
British Columbia Building Code 2018 Revision Package

VERSION 1.01

This Revision Package contains pages that reflect amendments made to the *2018 British Columbia Building Code*. These revision pages (with REVISION 1.01 in the footer) are complete pages which incorporate all revisions up to and including December 10, 2018.

These pages will replace the corresponding pages in your existing document.

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NOTE: Due to reports of font issues, do not use Firefox to print this package.

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
AAMA	1304-02	Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems	9.7.5.2.(2)
ACGIH	28th Edition	Industrial Ventilation: A Manual of Recommended Practice for Design	6.3.2.14.(2) A-6.3.1.6.
AHAM	ANSI/AHAM RAC-1-1982	Room Air Conditioners	Table 9.36.3.10.
AHRI	ANSI/AHRI 210/240-2008	Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment	Table 9.36.3.10.
AHRI	1060 (I-P)-2013	Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment	9.36.3.8.(4)
AHRI	BTS-2000	Efficiency of Commercial Space Heating Boilers	Table 9.36.3.10.
AISI	S201-12	North American Standard for Cold-Formed Steel Framing – Product Data	9.24.1.2.(1)
ANSI	A208.1-2009	Particleboard	9.23.15.2.(3) 9.29.9.1.(1) 9.30.2.2.(1)
ANSI/CSA	ANSI Z21.10.3-2013/ CSA 4.3-2013	Gas-Fired Water Heaters, Volume III, Storage Water Heaters With Input Ratings Above 75,000 Btu Per Hour, Circulating and Instantaneous	Table 9.36.4.2.
ANSI/CSA	ANSI Z21.56-2013/ CSA 4.7-2013	Gas-Fired Pool Heaters	Table 9.36.4.2.
ANSI/CSA	ANSI Z83.8-2013/CSA 2.6-2013	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-Fired Duct Furnaces	Table 9.36.3.10.
ASCE	ASCE/SEI 7-10	Minimum Design Loads for Buildings and Other Structures	A-4.1.8.18.(15) and (16)(c)
ASCE	ASCE/SEI 8-02	Design of Cold-Formed Stainless Steel Structural Members	A-4.3.4.2.(1)
ASCE	ASCE/SEI 49-12	Wind Tunnel Testing for Buildings and Other Structures	4.1.7.12.(1)
ASHRAE	2013	ASHRAE Handbook – Fundamentals	A-9.36.2.4.(1) Table A-9.36.2.4.(1)-D
ASHRAE	Guideline 12-2000	Minimizing the Risk of Legionellosis Associated with Building Water Systems	6.3.2.15.(4) 6.3.2.16.(3)
ASHRAE	ANSI/ASHRAE 62-2001	Ventilation for Acceptable Indoor Air Quality (except Addendum n)	6.3.1.1.(2) A-9.25.5.2.
ASHRAE	ANSI/ASHRAE 62.1-2007	Ventilation for Acceptable Indoor Air Quality	6.3.2.2.(1)
ASHRAE	<u>ANSI/ASHRAE/IES 90.1</u>	<u>Energy Standard for Buildings Except Low-Rise Residential Buildings</u>	<u>10.2.2.2.(1)</u> <u>A-10.2.2.2.</u>
ASHRAE	ANSI/ASHRAE/IES 90.1-2016	Energy Standard for Buildings Except Low-Rise Residential Buildings (<u>except Subsection 8.4.2.</u>)	10.2.2.1.(1) <u>A-10.2.2.2.</u>
ASHRAE	ANSI/ASHRAE 103-2007	Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers	Table 9.36.3.10.
ASHRAE	ANSI/ASHRAE 140-2011	Evaluation of Building Energy Analysis Computer Programs	9.36.5.4.(8) 9.36.6.4.(1)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
ASME/CSA	ASME A17.1-2010/CSA B44-10	Safety Code for Elevators and Escalators	3.2.6.7.(2) 3.5.2.1.(3) 3.5.4.1.(3) 3.8.3.7.(1) 3.5.4.2.(1) A-3.5.2.1.(1) 3.8.3.7.(1) Table 4.1.5.11. Table 4.1.8.18.
ASME	B18.6.1-1981	Wood Screws (Inch Series)	Table 5.9.1.1. 9.23.3.1.(3) A-9.23.3.1.(3)
ASTM	A 123/A 123M-13	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products	Table 5.9.1.1. Table 9.20.16.1.
ASTM	A 153/A 153M-09	Zinc Coating (Hot-Dip) on Iron and Steel Hardware	Table 5.9.1.1. Table 9.20.16.1.
ASTM	A 252-10	Welded and Seamless Steel Pipe Piles	4.2.3.8.(1)
ASTM	A 283/A 283M-13	Low and Intermediate Tensile Strength Carbon Steel Plates	4.2.3.8.(1)
ASTM	A 390-06	Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)	Table 9.10.3.1.-B
ASTM	A 653/A 653M-13	Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process	Table 5.9.1.1. 9.3.3.2.(1)
ASTM	A 792/A 792M-10	Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process	9.3.3.2.(1)
ASTM	A 1008/A 1008M-13	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-14	Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength	4.2.3.8.(1)
ASTM	C 4-04	Clay Drain Tile and Perforated Clay Drain Tile	Table 5.9.1.1. 9.14.3.1.(1)
ASTM	C 27-98	Fireclay and High-Alumina Refractory Brick	9.21.3.4.(1)
ASTM	C 73-10	Calcium Silicate Brick (Sand-Lime Brick)	Table 5.9.1.1. 9.20.2.1.(1)
ASTM	C 126-13	Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	Table 5.9.1.1. 9.20.2.1.(1)
ASTM	C 177-13	Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus	9.36.2.2.(1)
ASTM	C 212-14	Structural Clay Facing Tile	Table 5.9.1.1. 9.20.2.1.(1)
ASTM	C 260/C 260M-10a	Air-Entraining Admixtures for Concrete	9.3.1.8.(1)
ASTM	C 411-11	Hot-Surface Performance of High-Temperature Thermal Insulation	3.6.5.4.(4) 3.6.5.5.(1) 9.33.6.4.(4) 9.33.8.2.(2)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
ASTM	C 412M-11	Concrete Drain Tile (Metric)	Table 5.9.1.1. 9.14.3.1.(1)
ASTM	C 444M-03	Perforated Concrete Pipe (Metric)	Table 5.9.1.1. 9.14.3.1.(1)
ASTM	C 494/C 494M-13	Chemical Admixtures for Concrete	9.3.1.8.(1)
ASTM	C 516-08	Vermiculite Loose Fill Thermal Insulation	A-9.25.2.4.(5)
ASTM	C 518-10	Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	9.36.2.2.(1)
ASTM	C 553-13	Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications	Table 5.9.1.1.
ASTM	C 612-14	Mineral Fiber Block and Board Thermal Insulation	Table 5.9.1.1.
ASTM	C 700-13	Standard Specification for Vitriified Clay Pipe, Extra Strength, Standard Strength, and Perforated	Table 5.9.1.1. 9.14.3.1.(1)
ASTM	C 726-12	Mineral Wool Roof Insulation Board	Table 5.9.1.1. 9.25.2.2.(1)
ASTM	C 754-11	Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products	Table A-9.11.1.4.-A Table A-9.11.1.4.-B Table A-9.11.1.4.-C Table A-9.11.1.4.-D
ASTM	C 834-10	Latex Sealants	Table 5.9.1.1. 9.27.4.2.(2)
ASTM	C 840-13	Application and Finishing of Gypsum Board	Table 5.9.1.1.
ASTM	C 920-14	Elastomeric Joint Sealants	Table 5.9.1.1. 9.27.4.2.(2)
ASTM	C 954-11	Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness	9.24.1.4.(1)
ASTM	C 991-08e1	Flexible Fibrous Glass Insulation for Metal Buildings	Table 5.9.1.1.
ASTM	C 1002-07	Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs	Table 5.9.1.1. 9.24.1.4.(1) 9.29.5.7.(1)
ASTM	C 1177/C 1177M-13	Glass Mat Gypsum Substrate for Use as Sheathing	3.1.5.14.(6) 3.1.5.15.(4) Table 5.9.1.1. Table 9.23.17.2.-A A-9.27.13.2.(2)(a)
ASTM	C 1178/C 1178M-13	Coated Glass Mat Water-Resistant Gypsum Backing Panel	3.1.5.14.(6) 3.1.5.15.(4) Table 5.9.1.1. 9.29.5.2.(1)
ASTM	C 1184-13	Structural Silicone Sealants	Table 5.9.1.1. 9.27.4.2.(2)
ASTM	C 1193-13	Use of Joint Sealants	A-Table 5.9.1.1. A-9.27.4.2.(1)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
ASTM	C 1299-03	Selection of Liquid-Applied Sealants	A-Table 5.9.1.1. A-9.27.4.2.(1)
ASTM	C 1311-10	Solvent Release Sealants	Table 5.9.1.1. 9.27.4.2.(2)
ASTM	C 1330-02	Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants	Table 5.9.1.1. 9.27.4.2.(3)
ASTM	C 1363-11	Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	A-5.9.4.1.(1) 9.36.2.2.(4)
ASTM	C 1396/C 1396M-14	Gypsum Board	3.1.5.14.(6) 3.1.5.15.(4) Table 5.9.1.1. Table 9.23.17.2.-A 9.29.5.2.(1) Table 9.29.5.3.
ASTM	C 1472-10	Calculating Movement and Other Effects When Establishing Sealant Joint Width	A-Table 5.9.1.1. A-9.27.4.2.(1)
ASTM	C 1658/C 1658M-13	Glass Mat Gypsum Panels	3.1.5.14.(6) Table 5.9.1.1.
ASTM	D 323-08	Vapor Pressure of Petroleum Products (Reid Method)	1.4.1.2.(1) ⁽⁴⁾
ASTM	D 1037-12	Evaluating Properties of Wood-Base Fiber and Particle Panel Materials	A-9.23.15.2.(4)
ASTM	D 1143/D 1143M-07	Deep Foundations Under Static Axial Compressive Load	A-4.2.7.2.(2)
ASTM	D 1227-95	Emulsified Asphalt Used as a Protective Coating for Roofing	Table 5.9.1.1. 9.13.2.2.(2) 9.13.3.2.(2)
ASTM	D 2178/D 2178M-13a	Asphalt Glass Felt Used in Roofing and Waterproofing	Table 5.9.1.1.
ASTM	D 2898-10	Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing	3.1.4.8.(2) 3.1.5.5.(3) 3.1.5.24.(1) 3.2.3.7.(4) 9.10.14.5.(3) 9.10.15.5.(3)
ASTM	D 3019-08	Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos-Fibered, and Non-Asbestos-Fibered	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
ASTM	D 4479/D 4479M-07	Asphalt Roof Coatings – Asbestos-Free	Table 5.9.1.1. 9.13.2.2.(2) 9.13.3.2.(2) Table 9.26.2.1.-B
ASTM	D 4637/D 4637M-12	EPDM Sheet Used In Single-Ply Roof Membrane	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
ASTM	D 4811/D 4811M-06	Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
ASTM	D 5456-10a	Evaluation of Structural Composite Lumber Products	3.1.11.7.(4)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
ASTM	D 6878/D 6878M-11a	Thermoplastic Polyolefin Based Sheet Roofing	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
ASTM	E 90-09	Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements	5.8.1.2.(1) 5.8.1.4.(1) 9.11.1.2.(1)
ASTM	E 96/E 96M-13	Water Vapor Transmission of Materials	5.5.1.2.(3) 9.13.2.2.(2) 9.25.4.2.(1) 9.25.5.1.(1) 9.30.1.2.(1)
ASTM	E 283-04	Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen	5.9.3.4.(2) A-5.9.3.4.(2)
ASTM	E 330/E 330M-02	Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference	A-5.9.3.2.(1)
ASTM	E 331-00	Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference	5.9.3.5.(2) A-5.9.3.5.(2)
ASTM	E 336-11	Measurement of Airborne Sound Attenuation between Rooms in Buildings	5.8.1.2.(2) 5.8.1.4.(7) 9.11.1.2.(2) A-9.11.
ASTM	E 413-10	Classification for Rating Sound Insulation	A-1.4.1.2.(1) ⁽⁴⁾ 5.8.1.2.(1) 5.8.1.2.(2) 5.8.1.4.(7) 5.8.1.5.(3) 9.11.1.2.(1) 9.11.1.2.(2)
ASTM	E 492-09	Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine	A-9.11.
ASTM	E 547-00	Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference	5.9.3.5.(2) A-5.9.3.5.(2)
ASTM	E 597-95	Determining a Single Number Rating of Airborne Sound Insulation for Use in Multi-Unit Building Specifications	A-9.11.
ASTM	E 736-00	Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members	Table 9.10.3.1.-B
ASTM	E 779-10	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	9.36.6.5.(1) 10.2.3.5.(1)
ASTM	E 783-02	Field Measurement of Air Leakage Through Installed Exterior Windows and Doors	A-5.9.2.3.(1) A-5.9.3.4.(2)
ASTM	E 1007-13b	Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures	A-9.11.
ASTM	E 1105-00	Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference	A-5.9.2.3.(1) A-5.9.3.5.(2)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
ASTM	E 1300-12ae1	Standard Practice for Determining Load Resistance of Glass in Buildings	4.3.6.1.(1) 9.6.1.3.(1)
ASTM	E 2178-13	Air Permeance of Building Materials	5.4.1.2.(1)
ASTM	E 2190-10	Insulating Glass Unit Performance and Evaluation	Table 5.9.1.1. 9.6.1.2.(1)
ASTM	E 2357-11	Determining Air Leakage of Air Barrier Assemblies	9.36.2.9.(1) A-9.36.2.9.(1)
ASTM	F 842-01 or 04	Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact	9.7.5.1.(3)
ASTM	F 1667-13	Driven Fasteners: Nails, Spikes, and Staples	9.23.3.1.(1) 9.26.2.3.(1) 9.29.5.6.(1)
AWPA	M4-11	Care of Preservative-Treated Wood Products	4.2.3.2.(2)
BC	2018	British Columbia Fire Code	1.1.1.1.(1) ⁽⁴⁾ 1.1.4.1.(1) 1.4.1.2.(1) ⁽⁴⁾ A-1.1.1.1.(1) ⁽⁴⁾ 2.1.1.2.(4) ⁽⁴⁾ A-2.2.1.1.(1) ⁽⁴⁾ A-3.2.1.1.(1) ⁽⁴⁾ 3.1.13.1.(1) 3.2.3.21.(1) 3.2.5.16.(1) 3.3.1.2.(1) 3.3.1.10.(1) 3.3.2.3.(1) 3.3.2.16.(1) 3.3.4.3.(4) 3.3.5.2.(1) 3.3.6.1.(1) 3.3.6.3.(1) 3.3.6.3.(2) 3.3.6.4.(1) 3.3.6.4.(2) 3.3.6.6.(1) 3.7.3.1.(1) A-3.1.2.3.(1) A-3.2.4.6.(2) A-3.2.6. A-3.2.7.8.(3) A-3.3. A-3.3.1.7.(1) A-3.3.3.1.(1) A-3.3.6.1.(1) A-3.9.3.1.(1) 6.3.4.2.(3) 6.3.4.3.(1) 6.3.4.4.(1) 6.9.1.2.(1) 8.1.1.1.(3) 8.1.1.3.(1) 9.10.20.4.(1) 9.10.21.8.(1)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
BC	2018	Book II (Plumbing Systems) of the British Columbia Building Code	2.1.1.2.(4) ⁽⁴⁾ A-2.2.1.1.(1) ⁽⁴⁾ A-3.2.1.1.(1) ⁽⁴⁾ A-4.1.6.4.(3) 5.6.2.2.(2) 6.3.2.15.(3) 6.3.2.15.(5) 7.1.2.1.(1) 9.31.6.2.(1) 9.36.3.11.(2) 9.36.4.3.(2) A-9.36.5.8.(5) Appendix C
BC	B.C. Reg. 100/2004	Electrical Safety Regulation	3.3.6.2.(4) 3.6.1.2.(1) 3.6.2.1.(6) 3.6.2.7.(1) 6.2.1.5.(1) 9.31.6.2.(2) 9.33.5.2.(1) 9.34.1.1.(1)
BC	B.C. Reg. 101/2004	Elevating Devices Safety Regulation	3.5.2.1.(1) 3.5.2.1.(2) <u>Table 4.1.5.11.</u> <u>Table 4.1.8.18.</u>
BC	B.C. Reg. 103/2004	Gas Safety Regulation	6.2.1.5.(1) 9.10.22.1.(1) 9.31.6.2.(2) 9.33.5.2.(1)
BC	B.C. Reg. 104/2004	Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation	6.2.1.5.(1) 9.31.6.2.(2) 9.33.5.2.(1)
BC	R.S.B.C. 1996 c.17	Architects Act	1.4.1.2.(1) ⁽⁴⁾
BC	R.S.B.C. 1996 c.116	Engineers and Geoscientists Act	1.4.1.2.(1) ⁽⁴⁾
BC	R.S.B.C. 1996 c.293	Mines Act	1.4.1.2.(1) ⁽⁴⁾
BC	S.B.C. 1998 c.43	Strata Property Act	A-9.37.1.1.
BC	S.B.C. 2003 c.39	Safety Standards Act	6.2.1.5.(1) 6.2.1.5.(2) 9.31.6.2.(2) 9.33.5.2.(1) 9.33.5.2.(2)
BC	S.B.C. 2015	Building Act	2.2.1.1.(1) ⁽⁴⁾
BNQ	BNQ 3624-115/2007	Polyethylene (PE) Pipe and Fittings – Flexible Pipes for Drainage – Characteristics and Test Methods	Table 5.9.1.1. 9.14.3.1.(1)
<u>CCBFC</u>	<u>NRCC</u>	<u>National Energy Code of Canada for Buildings</u>	<u>10.2.2.2.(2)</u> <u>A-10.2.2.2.</u>
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) ⁽⁴⁾

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
CCBFC	NRCC 38730	Model National Energy Code of Canada for Houses 1997	A-9.36.3.10.(1) A-9.36.4.2.(1)
CCBFC	NRCC 38732	National Farm Building Code of Canada 1995	1.1.1.1.(4) ⁽⁴⁾ A-1.4.1.2.(1) ⁽⁴⁾ 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) ⁽⁴⁾
CCBFC	NRCC 43963	User's Guide – NBC 1995, Application of Part 9 to Existing Buildings	A-1.1.1.1.(1) ⁽⁴⁾
CCBFC	NRCC 56191	National Energy Code of Canada for Buildings 2015	A-2.1.1.2.(6) ⁽⁴⁾ A-2.2.1.1.(1) ⁽⁴⁾ A-3.2.1.1.(1) ⁽⁴⁾ Table 3.10.1.1.(1) 9.36.1.3.(1) 9.36.1.3.(4) 9.36.3.1.(2) 9.36.4.1.(2) A-9.36.1.3. A-9.36.2.4.(1) A-9.36.3.10.(1) A-9.36.4.2.(1) A-9.36.5.2. 10.2.2.1.(1) <u>10.2.2.2.(2)</u> <u>10.2.2.2.(3)</u> <u>10.2.2.2.(4)</u> Table 10.2.3.3.-A Table 10.2.3.3.-B 10.2.3.4.(1) <u>10.2.3.4.(4)</u> <u>A-10.2.2.2.</u> A-10.2.3.3.(2) <u>A-10.2.3.4.</u> A-2.2.8.1.(1) ⁽⁵⁾

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
CCBFC	NRCC 56194	User's Guide – NBC 2015, Structural Commentaries (Part 4 of Division B)	A-1.1.1.1.(1) ⁽⁴⁾ 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.(4) A-4.1.3.2.(5) 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-4.1.5.8. A-4.1.5.17. A-4.1.6.2. A-4.1.6.3.(2) A-4.1.6.4.(1) A-4.1.7.2.(1) and (2) A-4.1.7.3.(5)(c) A-4.1.7.3.(10) A-4.1.7.9.(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-4.1.8.10.(4) A-4.1.8.10.(5) A-4.1.8.10.(7) 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.(3) A-4.1.8.15.(4) A-4.1.8.15.(5) A-4.1.8.15.(6) A-4.1.8.15.(7) A-4.1.8.15.(8) A-4.1.8.16.(1)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
CCBFC	NRCC 56194	User's Guide – NBC 2015, Structural Commentaries (Part 4 of Division B) (continued)	A-4.1.8.16.(4) A-4.1.8.16.(6)(a) A-4.1.8.16.(7) A-4.1.8.16.(8)(a) A-4.1.8.16.(10) A-4.1.8.17.(1) A-4.1.8.18. A-4.1.8.18.(14) A-4.1.8.18.(15) and (16)(c) A-4.1.8.19.(3)(a) A-4.1.8.19.(4) A-4.1.8.21.(4)(a) A-4.1.8.21.(5) 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-4.3.6.1.(1) A-4.4.2.1.(1) A-5.1.4.2. A-5.2.2.2.(4) Appendix C
CGSB	CAN/CGSB-1.501-M89	Method for Permeance of Coated Wallboard	5.5.1.2.(2) 9.25.4.2.(5)
CGSB	CAN/CGSB-7.2-94	Adjustable Steel Columns	9.17.3.4.(1) A-9.17.3.4.
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 5.9.1.1. 9.27.9.1.(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 5.9.1.1. 9.27.9.1.(1)
CGSB	CAN/CGSB-12.1-M90	Tempered or Laminated Safety Glass	3.3.1.19.(3) 3.4.6.15.(1) 3.4.6.15.(3) Table 5.9.1.1. 9.6.1.2.(1) 9.6.1.4.(1) 9.8.8.7.(1)
CGSB	CAN/CGSB-12.2-M91	Flat, Clear Sheet Glass	Table 5.9.1.1. 9.6.1.2.(1)
CGSB	CAN/CGSB-12.3-M91	Flat, Clear Float Glass	Table 5.9.1.1. 9.6.1.2.(1)
CGSB	CAN/CGSB-12.4-M91	Heat Absorbing Glass	Table 5.9.1.1. 9.6.1.2.(1)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
CGSB	CAN/CGSB-12.8-97	Insulating Glass Units	Table 5.9.1.1. 9.6.1.2.(1)
CGSB	CAN/CGSB-12.10-M76	Glass, Light and Heat Reflecting	Table 5.9.1.1. 9.6.1.2.(1)
CGSB	CAN/CGSB-12.11-M90	Wired Safety Glass	3.3.1.19.(3) 3.4.6.15.(1) 3.4.6.15.(3) Table 5.9.1.1. 9.6.1.2.(1) 9.6.1.4.(1) 9.8.8.7.(1)
CGSB	CAN/CGSB-12.20-M89	Structural Design of Glass for Buildings	4.3.6.1.(1) 9.6.1.3.(1) A-9.6.1.3.(2)
CGSB	CAN/CGSB-19.22-M89	Mildew-Resistant Sealing Compound for Tubs and Tiles	9.29.10.5.(1)
CGSB	37-GP-9Ma-1983	Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-A
CGSB	CAN/CGSB-37.50-M89	Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
CGSB	CAN/CGSB-37.51-M90	Application for Hot-Applied Rubberized Asphalt for Roofing and Waterproofing	9.26.15.1.(1)
CGSB	CAN/CGSB-37.54-95	Polyvinyl Chloride Roofing and Waterproofing Membrane	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
CGSB	37-GP-55M-1979	Application of Sheet Applied Flexible Polyvinyl Chloride Roofing Membrane	9.26.16.1.(1)
CGSB	37-GP-56M-1985	Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
CGSB	CAN/CGSB-37.58-M86	Membrane, Elastomeric, Cold-Applied Liquid, for Non-Exposed Use in Roofing and Waterproofing	Table 5.9.1.1. 9.13.3.2.(2) Table 9.26.2.1.-B
CGSB	CAN/CGSB-41.24-95	Rigid Vinyl Siding, Soffits and Fascia	Table 5.9.1.1. 9.27.12.1.(1)
CGSB	CAN/CGSB-51.25-M87	Thermal Insulation, Phenolic, Faced	Table 9.23.17.2.-A 9.25.2.2.(1)
CGSB	51-GP-27M-1979	Thermal Insulation, Polystyrene, Loose Fill	9.25.2.2.(1)
CGSB	CAN/CGSB-51.32-M77	Sheathing, Membrane, Breather Type	Table 5.9.1.1. 9.20.13.9.(1) Table 9.26.2.1.-A 9.27.3.2.(1)
CGSB	CAN/CGSB-51.33-M89	Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction	Table 5.9.1.1. 9.25.4.2.(4)

Table 1.3.1.2. (continued)
Documents Referenced in Book I (General) of the British Columbia Building Code⁽¹⁾
 Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number ⁽²⁾	Title of Document ⁽³⁾	Code Reference
CGSB	CAN/CGSB-51.34-M86	Vapour Barrier, Polyethylene Sheet for Use in Building Construction	Table 5.9.1.1. 9.13.2.2.(2) 9.18.6.2.(1) 9.25.3.2.(2) 9.25.3.6.(1) 9.25.4.2.(3)
CGSB	CAN/CGSB-51.71-2005	Depressurization Test	9.32.3.8.(7)
CGSB	CAN/CGSB-71.26-M88	Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems	A-9.23.4.2.(2) Table A-9.23.4.2.(2)-C
CGSB	CAN/CGSB-82.6-M86	Doors, Mirrored Glass, Sliding or Folding, Wardrobe	9.6.1.2.(2) A-9.6.1.2.(2)
CGSB	CAN/CGSB-93.1-M85	Sheet, Aluminum Alloy, Prefinished, Residential	Table 5.9.1.1. 9.27.11.1.(4) A-9.27.11.1.(3) and (4)
CGSB	CAN/CGSB-93.2-M91	Prefinished Aluminum Siding, Soffits, and Fascia, for Residential Use	3.2.3.6.(5) Table 5.9.1.1. 9.10.14.5.(8) 9.10.14.5.(12) 9.10.15.5.(7) 9.10.15.5.(11) 9.27.11.1.(3) A-9.27.11.1.(3) and (4)
CGSB	CAN/CGSB-93.3-M91	Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use	Table 5.9.1.1. 9.27.11.1.(2)
CGSB	CAN/CGSB-93.4-92	Galvanized Steel and Aluminum-Zinc Alloy Coated Steel Siding, Soffits and Fascia, Prefinished, Residential	Table 5.9.1.1. 9.27.11.1.(1)
CGSB	CAN/CGSB-149.10-M86	Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method	9.36.5.10.(11) 9.36.6.5.(1) A-9.36.5.10.(11)
CISC/CCA	2013	Crane-Supporting Steel Structures: Design Guide	A-4.1.3.2.(2)
CMHC	1993	Testing of Fresh Air Mixing Devices	A-9.32.3.4.
CMHC	1988	Air Permeance of Building Materials	Table A-9.25.5.1.(1)
CoV	<u>Version 2.0</u>	City of Vancouver Energy Modelling Guidelines	10.2.3.4.(1) <u>10.2.3.4.(3)</u> <u>10.2.3.4.(4)</u> <u>A-10.2.3.4.</u>
CSA	CAN/CSA-6.19-01	Residential Carbon Monoxide Alarming Devices	6.9.3.1.(2) 9.32.4.2.(2) 9.32.4.2.(3)
CSA	A23.1-14	Concrete Materials and Methods of Concrete Construction	4.2.3.6.(1) 4.2.3.9.(1) Table 5.9.1.1. 9.3.1.1.(1) 9.3.1.1.(4) 9.3.1.3.(1) 9.3.1.4.(1)

Part 10

Energy Efficiency

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Part 10

Energy Efficiency

(See Note A-10.)

Section 10.1. General

10.1.1. Application

10.1.1.1. Scope

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

10.1.1.2. Application

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

10.1.2. Definitions

10.1.2.1. Defined Terms

- 1) Words that appear in italics are defined in Article 1.4.1.2..

Section 10.2. Energy Efficiency

10.2.1. General

10.2.1.1. Application

- 1) This Section does not apply to *buildings* described in Sentence 1.3.3.3.(1) of Division A.

10.2.2. Design and Construction

10.2.2.1. Design and Construction

- 1) Except as permitted in Article 10.2.2.2., *buildings* shall be designed and constructed to conform to
 - a) ANSI/ASHRAE/IES 90.1, “Energy Standard for Buildings Except Low-Rise Residential Buildings” (except Subsection 8.4.2.),
 - b) the NECB, or
 - c) Subsection 10.2.3.
- 2) Where a *building* contains one or more *major occupancies* that conform to Subsection 10.2.3., the remaining *major occupancies* shall comply with Clause (1)(a) or (b).

10.2.2.2. Application to Existing Buildings

(See Note A-10.2.2.2.)

- 1) Where a *building* or *major occupancy* designed and constructed to conform to any version of ANSI/ASHRAE/IES 90.1, “Energy Standard for Buildings Except Low-Rise Residential Buildings” is altered, rehabilitated, or renovated, or there is a change in *occupancy*, the energy performance of the *alteration*, rehabilitation, renovation, or change in *occupancy* shall comply with Clause 10.2.2.1.(1)(a) or (c).
- 2) Notwithstanding Article 1.1.1.1. of Division A of the NECB, where a *building* or *major occupancy* designed and constructed to conform to any version of the NECB is altered, rehabilitated, or renovated, or there is a change in *occupancy*, the energy performance of the *alteration*, rehabilitation, renovation or change in *occupancy*, shall comply with Clause 10.2.2.1.(1)(b) or (c).

3) Notwithstanding Article 1.1.1.1. of Division A of the NECB, where a *building or major occupancy* designed and constructed to conform to any version of Subsection 10.2.3. is altered, rehabilitated, renovated, or there is a change in *occupancy*, the energy performance of the *alteration, rehabilitation, renovation, or change in occupancy*, shall comply Clauses 10.2.2.1.(1)(b) or (c).

4) Notwithstanding Article 1.1.1.1. of Division A of the NECB, where a *building or major occupancy* that is not described in Sentences (1) through (3) is altered, rehabilitated, renovated, or there is a change in *occupancy*, the energy performance of the *alteration, rehabilitation, renovation, or change in occupancy* shall comply with Sentence 10.2.2.1.(1).

10.2.3. Energy Step Code

10.2.3.1. Application

1) This Subsection applies to *buildings* containing any of the following *major occupancies*:

- a) *residential*,
- b) *business and personal services*, or
- c) *mercantile*.

(See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.)

10.2.3.2. Definitions

(See Note A-9.36.6.2.)

1) For the purpose of this Subsection, the term “total energy use intensity” shall mean a metric of the energy used over a year by the *building*, estimated by using an energy model in accordance with Article 10.2.3.4., normalized per square metre of floor area of *conditioned space* and expressed in kWh/(m²•year), for all of the following combined:

- a) space-heating equipment,
- b) space-cooling equipment,
- c) fans,
- d) interior and exterior lighting devices,
- e) service water heating equipment,
- f) pumps,
- g) auxiliary HVAC equipment (see A-9.36.6.2.(1)(f) in Appendix A),
- h) receptacle loads and miscellaneous equipment,
- i) appliances, and
- j) elevators and escalators.

2) For the purpose of this Subsection, the term “thermal energy demand intensity” shall mean a metric of the annual heating required by the *building* for space conditioning and for conditioning of ventilation air, estimated by using an energy model in accordance with Article 10.2.3.4., normalized per square metre of floor area of *conditioned space* and expressed in kWh/(m²•year), taking into account all of the following:

- a) thermal transmittance of above-ground walls and roof-ceiling assemblies,
- b) thermal transmittance of floors and walls in contact with the ground, or space that is not *conditioned space*,
- c) thermal transmittance and solar heat gain of windows, doors and skylights,
- d) air leakage through the *air barrier system*,
- e) internal heat gains from occupants and equipment, and
- f) heat recovery from exhaust ventilation.

(See Note A-10.2.3.2.(2).)

3) For the purpose of this Subsection, the term “Step” shall mean a Step referred to in Tables 10.2.3.3.-A and 10.2.3.3.-B.

10.2.3.3. Compliance Requirements

1) *Buildings* and *major occupancies* conforming to the requirements of any of Steps 1 to 4 shall be designed and constructed to conform to the applicable energy performance requirements in Tables 10.2.3.3.-A and 10.2.3.3.-B.

Table 10.2.3.3.-A
Energy Performance Requirements for Residential Occupancies
 Forming part of Sentences 10.2.3.3.(1) and (2)

Step	Hotels and Motels	Other Group C Occupancies	Hotels and Motels	Other Group C Occupancies
	Equipment and Systems – Maximum Total Energy Use Intensity, kWh/(m ² ·year)		Building Envelope – Maximum Thermal Energy Demand Intensity, kWh/(m ² ·year)	
1	Conform to Part 8 of the NECB			
2	<u>170</u>	130	<u>30</u>	45
3	<u>140</u>	120	<u>20</u>	30
4	<u>120</u>	100	<u>15</u>	15

Table 10.2.3.3.-B
Energy Performance Requirements for Business and Personal Services or Mercantile Occupancies
 Forming part of Sentences 10.2.3.3.(1) and (2)

Step	Offices	Other Group D and E Occupancies	Offices	Other Group D and E Occupancies
	Equipment and Systems – Maximum Total Energy Use Intensity, kWh/(m ² ·year)		Building Envelope – Maximum Thermal Energy Demand Intensity, kWh/(m ² ·year)	
1	Conform to Part 8 of the NECB			
2	<u>130</u>	170	<u>30</u>	30
3	<u>100</u>	120	<u>20</u>	20

2) Except as permitted by Sentence (3),

- a) energy performance shall be calculated in conformance with Article 10.2.3.4., and
- b) airtightness shall be tested in accordance with Article 10.2.3.5.

(See Note A-10.2.3.3.(2).)

3) *Buildings* and *major occupancies* designed and constructed to conform to Step 4 of Table 10.2.3.3.-A or to Step 3 in Table 10.2.3.3.-B, and to the Passive House Planning Package, version 9 or newer, are deemed to comply with this Subsection provided the energy model according to which the *building* or the *major occupancy* of the *building* is designed and constructed is prepared by a Certified Passive House Designer, or Certified Passive House Consultant, who is approved by the Passive House Institute.

(See also Sentence 10.2.2.1.(2).)

10.2.3.4. Energy Modelling

(See Note A-10.2.3.4.)

1) Except as required by Sentence (2), for *buildings* and *major occupancies* conforming to the requirements of any of Steps 1 to 4, energy modelling shall conform to

- a) the applicable requirements of Part 8 of the NECB, and
- b) the City of Vancouver Energy Modelling Guidelines.

2) Except as permitted by Sentence (3), energy modelling for *buildings* and *major occupancies* conforming to the requirements of any of Steps 2 to 4 shall account for the air leakage rate derived in accordance with Article 10.2.3.5.

3) Until the air leakage rate determined by Sentence (2) is available, an air leakage rate determined in accordance with the City of Vancouver Energy Modelling Guidelines shall be used.

4) In case of conflict between the provisions of the NECB and the City of Vancouver Energy Modelling Guidelines, the provisions of the City of Vancouver Energy Modelling Guidelines shall govern.

10.2.3.5. Building Envelope Airtightness Testing

1) Except as required by Sentence (2), *buildings* and *major occupancies* shall be tested for airtightness in accordance with

- a) ASTM E 779, “Standard Test Method for Determining Air Leakage Rate by Fan Pressurization”, or
- b) USACE Version 3, “Air Leakage Test Protocol for Building Envelopes”.

(See Note A-10.2.3.5.(1).)

2) Where airtightness is determined in accordance with Sentence (1) with intentional openings for mechanical equipment left unsealed, the airtightness rate shall be adjusted in the energy model calculations to account for air leakage through mechanical equipment.

3) *Buildings* and *major occupancies* shall be tested for airtightness to an induced test pressure of not less than 75 Pa.

Section 10.3. Objectives and Functional Statements

10.3.1. Objectives and Functional Statements

10.3.1.1. Attributions to Acceptable Solutions

1) For the purpose of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 10.3.1.1. (See Note A-1.1.2.1.(1).)

Table 10.3.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 10
Forming part of Sentence 10.3.1.1.(1)

Acceptable Solutions	Functional Statements and Objectives ⁽¹⁾
10.2.3.3. Compliance Requirements	
(3)	[F85, F86, F90, F91, F92, F93, F95, F96, F98, F99, F100-OE1.1]
10.2.3.5. Building Envelope Airtightness Testing	
(1)	[F90-OE1.1]

Notes to Table 10.3.1.1.:

- (1) See Parts 2 and 3 of Division A.

Notes to Part 10

Energy Efficiency

A-10. Water Efficiency. Water efficiency requirements have been relocated in Book II, Plumbing Services, of the BC Building Code.

A-10.2.2.2. Energy Requirements for Alterations to Buildings and Major Occupancies. Alterations, rehabilitation, renovations and changes of occupancy to existing buildings or major occupancies that were originally designed and constructed to previous editions of the ANSI/ASHRAE/IES 90.1 standard are to comply with the edition of the ANSI/ASHRAE/IES 90.1 standard referenced in this Code, or the requirements of Subsection 10.2.3. Alterations, rehabilitation, renovations and changes of occupancy to existing buildings or major occupancies that were originally designed and constructed to previous editions of the NECB or Subsection 10.2.3. are to comply with the edition of the NECB referenced in this Code, or to Subsection 10.2.3. Existing buildings or major occupancies that were not designed and constructed to any version of the ANSI/ASHRAE/IES 90.1 standard, the NECB or Subsection 10.2.3. may use the edition of the ANSI/ASHRAE/IES 90.1 standard or the NECB referenced in this Code, or Subsection 10.2.3. for alterations, rehabilitation, renovations and changes in occupancy.

Sentence 1.1.1.2.(1) of Division A states that the level of building performance shall not be decreased below a level that already exists. For example, a new occupancy may be permitted a higher lighting power density by the ANSI/ASHRAE/IES 90.1 standard or the NECB than the lighting power density that was permitted for a previous occupancy. This does not constitute a decrease in the level of building performance, provided the design meets the minimum requirements of the relevant Code or standard.

A-10.2.3.2.(2) Thermal Energy Demand Intensity (TEDI). TEDI does not include receptacle loads and energy use from unusual uses such as spas and computer server rooms.

A-10.2.3.3.(2) Energy Model Calculations for Step 1. Although the total energy use intensity and thermal energy demand intensity are not required for NECB conformance, they must still be calculated in conformance with Article 10.3.1.4. and reported in accordance with Subsection 2.2.9. of Division C.

A-10.2.3.4. Energy Modelling

Energy Model Calculations for Steps 2 to 4

Notwithstanding the requirements of Part 8 of the NECB, a reference building and building energy target are not required for compliance with the requirements of Steps 2 to 4 in Article 10.2.3.3. The performance requirements of Table 10.2.3.3.-A. and Table 10.2.3.3.-B. are used to determine compliance.

Air Leakage Rate in Energy Model Calculations

The requirement to account for the air leakage rate as tested in all energy model calculations, other than for Step 1 buildings, supersedes the NECB air leakage rate requirements. For buildings that must conform to the requirements of any of Steps 2 to 4, higher than expected air leakage may require the building design to be altered and the energy model calculations to be repeated. Alternatively, the air leakage rate could be retested after making alterations to the air barrier system to attain the desired air leakage rate.

Air Leakage Rate in Energy Model Calculations for Step 1

Although the air leakage rate as tested of the building need not be used for the purposes of conforming with Part 8 of the NECB and Sentence 10.2.3.4.(2), Article 2.2.9.1. of Division C requires that the air leakage rate as tested be used in the calculation of the total energy use intensity and thermal energy demand intensity for reporting purposes on the drawings and specifications. This will typically require Step 1 energy model calculations to be redone after the airtightness test. It is not intended that the results of the airtightness test for buildings that must conform to the requirements of Step 1 influence the compliance of the building with Article 10.2.3.3.

Air Leakage Rate

Section 2.4. of the City of Vancouver's Energy Modelling Guidelines provides guidance on determining infiltration/air leakage rates for buildings conforming with Section 10.2.3. at the design stage.

A-10.2.3.5.(1) Building Airtightness Testing Requirements. The intent of this testing is to quantify the airtightness level of the air barrier system, not airtightness of the building at in-service operating conditions.

Table C-4 (continued)
Locations in British Columbia Requiring Radon Rough-Ins (see Article 9.13.4.2.)(1)
 Forming part of Appendix C

Location	Radon Rough-In <u>Required/Not Required</u>
Colwood	Not Required
Comox	Not Required
Coquitlam	Not Required
Courtenay	Not Required
Cranbrook	Required
Crescent Valley	Required
Crofton	Not Required
Dawson Creek	Required
Dease Lake	Required
Delta	Not Required
Dog Creek	Required
Duncan	<u>Required</u>
Elko	Required
Fernie	Required
Fort Nelson	Required
Fort St. John	Required
Garibaldi	Not Required
Genelle	Required
Glacier	Required
Gold River	Not Required
Golden	Required
Grand Forks	Required
Greenwood	Required
Hope	<u>Required</u>
Invermere	Required
Jordan River	<u>Not Required</u>
Kamloops	Required
Kaslo	Required
Kelowna	Required
Kimberley	Required
Kitimat Plant	Not Required
Kitimat Townsite	Not Required
Ladysmith	Not Required
Langford	Not Required
Lillooet	<u>Required</u>
Little Fort	Required
Lytton	Required

Table C-4 (continued)
Locations in British Columbia Requiring Radon Rough-Ins (see Article 9.13.4.2.)(1)
 Forming part of Appendix C

Location	Radon Rough-In <u>Required/Not Required</u>
Mackenzie	Required
Masset	Not Required
McBride	Required
McLeod Lake	Required
Merritt	Required
Mission City	Not Required
Montrose	Required
Nakusp	Required
Nanaimo	Not Required
Nelson	Required
Ocean Falls	Not Required
Osoyoos	Required
Parksville	Not Required
Pemberton	Not Required
Penticton	Required
Port Alberni	Not Required
Port Alice	Not Required
Port Clements	Not Required
Port Hardy	Not Required
Port McNeill	Not Required
Port Moody	Not Required
Port Renfrew	Not Required
Powell River	Not Required
Prince George	Required
Prince Rupert	Not Required
Princeton	Required
Qualicum Beach	<u>Not Required</u>
Queen Charlotte City	Not Required
Quesnel	Required
Revelstoke	Required
Rossland	Required
Salmon Arm	Required
Sandspit	Not Required
Sechelt	<u>Required</u>
Sidney	Not Required
Smith River	Required
Smithers	Required

Part 2

Administrative Provisions

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Part 2

Administrative Provisions

Section 2.1. Application

2.1.1. Application

2.1.1.1. Application

- 1) This Part applies to all *buildings* covered in this Code. (See Article 1.1.1.1. of Division A.)

Section 2.2. Administration

2.2.1. Administration

2.2.1.1. Conformance with Administrative Requirements

- 1) This Code is made pursuant to Section 3 of the Building Act.

2.2.1.2. Structural Design

- 1) For design carried out in accordance with Part 4 of Division B, the *designer* shall be a *registered professional* skilled in the work concerned. (See Note A-2.2.1.2.(1).)

2.2.2. Information Required for Proposed Work

2.2.2.1. General Information Required

- 1) Sufficient information shall be provided to show that the proposed work will conform to this Code and whether or not it may affect adjacent property.
- 2) Plans shall be drawn to scale and shall indicate
 - a) the nature and extent of the work or proposed *occupancy* in sufficient detail to establish that, when completed, the work and the proposed *occupancy* will conform to this Code,
 - b) the applicable edition of the Code,
 - c) whether the *building* is designed under Part 3 or Part 9,
 - d) the *major occupancy* classifications of the *building*,
 - e) the *building area* and *building height*,
 - f) the number of *streets* the *building* faces,
 - g) the *accessible* entrances, work areas and washrooms,
 - h) the *accessible* facilities particular to the *occupancies*, and
 - i) the energy compliance path to which the *building* conforms, and, where a *building* conforms to Subsection 9.36.6. or 10.2.3. of Division B, the Step to which it conforms.
- 3) When proposed work is changed during construction, information on the changes shall comply with the requirements of this Section for proposed work.

2.2.2.2. Site Plans

- 1) Site plans shall be referenced to an up-to-date survey and, when required to prove compliance with this Code, a copy of the survey shall be provided.
- 2) Site plans shall show
 - a) by dimensions from property lines, the location of the proposed *building*,

- b) the similarly dimensioned location of every adjacent existing *building* on the property,
- c) existing and finished ground levels to an established datum at or adjacent to the site,
- d) the access routes for firefighting, and
- e) the *accessible* paths of travel to the *building* from
 - i) the sidewalk, roadway or street, and
 - ii) if provided, exterior parking stalls for *persons with disabilities* and exterior passenger-loading zones.

2.2.3. Fire Protection Components

2.2.3.1. Information Required for Fire Protection Components

- 1) Information shall be submitted to show the major components of fire protection including
 - a) the division of the *building* by *firewalls*,
 - b) the *building area*,
 - c) the degree of *fire separation* of *storeys*, shafts and special rooms or areas, including the location and rating of *closures* in *fire separations*,
 - d) the source of information for *fire-resistance ratings* of elements of construction (to be indicated on large-scale sections),
 - e) the location of *exits*, and
 - f) fire detection, suppression and alarm systems.

2.2.3.2. Plans of Sprinkler Systems

- 1) Before a sprinkler system is installed or altered, plans showing full details of the proposed sprinkler system and essential details of the *building* in which it is to be installed shall be drawn to an indicated scale.

2.2.4. Structural and Foundation Drawings and Calculations

2.2.4.1. Application

- 1) This Subsection applies only to *buildings* covered in Part 4 of Division B. (See Article 1.3.3.2. of Division A.)

2.2.4.2. Professional Seal and Signature of Designer

- 1) Structural drawings and related documents submitted with the application to build shall be dated and shall bear the authorized professional seal and signature of the *designer* as defined in Sentence 2.2.1.2.(1).

2.2.4.3. Information Required on Structural Drawings

- 1) Structural drawings and related documents submitted with the application to build shall indicate, in addition to those items specified in Article 2.2.4.6. and in Part 4 of Division B applicable to the specific material,
 - a) the name and address of the person responsible for the structural design,
 - b) the date of issue of the Code and standards to which the design conforms,
 - c) the dimensions, location and size of all structural members in sufficient detail to enable the design to be checked,
 - d) sufficient detail to enable the *dead loads* to be determined, and
 - e) all effects and loads, other than *dead loads*, used for the design of the structural members and exterior cladding.

2.2.4.4. Drawings of Parts or Components

- 1) Structural drawings of parts or components including *guards* designed by a person other than the *designer* of the *building* shall be dated and shall bear the authorized professional seal and signature of the *designer* of such parts or components.

2.2.4.5. Design Calculations and Analysis

1) The calculations and analysis made in the design of the structural members, including parts and components, of a *building* shall be available for inspection upon request.

2.2.4.6. Information Required on Foundation Drawings

- 1) *Foundation* drawings submitted with the application to build or excavate shall be provided to indicate
 - a) the type and condition of the *soil* or *rock*, as well as the *groundwater* conditions, as determined by the *subsurface investigation*,
 - b) the factored bearing pressures on the *soil* or *rock*, the factored loads when applicable and the design loads applied to *foundation units*, and
 - c) the earth pressures and other loads applied to the supporting structures of supported *excavations*.
- 2) When required, evidence that justifies the information on the drawings shall be submitted with the application to excavate or build.

2.2.4.7. Altered Conditions

1) Where conditions as described under Sentences 4.2.2.4.(1) and (2) of Division B are encountered, or where *foundation units* or their locations are altered, this information shall be recorded on appropriate drawings or new “as constructed” drawings.

2.2.5. Drawings and Specifications for Environmental Separators and Other Assemblies Exposed to the Exterior

2.2.5.1. Application

1) This Subsection applies to building materials, components and assemblies to which Part 5 of Division B applies. (See Article 1.3.3.2. of Division A.)

2.2.5.2. Information Required on Drawings and Specifications

1) Information shown on drawings and in specifications shall be clear and legible, and shall contain sufficient details to demonstrate conformance with this Code. (See Note A-2.2.6.2.(1).)

2.2.6. Heating, Ventilating and Air-conditioning Drawings and Specifications

2.2.6.1. Application

1) This Subsection applies only to *buildings* covered in Part 6 of Division B. (See Article 1.3.3.2. of Division A.)

2.2.6.2. Information Required on Drawings

1) The information shown on architectural drawings and on drawings for heating, ventilating and air-conditioning systems shall be clear and legible and shall contain all necessary details to demonstrate conformance with this Code. (See Note A-2.2.6.2.(1).)

2.2.7. Professional Design and Review

(See Note A-2.2.7.)

2.2.7.1. Application

- 1) The requirements of this Subsection apply to
 - a) *buildings* within the scope of Part 3 of Division B,
 - b) *buildings* within the scope of Part 9 of Division B that are designed with common egress systems for the occupants and require the use of *firewalls* according to Article 1.3.3.4. of Division A, and

- c) the following, in respect of *buildings* within the scope of Part 9 of Division B other than *buildings* described in Clause (b),
 - i) structural components that are not within the scope of Part 9 of Division B
(See Note A-2.2.7.1.(1)(c)(i).),
 - ii) geotechnical conditions at *building* sites that are not within the scope of Part 9 of Division B,
 - iii) sprinkler systems designed to NFPA 13, “Installation of Sprinkler Systems”, and
 - iv) standpipe and hose systems designed to NFPA 14, “Installation of Standpipe and Hose Systems”.

2.2.7.2. Owner Responsibilities

- 1) Before the construction of or the *alteration* to a *building*, the owner shall
 - a) retain a *coordinating registered professional* to coordinate all design work and *field reviews* of the *registered professionals of record* required for the project in order to ascertain that (see Note A-2.2.7.2.(1)(a))
 - i) the design will substantially comply with the British Columbia Building Code and other applicable enactments respecting safety, and
 - ii) the construction of the project will substantially comply with the British Columbia Building Code and other applicable enactments respecting safety, not including the construction safety aspects, and
 - b) if a *building* permit is required, deliver to the *authority having jurisdiction* letters in the forms set out in Schedules A and B. (See the end of Division C and Note A-2.2.7.2.(1)(b).)
- 2) If an occupancy permit or final inspection from an *authority having jurisdiction* is required and before an owner occupies or receives permission to occupy the *building*, the owner or *coordinating registered professional* shall deliver to that authority letters in the forms set out in Schedules C-A and C-B (See the end of Division C and Note A-2.2.7.2.(2).)

2.2.7.3. Registered Professional Responsibilities

(See Note A-2.2.7.3.)

- 1) A *registered professional of record* who signs a letter, the form of which is set out in a Schedule to this Subsection, and an owner who signs or has an agent sign a letter the form of which is set out in a Schedule to this Subsection, shall comply with this Subsection and the provisions of the letter that apply to the person signing.
- 2) A *registered professional of record* or *coordinating registered professional* who is responsible for a *field review* shall keep a record of the *field review* and of any corrective action taken as a result of the *field review* and shall make the record available to the *authority having jurisdiction* on the request of that authority.
- 3) A *registered professional of record* who is retained to undertake design work and *field reviews* and who is required to provide letters pursuant to Clause 2.2.7.2.(1)(b) shall
 - a) place his or her professional seal or stamp on the plans submitted by him or her in support of the application for a *building* permit, after ascertaining that they substantially comply with the British Columbia Building Code and other applicable enactments respecting safety,
 - b) provide to the *authority having jurisdiction* a letter in the form of Schedule C-B (see the end of Division C) after ascertaining that the components of the project for which the *registered professional of record* is responsible are constructed so as to substantially comply, in all material respects, with
 - i) the plans and supporting documents prepared by the *registered professional of record*, and
 - ii) the requirements of the British Columbia Building Code and other applicable enactments respecting safety, not including construction safety aspects.

2.2.7.4. Termination

- 1) An owner must not terminate the appointment of a *coordinating registered professional* or *registered professional of record* unless
 - a) the owner immediately replaces the *coordinating registered professional* or *registered professional of record*, or
 - b) the owner has complied with Clause (1)(b) and Sentence (2) of Article 2.2.7.2. by delivering letters in the forms set out in Schedule A, B, C-A and C-B, as applicable, to the *authority having jurisdiction*.

- 2) In respect of a project to which this Subsection applies,
 - a) if the *coordinating registered professional* ceases to be retained at any time before the completion of the project, both the owner and the *coordinating registered professional* shall notify the *authority having jurisdiction*, and
 - b) if a *registered professional of record* ceases to be retained at any time before the completion of the project, both the *coordinating registered professional* and the *registered professional of record* shall notify the *authority having jurisdiction*.
- 3) Notification under Sentences (1) and (2) shall be made,
 - a) if possible, before the *coordinating registered professional* or *registered professional of record*, as the case may be, ceases to be retained, or
 - b) if advance notice is not possible, as soon as possible.

2.2.7.5. Reserved

2.2.8. Drawings, Specifications and Calculations for Energy Performance Compliance

2.2.8.1. Application

1) This Subsection applies only to houses with or without a *secondary suite* and to *buildings* containing only *dwelling units* and common spaces whose total *floor area* does not exceed 20% of the total *floor area* of the *building* that are modeled in accordance with Subsection 9.36.5. or 9.36.6. of Division B to demonstrate compliance with the energy efficiency objectives of Subsections 9.36.2. to 9.36.4. of Division B. (See Note A-2.2.8.1.(1).) (See also Sentence 9.36.1.2.(1) of Division B and Note A-9.36.1.3.(3) of Division B.)

2.2.8.2. Information Required on Drawings and Specifications

- 1) Except as provided in Sentences (2), (3) and (4), the drawings and specifications for the proposed house shall include
 - a) the effective thermal resistance values and respective areas of all opaque *building* envelope assemblies, including all above-ground and below-ground roof/ceiling, wall, and floor assemblies,
 - b) the overall thermal transmittance (U-value), solar heat gain coefficient and respective areas of all fenestration and door components,
 - c) the ratio of total vertical fenestration and door area to gross wall area,
 - d) the performance rating, energy source, and types of all equipment required for space-heating and -cooling and service water heating,
 - e) the design basis for the ventilation rates,
 - f) where a test is used to determine the airtightness of a house, the measured airtightness of the *building* envelope in air changes per hour, and
 - g) any additional features used in the energy model calculations that account for a significant difference in house energy performance.
- 2) The effective thermal resistance values and respective areas of opaque *building* envelope assemblies that cover less than 2% of the total area of their respective assembly type need not be provided in the drawings and specifications required in Sentence (1).
- 3) Where part-load characteristics are used in the modeling of the HVAC equipment, they need not be provided in the drawings and specifications required in Sentence (1).
- 4) The features of the proposed house that differ from those of the reference house shall be detailed in the specifications required in Sentence (1).

2.2.8.3. House Performance Compliance Calculation Report

1) A house performance compliance calculation report shall be provided in accordance with Sentence (2) for each proposed house design.

2) In addition to the drawings and specifications required in Article 2.2.8.2., the house performance compliance calculation report shall include

- a) a project information section containing
 - i) the name or identifier of the project,
 - ii) a description of the project,
 - iii) the address of the project,
 - iv) the name and version of the calculation tool,
 - v) the geographic region in which the proposed house is to be built, and
 - vi) the identifier for the climatic data set used for analysis,
- b) a summary of the characteristics of the *building* envelope, HVAC system and service water heating system reflecting the information provided in Article 2.2.8.2.,
- c) an energy performance data summary containing
 - i) the annual energy consumption of all energy sources calculated for the proposed house (see Note A-2.2.8.3.(2)(c)(i)), and
 - ii) the house energy target of all energy sources calculated for the reference house,
- d) where a software program is used to determine compliance,
 - i) the name of the software program(s), and
 - ii) a list of any adaptations made by the user to the software relating to input or output values, and
- e) a statement that the calculation was performed in compliance with
 - i) Subsection 9.36.5. of Division B,
 - ii) Sentence 9.36.6.3.(3) of Division B,
 - iii) Sentence 9.36.6.4.(2) of Division B, or
 - iv) Sentence 9.36.6.4.(3) of Division B.

3) Where a building complies with Subsection 9.36.6. of Division B, the energy performance data summary in Clause (2)(c) shall also contain

- a) the floor area of conditioned space used for the energy modelling calculations (see Note A-9.36.6.2. of Division B).
- b) the mechanical energy use intensity,
- c) the thermal energy demand intensity,
- d) where applicable, the EnerGuide Rating % lower than EnerGuide Reference House for the *building*,
- e) for *buildings* conforming to Step 1, the airtightness of the *building* as tested, derived in accordance with Article 9.36.6.5. of Division B, and recorded in air changes per hour at 50 Pa, and
- f) for *buildings* conforming to any of Steps 2 to 5, the airtightness of the *building* as tested that is accounted for in accordance with Sentence 9.36.6.4.(4) of Division B, and derived in accordance with Article 9.36.6.5., recorded in air changes per hour at 50 Pa.

4) The mechanical energy use intensity in Clause (3)(b), the thermal energy demand intensity in Clause (3)(c), and the EnerGuide Rating % lower than EnerGuide Reference House in Clause (3)(d) shall account for the airtightness referenced in Clause (3)(e) or (f), as applicable.

2.2.9. Drawings, Specifications and Calculations for Subsection 10.2.3.

2.2.9.1. Application

1) This Subsection applies to *buildings* and *major occupancies* in *buildings* to which Subsection 10.2.3. of Division B applies.

2.2.9.2. Information Required

1) For *buildings* and *major occupancies* that are designed and constructed in compliance with Subsection 10.2.3. of Division B, design drawings, specifications, or an energy design report shall indicate

- a) the total energy use intensity as defined by Sentence 10.2.3.2.(1) of Division B,
- b) the energy use intensity of major energy services separately, including
 - i) space heating,
 - ii) space cooling,
 - iii) service water heating,
 - iv) lighting, and
 - v) other plug loads,
- c) the thermal energy demand intensity as defined by Sentence 10.2.3.2.(2) of Division B, and
- d) the air leakage rate as derived in accordance with Sentence 10.2.3.4.(3) of Division B, and recorded in $L/(s \cdot m^2)$ at 75 Pa.

2) For buildings and major occupancies that are designed and constructed in compliance with Subsection 10.2.3. of Division B, before an owner occupies or receives permission to occupy the building, an energy report shall indicate

- a) the total energy use intensity as defined by Sentence 10.2.3.2.(1) of Division B,
- b) the energy use intensity of major energy services separately, including
 - i) space heating,
 - ii) space cooling,
 - iii) service water heating,
 - iv) lighting, and
 - v) other plug loads.
- c) the thermal energy demand intensity as defined by Sentence 10.2.3.2.(2) of Division B.
- d) for buildings conforming to Step 1, the air leakage rate as tested, derived in accordance with Article 10.2.3.5. of Division B, and recorded in $L/(s \cdot m^2)$ at 75 Pa, and
- e) for buildings conforming to any of Steps 2 to 4, the air leakage rate as tested that is accounted for in accordance with Sentence 10.2.3.4.(2) of Division B and derived in accordance with Article 10.2.3.5. of Division B, recorded in $L/(s \cdot m^2)$ at 75 Pa.

3) The total energy use intensity in Clause (2)(a) and the thermal energy demand intensity in Clause (2)(c) shall account for the airtightness referenced in Clause (2)(d) or (e), as applicable.

Section 2.3. Alternative Solutions

2.3.1. Alternative Solutions

(See Note A-2.3.1.)

2.3.1.1. Application

1) For the purposes of Clause 1.2.1.1.(1)(b) of Division A, on written request by the owner of a *building* or an authorized agent of that owner, the *authority having jurisdiction* shall accept a measure as an alternate solution to an acceptable solution for the building if satisfied that

- a) the measure will achieve at least the level of performance required by Clause 1.2.1.1.(1)(b) of Division A, and
- b) the acceptable solution does not expressly require conformance to a provincial enactment other than the British Columbia Building Code.

2.3.1.2. Documentation

1) The *authority having jurisdiction* may require a person requesting the use of an alternative solution to provide documentation to demonstrate that the proposed alternative solution will achieve at least the level of performance required by Clause 1.2.1.1.(1)(b) of Division A.

- 2)** The documentation referred to in Sentence (1) shall include
 - a) a Code analysis outlining the analytical methods and rationales used to determine that a proposed alternative solution will achieve at least the level of performance required by Clause 1.2.1.1.(1)(b) of Division A, and
 - b) information concerning any special maintenance or operational requirements, including any *building* component commissioning requirements, that are necessary for the alternative solution to achieve compliance with the Code after the *building* is constructed.
- 3)** The Code analysis referred to in Clause (2)(a) shall identify the applicable objectives, functional statements and acceptable solutions, and any assumptions, limiting or restricting factors, testing procedures, engineering studies or performance parameters that will support a Code compliance assessment.
- 4)** The Code analysis referred to in Clause (2)(a) shall include information about the qualifications, experience and background of the person or persons taking responsibility for the design.
- 5)** The information provided under Sentence (3) shall be in sufficient detail to convey the design intent and to support the validity, accuracy, relevance and precision of the Code analysis.
- 6)** Where more than one person is responsible for the design of a *building* or facility that includes a proposed alternative solution, the person requesting the use of the alternative solution shall identify a single person to co-ordinate the preparation of the design, Code analysis and documentation referred to in this Article.

12) The principal ventilation flow rate, in L/s, prescribed in Section 9.32. shall be multiplied by 2.32 W/L/s to determine the ventilation fan power capacity, in W, to be used in the energy model calculations for each fan on the exhaust side and, where applicable, on the supply side.

13) Where a heat-recovery ventilator is required in the reference house in accordance with Article 9.36.3.8., the ventilation flow rate, in L/s, in the zone served by the pool or hot tub shall be multiplied by 4.18 W/L/s to determine the heat-recovery ventilator power, in W, to be used in the energy model calculations.

14) Where a forced-air system is installed in the reference house, the system’s capacity, in W, shall be multiplied by one of the following factors to determine the circulation fan flow rate, in L/s:

- a) 0.0604 for heat pumps, and
- b) 0.0251 for all other types of heating systems.

15) Where a forced-air system is installed in the reference house, the circulation fan flow rate, in L/s, shall be multiplied by 2.30 W/L/s to determine the circulation fan power capacity, in W.

16) For natural gas-, oil-, propane- and wood-burning heating systems, the energy model calculations shall set the auxiliary electricity capacity, including that of combustion fans, to 208 W during operation.

9.36.5.16. Modeling Service Water Heating System of Reference House

1) The energy source of the reference house’s service water heating system, which is gas, electricity, oil, propane, wood or a heat pump, shall be the same as that for the system in the proposed house.

2) The service water heating system in the reference house shall be sized in accordance with Subsection 9.31.6. with regard to output capacity.

3) Except as required by Table 9.36.5.16., the performance of the service water heating equipment in the reference house shall be modeled as conforming to Table 9.36.4.2. for the energy source, capacity and type of service water heating equipment in the proposed house.

Table 9.36.5.16.
Performance of Service Water Heating (SWH) Equipment in the Reference House
 Forming Part of Sentence 9.36.5.16.(3)

Type of SWH Equipment in Proposed House	Input for Proposed SWH Equipment	Type of SWH Equipment to be Used for Reference House	Input for Reference SWH Equipment
Gas-fired tankless <i>service water heater</i>	≤ 73.2 kW	Gas-fired storage type	≤ 22 kW
	> 73.2 kW		> 22 kW
Oil-fired tankless <i>service water heater</i>	≤ 61.5 kW ⁽¹⁾	Oil-fired storage type	≤ 30.5 kW ⁽¹⁾
	Other		> 30.5 kW
Not listed in Table 9.36.4.2.	–	Gas-fired storage type	≥ 22 kW (E _t ≥ 80%)

Notes to Table 9.36.5.16.:

(1) Consistent with the U.S. Congress “National Appliance Energy Conservation Act of 1987.”

9.36.6. Energy Step Code

9.36.6.1. Application

1) Where a *building* contains more than one *dwelling unit*, the requirements of this Subsection shall apply to the energy performance of the *building* and not to individual *dwelling units*.

9.36.6.2. Definitions

(See Note A-9.36.6.2.)

1) For the purpose of this Subsection, the term “mechanical energy use intensity” shall mean a metric of the energy used over a year by the *building*, estimated by using an energy model in accordance with Article 9.36.6.4., normalized per square metre of floor area of *conditioned space* and expressed in kWh/(m²•year), for all of the following combined:

- a) space-heating equipment,
- b) space-cooling equipment,
- c) fans,
- d) service water heating equipment,
- e) pumps, and
- f) auxiliary HVAC equipment (see Note A-9.36.6.2.(1)(f)).

2) For the purpose of this Subsection, the term “EnerGuide Rating % lower than EnerGuide Reference House” shall mean the metric that results when, using HOT2000 software, version 11 or newer and Natural Resources Canada’s EnerGuide Rating System, version 15 or newer, the energy consumption of the following are compared:

- a) the proposed *building*, not including the EnerGuide assumed electric base loads, and
- b) the corresponding automatically-generated reference house, not including the EnerGuide assumed electric base loads.

3) For the purpose of this Subsection, the term “thermal energy demand intensity” shall mean a metric of the annual heating required by the *building* for space conditioning and for conditioning of ventilation air, estimated by using an energy model in accordance with Article 9.36.6.4., normalized per square metre of floor area of *conditioned space* and expressed in kWh/(m²•year), taking into account all of the following:

- a) thermal transmittance of above-ground walls and roof-ceiling assemblies,
- b) thermal transmittance of floors and walls in contact with the ground, or with space that is not *conditioned space*,
- c) thermal transmittance and solar heat gain of windows, doors and skylights,
- d) air leakage through the *air barrier system*,
- e) internal heat gains from occupants and equipment, and
- f) heat recovery from exhaust ventilation.

4) For the purpose of this Subsection, the term “Step” shall mean a Step referred to in Tables 9.36.6.3.-A to 9.36.6.3.-G.

9.36.6.3. Compliance Requirements

1) *Buildings* conforming to the requirements of any of Steps 1 to 5 shall be designed and constructed to conform to the applicable energy performance requirements in Tables 9.36.6.3.-A to 9.36.6.3.-G.

Table 9.36.6.3.-A
Requirements for Buildings Located Where the Degree-Days Below 18°C Value is less than 3000⁽¹⁾
 Forming Part of Sentence 9.36.6.3.(1)

Step	Airtightness (Air Changes per Hour at 50 Pa Pressure Differential)	Performance Requirement of <i>Building</i> Equipment and Systems	Performance Requirement of <i>Building</i> Envelope
1	N/A	EnerGuide Rating % lower than EnerGuide Reference House: not less than 0% lower energy consumption or conform to Subsection 9.36.5.	
2	≤ 3.0	EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 35 kWh/(m ² •year)
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 30 kWh/(m ² •year)
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 20 kWh/(m ² •year)
5	≤ 1.0	<u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 15kWh/(m ² •year)

Notes to Table 9.36.6.3.A:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

Table 9.36.6.3.-B
Requirements for Buildings Located Where the Degree-Days Below 18°C Value is 3000 to 3999⁽¹⁾
 Forming Part of Sentence 9.36.6.3.(1)

Step	Airtightness (Air Changes per Hour at 50 Pa Pressure Differential)	Performance Requirement of <i>Building</i> Equipment and Systems	Performance Requirement of <i>Building</i> Envelope
1	N/A	EnerGuide Rating % lower than EnerGuide Reference House: not less than 0% lower energy consumption or conform to Subsection 9.36.5.	
2	≤ 3.0	EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 45 kWh/(m ² •year)
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 40 kWh/(m ² •year)
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 30 kWh/(m ² •year)
5	≤ 1.0	<u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 20kWh/(m ² •year)

Notes to Table 9.36.6.3.B:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

Table 9.36.6.3.-C
Requirements for Buildings Located Where the Degree-Days Below 18°C Value is 4000 to 4999⁽¹⁾
 Forming Part of Sentence 9.36.6.3.(1)

Step	Airtightness (Air Changes per Hour at 50 Pa Pressure Differential)	Performance Requirement of <i>Building</i> Equipment and Systems	Performance Requirement of <i>Building</i> Envelope
1	N/A	EnerGuide Rating % lower than EnerGuide Reference House: not less than 0% lower energy consumption or conform to Subsection 9.36.5.	
2	≤ 3.0	EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 60 kWh/(m ² •year)
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 50 kWh/(m ² •year)
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption or <u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 40 kWh/(m ² •year)
5	≤ 1.0	<u>the applicable</u> mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 25kWh/(m ² •year)

Notes to Table 9.36.6.3.C:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

Table 9.36.6.3.-D
Requirements for Buildings Located Where the Degree-Days Below 18°C Value is 5000 to 5999⁽¹⁾
 Forming Part of Sentence 9.36.6.3.(1)

Step	<u>Airtightness</u> (Air Changes per Hour at 50 Pa Pressure Differential)	<u>Performance Requirement of Building Equipment and Systems</u>	<u>Performance Requirement of Building Envelope</u>
1	N/A	<u>EnerGuide Rating % lower than EnerGuide Reference House:</u> <u>not less than 0% lower energy consumption</u> or <u>conform to Subsection 9.36.5.</u>	
2	≤ 3.0	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 80 \text{ kWh}/(\text{m}^2 \cdot \text{year})$
3	≤ 2.5	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 70 \text{ kWh}/(\text{m}^2 \cdot \text{year})$
4	≤ 1.5	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 55 \text{ kWh}/(\text{m}^2 \cdot \text{year})$
5	≤ 1.0	<u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 35 \text{ kWh}/(\text{m}^2 \cdot \text{year})$

Notes to Table 9.36.6.3.D:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

Table 9.36.6.3-E
Requirements for Buildings Located Where the Degree-Days Below 18°C Value is 6000 to 6999⁽¹⁾
 Forming Part of Sentence 9.36.6.3.(1)

Step	Airtightness (Air Changes per Hour at 50 Pa Pressure Differential)	Performance Requirement of Building Equipment and Systems	Performance Requirement of Building Envelope
1	N/A	<u>EnerGuide Rating % lower than EnerGuide Reference House:</u> <u>not less than 0% lower energy consumption</u> or <u>conform to Subsection 9.36.5.</u>	
2	≤ 3.0	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> <u>≤ 100 kWh/(m²·year)</u>
3	≤ 2.5	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> <u>≤ 90 kWh/(m²·year)</u>
4	≤ 1.5	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> <u>≤ 65 kWh/(m²·year)</u>
5	≤ 1.0	<u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> <u>≤ 50 kWh/(m²·year)</u>

Notes to Table 9.36.6.3.E:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

Table 9.36.6.3.-F
Requirements for Buildings Located Where the Degree-Days Below 18°C Value is greater than 6999⁽¹⁾
 Forming Part of Sentence 9.36.6.3.(1)

Step	<u>Airtightness</u> (Air Changes per Hour at 50 Pa Pressure Differential)	<u>Performance Requirement of Building Equipment and Systems</u>	<u>Performance Requirement of Building Envelope</u>
1	N/A	<u>EnerGuide Rating % lower than EnerGuide Reference House:</u> <u>not less than 0% lower energy consumption</u> or <u>conform to Subsection 9.36.5.</u>	
2	≤ 3.0	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 120 \text{ kWh}/(\text{m}^2\cdot\text{year})$
3	≤ 2.5	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 105 \text{ kWh}/(\text{m}^2\cdot\text{year})$
4	≤ 1.5	<u>EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption</u> or <u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 80 \text{ kWh}/(\text{m}^2\cdot\text{year})$
5	≤ 1.0	<u>the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G</u>	<u>thermal energy demand intensity</u> $\leq 60 \text{ kWh}/(\text{m}^2\cdot\text{year})$

Notes to Table 9.36.6.3.F:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

Table 9.36.6.3.-G
Mechanical Energy Use Intensity Requirements
Forming Part of Sentence 9.36.6.3.(1)

Heating Degree-Days of Building Location, ⁽¹⁾ in Celsius Degree-Days	Amount of the Building's Conditioned Space Served by Space-Cooling Equipment	Step	Floor Area of Conditioned Space (m ²)					
			≤ 50	51 to 75	76 to 120	121 to 165	166 to 210	> 210
			Mechanical Energy Use Intensity, kWh/(m ² ·year)					
Less than 3000	Not more than 50%	2	135	120	90	75	65	60
		3	120	100	75	63	53	50
		4	90	80	60	48	40	40
		5	65	55	40	30	25	25
	More than 50%	2	170	148	108	85	73	65
		3	155	128	93	73	60	55
		4	125	108	78	58	48	45
		5	100	83	58	40	33	30
3000 to 3999	Not more than 50%	2	145	130	100	85	75	70
		3	135	115	90	78	68	65
		4	100	90	70	58	50	50
		5	70	60	45	35	30	30
	More than 50%	2	180	158	118	95	83	75
		3	170	143	108	88	75	70
		4	135	118	88	68	58	55
		5	105	88	63	45	38	35
4000 to 4999	Not more than 50%	2	160	145	115	100	90	85
		3	145	125	100	88	78	75
		4	105	95	75	63	55	55
		5	80	70	55	45	40	40
	More than 50%	2	195	173	133	110	98	90
		3	180	153	118	98	85	80
		4	140	123	93	73	63	60
		5	115	98	73	55	48	45
5000 to 5999	Not more than 50%	2	185	170	140	125	115	110
		3	165	145	120	108	98	95
		4	120	110	90	78	70	70
		5	95	85	70	60	55	55
	More than 50%	2	220	198	158	135	123	115
		3	200	173	138	118	105	100
		4	155	138	108	88	78	75
		5	130	113	88	70	63	60

Table 9.36.6.3.-G (continued)
Mechanical Energy Use Intensity Requirements
Forming Part of Sentence 9.36.6.3.(1)

Heating Degree-Days of Building Location, ⁽¹⁾ in Celsius Degree-Days	Amount of the Building's Conditioned Space Served by Space-Cooling Equipment	Step	Floor Area of Conditioned Space (m ²)					
			≤ 50	51 to 75	76 to 120	121 to 165	166 to 210	> 210
			Mechanical Energy Use Intensity, kWh/(m ² -year)					
6000 to 6999	Not more than 50%	2	205	190	160	145	135	130
		3	185	165	140	128	118	115
		4	135	125	105	93	85	85
		5	105	95	80	70	65	65
	More than 50%	2	240	218	178	155	143	135
		3	220	193	158	138	125	120
		4	170	153	123	103	93	90
		5	140	123	98	80	73	70
More than 6999	Not more than 50%	2	225	210	180	165	155	150
		3	200	180	155	143	133	130
		4	150	140	120	108	100	100
		5	115	105	90	80	75	75
	More than 50%	2	260	238	198	175	163	155
		3	235	208	173	153	140	135
		4	185	168	138	118	108	105
		5	150	133	108	90	83	80

Notes to Table 9.36.6.3.-G:

(1) See Sentence 1.1.3.1.(1) and Table C-2 in Appendix C.

- 2) Except as permitted by Sentence (3),
 - a) energy performance shall be calculated in conformance with Article 9.36.6.4., and
 - b) airtightness shall be tested in accordance with Article 9.36.6.5.

(See Note A-9.36.6.3.(2).)

3) Buildings designed and constructed to conform to Step 5 of any of the Tables referred to in Sentence (1) and to the Passive House Planning Package, version 9 or newer, are deemed to comply with this Subsection if the energy model according to which the building is designed and constructed is prepared by a Certified Passive House Designer, or Certified Passive House Consultant, who is approved by the Passive House Institute.

9.36.6.4. Energy Modelling

1) Energy modelling shall be performed using a computer program that employs calculation methods that have been tested in accordance with ANSI/ASHRAE 140, “Evaluation of Building Energy Analysis Computer Programs” with variations in the computer program from the range recommended therein reported in accordance with Division C.

- 2) Energy modelling shall conform to
 - a) Subsection 9.36.5.,
 - b) the EnerGuide Rating System, version 15 or newer (see Note A-9.36.6.4.(2)(b)), or
 - c) Clauses 10.2.3.4.(1)(a) and (b) and Sentences 10.2.3.4.(3) and (4). (See Note A-9.36.6.4.(2)(c).)

3) The Performance Requirement of Building Equipment and Systems and the Performance Requirement of Building Envelope required under Sentence 9.36.6.3.(1) shall both be modelled using the same

- a) energy modelling methods, and
- b) climatic data, *soil* conditions, operating schedules and temperature set-points.

4) For *buildings* conforming to the requirements of any of Steps 2 to 5, energy modelling shall account for the air leakage rate derived in accordance with Article 9.36.6.5.

(See Note A-9.36.6.4.(4).)

9.36.6.5. Building Envelope Airtightness Testing

1) *Buildings* shall be tested for airtightness in accordance with

- a) CAN/CGSB 149.10, “Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method”,
- b) ASTM E 779, “Standard Test Method for Determining Air Leakage Rate by Fan Pressurization”, or
- c) USACE Version 3, “Air Leakage Test Protocol for Building Envelopes”, or
- d) the applicable standards and requirements of the EnerGuide Rating System, Version 15 or newer.

2) Where airtightness is determined in accordance with Sentence (1) with intentional openings for mechanical equipment left unsealed, the airtightness rate shall be adjusted in the energy model calculations to account for air leakage through mechanical equipment.

3) *Buildings* shall be tested for airtightness to an induced test pressure of not less than 50 Pa.

Section 9.37 Secondary Suites

9.37.1. General

9.37.1.1. Application

1) This Section applies to construction of a *secondary suite* and *alterations* to an existing *building* to accommodate a *secondary suite*. (See Note A-9.37.1.1.(1).)

9.37.1.2. Construction Requirements

1) Construction of a *secondary suite* and *alterations* to an existing *building* to accommodate a *secondary suite* shall conform to the requirements in this Part except as provided in this Section. (See Note A-9.37.1.2.)

9.37.2. Specific Requirements

9.37.2.1. Heights of Rooms or Spaces

1) The minimum height of rooms or spaces in a *secondary suite* over the required minimum area as indicated in Table 9.5.3.1. shall be not less than 2.0 m.

2) It shall be possible to travel from the required area of one room to the required areas of all other rooms within a *secondary suite* without reduction of the room height as required in Sentence (1).

9.37.2.2. Solid Blocking

1) Solid blocking may be omitted for doors described in Sentence 9.7.5.2.(9) where the interior wall finish adjacent the door is in place prior to the construction of a *secondary suite*.

9.37.2.3. Exit Stairs

1) *Exit* stairs within or serving a *building* that contains a *secondary suite* shall have a minimum width, measured between wall faces or guards, of not less than 860 mm. (See Note A-9.37.2.3.(1).)

9.37.2.4. Dimensions of Landings

1) Landings for exterior stairs serving both *suites* in a *building* containing a *secondary suite* need not exceed 900 mm in length.

9.37.2.5. Handrails and Guards

1) Handrails and *guards* shall conform to the requirements of Subsections 9.8.7. and 9.8.8. as if serving only one *dwelling unit*.

9.37.2.6. Means of Egress

1) The width of every *public corridor* and *exit* corridor that serves a *building* that contains a *secondary suite* shall be not less than 860 mm. (See Note A-9.37.2.6.(1).)

9.37.2.7. Fire Separations for Exits

1) Except as permitted by Sentence (2), every *exit* other than an *exit* doorway shall be separated from adjacent *floor areas* by a *fire separation*

- a) having a *fire-resistance rating* of 45 min, or
- b) having a *fire-resistance rating* of not less than 30 min where the *dwelling units* are equipped with *smoke alarms* as referenced in Article 9.37.2.19.

2) A *fire-resistance rating* is not required for a *fire separation* that separates an *exit* from adjacent *floor areas* where the *building* is *sprinklered*.

9.37.2.8. Openings Near Unenclosed Exit Stairs and Ramps

1) Where an unenclosed exterior *exit* stair or ramp provides the only *means of egress* from a *dwelling unit* in a *building* that contains a *secondary suite* and the stair is exposed to the hazards of fire from *unprotected openings* in the exterior wall of another *fire compartment*, the openings shall be protected in conformance with Articles 9.10.13.5. to 9.10.13.7. (See Note A-9.37.2.8.(1).)

9.37.2.9. Doors in a Means of Egress

1) Every *exit* door or door that opens into or is located within a *public corridor* or other facility that provides *access to exit* from a *suite* shall

- a) be not less than 1980 mm high,
- b) have a clear opening width of not less than 800 mm, and
- c) be permitted to swing inward.

9.37.2.10. Travel Limit to Exits or Egress Doors

1) In a *building* that contains a *secondary suite*, the travel limit from a floor level in a *dwelling unit* to an *exit* or egress door may exceed 1 *storey* provided the floor level within the *dwelling unit* is served by an operable window conforming to Article 9.9.10.1.

9.37.2.11. Shared Egress Facilities

1) Except as provided in Article 9.9.7.3., where an egress door from a *dwelling unit* opens onto a *public corridor* or exterior passageway, it shall be possible from the location where the egress door opens onto the *public corridor* or exterior passageway to go in opposite directions to 2 separate *exits* unless the *dwelling unit* is served by a second and separate *means of egress* or an opening window conforming to Article 9.9.10.1.

2) Each *dwelling unit* shall be provided with a second and separate *means of egress* or an opening window conforming to Article 9.9.10.1. where the egress door from either *dwelling unit* opens onto

- a) an *exit* stairway that serves both *suites*,
- b) a *public corridor* serving both *suites* and served by a single *exit* stairway,
- c) an exterior passageway serving both *suites* and served by a single *exit* stairway, or

- d) a balcony serving both *suites* and served by a single *exit* stairway.

9.37.2.12. Exit Signs

- 1) *Exit* signs are not required within a *building* that contains a *secondary suite*.

9.37.2.13. Structural Fire Resistance

- 1) Table 9.10.8.1., Fire-Resistance Ratings for Structural Members and Assemblies, does not apply to a *building* that contains a *secondary suite*.

9.37.2.14. Combustible Drain, Waste and Vent Piping

(See Note A-9.37.2.14.)

- 1) *Combustible* drain, waste and vent piping is permitted to be located within or penetrate a *fire separation* required to have a *fire-resistance rating* provided
 - a) except for the permitted penetration in Clause (b), the *combustible* piping is located within an assembly protected by a membrane of a minimum 12.7 mm gypsum board,
 - b) the permitted penetration through the gypsum board membrane is limited in size to the diameter of the penetrating pipe, and
 - c) the *combustible* piping does not penetrate the gypsum board protection membrane on the underside of a horizontal *fire separation*.
- 2) *Combustible* drain, waste and vent piping enclosed in an assembly or protected as described in Sentence (1) is permitted on both sides of a *fire separation*.

9.37.2.15. Separation of Residential Suites

- 1) *Dwelling units* in a *building* that contains a *secondary suite* shall be separated from each other by
 - a) a *fire separation* conforming to Article 9.10.9.14.,
 - b) a *fire separation* having a *fire-resistance rating* of not less than 30 min where the *dwelling units* are equipped with *smoke alarms* conforming to Article 9.37.2.19., or
 - c) a *fire separation* having no required *fire-resistance rating* where the *building* is *sprinklered*.
- (See Note A-9.37.2.15. and A-9.37.2.17.)

9.37.2.16. Separation of Public Corridors

- 1) A *public corridor* serving a *building* that contains a *secondary suite* shall be separated from the *suites* by
 - a) a *fire separation* conforming to Article 9.10.9.15.,
 - b) a *fire separation* having a *fire-resistance rating* of not less than 30 min where the *dwelling units* are equipped with *smoke alarms* conforming to Article 9.37.2.19., or
 - c) a *fire separation* having no required *fire-resistance rating* where the building is *sprinklered*.
- (See Note A-9.37.2.16.(1).)

9.37.2.17. Air Ducts and Fire Dampers

(See Note A-9.37.2.17.)

- 1) Except as provided in Sentences (2) and (3), and notwithstanding Sentences 9.32.1.1.(1) and 9.33.1.1.(1), Sections 9.32 and 9.33 applies to a *building* that contains a *secondary suite*.
- 2) Where a heating or ventilation duct system serves more than one *suite*, the system shall be designed and installed to prevent the circulation of smoke upon a signal from a duct-type *smoke detector*.
- 3) Ducts penetrating *fire separations* need not be equipped with *fire dampers* in conformance with Article 3.1.8.9. provided they are *noncombustible* with all openings in the duct system serving only one *fire compartment*.

9.37.2.18. Spatial Separation

1) Notwithstanding Sentence 9.10.15.1.(1), Subsection 9.10.15. applies to a *building* that contains a *secondary suite*.

9.37.2.19. Smoke Alarms

(See Note A-9.37.2.19.)

1) Except as permitted by Sentence (3), an additional *smoke alarm* of photo-electric type conforming to CAN/ULC-S531, “Standard for Smoke Alarms,” shall be installed in each *suite*.

2) *Smoke alarms* required in Sentence (1) shall be wired so that the activation of the additional alarm in one *suite* will cause the additional alarm in the other *suite* to sound.

3) An additional interconnected *smoke alarm* is not required to be installed in each *suite* provided

- a) the *fire separations* required in Articles 9.37.2.15. and 9.37.2.16. have a *fire-resistance rating* of 45 min or greater, or
- b) the *building* is *sprinklered*.

9.37.2.20. Sound Control

1) The assemblies separating the residential *suites* need not comply with the sound control requirements of Section 9.11. (See Note A-9.37.2.20.(1).)

9.37.2.21. Attic Space Access

1) An *attic space* access hatchway not less than 0.32 m² in an area with no dimension less than 500 mm may serve both *suites* in a building that contains a *secondary suite*.

9.37.2.22. Garages and Carports

1) Section 9.35 is applicable to garages and carports serving a *building* that contains a *secondary suite*.

Section 9.38. Objectives and Functional Statements

9.38.1. Objectives and Functional Statements

9.38.1.1. Attributions to Acceptable Solutions

1) For the purpose of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 9.38.1.1. (See Note A-1.1.2.1.(1).)

Table 9.38.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 9
 Forming Part of Sentence 9.38.1.1.(1)

Functional Statements and Objectives ⁽¹⁾	
9.3.1.1. General	
(1)	[F20-OS2.1] [F20,F21,F80-OS2.3]
	[F20-OP2.1,OP2.4] [F21-OP2.3,OP2.4] [F20,F80-OP2.3]
	[F20,F21,F80-OH1.1] Applies where concrete supports or is used in the walls of <i>chimneys</i> or fireplaces. [F20,F21,F55,F61,F80-OH1.1,OH1.2] [F20,F21,F61,F80-OH1.3] Applies where concrete supports or is used in an environmental separator.
	[F20,F21,F80-OH4] Applies where concrete elements support wood-frame floors.
	[F20,F21,F80-OS3.1,OS3.7] Applies to concrete floors or steps, concrete that supports wood-frame floors or steps, and concrete steps that support <i>guards</i> or handrails. [F20,F21,F80-OS3.4] Applies where concrete supports or is used in <i>chimneys</i> or fireplaces.
	[F20,F21,F80-OS1.1] Applies where concrete supports or is used in <i>chimneys</i> or fireplaces.
(4)	[F20-OS2.1] [F80-OS2.3] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.
	[F20-OP2.1,OP2.4] [F21,F80-OP2.3,OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator.
	[F20,F21,F80-OH1.1] Applies where concrete supports or is used in the walls of <i>chimneys</i> or fireplaces. [F20,F21,F80,F61,F55-OH1.1,OH1.2] [F20,F21,F80,F61-OH1.3] Applies to elements that support or are part of an environmental separator.
	[F20,F21,F80-OH4] Applies to elements that support floors.
	[F20,F80-OS3.1] Applies to concrete that supports wood-frame floors or steps. [F20,F80-OS3.4,OS3.7] Applies where concrete supports or is used in <i>chimneys</i> or fireplaces.
	[F20,F80-OS1.1] Applies where concrete supports or is used in <i>chimneys</i> or fireplaces.

A-9.36.5.10.(2) Assembly Type. Sentence 9.36.5.10.(2) sets a limit on the size of building envelope assemblies that have to be considered separately in the energy model calculations. In this context, assembly type is intended to mean either walls, roof, fenestration, exposed floors, or foundation walls and is intended to include the respective assembly type areas of the entire building.

A-9.36.5.10.(9)(c)(ii) Equivalent Leakage Area (ELA). The ELA is the size of an imaginary hole through which the same amount of air would pass that passes through all of the unintended openings in the building envelope if the pressure across all those openings were equal. This value is needed in the calculation because it is a good indicator of the airtightness of the house: a leaky house will have a large ELA and a very tight house will have a small ELA. For example, an energy-efficient house might have an ELA as low as 200 cm² whereas a very leaky house can have an ELA of more than 3000 cm².

A-9.36.5.10.(11) Timing of the Airtightness Test. The blower door test described in CAN/CGSB-149.10-M, “Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method,” should be carried out once the building is substantially completed. Sufficient time should be allotted before completion to allow for subsequent air sealing in the event the desired airtightness is not achieved. Interim testing while the air barrier is still accessible for service can also be helpful.

A-9.36.5.11.(9) Part-Load Performance of Equipment.

Measured Data

Where available, the measured part-load performance data are provided by the equipment manufacturer.

Modeled Part-Load Performance Data

Part-load performance ratings differ depending on the equipment. The intent of Sentence 9.36.5.11.(9) is to indicate that the same modeled data source should be used for both the proposed and reference houses.

A-9.36.5.11.(10) Sensible Heat Recovery.

Treatment of Humidity in the Calculations

The calculations using sensible heat do not take latent heat (humidity) into account.

Energy-Recovery Ventilators

Energy-recovery ventilators can be used in lieu of heat-recovery ventilators.

A-9.36.5.11.(11) Circulation Fans. Sentences 9.36.5.11.(12) to (19) calculate the energy consumption of the circulation fan. The results are intended to be used in energy model calculations only and are not intended to address the performance of the ventilation system. The actual sizing of ventilation systems must comply with Section 9.32.

A-9.36.5.12.(2) Assumptions Relating to Drain-Water Heat Recovery. Energy savings associated with drain water heat recovery depend on the duration of showers and the vertical drop in the drain pipe. Similar to the service water heating load distribution, the length of showers depends on occupant behaviour. The values provided in Sentence 9.36.5.12.(2) are intended to be used in the energy model calculations only and take into consideration the loads stated in Table 9.36.5.8. The efficiency of a drain-water heat-recovery unit must be modeled using the same physical configuration intended for installation.

A-9.36.5.14.(10) Above-Ground Gross Wall Area. The determination of above-ground gross wall area is consistent with the prescriptive requirements of Article 9.36.2.3. in that it is based on the measurement of the distance between interior grade and the uppermost ceiling and on interior areas of insulated wall assemblies.

A-9.36.5.15.(5) Sizing of Heating and Cooling Systems. The intent of Sentence 9.36.5.15.(5) is that the cooling system be sized only for the portion of the house that is cooled.

Article 9.33.5.1. references CSA F280, “Determining the Required Capacity of Residential Space Heating and Cooling Appliances,” which contains a number of different methods for determining the capacity of heating appliances. The intent of Sentence 9.36.5.15.(5) is that the equipment be sized according to the methods for total heat output capacity and nominal cooling capacity without being oversized.

A-9.36.5.15.(6) Default Settings. The default settings in energy performance modeling software for houses are an appropriate source of part-load performance values of equipment.

A-9.36.5.15.(8) Treatment of Humidity in the Calculations. The calculations using sensible heat do not take latent heat (humidity) into account.

A-9.36.6.2. Floor Area in the Energy Step Code. The words floor area, as used in Sentence 9.36.6.2.(1), Sentence 9.36.6.2.(3), Sentence 9.36.6.3.(1), Sentence 10.2.3.2.(1), and Sentence 10.2.3.2.(2) of Division B, and Sentence 2.2.8.3.(3) of Division C are not italicized, to differentiate them from the defined term floor area in Article 1.4.1.2. of Division A.

Different modelling approaches identify the applicable floor area in various ways (e.g. modelled floor area, heated floor area, treated floor area, etc.) and the use of the words floor area in Sentence 9.36.6.2.(1), Sentence 9.36.6.2.(3), Sentence 9.36.6.3.(1), Sentence 10.2.3.2.(1), and Sentence 10.2.3.2.(2) of Division B, and Sentence 2.2.8.3.(3) of Division C is intended to accommodate the various modelling approaches.

A-9.36.6.2.(1)(f) Auxiliary HVAC Equipment. This category of equipment generally includes cooling tower fans, humidifiers and other devices that do not directly fall under one of the other categories listed in Sentence 8.4.2.2.(1) of the NECB.

A-9.36.6.3.(2) Airtightness Testing for Step 1. Although there is no airtightness requirement for buildings conforming to the requirements of Step 1, these buildings must still be tested in accordance with Article 9.36.6.5. and their air barriers must meet the requirements of Subsection 9.25.3.

Buildings conforming to the requirements of Step 1 may also conform to Subsection 9.36.5. Although Sentence 9.36.5.10.(9) provides the option of using the airtightness as tested in the energy modelling, using the result in the energy model is not required.

A-9.36.6.4.(2)(b) EnerGuide Rating System. Although not a requirement of the British Columbia Building Code, users of the EnerGuide Rating System (ERS) must be energy advisors registered and in good standing with Natural Resources Canada in accordance with the EnerGuide Rating System Administrative Procedures and must adhere to the technical standards and procedures of the ERS. These standards and procedures are available through Natural Resources Canada and include program requirements for energy modelling using the ERS.

A-9.36.6.4.(2)(c) NECB. Although the energy model calculation methods of the NECB are permitted to be used, the results of those calculations must reflect the definitions and the requirements related to mechanical energy use intensity and thermal energy demand intensity as set out in Articles 9.36.6.2. and 9.36.6.3., and not the Annual Energy Consumption as required by Part 8 of the NECB.

A-9.36.6.4.(4) Air Leakage Rate in Energy Model Calculations. For Step 1 buildings, airtightness testing must be performed as required by Sentence 9.36.6.3.(2) and reported as required by Division C, but there is no minimum level of airtightness required. See Sentence 9.36.5.10.(9) for requirements for the airtightness value to be used in the energy model calculations for Step 1 buildings using Subsection 9.36.5.

For buildings that must conform to the requirements of any of Steps 2 to 5, higher than expected air leakage may require the building design to be altered and the energy model calculations to be repeated. Alternatively, the air leakage rate could be retested after making alterations to the air barrier system to attain the desired air leakage rate.

A-9.37.1.1. Application. It is intended that Section 9.37. apply to the construction of a secondary suite, whether as an addition to an existing building or as part of the construction of a new building. This Section may also be used as a standard for assessing an existing additional dwelling unit located in a single family dwelling building (house), but is not intended to be applied as a retroactive code to these existing units.

It is intended that the definition reflects that a secondary suite is an additional dwelling unit of limited size located within a house. Many of the changes in Section 9.37. are premised on the condition of the limited size of the secondary suite, which may directly or indirectly relate to issues such as occupant load, travel distance and egress dimensions.

In order for an additional dwelling unit to be considered a secondary suite, the following criteria must apply:

- There is only one secondary suite permitted in the building.
- It must be located in a building containing only residential occupancy.
- The secondary suite is located in or is part of a building containing only one other dwelling unit.
- The area of the secondary suite cannot exceed 90 m² of finished living area. (This does not include the areas used for common storage, common laundry facilities or common areas used for egress.)
- The area of the secondary suite cannot exceed 40% of the total living floor space (area) of the building it is located in. (The living floor area of the building does not include attached storage garages.)
- The secondary suite cannot be subdivided from the building it is part of under the Strata Property Act. This means that both dwelling units are registered under the same title.