BUILDING CODE ACT, 1992

RULING OF THE MINISTER OF MUNICIPAL AFFAIRS AND HOUSING

No. MR-11-S-17

Pursuant to clause 29(1)(b) of the *Building Code Act*, 1992, as amended, the Director of the Building and Development Branch as delegate of the Minister of Municipal Affairs and Housing hereby adopts the following amendments to a code, standard, guideline, protocol or procedure that has been adopted by reference in the Building Code (O. Reg. 350/06 as amended):

1. **Description of code, standard, guideline, protocol or procedure that has been adopted by reference in the Building Code:**

Issuing Agency:	**Ministry of Municipal Affairs and Housing**
Issue Date:	**November 30, 2009**
Document Number:	**Supplementary Standard SB-12**
Title of Document:	**Energy Efficiency of Housing**

2. **Amendment of the code, standard, guideline, protocol or procedure that is adopted in this Ruling:**

Edition Adopted:	**Supplementary Standard SB-12** **Energy Efficiency of Housing** **Revised December 5, 2011**

3. **Conditions under which the amendments of the codes, standards, guidelines, protocols or procedures are adopted.**

    1. This Ruling comes into force on January 1, 2012.

Dated at Toronto this 5th day of December, 2011.

DENISE K. EVANS, DIRECTOR
BUILDING AND DEVELOPMENT BRANCH

Supplementary Standard SB-12

Energy Efficiency For Housing

January 1, 2012 update

COMMENCEMENT

m_7 Supplementary Standard SB-12 comes into force on the 1st day of January 2010, pursuant to O. Reg. 503/09.

m_{16} Ruling of the Minister of Municipal Affairs and Housing (Minister's Ruling) MR-11-S-17 takes effect on the 1st day of January, 2012.

m_7 m_{16} SB-12 Energy Efficiency of Housing

FOREWORD[1]

This Supplementary Standard provides prescriptive requirements to achieve an acceptable air leakage rate and energy efficiency level as an alternative to achieving a rating of 80 when evaluated in accordance with the technical requirements of NRCan's "EnerGuide for New Houses: Administrative and Technical Procedures", January 2005. This Supplementary Standard has been included as a design option in Sentence 12.2.1.2.(3) of the Building Code to recognize the needs of consumers and the building industry for a predictable prescriptive solution. The energy efficiency levels achieved in this Supplementary Standard are intended to meet or exceed, on a systemic basis, the level that would be met by model analogues evaluated against the EnerGuide Rating System.

Sentence 12.2.1.2.(3) requires the energy efficiency design of a building or part of a building of residential occupancy within the scope of Part 9 that is intended to be occupied on a continuing basis during the winter months to comply with:

- Supplementary Standard SB-12; or
- Achieve a rating of 80 or more when evaluated in accordance with the technical requirements of NRCan,"EnerGuide for New Houses: Administrative and Technical Procedures", January 2005.

Subsections 12.3.2. and 12.3.3. of the Building Code are no longer applicable.

This Supplementary Standard contains three compliance options to achieve energy efficiency:

- Select an applicable prescriptive compliance package from Subsection 2.1.1. of this Supplementary Standard,
- Design to the performance compliance method in Subsection 2.1.2. of this Supplementary Standard, or
- Design to Energy Star requirements as specified in Subsection 2.1.3. of this Supplementary Standard.

This Supplementary Standard does not require labeling to demonstrate compliance with the Building Code. Subsections 2.1.1. and 2.1.2. of this Supplementary Standard do not require blower door testing to demonstrate compliance.

[1]Unless otherwise indicated, all Building Code references in this foreword refer to provisions located in Division B of the Building Code.

SUMMARY OF THE CONTENTS OF SB-12

Chapter 1: General

This Chapter sets out the scope and application of this Supplementary Standard.

Chapter 2: Acceptable Solutions for Achieving Energy Efficiency Compliance

This Chapter contains acceptable solutions for achieving energy efficiency compliance with Clause 12.2.1.2.(3)(b) of Division B in the Building Code. Conformance with one of the prescriptive compliance packages in Subsection 2.1.1., the performance compliance method in Subsection 2.1.2. or Energy Star requirements as specified in Subsection 2.1.3. of this Supplementary Standard will achieve an energy efficiency performance level that is generally equivalent to a rating of 80 or more when evaluated in accordance with the technical requirements of NRCan, "EnerGuide for New Houses: Administrative and Technical Procedures", January 2005.

Chapter 1

General

Section 1.1. Scope

1.1.1. Energy Efficiency Compliance

1.1.1.1. Energy Efficiency

(1) Compliance with this Supplementary Standard shall be deemed to meet the energy efficiency requirements in accordance with Sentence 12.2.1.2.(3) of Division B in the *Building Code*.

1.1.1.2. Compliance Options

(2) The energy efficiency of a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B in the *Building Code* and is intended for *occupancy* on a continuing basis during the winter months shall comply with

(a) Subsection 2.1.1. (Prescriptive Compliance Packages) of Chapter 2,
(b) Subsection 2.1.2. (Performance Compliance) of Chapter 2, or
(c) Subsection 2.1.3. (Other Acceptable Compliance Methods) of Chapter 2.

Section 1.2. Application

1.2.1. Application of Supplementary Standard SB-12

1.2.1.1. Energy Efficiency Design

(1) The energy efficiency of a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B in the *Building Code* and is intended for *occupancy* on a continuing basis during the winter months shall comply with this Supplementary Standard in accordance with Sentence 12.2.1.2.(3) of Division B in the *Building Code*.

Section 1.3. Terms and Abbreviations

1.3.1. Definitions of Words and Phrases

1.3.1.1. Non-defined Terms

(1) Definitions of words and phrases used in this Supplementary Standard that are not included in the list of definitions in Articles 1.4.1.2. and 1.4.1.3. of Division A in the *Building Code* and are not defined in another provision of the Code shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.

1.3.1.2. Defined Terms

(1) Each of the words and terms in italics in this Supplementary Standard has the same meaning as in subsection 1(1) of the *Building Code Act, 1992* or Clause 1.4.1.2.(1)(b) of Division A in the *Building Code*.

1.3.2. Symbols and Other Abbreviations

1.3.2.1. Symbols and Other Abbreviations

(1) Where used in this Supplementary Standard, a symbol or abbreviation listed in Column 2 of Table 1.4.2.1. of Division B in the *Building Code* shall have the meaning listed opposite it in Column 3.

(2) The abbreviations listed in Column 2 of Table 1.3.2.1. shall also apply to this Supplementary Standard and shall have the meaning listed opposite it in Column 3.

Table 1.3.2.1.
Abbreviations
Forming Part of Sentence 1.3.2.1.(2)

Item	Abbreviation	Meaning
1	AFUE	annual fuel utilization efficiency
2	EF	energy factor
3	HRV	heat recovery ventilator
4	ICF	insulating concrete form
Column 1	2	3

Section 1.4. Referenced Documents and Organizations

1.4.1. Referenced Documents

1.4.1.1. Effective Date

(1) Except as provided in Sentence (2), and unless otherwise specified in this Supplementary Standard, the documents referenced in this Supplementary Standard shall include all amendments, revisions and supplements effective to October 31, 2011.

(2) All references to NRCan, "EnerGuide for New Houses: Administrative and Technical Procedures" in the *Building Code* shall be the 2005 edition with all amendments, revisions and supplements effective to May 31, 2006.

1.4.1.2. Applicable Editions

(1) Where documents are referenced in this Supplementary Standard, they shall be the editions designated in Column 2 of Table 1.4.1.2.

Table 1.4.1.2.
Referenced Documents
Forming Part of Sentence 1.4.1.2.(1)

Issuing Agency	Document Number	Title of Document	Supplementary Standard Reference
CSA	CAN/CSA-A440.2-09	Fenestration Energy Performance Evaluation of Windows and Sliding Glass Doors	2.1.1.10.(2)
NFRC	NFRC 100-2010	Procedure for Determining Fenestration Product U-factors	2.1.1.10.(2)
NFRC	NFRC 200-2010	Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence	2.1.1.10.(2)
NRCan	NRCan January 2011	Energy Star for New Homes: Technical Specifications – Ontario	2.1.3.1.(1)
Column 1	2	3	4

Notes to Table 1.4.1.2.:
(1) NFRC refers to the National Fenestration Rating Council. (See Appendix A.)

1.4.2. Abbreviations

1.4.2.1. Abbreviations of Proper Names

(1) Where used in this Supplementary Standard, abbreviations of proper names listed in Column 1 of Table 1.3.2.1. of Division B in the *Building Code* shall have the meaning assigned opposite it in Column 2.

Chapter 2

Acceptable Solutions for Energy Efficiency Compliance

Section 2.1. Methods for Achieving Energy Efficiency Compliance

2.1.1. Prescriptive Compliance Packages (See Appendix A.)

2.1.1.1. Energy Efficiency

(1) Except as permitted in Articles 2.1.1.5. to 2.1.1.10., the minimum thermal performance and energy efficiency of *building* envelope and space heating equipment, domestic hot water heating equipment and heat recovery ventilators equipment shall conform to

(a) Article 2.1.1.2. if the *building* is located in Zone 1 with less than 5000 heating degree days, or

(b) Article 2.1.1.3. if the *building* is located in Zone 2 with 5000 or more heating degree days.

(2) All walls, ceilings, floors, windows and doors that separate heated space from unheated space, the exterior air or the exterior *soil* shall have thermal resistance ratings conforming to this Subsection.

(3) Where specified in compliance packages in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, space heating equipment, domestic hot water heating equipment and heat recovery ventilators shall have the efficiency rating conforming to this Subsection. (See Appendix A.)

(4) Insulation shall be provided between heated and unheated spaces and between heated spaces and the exterior in accordance with this Chapter.

(5) Reflective surfaces of insulating materials shall not be considered in calculating the thermal resistance of *building* assemblies.

(6) Where glass block is used in a wall, the required minimum overall performance of the *building* envelope shall be maintained by increasing thermal performance of other components sufficient to compensate for the additional heat loss through the glass block.

(7) Except as provided in Sentence (8) and except as permitted in Sentence (9), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is not more than 17%, the *building* shall comply with a compliance package selected from Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C.

(8) Except as permitted in Sentences (9) and 2.1.1.10.(4), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 17% but not more than 22%, the *building* shall comply with a compliance package selected from Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, and the overall coefficient of heat transfer of the glazing shall be upgraded to

(a) 1.8 where the selected compliance package requires 2.0,
(b) 1.6 where the selected compliance package requires 1.8, and
(c) 1.4 where the selected compliance package requires 1.6.

(9) Glazing in main entrance doors and adjacent sidelights to main entrance doors need not be calculated for the purposes of Sentences (7) and (8).

(10) Except as provided in Sentence (9), where the ratio of gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of exterior walls measured from grade to the top of the upper most ceiling is more than 22%, the *building* shall comply with Subsection 2.1.2.

(11) Where a *dwelling unit* has a walkout *basement*, the thermal performance level of the exterior *basement* wall shall be not less than that required for the above grade wall for
(a) the *basement* wall containing the door opening, and
(b) any *basement* wall that has an exposed wall area above the ground level exceeding 50% of that *basement* wall area.

(12) The minimum thermal resistance of insulation shall conform to the applicable values specified in Articles 2.1.1.2. and 2.1.1.3.

(13) The minimum annual fuel utilization efficiency of a furnace serving a *building* of *residential occupancy* shall conform to Table 2.1.1.1.A.

(14) Where space heating is supplied by a solid fuel-burning *appliance* or an earth energy system, the compliance package is permitted to comply with Tables 2.1.1.2.A. and 2.1.1.3.A.

(15) Where an enclosed unheated space is separated from a heated space by glazing, the unheated enclosure may be considered to provide a thermal resistance of RSI 0.16.

Table 2.1.1.1.A.
Furnace Minimum Annual Fuel Utilization Efficiency
Forming Part of Sentence 2.1.1.1.(13)

Furnace Fuel Source	Minimum AFUE
Natural gas	90%
Propane	90%
Column 1	2

2.1.1.2. Energy Efficiency for Zone 1 Buildings

(1) Except as required in Sentences (2) to (4) and permitted in Sentences (5) to (8), the minimum thermal performance of *building* envelope and equipment shall conform to Table 2.1.1.2.A.

Table 2.1.1.2.A
ZONE 1 - Compliance Packages for Space Heating Equipment with AFUE ≥90%
Forming Part of Sentence 2.1.1.2.(1)

Component	Compliance Package												
	A	B	C	D	E	F	G	H	I	J	K[3]	L[4]	M[5]
Ceiling with Attic Space Minimum RSI (R)-Value[1]	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value[1]	4.23 (R24)	4.75 (R27)	4.75 (R27)	4.23 (R24)	4.23 (R24)	4.23 (R24)	4.23 (R24)	4.23 (R24)	3.87 (R22)	3.87 (R22)	3.87 (R22)	4.23 (R24)	4.23 (R24)
Basement Walls Minimum RSI (R)-Value[1]	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	2.11 (R12)	2.11 (R12)	2.11 (R12)	3.52 (R20)	2.11 (R12)	3.87 (R22)	3.87 (R22)	3.52 (R20)
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value[1]	0.88 (R5)	-	-	-	-	-	-	-	-	-	-	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value[2]	1.6	1.6	1.8	1.8	1.8	1.8	1.8	2	1.8	1.8	1.8	1.8	1.8
Skylights Maximum U-Value[2]	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	90%	90%	94%	94%	90%	94%	92%	94%	92%	94%	90%	94%	90%[8]
HRV[6], [7] Minimum Efficiency	-	-	-	-	55%	60%	60%	70%	55%	60%	-	-	-
Domestic Hot Water Heater Minimum EF	0.57	0.57	0.62	0.67	0.57	0.57	0.62	0.67	0.62	0.67	0.57	0.57	0.80[8]
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14

Notes to Table 2.1.1.2.A:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values expressed in (m²· K)/W.

(2) U-Value is the overall coefficient of heat transfer expressed in W/(m²· K).

(3) Compliance package K *applies only to a building* with both ICF *basement* walls and ICF above grade walls. Alternatively, any other compliance package is permitted to be used for a *building* with both ICF *basement* walls and ICF above grade walls. The thermal insulation value of an ICF wall is the sum of the insulation value on both sides of the walls.

(4) Compliance package L *applies only to a building* with ICF *basement* walls. Alternatively, any other compliance package except compliance package K, is permitted to be used for a *building* with ICF *basement* walls. The thermal insulation value of an ICF wall is the sum of the insulation value on both sides of the walls.

(5) Applies to a *building* with combined space heating and domestic hot water heating system.

(6) Except as required in Subsection 9.32.3. of Division B in the *Building Code*, an HRV is only required as a part of the compliance package where a minimum efficiency level is specified.

(7) The minimum efficiency of an HRV shall be based on a test temperature of 0°C. In addition, where an HRV is installed to meet the requirements of Subsection 9.32.3. of Division B in the *Building Code*, the energy efficiency of the HRV shall also meet the minimum efficiency requirements of Sentence 9.32.3.11.(2).

(8) Combined space heating and domestic hot water heating equipment shall have minimum energy efficiency ratings specified or shall be of the condensing type.

(2) Except for solid fuel-burning space heating equipment and natural gas and propane furnaces, where the space heating equipment efficiency ranges from 78% to less than 90%, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.2.B.

Table 2.1.1.2.B
ZONE 1 - Compliance Packages for Space Heating Equipment with AFUE ≥ 78 % and < 90%
Forming Part of Sentence 2.1.1.2.(2)

Component	Compliance Package					
	A	B	C	D	E	F
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)	5.11 (R29)	5.11 (R29)	4.75 (R27)	4.75 (R27)	4.75 (R27)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	2.11 (R12)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value(1)	-	-	-	-	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6	1.8	1.6	1.6	1.8
Skylights Maximum U-Value(2)	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	78%	84%	84%	84%	78%	84%
HRV(3) Minimum Efficiency	55%	55%	70%	55%	70%	75%
Domestic Hot Water Heater Minimum EF	-	-	-	-	-	-
Column 1	2	3	4	5	6	7

Notes to Table 2.1.1.2.B:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values expressed in (m²· K)/W.

(2) U-Value is the overall coefficient of heat transfer expressed in W/(m²· K).

(3) The minimum efficiency of an HRV shall be based on a test temperature of 0°C. In addition, where an HRV is installed to meet the requirements of Subsection 9.32.3. of Division B in the *Building Code*, the energy efficiency of the HRV shall also meet the minimum efficiency requirements of Sentence 9.32.3.11.(2).

(3) Where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.2.C.

Table 2.1.1.2.C
ZONE 1 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 2.1.1.2.(3)

Component	Compliance Package	
	A	B
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)	5.11 (R29)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	2.11 (R12)
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value(1)	-	-
Edge of Below Grade Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8
Space Heating Equipment Minimum AFUE	-	-
HRV(3) Minimum Efficiency	55%	75%
Domestic Hot Water Heater Minimum EF	-	-
Column 1	2	3

Notes to Table 2.1.1.2.C:
(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values expressed in $(m^2 \cdot K)/W$.
(2) U-Value is the overall coefficient of heat transfer expressed in $W/(m^2 \cdot K)$.
(3) The minimum efficiency of an HRV shall be based on a test temperature of 0°C. In addition, where an HRV is installed to meet the requirements of Subsection 9.32.3. of Division B in the *Building Code*, the energy efficiency of the HRV shall also meet the minimum efficiency requirements of Sentence 9.32.3.11.(2).

(4) Except for solid fuel-burning space heating equipment, where the space heating equipment efficiency is less than 78% or it cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Clause 1 2.2.1.2.(3)(a) of Division B in the *Building Code* or Subsection 2.1.2. of this Supplementary Standard.

(5) Except as permitted in Sentence (6), where compliance package I or J in Table 2.1.1.2.A is used, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that
(a) windows and sliding glass doors have a maximum U-value of 1.6, or
(b) the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package J is used.

(6) Where blown-in insulation or spray-applied foam insulation is used in compliance package I or J in Table 2.1.1.2.A, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that
(a) the thermal insulation value in a ceiling with an attic space is not less than RSI 10.55,
(b) the minimum efficiency of the HRV is increased by not less than 8 percentage points,
(c) the minimum AFUE of the space heating equipment is increased by not less than 2 percentage points,
(d) the minimum EF of the domestic hot water heater is increased by not less than 4 percentage points, or
(e) the *building* is in compliance with Sentence (5).

(7) Except as permitted in Sentence (8), where compliance package D, E, F, G, H or M in Table 2.1.1.2.A is used, the minimum RSI value for thermal insulation of exposed above grade walls is permitted to be not less than RSI 3.52 provided that
(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8) and the minimum EF of the domestic hot water heater is increased by not less than 8 percentage points, or
(b) the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package F, G, or H is used, and the *building* is in compliance with at least two requirements of Clauses (6)(a) to (d).

(8) Where blown-in insulation or spray-applied foam insulation is used in compliance package D, E, F, G, H or M in Table 2.1.1.2.A, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that
(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8) or the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package F, G, or H is used, and
(b) the *building* is in compliance with Clause (6)(a), (b), (c) or (d).

2.1.1.3. Energy Efficiency for Zone 2 Buildings

(1) Except as required in Sentences (2) to (4) and permitted in Sentences (5) and (6), the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.3.A.

Table 2.1.1.3.A
ZONE 2 - Compliance Packages for Space Heating Equipment with AFUE ≥ 90%
Forming Part of Sentence 2.1.1.3.(1)

Component	Compliance Package												
	A	B	C	D	E	F	G	H	I	J	K[3]	L[4]	M[5]
Ceiling with Attic Space Minimum RSI (R)-Value[1]	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value[1]	5.11 (R29)	5.11 (R29)	5.11 (R29)	4.75 (R27)	4.75 (R27)	4.75 (R27)	4.75 (R27)	4.23 (R24)	4.23 (R24)	4.23 (R24)	3.87 (R22)	4.23 (R24)	4.23 (R24)
Basement Walls Minimum RSI (R)-Value[1]	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	2.11 (R12)	3.52 (R20)	3.52 (R20)	2.11 (R12)	3.87 (R22)	3.87 (R22)	3.52 (R20)
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value[1]	0.88 (R5)	-	-	0.88 (R5)	-	-	-	0.88 (R5)	-	-	-	-	-
Edge of Below Grade Slab ≤ 600 mm below grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value[2]	1.6	1.6	1.8	1.6	1.6	1.8	1.8	1.6	1.6	1.6	1.8	1.8	1.8
Skylights Maximum U-Value[2]	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Space-Heating Equipment Minimum AFUE	90%	94%	92%	94%	94 %	94%	94%	94%	90%	94%	94%	94%	90%[8]
HRV[6], [7] Minimum Efficiency	-	-	60%	-	-	60%	75%	-	60%	60%	-	-	55%
Domestic Hot Water Heater Minimum EF	0.57	0.57	0.57	0.57	0.67	0.57	0.62	0.67	0.57	0.67	0.57	0.67	0.80[8]
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14

Notes to Table 2.1.1.3.A:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values expressed in ($m^2 \cdot K$)/W.

(2) U-Value is the overall coefficient of heat transfer expressed in W/($m^2 \cdot K$).

(3) Compliance package K *applies only to a building* with both ICF *basement* walls and ICF above grade walls. Alternatively, any other compliance package is permitted to be used for a *building* with both ICF *basement* walls and ICF above grade walls. The thermal insulation value of an ICF wall is the sum of the insulation value on both sides of the walls.

(4) Compliance package L *applies only to a building* with ICF *basement* walls. Alternatively, any other compliance package except compliance package K, is permitted to be used for a *building* with ICF *basement* walls. The thermal insulation value of an ICF wall is the sum of the insulation value on both sides of the walls.

(5) Applies to a *building* with combined space heating and domestic hot water heating system.

(6) Except as required in Subsection 9.32.3. of Division B in the *Building Code*, an HRV is only required as a part of the compliance package where a minimum efficiency level is specified.

(7) The minimum efficiency of an HRV shall be based on a test temperature of 0°C. In addition, where an HRV is installed to meet the requirements of Subsection 9.32.3. of Division B in the *Building Code*, the energy efficiency of the HRV shall also meet the minimum efficiency requirements of Sentence 9.32.3.11.(2).

(8) Combined space heating and domestic hot water heating equipment shall have minimum energy efficiency ratings specified or shall be of the condensing type.

(2) Except for solid fuel-burning space heating equipment and natural gas and propane furnaces, where the space heating equipment efficiency ranges from 78% to less than 90%, the minimum thermal performance of *building* envelope and equipment shall conform to Table 2.1.1.3.B.

Table 2.1.1.3.B
ZONE 2 - Compliance Packages for Space Heating Equipment with AFUE ≥ 78 % and < 90%
Forming Part of Sentence 2.1.1.3.(2)

Component	Compliance Package	
	A	B
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)	5.11 (R29)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	3.52 (R20)
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value(1)	0.88 (R5)	0.88 (R5)
Edge of Below Grade Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8
Space Heating Equipment Minimum AFUE	78%	84%
HRV(3) Minimum Efficiency	75%	60%
Domestic Hot Water Heater Minimum EF	-	-
Column 1	2	3

Notes to Table 2.1.1.3.B.:
(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI -Values expressed in $(m^2 \cdot K)/W$.
(2) U-Value is the overall coefficient of heat transfer expressed in $W/(m^2 \cdot K)$.
(3) The minimum efficiency of an HRV shall be based on a test temperature of 0°C. In addition, where an HRV is installed to meet the requirements of Subsection 9.32.3. of Division B in the *Building Code*, the energy efficiency of the HRV shall also meet the minimum efficiency requirements of Sentence 9.32.3.11.(2).

(3) Where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.3.C.

Table 2.1.1.3.C
ZONE 2 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 2.1.1.3.(3)

Component	Compliance Package A
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value(1)	0.88 (R5)
Edge of Below Grade Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6
Skylights Maximum U-Value(2)	2.8
Space Heating Equipment Minimum AFUE	-
HRV(3) Minimum Efficiency	75%
Domestic Hot Water Heater Minimum EF	-
Column 1	2

Notes to Table 2.1.1.3.C:
(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values expressed in $(m^2 \cdot K)/W$.
(2) U-Value is the overall coefficient of heat transfer expressed in $W/(m^2 \cdot K)$.
(3) The minimum efficiency of an HRV shall be based on a test temperature of 0°C. In addition, where an HRV is installed to meet the requirements of Subsection 9.32.3. of Division B in the *Building Code*, the energy efficiency of the HRV shall also meet the minimum efficiency requirements of Sentence 9.32.3.11.(2).

(4) Except for solid fuel-burning space heating equipment, where the space heating equipment efficiency is less than 78% or it cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Clause 1 2.2.1.2.(3)(a) of Division B in the *Building Code* or Subsection 2.1.2. of this Supplementary Standard.

(5) Except as permitted in Sentence (6), where compliance package H, I, J or M in Table 2.1.1.3.A is used, the minimum RSI value for thermal insulation of exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8) and the minimum EF of the domestic hot water heater is increased by not less than 8 percentage points, or
(b) the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package J is used, and the *building* is in compliance with at least two requirements of Clauses 2.1.1.2.(6)(a) to (d).

(6) Where blown-in insulation or spray-applied foam insulation is used in compliance package H, I, J or M in Table 2.1.1.3.A, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8) or the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package J is used, and
(b) the *building* is in compliance with Clause 2.1.1.2.(6)(a), (b), (c) or (d).

2.1.1.4. Elements Acting as a Thermal Bridge

(1) Except for a *foundation* wall, the insulated portion of a wall that incorporates wood stud framing elements that have a thermal resistance of less than RSI 0.90 shall be insulated to restrict heat flow through the studs by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 2.1.1.2. and 2.1.1.3.

(2) Except as provided in Sentence (3), the thermal resistance of the insulated portion of a *building* assembly in Articles 2.1.1.2. and 2.1.1.3. that incorporates metal framing elements, such as steel studs and steel joists, that act as thermal bridges to facilitate heat flow through the assembly, shall be 20% greater than the values shown in Tables 2.1.1.2.A, 21.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, unless it can be shown that the heat flow is not greater than the heat flow through a wood frame assembly of the same thickness.

(3) Sentence (2) does not apply to *building* assemblies incorporating thermal bridges where the thermal bridges are insulated to restrict heat flow through the thermal bridges by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 2.1.1.2. and 2.1.1.3.

2.1.1.5. Log Wall Construction and Post, Beam and Plank Construction

(1) Except as provided in Sentences (2) and (3), log wall construction and post, beam and plank construction shall have a minimum thermal resistance of RSI 2.1 for the total assembly.

(2) The thermal resistance value in Sentence (1) for the total wall assembly may be reduced to not less than RSI 1.61 if,

(a) the thermal resistance of insulation for the exposed roof or ceiling required in Table 2.1.1.2.A. is increased by an amount equivalent to the reduction permitted in this Sentence, and
(b) for log walls, the logs have tongue-and-groove or splined joints.

(3) Where milled log walls are installed, the thermal resistance value in Sentence (1) for the total wall assembly does not apply if,

(a) the mean thickness of each log is not less than 150 mm,
(b) the thermal resistance of insulation for the exposed roof or ceiling required in Table 2.1.1.2.A is increased by RSI 0.53, and
(c) the logs have tongue-and-groove or splined joints.

(4) Where a log wall is constructed in accordance with Sentences (1) to (3), the log wall shall be deemed to comply with the requirements in Subsection 9.25.3. of Division B in the *Building Code*.

2.1.1.6. Insulation of Foundation Walls

(1) *Foundation* walls enclosing heated space shall be insulated from the underside of the subfloor to not more than 200 mm above the finished floor level of the *basement*. (See Appendix A.)

(2) The insulation required by Sentence (1) may be provided by a system installed,
(a) on the interior of the *foundation* wall,
(b) on the exterior face of the *foundation* wall, or
(c) partially on the interior and partially on the exterior, provided the thermal performance of the system is equivalent to that permitted in Clauses (a) or (b).

(3) If a *foundation* wall is constructed of hollow masonry units, one or more of the following shall be used to control convection currents in the core spaces,
(a) filling the core spaces,
(b) at least one row of semi-solid blocks at or below *grade*, or
(c) other similar methods.

(4) Masonry walls of hollow units that penetrate the ceiling shall be sealed at or near the ceiling adjacent to the roof space to prevent air within the voids from entering the *attic or roof space* by,
(a) capping with masonry units without voids, or
(b) installation of flashing material extending across the full width of the masonry.

(5) Except as provided in Sentences (6) and (7), where the *basement* slab edge is the only part of the slab that is at the exterior ground level such as a walk-out *basement*, or within 600 mm to the exterior ground level, the insulation around concrete slab shall extend not less than 600 mm below exterior ground level.

(6) Where the concrete slab is within 600 mm of the exterior ground level, the entire surface of the slab shall be insulated.

(7) Where a slab contains heating ducts, pipes, tubes or cables, the entire heated surface of the slab that is in contact with the ground shall be insulated.

2.1.1.7. Thermal Resistance Values for Roof Access Hatches and Eaves

(1) The thermal resistance values for insulation required by Articles 2.1.1.2. and 2.1.1.3. for exposed ceilings with attic spaces are permitted to be reduced
(a) directly above access hatches, and
(b) near eaves to the extent made necessary by the roof slope and required ventilation clearances,

except that the thermal insulation value at the location directly above access hatches and inner surfaces of exterior walls shall be not less than RSI 3.52.

2.1.1.8. Thermal Performance of Windows, Skylights and Sliding Glass Doors

(1) Windows, skylights and sliding glass doors shall meet
(a) the required overall coefficient of heat transfer in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, or
(b) the corresponding energy rating in Table 2.1.1.8.

Table 2.1.1.8.
Maximum U-Values and Minimum Energy Ratings (ER) for Windows, Skylights and Sliding Glass Doors
Forming Part of Sentence 2.1.1.8.(1)

Component	Maximum U-Values		Minimum Energy Ratings (ER)
	U-Value ($W/m^2 \cdot K$)	U-Value ($Btu/h \cdot ft.^2 \cdot °F$)	ER
Skylights	2.8	0.50	-
Windows and Sliding Glass Doors	2.0	0.35	17
	1.8	0.32	21
	1.6	0.28	25
	1.4	0.25	29
Column 1	2	3	4

(2) The energy rating and the overall coefficient of heat transfer required for windows and sliding glass doors in a *residential occupancy* shall be determined in conformance with
(a) CAN/CSA-A440.2, "Fenestration Energy Performance", or
(b) NFRC 100, "Procedure for Determining Fenestration Product U-factors" and NFRC 200, "Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence".

(3) A *basement* window that incorporates a *loadbearing* structural frame shall be double glazed with a low-E coating.

2.1.1.9. Minimum Thermal Resistance of Doors

(1) Except for doors in enclosed unheated vestibules and cold cellars, and except for glazed portions of doors, all doors that separate heated space from unheated space shall have a thermal resistance of not less than RSI 0.7 where a storm door is not provided.

2.1.1.10. Additions to Existing Buildings

(1) Except as provided in Sentence (2), an addition to an existing *building* shall comply with
(a) one of the applicable compliance packages in Article 2.1.1.2. or 2.1.1.3., or
(b) the thermal performance requirements in Table 2.1.1.10.
(See Appendix A.)

(2) A one-*storey* sunroom addition to an existing *building* shall be deemed to be in compliance with Articles 2.1.1.2. and 2.1.1.3. and Subsection 2.1.2., provided that the overall coefficient of heat transfer of
(a) doors, windows and walls has a maximum U-Value of
  (i) 1.6 if the *building* is located in Zone 1 with less than 5000 heating degree days,
  (ii) 1.4 if the *building* is located in Zone 2 with 5000 or more heating degree days, or
  (iii) 1.4 if the *building* uses *electric space heating*, and
(b) roof glazing and skylights has a maximum U-Value of 2.6.
(See Appendix A.)

Table 2.1.1.10.
Thermal Performance Requirements for Additions to Existing Buildings(3)
Forming Part of Sentence 2.1.1.10.(2)

Component	Zone 1 Less than 5000 Degree-Days	Zone 2 5000 or more Degree-Days	Electric Space Heating Zones 1 and 2
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	4.23 (R24)	4.23 (R24)	5.46 (R31)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	3.52 (R20)	3.52 (R20)
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.8	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8	2.8
Column 1	2	3	4

Notes to Table 2.1.1.10.:
(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values expressed in ($m^2 \cdot K$)/W.
(2) U-Value is the overall coefficient of heat transfer expressed in W/($m^2 \cdot K$).
(3) The *building* need not conform to minimum efficiency requirements for HRV's, domestic hot water heaters and space heating equipment required in Article 2.1.1.2. or 2.1.1.3.

2.1.2. Performance Compliance

2.1.2.1. Required Performance Level (See Appendix A.)

(1) The performance level shall be measured based on the simulated annual energy use of the *building*.

(2) The simulated annual energy use of the proposed *building* shall not be greater than the simulated annual energy use of the *building* as if it met the performance level of a permitted compliance package in Subsection 2.1.1. selected on the basis of
(a) Zone location,
(b) energy source, and
(c) equipment efficiency.

(3) The simulated annual energy use shall be calculated for the
(a) proposed *building*, and
(b) *building* conforming to the applicable compliance package.

(4) For the purpose of calculations required in Sentence (3),
(a) a recognized annual energy use simulation software shall be used to calculate annual energy use,
(b) local climatic data shall be used, and
(c) the equivalent domestic hot water, appliance and other plug-in loads shall be assumed in both calculations.

(5) Except as provided in Sentence (6), for the purpose of Clauses (3)(a) and (3)(b), the air leakage rate of a *dwelling unit* may be assumed to be
(a) 2.5 air changes per hour at an air pressure differential of 50 Pa for detached homes, and
(b) 3.0 air changes per hour at an air pressure differential of 50 Pa for attached homes.

(6) For the purpose of Clause (3)(a), values less than Sentence (5) may be used provided that the values are verified with air leakage tests as conducted in accordance with the requirements of Clause 12.2.1.2.(3)(a) of Division B in the *Building Code*.

(**7)** For the purpose of calculations required in Clause (3)(b), the *building* shall have identical dimensions and orientation as the proposed design, except where the glazing to wall ratio exceeds 22%, the glazing area shall be reduced proportionally along each exposure until the limit is met.

(**8)** For the purpose of calculations required in Clause (3)(b), where frame construction is used, the design of the framing system shall assume a spacing of
(a) 400 mm o.c. for wall studs,
(b) 400 mm o.c. for exposed floors joists, roof joists and roof rafters, and
(c) 600 mm o.c. for roof trusses.

(9) For the purpose of calculations required in Clause (3)(b), *building* envelope component properties and characteristics not specifically described in this Subsection and Subsection 2.1.1. shall be modeled the same for both the proposed design and a design based on a permitted compliance package unless it can be shown such properties and characteristics of the proposed design constitute additional energy conservation measures.

(10) Where the overall thermal performance of the proposed *building* envelope is less than the envelope performance of the compliance package that is compared against it, the reduction in the performance level of the *building* envelope shall not be more than 25%.

2.1.3. Other Acceptable Compliance Methods

2.1.3.1. Other Acceptable Compliance Methods (See Appendix A.)

(1) A *building* shall be deemed to be in compliance with the requirements of Subsection 2.1.1. provided that the *building* is in compliance with the technical requirements of NRCan,"Energy Star for New Homes: Technical Specifications – Ontario".

Appendix A

Explanatory Material for SB-12

A-Table 1.4.1.2. National Fenestration Rating Council.

Name	Address	Contact
NFRC	National Fenestration Rating Council 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770, USA	ph: 301-589-1776 fax: 301-589-3884 e-mail: info@nfrc.org web site: www.nfrc.org
Column 1	2	3

A-2.1.1. Compliance Packages.

Individual components of compliance packages found in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C are not permitted to be mixed with similar components of other compliance packages either found within the same Table or similar components of compliance packages found in other Tables.

A-2.1.1.1.(3) Mechanical Equipment.

Compliance package tables referred to in this Sentence contain energy efficiency requirements for some or all mechanical equipment. Where a compliance package includes an energy efficiency level for space heating equipment, domestic hot water heater or heat recovery ventilator, conformance with the package can only be achieved if the building is equipped with the mechanical equipment specified in the compliance package.

A-2.1.1.6.(1) Permitted Basement Insulation Gap.

The provision refers to the gap between basement insulation and the floor level that might be left at the bottom of a foundation wall. Insulation can be extended from the underside of the subfloor to the floor level of the basement, or a gap may be left provided that the gap is not more than 200 mm when measured from floor level to where the insulation is terminated.

A-2.1.1.10.(1) and (2) Additions to Existing Houses.

In Sentence (1), the design and construction of an addition to an existing house can conform to the minimum building envelope and mechanical equipment requirements where an applicable compliance package is selected from Article 2.1.1.2. or 2.1.1.3.

Alternatively, Sentence (2) provides a simpler approach and permits an addition to an existing building to comply with the appropriate compliance package in Table 2.1.1.10. since the design and construction of an existing building is unlikely to be determined and matched against an applicable compliance package from Article 2.1.1.2. or 2.1.1.3.

Table 2.1.1.10. further exempts both an addition and an existing building from conforming to minimum efficiency requirements for HRV's, domestic hot water heaters and space heating equipment required in Article 2.1.1.2. or 2.1.1.3. This would permit existing mechanical equipment to serve the entire building provided that it has the necessary capacity.

A-2.1.1.10.(3) Sunroom Additions to Existing Houses.

A sunroom addition to an existing house referred in this Sentence applies to a one-storey structure built substantially with wall/roof fenestration and glass doors but which sometimes contain unglazed low wall panels that support wall glazing above it. Since the glazing percentage of sunrooms exceeds the limits permitted for compliance packages in Article 2.1.1.2. and 2.1.1.3. and performance compliance methods may not be possible, these sunrooms are exempt from compliance package requirements, provided that the thermal performance of the glazing is enhanced further than what is required for non-sunroom additions.

The maximum U-Values for doors, sliding glass doors, wall glazing and supporting wall panels for sunroom additions in Clause 2.1.1.1.(3)(a) have been derived from the maximum U-Values for window and sliding glass doors in additions to existing buildings in Table 2.1.1.10. and then upgraded in accordance with Sentence 2.1.1.1.(8).

The maximum U-Value of 2.6 for roof glazing and skylights for sunroom additions in Clause 2.1.1.10.(3)(b) has been derived from upgrading the maximum U-Value of 2.8 for skylights in additions to existing buildings in Table 2.1.1.10. consistent with the methodology used in Sentence 2.1.1.1.(8).

A-2.1.2.1. Application of Performance Compliance Path.

This Article requires two annual energy use simulations. These simulations compare the simulated annual energy use of the proposed building with the simulated annual energy use of an applicable compliance package. The simulated annual energy use of the proposed building cannot exceed the simulated annual energy use of an applicable compliance package.

Where a performance compliance path is selected, it is the intent of Sentence 2.1.2.1.(2) that the performance level of the compliance package takes into account the requirements listed in Subsection 2.1.1. that are applicable to that compliance package. Similarly, the annual energy use calculation for a compliance package referenced in Clause 2.1.2.1.(3)(b) shall take into account the requirements listed in Subsection 2.1.1. that are applicable to that compliance package.

For the purpose of calculating the annual energy use of a proposed design and a design based on a selected compliance package, the following software may be used:

- HOT2000 version 9.34c or newer versions
- other software referenced by the Energuide Rating System
- RESNET accredited Home Energy Rating System (HERS) software, such as:
  - OptiMiser
  - EnergyGauge
  - EnergyInsights
  - REM/Rate

A-2.1.3.1. Other Acceptable Compliance Methods.

Compliance with the technical requirements of the Energy Star Program may be achieved using either the prescriptive path or the performance path required by NRCan,"Energy Star for New Homes: Technical Specifications – Ontario".

Clause 2.1.1.1 of NRCan,"Energy Star for New Homes: Technical Specifications – Ontario" allows the designer to use an NRCan-approved compliance option described in NRCan, "Energy Star for New Homes: Compliance Options" (Ontario).

Only the technical provisions contained in NRCan,"Energy Star for New Homes: Technical Specifications – Ontario" and other Energy Star documents it references are mandatory under this Supplementary Standard. However, in addition to the technical requirements, the administrative requirements of the Energy Star documents may be used to demonstrate compliance with Sentence 2.1.3.1.(1) by obtaining an Energy Star label for the building.