

No. B18 – 08
December 6, 2018

Revisions to the 2018 BC Building Code

Revision 1 to the British Columbia Building Code (BCBC) is effective December 10, 2018. This Bulletin describes the changes to the BCBC related to the BC Energy Step Code in this revision.

Changes include:

- Facilitating BC Energy Step Code compliance for smaller buildings and in colder climates;
- Addressing issues where large single-family dwellings could comply with Steps 2 or 3 without an improvement over the base BCBC;
- Removing Peak Thermal Load as a compliance path for the BC Energy Step Code;
- Facilitating compliance with the Code where cooling is intended for the building;
- Enabling airtightness compliance with the BC Energy Step Code through the EnerGuide Rating System;
- Creating guidelines on meeting energy efficiency requirements in existing Part 3 buildings;
- Removing the requirement to meet Subsection 8.4.2. of the ASHRAE 90.1-2016 standard;
- Enabling the BC Energy Step Code as a compliance path for Part 3 buildings outside of Climate Zone 4;
- Creating new targets for Hotels and Motels, and for Offices;
- Revising air leakage rates for Part 3 buildings at the design stage in energy models;
- Clarification on the use of the City of Vancouver Energy Modelling Guidelines (CoV EMG) where it conflicts with the National Energy Code for Buildings (NECB);
- A new requirement to report energy compliance path on plans;
- A new requirement to report on the floor area of conditioned space for Step Code buildings on house performance compliance calculation reports; and
- A clarification for Part 3 buildings that Step Code recording requirements apply both at the pre-construction and pre-occupancy stage.

Miscellaneous items not listed above are minor editorial revisions. The full list of changes is included in [Ministerial Order BA 2018 2 available online](#).

For more information, or to view other Bulletins, please visit [our website](#).

In this Bulletin, the previous language in the 2018 BC Building Code is shown below in green text and any change to language is shown in blue.

Changes to Part 9 of Division B

Setting New Targets for Part 9 Buildings in the BC Energy Step Code

The BC Energy Step Code Metrics Research Report provided further information on the energy performance of buildings being constructed to the minimum prescriptive requirements of the BCBC. This information enables revisions to energy performance targets for the BC Energy Step Code, to ensure that building energy performance improves in accordance with the desired outcomes of the steps, while mitigating the cost implications of these improvements.

The metrics in the BC Energy Step Code in the 2012 BCBC included:

Thermal Energy Demand Intensity (TEDI) – a measure of the amount of annual heating energy needed to maintain a building's stable interior temperature. It considers heat loss through the envelope and passive gains, such as the warmth generated by sunlight, body heat, and appliances.

Peak Thermal Load (PTL) – a measure of the maximum amount of energy needed to heat a building on the coldest day of the year.

Mechanical Energy Use Intensity (MEUI) – a measure of the annual energy consumption for the building's mechanical systems, including space heating and cooling, ventilation, and domestic hot water.

The 2012 BCBC allowed builders following the BC Energy Step Code to use either PTL or TEDI to demonstrate compliance with the BC Energy Step Code envelope performance requirements. In some cases, complying using PTL would result in significantly worse energy performance than would be achieved by complying with TEDI.

Builders of small houses, such as small lot houses, laneway houses, coach houses, and row houses, found the 2012 BCBC MEUI requirements difficult to achieve cost effectively. This placed smaller houses at a disadvantage over larger ones and resulted in local governments instituting lower steps for small houses. Further, under the 2012 BCBC, builders working in cold climates would have difficulty meeting both the MEUI and the TEDI targets, especially at the upper steps. On the other hand, for Steps 2 and 3, large single-detached dwellings in Climate Zones 5 and 6 would potentially consume more energy than those built to the minimum requirements of the BCBC. Finally, the BC Energy Step Code did not address cooling, putting buildings with cooling at a disadvantage compared to buildings that do not include cooling, a disadvantage in regions with high peak summer temperatures.

In this change, the MEUI targets have been revised to achieve three goals:

- a) Adjust base MEUI targets to increase the likelihood that MEUI outcomes are closer to the expected 10%, 20% and 40% energy efficiency improvements in Steps 2 through 4 and make MEUI targets more achievable in colder regions of BC;
- b) Create staged increases, based on building size and step, to the MEUI for small buildings, to level the playing field between larger houses and smaller housing types; and
- c) Adjust MEUI in stages as buildings become smaller, where cooling is provided to more than 50% of the floor area of conditioned space.

The TEDI targets have also been revised to ensure that all regions in British Columbia have a realistic and attainable roadmap to a net-zero energy ready future, and close identified loopholes for very large single-detached dwellings.

PTL has been removed as a compliance option in the BC Energy Step Code. Builders may only use TEDI to demonstrate envelope performance requirements are met.

Rationale: These changes will enable buildings to demonstrate the desired improvement energy performance expected from the Energy Step Code.

Enabling Airtightness Testing Compliance through the ERS system

Clause 9.36.6.5.(1)(d) is added, stating:

- 1) *Buildings shall be tested for airtightness in accordance with...*
 - d) the applicable standards and requirements of the EnerGuide Rating System, version 15 or newer.

Rationale: The change permits compliance with the BC Energy Step Code's airtightness requirements using the EnerGuide Rating System (ERS). This is to facilitate airtightness compliance for ground-oriented attached buildings on a per-unit basis, as opposed to per building. The Building and Safety Standards Branch is developing guidance in tandem with Natural Resources Canada (NRCan) for this compliance path that should be available in January 2019.

Creating Guidelines on Meeting Energy Efficiency Requirements in Existing Part 3 Buildings

There has been a lack of clarity on compliance paths for the alteration, rehabilitation, renovation or change in occupancy in existing buildings that were constructed to any version of ASHRAE 90.1 or the National Energy Code for Buildings (NECB), the BC Energy Step Code, or none of the above. Article 10.2.2.2. has been added to provide clarity on which path to comply with, along with an Appendix note:

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 *alteration*, rehabilitation, renovation, or change in *occupancy* shall comply with Clauses 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 *alteration*, rehabilitation, renovation or change in *occupancy*, shall comply with Clauses 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 *alteration*, rehabilitation, renovation, or change in *occupancy*, shall comply with 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 *alteration*, rehabilitation, renovation, or change in *occupancy* shall comply with Clauses 10.2.2.1.(1)(a), (b), or (c).

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 referenced Code or standard.

Rationale: The Article was added to clarify which compliance path can be followed for existing buildings. It also overrides the Article in the NECB which states that the NECB can only apply to new buildings.

Removing Subsection 8.4.2. from the Compliance Requirements in ASHRAE 90.1-2016

Where buildings may comply with Section 10.2. using the American Society of Heating, Refrigerating and Air-Conditioning Engineers 90.1-2016 (ASHRAE 90.1) “Energy Standard for Buildings Except Low-Rise Residential Buildings”, the requirement to comply with Subsection 8.4.2. of the ASHRAE 90.1 standard, regarding automatic receptacle control for 50% of receptacles in most spaces, and 25% branch feeders for modular furniture that are not part of the construction documents, has been removed by this change to Clause 10.2.2.1.(1)(a):

10.2.2.1. Design and Construction-Installation

- 1) Except as permitted in Article 10.2.2.2., *Buildings* shall be designed and constructed to conform to
 - a) ANSI/ASHRAE/IESNA 90.1, “Energy Standard for Buildings Except Low-Rise Residential Buildings” (except Subsection 8.4.2.),

Rationale: The clause is amended to reduce compliance costs for buildings, where compliance may be costly and defeated very easily (e.g. using power bars plugged into uncontrolled outlets).

Enabling the BC Energy Step Code as a Compliance Path for Part 3 Buildings Outside of Climate Zone 4

Currently, the BC Energy Step Code is not available as a Code compliance path outside of Climate Zone 4 for Part 3 buildings. This limits the ability of both building designers to voluntary

meet the BC Energy Step Code, and for Authorities Having Jurisdiction (AHJs) to either incentivize or require the Step Code outside of Climate Zone 4. The limitation to Climate Zone 4 has been removed:

10.2.3.1. Application

- 1) This Subsection applies to *buildings* ~~a) containing any of the following major occupancies:~~
- a) ~~i) residential,~~
 - b) ~~ii) business and personal services, or~~
 - c) ~~iii) mercantile, and~~
 - ~~b) located where the degree-days below 18°C value is less than 3000.~~

Rationale: This change enables the use of the BC Energy Step Code for Part 3 buildings beyond Climate Zone 4.

Creating New Targets for Hotels and Motels, and for Offices

Previously, there were two sets of targets for Part 3 buildings – one for Group C (Residential) occupancies, and another for Group D (Business and Personal Services) and Group E (Mercantile) occupancies.

Hotels and Motels

Research undertaken for the City of Richmond identified that hotels and motels have higher hot water loads and higher occupant densities than other residential buildings, which increase their energy use. This leads to higher Total Energy Use Intensity (TEUI) values per unit of floor area. In contrast, the opportunity for heat recovery is greater in hotels, which justifies a lower TEDI value. Therefore, the TEUI target for hotels and motels has been increased (made less stringent) compared to other Group C (residential) occupancies buildings, to enable hotels to meet the BC Energy Step Code targets, the TEDI targets have been decreased (made more stringent). This change would reduce the challenges that hotels and motels face in complying with the current BC Energy Step Code residential targets, and create requirements that are in line with the energy demands of these buildings. Developers of hotels and motels will be able to more affordably meet the performance requirements of the BC Energy Step Code, while making improvements in building efficiency with effective heat recovery. This change will not impact existing targets for other residential buildings.

Offices

Office buildings have lower total energy demands than other Group D and E occupancies. Some of the main reasons include:

- They have small refrigeration loads compared to some Group E occupancies such as supermarkets;
- They have smaller hot water or process loads compared to other Group D occupancies such as medical offices or self-service laundries; and
- They aren't occupied for as many hours as some other Group D and E occupancies.

The current Step 2 target for offices in Climate Zone 4 through Climate Zone 7A is greater than the energy consumption of a base BCBC compliant office building, as modelled in the BC Energy Step Code Metrics Research Report. New TEUI targets for Offices have been created to improve the energy performance requirements of office buildings. Without this change, office buildings that are required to comply with Step 2 could use more energy than those that comply with the base BCBC. This change will ensure that the BC Energy Step Code leads to measurable improvements over the base BCBC for office buildings. The change is not expected to affect the cost of compliance at Step 2 or Step 3.

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	170	130	30	45
3	140	120	20	30
4	120	100	15	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	130	170	30	30
3	100	120	20	20

Rationale: These changes will ensure that the BC Energy Step Code is achievable for Hotels and Motels and leads to improved outcomes for Part 3 Office buildings.

Revising Air Leakage Rates for Part 3 Buildings at the Design Stage in Energy Models

Sentence 10.2.3.4.(3) of the BCBC fixed air leakage rates at 0.25 L/s•m² for buildings at the design stage. It was reported that setting infiltration at this rate in cold climates would fix more than half of the energy demands of the building through infiltration. Section 2.4 of the [City of Vancouver's Energy Modelling Guidelines](#) (CoV EMG) has revised its air leakage rates at the design stage. It fixes air leakage for Step 1 buildings and where the TEDI target is greater than 30 kWh/m²•year at 0.2 L/s•m². It also permits lower air leakage ratings where the TEDI target is lower. The CoV EMG airtightness values were determined to be a reasonable path forward for compliance for Part 3 buildings. Sentence 10.2.3.4.(3) has been changed to state:

The contents of this Bulletin are not intended to be provided as legal advice and should not be relied upon as legal advice. For further information contact the Building & Safety Standards Branch.

10.2.3.4.(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. ~~Energy modelling is permitted to account for an air leakage rate of 0.25 L/(s·m²) from total gross above-ground wall and roof areas until the air leakage rate determined by Sentence (2) is available.~~”

The notes to Article 10.2.3.4. have also been changed to reflect the change in how the design building airtightness value is determined.

Rationale: By reducing the design air leakage rates, this change will facilitate compliance with the Step Code in all climates, especially in cold climates.

Clarification on the use of the CoV EMG where it conflicts with the National Energy Code for Buildings (NECB)

Section 1.1. of the CoV EMG states that the guidelines are additional to the NECB Modelling Guidelines. However, there is some overlap between the two documents. In the six instances listed in the CoV EMG, the provisions of the CoV EMG shall govern. Sentence 10.2.3.4.(4) has been added:

10.2.3.4.(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.

Rationale: This change clarifies that the CoV EMG shall govern in place of the NECB where they conflict. Note that Sentence 1.5.1.2.(1) of Division A of the BCBC states “In case of conflict between the provisions of this Code and those of a referenced document, the provisions of this Code shall govern.” The COV EMG and its definitions of Greenhouse Gas Intensity and Site Renewable Energy Generation do not apply, nor does its Section 1.4 on Renewable Energy.

Changes to Division C

Requiring Energy Compliance Path on Plans to be Reported

Subclause 2.2.2.1.(2)(i) of Division C has been added to clarify which energy compliance path (e.g. Subsections 9.36.2. through 9.36.4., Subsection 9.36.5., Subsection 9.36.6., the NECB, ASHRAE 90.1, or Subsection 10.2.3., and if constructed to Subsections 9.36.6. or 10.2.3., to which step it seeks to comply) the building was designed to:

- 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.

Rationale: This clause has been added to ensure that the energy compliance path chosen by the builder is recorded on the plans.

Requiring Reporting on the Floor Area of Conditioned Space for Step Code Buildings on House Performance Compliance Calculation Reports

The house performance compliance calculation report has not required the floor area of conditioned space be recorded to date. Clause 2.2.8.3.(3)(a) has been changed to state:

- 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),

The previous clauses (a) and (b) have been moved to (b) and (c), and the previous clause (c), on reporting peak thermal load, has been removed. Peak thermal load has also been removed from Sentence 2.2.8.3.(4).

This number is useful for building officials to determine compliance based on other numbers in the report.

Rationale: This change will facilitate building officials confirming compliance of Step Code buildings.

Clarifying for Part 3 Buildings that Step Code Recording Requirements Apply Both at the Pre-Construction and Pre-Occupancy Stage

Article 2.2.9.2. was initially entitled "Information Required on Drawings and Specifications". This was determined to be too restrictive; in some instances, the information can more easily be presented not in drawings or specifications.

There have been further changes to Article 2.2.9.2. to take into consideration that a report shall be prepared both at the pre-construction and at the design stage. This is consistent with the reports required for Part 9 buildings. Sentence (2) has been added to require an energy report upon completion.

Sentence 2.2.9.2.(1) has been revised. Initially, it required reporting the air leakage rate as tested; however, tested air leakage rates would not be available when drawings or specifications are being completed. Those professionals submitting drawings or specifications to AHJs would need to return to the AHJ and provide the tested air leakage rate upon completion of drawings or specifications. Clause 2.2.9.1.(d) has been changed to enable the professional to report the air leakage rate derived from the CoV EMG on the energy design report. Sentence 2.2.9.2.(2) enables the tested value to be recorded on the energy report instead.

Article 2.2.9.2. has been changed to state:

- 1) For *buildings and major occupancies* that are designed and constructed in compliance with Subsection 10.2.3. of Division B, design drawings, ~~or specifications, or an energy design report shall indicate...~~
 - d) ~~for buildings conforming to Step 1, the air leakage rate as tested, derived in accordance with Sentence Article 10.2.3.4.(3)5. of Division B, and recorded in L/(s•m²) 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•m²) 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.
- The total energy use intensity in Clause (1)(a) and the thermal energy demand intensity in Clause (1)(c) shall account for the airtightness referenced in Clause (1)(d) or (e), as applicable.
- 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.

Rationale: This change will facilitate reporting for the design building and the constructed building, based on the information that would be available to the professional at the time of each report.

Appendix – BC Energy Step Code Targets for Part 9 Buildings

Table 9.36.6.3.-A
Requirements Where the Heating Degree-Days of Building Location 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 the applicable 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 the applicable 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 the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 20 kWh/(m ² •year)
5	≤ 1.0	The applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 15 kWh/(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 Where the Heating Degree-Days of Building Location 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 Equipment and Systems</i>	Performance Requirement of <i>Building Envelope</i>
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 the applicable 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 the applicable 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 the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 30 kWh/(m ² •year)
5	≤ 1.0	The applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 20 kWh/(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 Where the Heating Degree-Days of Building Location 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 Equipment and Systems</i>	Performance Requirement of <i>Building Envelope</i>
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 the applicable 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 the applicable 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 the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 40 kWh/(m ² •year)
5	≤ 1.0	The applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 25 kWh/(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 Where the Heating Degree-Days of Building Location is 5000 to 5999⁽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 the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 80 kWh/(m ² •year)
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption or the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 70 kWh/(m ² •year)
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption or the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 55 kWh/(m ² •year)
5	≤ 1.0	The applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 35 kWh/(m ² •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 Where the Heating Degree-Days of Building Location 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 <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 the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 100 kWh/(m ² •year)
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption or the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 90 kWh/(m ² •year)
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption or the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 65 kWh/(m ² •year)
5	≤ 1.0	The applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 50 kWh/(m ² •year)

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 Where the Heating Degree-Days of Building Location is greater than 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 <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 the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 120 kWh/(m ² •year)
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption or the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 105 kWh/(m ² •year)
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption or the applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 80 kWh/(m ² •year)
5	≤ 1.0	The applicable mechanical energy use intensity requirements in Table 9.36.6.3.-G	thermal energy demand intensity ≤ 60 kWh/(m ² •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
		2	170	148	108	85	73	65
	More than 50%	3	155	128	93	73	60	55
		4	125	108	78	58	48	45
		5	100	83	58	40	33	30
		2	145	130	100	85	75	70
		3	135	115	90	78	68	65
3000 to 3999	Not more than 50%	4	100	90	70	58	50	50
		5	70	60	45	35	30	30
		2	180	158	118	95	83	75
		3	170	143	108	88	75	70
	More than 50%	4	135	118	88	68	58	55
		5	105	88	63	45	38	35
		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
4000 to 4999	Not 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
		2	185	170	140	125	115	110
	More than 50%	3	165	145	120	108	98	95
		4	120	110	90	78	70	70
		5	95	85	70	60	55	55
		2	220	198	158	135	123	115
		3	200	173	138	118	105	100
5000 to 5999	Not more than 50%	4	155	138	108	88	78	75
		5	130	113	88	70	63	60
		2	185	170	140	125	115	110
	More than 50%	3	165	145	120	108	98	95
		4	120	110	90	78	70	70
		5	95	85	70	60	55	55
		2	220	198	158	135	123	115
3	200	173	138	118	105	100		

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.