	A-9.23.4.2.(2)
FM Global	FM 2-2 (2002)	Installation Rules for Suppression Mode Automatic Sprinklers	A-3.2.5.13.(7)
HC	H46-2/90-156E	Exposure Guidelines for Residential Indoor Air Quality	A-9.13.4.6. Table A-9.25.1.2.B.
HC	1995	Fungal Contamination in Public Buildings: A Guide to Recognition and Management	A-5.5.1.1.
IRC	BPN 61	Shear Resistance of Wood Frame Walls	A-9.23.10.2.
IRC	CBD 222	Airtight Houses and Carbon Monoxide Poisoning	A-9.33.1.1.(2)
IRC	CBD 230	Applying Building Codes to Existing Buildings	A-1.1.1.1.(1) ⁽¹⁾
IRC	CBD 231	Moisture Problems in Houses	A-9.25.3.1.(1)
IRC	1988	Performance and Acceptability of Wood Floors – Forintek Studies	A-9.23.4.2.(2)
ISO	7731:2003 (E)	Ergonomics – Danger signals for public and work areas – Auditory danger signals	A-3.2.4.21.(1)(b)
ISO	8201:1987 (E)	Acoustics – Audible emergency evacuation signal	A-3.2.4.18.(2)
NFPA	2001 Edition	Fire Protection Guide to Hazardous Materials	A-6.2.2.5.(1)
NFPA	FPH1903-2003	Fire Protection Handbook, Nineteenth Edition	A-3.2.2.2.(1) A-3.6.2.7.(5)
NFPA	13-2007	Installation of Sprinkler Systems	A-3.2.4.9.(2)(f) A-3.2.5.13.(1) A-3.2.5.13.(6) A-3.2.5.13.(7) A-3.2.5.14.(1) A-3.2.8.2.(3)
NFPA	13D-2007	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	A-3.2.5.13.(6) A-3.2.5.13.(7) A-3.2.5.14.(1)
NFPA	13R-2007	Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height	A-3.2.5.13.(6) A-3.2.5.13.(7) A-3.2.5.14.(1)
NFPA	20-2007	Installation of Stationary Pumps for Fire Protection	A-3.2.4.9.(2)(f) A-3.2.5.19.(1)
NFPA	30-2003	Flammable and Combustible Liquids Code	A-6.2.2.5.(1)
NFPA	30A-2003	Motor Fuel Dispensing Facilities and Repair Garages	A-6.2.2.5.(1)
NFPA	32-2007	Drycleaning Plants	A-6.2.2.5.(1)
NFPA	33-2007	Spray Application Using Flammable or Combustible Materials	A-6.2.2.5.(1)
NFPA	34-2007	Dipping and Coating Processes Using Flammable or Combustible Liquids	A-6.2.2.5.(1)
NFPA	35-2005	Manufacture of Organic Coatings	A-6.2.2.5.(1)
NFPA	36-2004	Solvent Extraction Plants	A-6.2.2.5.(1)
NFPA	40-2007	Storage and Handling of Cellulose Nitrate Film	A-6.2.2.5.(1)
NFPA	51-2007	Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes	A-6.2.2.5.(1)

Table A-1.3.1.2.(1) (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
NFPA	51A-2006	Acetylene Cylinder Charging Plants	A-6.2.2.5.(1)
NFPA	55-2005 ⁽³⁾	Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks	A-6.2.2.5.(1)
NFPA	61-2002	Prevention of Fires and Dust Explosions in Agricultural and Food Products Facilities	A-6.2.2.5.(1)
NFPA	68-2007	Explosion Protection by Deflagration Venting	A-3.6.2.7.(5) A-6.2.2.5.(1)
NFPA	69-2002	Explosion Prevention Systems	A-3.6.2.7.(5) A-6.2.2.5.(1)
NFPA	80-2007	Fire Doors and Other Opening Protectives	A-3.1.8.1.(2) A-3.2.8.2.(3)
NFPA	80A-2007 ⁽⁴⁾	Protection of Buildings from Exterior Fire Exposures	A-3
NFPA	85-2007	Boiler and Combustion Systems Hazards Code	A-6.2.2.5.(1)
NFPA	86-2007	Ovens and Furnaces	A-6.2.2.5.(1)
NFPA	88A-2007	Parking Structures	A-6.2.2.5.(1)
NFPA	91-2004	Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids	A-6.2.2.5.(1)
NFPA	96-2004	Ventilation Control and Fire Protection of Commercial Cooking Operations	A-3.3.1.2.(2) A-6.2.2.5.(1) A-9.10.1.3.(1)
NFPA	204-2007	Smoke and Heat Venting	A-6.2.2.5.(1)
NFPA	303-2006	Marinas and Boatyards	A-6.2.2.5.(1)
NFPA	307-2006	Construction and Fire Protection of Marine Terminals, Piers, and Wharves	A-6.2.2.5.(1)
NFPA	409-2004	Aircraft Hangars	A-6.2.2.5.(1)
NFPA	415-2002	Airport Terminal Buildings, Fueling, Ramp Drainage, Loading Walkways	A-6.2.2.5.(1)
NFPA	484-2006	Combustible Metals	A-6.2.2.5.(1)
NFPA	654-2006	Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids	A-6.2.2.5.(1)
NFPA	655-2007	Prevention of Sulfur Fires and Explosions	A-6.2.2.5.(1)
NFPA	664-2007	Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	A-6.2.2.5.(1)
NLGA	2007	Standard Grading Rules for Canadian Lumber	A-9.3.2.1.(1) Table A-9.3.2.1.(1)A. A-9.3.2.8.(1) A-9.23.10.4.(1)
NLGA	SPS-1-2003	Fingerjoined Structural Lumber	A-9.23.10.4.(1)
NLGA	SPS-3-2003	Fingerjoined "Vertical Stud Use Only" Lumber	A-9.23.10.4.(1)
NRCA	2005	Waterproofing Manual	A-5.6.2.1.
NRCA	2007	Roofing Manual: Membrane Roof Systems	A-5.6.2.1.

Table A-1.3.1.2.(1) (Continued)

Issuing Agency	Document Number	Title of Document	Code Reference
OMMAH	2006	2006 Building Code Compendium, Volume 2, Supplementary Standard SB-7, Guards for Housing and Small Buildings	A-9.8.8.2.
ONHWP	1993	Details of Air Barrier Systems for Houses	Table A-9.25.1.2.B.
ONHWP	1995	High-Rise Residential Construction Guide	A-5.6.2.1.
SMACNA	6th Edition	Architectural Sheet Metal Manual	A-5.6.2.1.
TC	SOR/2001-286	Transportation of Dangerous Goods Regulations	A-3.3.1.2.(1)
UL	ANSI/UL 199-2005	Automatic Sprinklers for Fire-Protection Service	A-3.2.5.13.(7)
UL	ANSI/UL 1626-2003	Residential Sprinklers for Fire-Protection Service	A-3.2.5.13.(7)
ULC	CAN/ULC-S101-04	Fire Endurance Tests of Building Construction and Materials	A-3.1.5.12.(2)(e) B-3.2.6.5.(6)(b)
ULC	CAN/ULC-S112-M90	Fire Test of Fire-Damper Assemblies	Table B-3.2.6.6.C.
ULC	CAN/ULC-S113-07	Wood Core Doors Meeting the Performance Required by CAN/ULC-S104 for Twenty Minute Fire Rated Closure Assemblies	A-9.10.13.2.(1)
ULC	CAN/ULC-S124-06	Test for the Evaluation of Protective Coverings for Foamed Plastic	A-3.1.5.12.(2)(e)
ULC	ULC-S332-93	Burglary Resisting Glazing Material	A-9.6.8.1.
ULC	CAN/ULC-S524-06	Installation of Fire Alarm Systems	A-3.2.4.18.(10)
ULC	CAN/ULC-S526-07	Visible Signal Devices for Fire Alarm Systems, Including Accessories	A-3.2.4.19.(1)
ULC	CAN/ULC-S702-97	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	2005	Western Lumber Grading Rules	A-Table 9.3.2.1.

Notes to Table A-1.3.1.2.(1):

- (1) Code reference is in Division A.
- (2) ASME A17.1-2007/CSA B44-07 replaces CSA B44-00.
- (3) NFPA 55-2005 replaces NFPA 50A-1999 and NFPA 50B-1999.
- (4) NFPA 81-1986 has been deleted.

A-3 Application of Part 3. In applying the requirements of this Part, it is intended that they be applied with discretion to buildings of unusual configuration that do not clearly conform to the specific requirements, or to buildings in which processes are carried out which make compliance with particular requirements in this Part impracticable. The definition of “building” as it applies to this Code is general and encompasses most structures, including those which would not normally be considered as buildings in the layman’s sense. This occurs more often in industrial uses, particularly those involving manufacturing facilities and equipment that require specialized design that may make it impracticable to follow the specific requirements of this Part. Steel mills, aluminum plants, refining, power generation and liquid storage facilities are examples. A water tank or an oil refinery, for example, has no floor area, so it is obvious that requirements for exits from floor areas would not apply. Requirements for structural fire protection in large steel mills and pulp and paper mills, particularly in certain portions, may not be practicable to achieve in terms of the construction normally used and the operations for which the space is to be used. In other portions of the same building, however, it may be quite reasonable to require that the provisions of this Part be applied (e.g., the office portions). Similarly, areas of industrial occupancy which may be occupied only periodically by service staff, such as equipment penthouses, normally would not need to have the same type of exit facility as floor areas occupied on a continuing basis. It is expected that judgment will be exercised in evaluating the application of a requirement in those cases when extenuating circumstances require special consideration, provided the occupants’ safety is not endangered.

The provisions in this Part for fire protection features installed in buildings are intended to provide a minimum acceptable level of public safety. It is intended that all fire protection features of a building, whether required or not, will be designed in conformance with good fire protection engineering practice and will meet the appropriate installation requirements in relevant standards. Good design is necessary to ensure that the level of public safety established by the Code requirements will not be reduced by a voluntary installation.

Firefighting Assumptions

The requirements of this Part are based on the assumption that firefighting capabilities are available in the event of a fire emergency. These firefighting capabilities may take the form of a paid or volunteer public fire department or in some cases a private fire brigade. If these firefighting capabilities are not available, additional fire safety measures may be required.

Firefighting capability can vary from municipality to municipality. Generally, larger municipalities have greater firefighting capability than smaller ones. Similarly, older, well established municipalities may have better firefighting facilities than newly formed or rapidly growing ones. The level of municipal fire protection considered to be adequate will normally depend on both the size of the municipality (i.e., the number of buildings to be protected) and the size of buildings within that municipality. Since larger buildings tend to be located in larger municipalities, they are generally, but not always, favoured with a higher level of municipal protection.

Although it is reasonable to consider that some level of municipal firefighting capability was assumed in developing the fire safety provisions in Part 3, this was not done on a consistent or defined basis. The requirements in the Code, while developed in the light of commonly prevailing municipal fire protection levels, do not attempt to relate the size of building to the level of municipal protection. The responsibility for controlling the maximum size of building to be permitted in a municipality in relation to local firefighting capability rests with the municipality. If a proposed building is too large, either in terms of floor area or building height, to receive reasonable protection from the municipal fire department, fire protection requirements in addition to those prescribed in this Code, may be necessary to compensate for this deficiency. Automatic sprinkler protection may be one option to be considered.

Alternatively, the municipality may, in light of its firefighting capability, elect to introduce zoning restrictions to ensure that the maximum building size is related to available municipal fire protection facilities. This is, by necessity, a somewhat arbitrary decision and should be made in consultation with the local firefighting service, who should have an appreciation of their capability to fight fires.

The requirements of Subsection 3.2.3. are intended to prevent fire spread from thermal radiation assuming there is adequate firefighting available. It has been found that periods of from 10 to 30 minutes usually elapse between the outbreak of fire in a building that is not protected with an automatic sprinkler system and the attainment of high radiation levels. During this period, the specified spatial separations should prove adequate to inhibit ignition of an exposed building face or the interior of an adjacent building by radiation. Subsequently, however, reduction of the fire intensity by firefighting and the protective wetting of the exposed building face will often be necessary as supplementary measures to inhibit fire spread.

In the case of a building that is sprinklered throughout, the automatic sprinkler system should control the fire to an extent that radiation to neighbouring buildings should be minimal. Although there will be some radiation effect on a sprinklered building from a fire in a neighbouring building, the internal sprinkler system should control any fires that might be ignited in the building and thereby minimize the possibility of the fire spreading into the exposed building. NFPA 80A, "Protection of Buildings from Exterior Fire Exposures," provides additional information on the possibility of fire spread at building exteriors.

The water supply requirements for fire protection installations depend on the requirements of any automatic sprinkler installations and also on the number of fire streams that may be needed at any fire, having regard to the length of time the streams will have to be used. Both these factors are largely influenced by the conditions at the building to be equipped, and the quantity and pressure of water needed for the protection of both the interior and exterior of the building must be ascertained before the water supply is decided upon. Acceptable water supplies may be a public waterworks system that has adequate pressure and discharge capacity, automatic fire pumps, pressure tanks, manually controlled fire pumps in combination with pressure tanks, gravity tanks, and manually controlled fire pumps operated by remote control devices at each hose station.

Appendix D

Fire-Performance Ratings

Section D-1 General

The contents of this Appendix have been prepared on the recommendations of the Standing Committee on Fire Safety and Occupancy, which was established by the Canadian Commission on Building and Fire Codes (CCBFC) for this purpose.

D-1.1. Introduction

D-1.1.1. Scope

- 1)** This fire-performance information is presented in a form closely linked to the performance requirements and the minimum materials specifications of the National Building Code of Canada 2005.
- 2)** The ratings have been assigned only after careful consideration of all available literature on assemblies of common building materials, where they are adequately identified by description. The assigned values based on this information will, in most instances, be conservative when compared to the ratings determined on the basis of actual tests on individual assemblies.
- 3)** The fire-performance information set out in this Appendix applies to materials and assemblies of materials which comply in all essential details with the minimum structural design standards described in Part 4 of the National Building Code of Canada. Additional requirements, where appropriate, are described in other Sections of this Appendix.
- 4)** Section D-2 of this Appendix assigns fire-resistance ratings for walls, floors, roofs, columns and beams related to CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials," and describes methods for determining these ratings.
- 5)** Section D-3 assigns flame-spread ratings and smoke developed classifications for surface materials related to CAN/ULC-S102, "Test for Surface Burning Characteristics of Building Materials and Assemblies" and CAN/ULC-S102.2, "Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies."
- 6)** Section D-4 describes noncombustibility in building materials when tested in accordance with CAN/ULC-S114, "Test for Determination of Non-Combustibility in Building Materials."
- 7)** Section D-5 contains requirements for the installation of fire doors and fire dampers in fire-rated stud wall assemblies and the installation of fire stop flaps in fire-rated membrane ceilings.
- 8)** Section D-6 contains background information regarding fire test reports, obsolete materials and assemblies, assessment of archaic assemblies and the development of the component additive method.

D-1.1.2. Referenced Documents

- 1)** Where documents are referenced in this Appendix, they shall be the editions designated in Table D-1.1.2.

This Appendix is included for explanatory purposes only and does not form part of the requirements. The bold face reference numbers that introduce each item do not relate to specific requirements in this Division.

**Table D-1.1.2.
Documents Referenced in Appendix D Fire-Performance Ratings ★**

Issuing Agency	Document Number	Title of Document	Reference
ANSI	A208.1-1999	Particleboard, Mat-Formed Wood	Table D-3.1.1.A.
ASTM	C 330-05	Lightweight Aggregates for Structural Concrete	D-1.4.3.(2)
ASTM	C 1396/C 1396M-06a ⁽¹⁾	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-34.16-M89	Sheets, Asbestos-Cement, Flat, Fully Compressed	Table D-3.1.1.A.
CGSB	CAN/CGSB-92.2-M90	Trowel or Spray Applied Acoustical Material	D-2.3.4.(5)
CSA	CAN/CSA-A23.1-04/A23.2-04	Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete	D-1.4.3.(1)
CSA	A23.3-04	Design of Concrete Structures	D-2.1.5. D-2.6.6. Table D-2.6.6.B. D-2.8.2. 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	A126.1-M1984	Vinyl Asbestos and Vinyl Composition Floor Tile	Table D-3.1.1.B.
CSA	A165.1-04	Concrete Block Masonry Units	Table D-2.1.1.
CSA	CAN/CSA-O86-01 (Including Supplement CAN/CSA-O86S1-05)	Engineering Design in Wood	D-2.11.2.(1) D-2.11.2.(2)
CSA	O121-M1978	Douglas Fir Plywood	Table D-3.1.1.A.
CSA	CAN/CSA-O141-05	Softwood Lumber	D-2.3.6.(2) Table D-2.4.1.
CSA	O151-04	Canadian Softwood Plywood	Table D-3.1.1.A.
CSA	O153-M1980	Poplar Plywood	Table D-3.1.1.A.
CSA	O437.0-93	OSB and Waferboard	Table D-3.1.1.A.
CSA	CAN/CSA-S16-01 CONSOLIDATION	Limit States Design of Steel Structures	D-2.6.6. Table D-2.6.6.B.
NFPA	80-2007	Fire Doors and Other Opening Protectives	D-5.2.1.(1) D-5.2.1.(2)
ULC	CAN/ULC-S101-04	Fire Endurance Tests of Building Construction and Materials	D-1.1.1.(4) D-1.12.1. D-2.3.2.

Table D-1.1.2. (Continued)

Issuing Agency	Document Number	Title of Document	Reference
ULC	CAN/ULC-S102-03	Test for Surface Burning Characteristics of Building Materials and Assemblies	D-1.1.1.(5)
ULC	CAN/ULC-S102.2-03	Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies	D-1.1.1.(5) Table D-3.1.1.B.
ULC	CAN/ULC-S114-05	Test for Determination of Non-Combustibility in Building Materials	D-1.1.1.(6) D-4.1.1. D-4.2.1.
ULC	S505-1974	Fusible Links for Fire Protection Service	D-5.3.2.
ULC	CAN/ULC-S702-97	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. D-6.4.
ULC	CAN/ULC-S703-01	Cellulose Fibre Insulation (CFI) for Buildings	D-2.3.4.(5)
ULC	CAN/ULC-S706-02	Wood Fibre Thermal Insulation for Buildings	Table D-3.1.1.A.

Notes to Table D-1.1.2.:

(1) ASTM C 1396/C 1396M-06a replaces ASTM C 36/C 36M-03, ASTM C 37/C 37M-01, ASTM C 442/C 442M-04, ASTM C 588/C 588M-03, ASTM C 630/C 630M-03, ASTM C 931/C 931M-04, and ASTM C 960/C 960M-04.

D-1.1.3. Applicability of Ratings

The ratings shown in this document apply if more specific test values are not available. The construction of an assembly that is the subject of an individual test report must be followed in all essential details if the fire-resistance rating reported is to be applied for use with this Code.

D-1.1.4. Higher Ratings

The authority having jurisdiction may allow higher fire-resistance ratings than those derived from this Appendix, where supporting evidence justifies a higher rating. Additional information is provided in summaries of published test information and the reports of fire tests carried out by the Institute for Research in Construction, National Research Council of Canada, included in Section D-6, Background Information.

D-1.1.5. Additional Information on Fire Rated Assemblies

Assemblies containing materials for which there is no nationally recognized standard are not included in this Appendix. Many such assemblies have been rated by Underwriters Laboratories (UL), Underwriters' Laboratories of Canada (ULC), or Intertek Testing Services NA Ltd. (ITS). The UL "Fire Resistance Directory," Volume 1, can be obtained from UL, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 U.S.A. The ULC information is published in their "List of Equipment and Materials," Volume III, Fire Resistance Ratings. Copies of this document may be obtained from ULC, 7 Underwriters Road, Toronto, Ontario M1R 3B4. ITS' Directory of Listed Products can be obtained from ITS, 3210 American Drive, Mississauga, Ontario L4V 1B3.

D-1.2. Interpretation of Test Results

D-1.2.1. Limitations

1) The fire-performance ratings set out in this Appendix are based on those that would be obtained from the standard methods of test described in the Code. The test methods are essentially a means of comparing the performance of one building component or assembly with another in relation to its performance in fire.

2) Since it is not practicable to measure the fire resistance of constructions in situ, they must be evaluated under some agreed test conditions. A specified fire-resistance rating is not necessarily the actual time that the assembly would endure in situ in a building fire, but is that which the particular construction must meet under the specified methods of test.

3) Considerations arising from departures in use from the conditions established in the standard test methods may, in some circumstances, have to be taken into account by the designer and the authority having jurisdiction. Some of these conditions are covered at present by the provisions of the National Building Code.

4) For walls and partitions, the stud spacings previously specified as 16 or 24 inch have been converted to 400 and 600 mm, respectively, for consistency with other metric values; however, the use of equivalent imperial dimensions for stud spacing is permitted.

D-1.3. Concrete

D-1.3.1. Aggregates in Concrete

Low density aggregate concretes generally exhibit better fire performance than natural stone aggregate concretes. A series of tests on concrete masonry walls, combined with mathematical analysis of the test results, has allowed further distinctions between certain low density aggregates to be made.

D-1.4. Types of Concrete

D-1.4.1. Description

1) For purposes of this Appendix, concretes are described as Types S, N, L, L₁, L₂, L40S, L₁20S or L₂20S as described in Sentences (2) to (8).

2) Type S concrete is the type in which the coarse aggregate is granite, quartzite, siliceous gravel or other dense materials containing at least 30% quartz, chert or flint.

3) Type N concrete is the type in which the coarse aggregate is cinders, broken brick, blast furnace slag, limestone, calcareous gravel, trap rock, sandstone or similar dense material containing not more than 30% of quartz, chert or flint.

4) Type L concrete is the type in which all the aggregate is expanded slag, expanded clay, expanded shale or pumice.

5) Type L₁ concrete is the type in which all the aggregate is expanded shale.

6) Type L₂ concrete is the type in which all the aggregate is expanded slag, expanded clay or pumice.

7) Type L40S concrete is the type in which the fine portion of the aggregate is sand and low density aggregate in which the sand does not exceed 40% of the total volume of all aggregates in the concrete.

8) Type L₁20S and Type L₂20S concretes are the types in which the fine portion of the aggregate is sand and low density aggregate in which the sand does not exceed 20% of the total volume of all aggregates in the concrete.

D-1.4.2. Determination of Ratings

Where concretes are described as being of Type S, N, L, L₁ or L₂, the rating applies to the concrete containing the aggregate in the group that provides the least fire resistance. If the nature of an aggregate cannot be determined accurately enough to place it in one of the groups, the aggregate shall be considered as being in the group that requires a greater thickness of concrete for the required fire resistance.

D-1.4.3. Description of Aggregates

1) The descriptions of the aggregates in Type S and Type N concretes apply to the coarse aggregates only. Coarse aggregate for this purpose means that retained on a 5 mm sieve using the method of grading aggregates described in CAN/CSA-A23.1/A23.2, "Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete."

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, "Lightweight Aggregates for Structural Concrete."

3) Non-loadbearing low density components of vermiculite and perlite concrete, in the absence of other test evidence, shall be rated on the basis of the values shown for Type L concrete.