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Proposed Change 2043

Code Reference(s):	**NBC25 Div.B 9.36.11. (first printing)**
Subject:	Energy Efficiency for Houses
Title:	Tiered Energy Compliance: Tier 2 Prescriptive Path
Description:	This proposed change provides energy-efficiency requirements for compliance with Energy Performance Tier 2 of the energy performance compliance prescriptive path.

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☐ Accessibility
- ☑ Building Envelope
- ☑ Heating, Ventilating and Air Conditioning
- ☐ Construction and Demolition Sites
- ☑ Division B
- ☐ Design and Construction
- ☑ Housing
- ☐ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☑ Energy Efficiency
- ☐ Plumbing

Problem

The 2020 edition of the National Building Code of Canada (NBC) introduced energy-efficiency performance tiers in Section 9.36. of Division B, with increasing levels of improvement for buildings and houses, to provide jurisdictions with the option to adopt the most suitable energy performance level or their needs.

Although performance modeling is a common practice, many Code users have requested that prescriptive compliance paths remain in the National Model Codes to simplify achieving energy compliance. However, there are currently only performance requirements and prescriptive trade-off requirements for Energy Performance Tier 2 in Section 9.36. of the NBC.

Failure to develop a Tier 2 prescriptive compliance path would limit Code users to having to choose between following the trade-off compliance path or relying on performance-based requirements that use energy modeling to achieve the Tier 2 energy-efficiency targets.

Justification

The proposed prescriptive requirements for Energy Performance Tier 2 would provide acceptable solutions to improve the total energy performance of the building. With the tiered energy performance path in Subsection 9.36.7. and the tiered points-based prescriptive trade-off path in Subsection 9.36.8., the prescriptive path is one of the compliance options that provide an acceptable means of achieving the performance goal of reducing energy consumption by at least 10% and reducing the percentage heat loss by at least 5% for buildings with conditioned volumes over 300 m^3. Buildings with conditioned volumes less than or equal to 300 m^3 have a performance goal of 0% improvement compared to Energy Performance Tier 1, as shown in Table 9.36.7.2. of the NBC 2025, and would therefore comply with the minimum prescriptive requirements.

In developing the acceptable solutions in the Tier 2 prescriptive path, many different possible solutions were considered and compared against the points-based prescriptive trade-off path to ensure compliance.

1. Building Envelope

A Tier 2 building envelope package was developed for each climate zone for buildings having a conditioned volume greater than 300 m^3. The 240 modeled building archetypes were separated by volume, with 219 building archetypes having a conditioned volume greater than 300 m^3 and 21 having a conditioned volume of less than or equal to 300 m^3.

Two criteria were used to define acceptable Tier 2 building envelope package solutions:

(1) At least 80% of the building archetypes had to comply with the Tier 2 requirement for percentage heat loss reduction of 5% for volumes greater than 300 m^3; and

(2) On average, the building archetypes had to have a peak heating load less than their reference building.

Numerous combinations of building envelope measures met the criteria noted above. Therefore, additional selection criteria needed to be defined to reduce the number of prescriptive building envelope package solutions to one for each climate zone and building volume.

The two additional criteria were:

(1) incremental costs had to be minimized to make a solution desirable, and

(2) component performance of the building envelope had to consistently increase across climate zones.

A fourth criterion was defined to exclude solutions having reduced thermal performance of the building envelope component (e.g., insulation) in colder climate zones. For example, a solution that uses 4.88 RSI for the effective thermal resistance of above-grade walls in climate zone 6 would not be used if the solution for climate zone 5 used 5.69 RSI for above-grade walls.

2. Airtightness

There is no mandatory airtightness level needed to achieve Tier 2.

3. Heat/Energy Recovery Ventilators (HRVs/ERVs)

The use of HRVs/ERVs was considered an easy and economical way to save energy; therefore, it was proposed that all Tier 2 houses should be equipped with HRVs/ERVs with minimum 60% sensible recovery efficiency for climate zones 4 and 5, and minimum 70% sensible recovery efficiency for climate zones 6 to 8. Since HRVs/ERVs are required for the Tier 1 building envelope package, they are maintained in the Tier 2 building envelope package.

4. Service Water Heating Systems

No upgrades above Code-minimum service water heating systems are required to achieve Tier 2.

PROPOSED CHANGE

[9.36.11.] – Tiered Energy Compliance: Tier 2 Prescriptive Path

[9.36.11.1.] --- Scope and Application

[1] --) This Subsection is concerned with achieving compliance with Energy Performance Tier 2, as specified in Table 9.36.7.2., through prescriptive requirements.

[2] --) This Subsection applies only to *buildings* that are equipped with a heat/energy recovery ventilator conforming to Article 9.36.3.9. (See Note-A-9.36.11.1.(2).)

[9.36.11.2.] --- Compliance

[1] --) Compliance with this Subsection shall be achieved by

[a] --) designing and constructing the *building* envelope in accordance with Articles 9.36.2.1. to 9.36.2.5. and 9.36.11.3. to 9.36.11.5.,

[b] --) designing and constructing systems and equipment for heating, ventilating or air-conditioning in accordance with Article 9.36.11.6., and

[c] --) designing and constructing systems and equipment for service water heating in accordance with Subsection 9.36.4.

[9.36.11.3.] --- Above-Ground Opaque Building Assemblies

[1] --) Except as provided in Article 9.36.2.5. and Sentence 9.36.2.6.(3), the effective thermal resistance of above-ground opaque *building* assemblies or portions thereof shall be not less than that shown for the applicable heating-degree day category of the *building* location in

[a] --) Table 9.36.11.3., where the total volume of *conditioned space* within the *building* is greater than 300 m^3 or not determined, or

[b] --) Article 9.36.2.6., where the total volume of *conditioned space* within the *building* is less than or equal to 300 m^3.

Table [9.36.11.3.]
Tier 2 Effective Thermal Resistance of Above-Ground Opaque Assemblies in Buildings with a Total Volume of Conditioned Space > 300 m^3
Forming Part of Clause 9.36.11.3.(1)(a)

Above-Ground Opaque *Building* Assembly	Heating Degree-Days of *Building* Location, (1) in Celsius Degree-Days					
	Zone 4 < 3000	Zone 5 3000 to 3999	Zone 6 4000 to 4999	Zone 7A 5000 to 5999	Zone 7B 6000 to 6999	Zone 8 ≥ 7000
	Minimum Effective Thermal Resistance (RSI), (m^2×K)/W					
Ceilings below attics	6.91	8.67	10.43	10.43	10.43	10.43
Cathedral ceilings and flat roofs	4.67	4.67	5.02	5.02	5.02	5.02
Walls	3.08	3.08	3.08	3.08	3.85	3.85
Floors over unheated spaces	4.67	4.67	4.67	5.02	5.02	5.02

Note to Table [9.36.11.3.] :

(1) See Article 1.1.3.1.

[2] --) Where the top of a section of *foundation* wall is on average greater than or equal to 600 mm abovethe adjoining ground level, the effective thermal resistance of theabove-ground portion of that section of wall shall be not less thanthat of the above-ground walls.

[3] --) Except for tubular daylighting devices, the effective thermalresistance of skylight shafts shall be not less than that of the above-groundwalls.

[9.36.11.4.] --- Fenestration, Doors and Skylights

[1] --) Except as provided in Sentences (2) to (8), fenestration anddoors shall have an overall thermal transmittance (U-value) not greaterthan, or an Energy Rating not less than, that shown in Table 9.36.11.4.for the applicable heating degree-days of the *building* location. (See Note A-9.36.2.7.(1) and (3).)

Table [9.36.11.4.]
Tier 2 Thermal Characteristics of Fenestration and Doors
Forming Part of Sentence 9.36.11.4.(1)

Component	Thermal Characteristics (1)	Heating Degree-Days of *Building* Location, (2) in Celsius Degree-Days					
		Zone 4 < 3000	Zone 5 3000 to 3999	Zone 6 4000 to 4999	Zone 7A 5000 to 5999	Zone 7B 6000 to 6999	Zone 8 ≥ 7000
Windows and sliding glass doors	Max. U-value, W/(m^2×K)	1.61	1.22	1.22	1.22	1.05	1.05
	Min. Energy Rating	25	34	34	34	40	40

Notes to Table [9.36.11.4.] :

(1) See Note A-Table 9.36.2.7.-A.

(2) See Article 1.1.3.1.

[2] --) The solar heat gain coefficient of fenestration and doors shallcomply with Sentence 9.36.2.7.(2).

[3] --) Skylights shall have an overall thermal transmittance not greaterthan the values listed in Table 9.36.2.7.-C for the applicable heating-degreeday category. (See Note A-9.36.2.7.(1) and (3).)

[4] --) Glass block assemblies separating *conditionedspace* from unconditioned space or the exterior shall have

[a] -- a U-value of not more than 2.9 W/(m^2×K), and

[b] -- a total aggregate area of not more than 1.85 m^2.

[5] --) One door separating a *conditioned space* from an unconditioned space or the exterior is permitted to havea U-value up to 2.6 W/(m^2×K).

[6] --) Storm windows and doors need not comply with Sentence (1).

[7] --) Vehicular access doors separating a *conditionedspace* from an unconditioned space or the exterior shall havea nominal thermal resistance of not less than 1.1 (m^2×K)/W.

[8] --) Access hatches separating a *conditionedspace* from an unconditioned space shall be insulated to a nominalthermal resistance of not less than 2.6 (m^2×K)/W.

[9.36.11.5.] --- Opaque Building Assemblies Below-Grade or in Contact with theGround

[1] --) Opaque *building* assemblies below-*grade* or in contact with the ground shall bedesigned and constructed in accordance with Sentence 9.36.2.8.(3)and this Article.

[2] --) Except as provided in Article 9.36.2.5., the effective thermalresistance of *foundation* walls shall benot less than that shown for the applicable heating degree-days ofthe *building* location in

[a] -- Table 9.36.11.5., where the total volume of *conditioned space* within the *building* is greater than 300 m^3 or not determined,or

[b] -- Article 9.36.2.8., where the total volume of *conditioned space* within the *building* is less than or equal to 300 m^3.

Table [9.36.11.5.]
Tier 2 Effective Thermal Resistance of Assemblies Below-Grade or in Contact with the Ground in Buildings with a Total Volume of Conditioned Space > 300 m^3
Forming Part of Clause 9.36.11.5.(2)(a)

***Building* Assembly Below-*Grade* or in Contact with the Ground (1)**	**Heating Degree-Days of *Building* Location, (2) in Celsius Degree-Days**					
	Zone 4 < 3000	**Zone 5 3000 to 3999**	**Zone 6 4000 to 4999**	**Zone 7A 5000 to 5999**	**Zone 7B 6000 to 6999**	**Zone 8 ≥ 7000**
	Minimum Effective Thermal Resistance (RSI), (m^2×K)/W					
Foundation walls	2.98	2.98	3.46	3.97	3.97	3.97
Unheated floors (3) below frost line (4) (5)	uninsulated	uninsulated	uninsulated	uninsulated	uninsulated	uninsulated
Unheated floors (3) above frost line (5)	1.96	1.96	1.96	1.96	1.96	1.96
Heated and unheated floors on permafrost	–	–	–	–	4.44	4.44
Heated floors (6)	2.32	2.32	2.32	2.84	2.84	2.84
Slabs-on-grade with an integral footing (6)	1.96	1.96	2.84	2.84	2.84	3.72

Notes to Table [9.36.11.5.] :

(1) See Note A-Tables 9.36.2.8.-A and -B.

(2) See Article 1.1.3.1.

(3) Does not apply to below-*grade* floors overheated crawl spaces.

(4) Typically applies to floors-on-ground infull-height *basements*.

(5) Refers to undisturbed frost linebefore house is constructed.

(6) See Sentence 9.25.2.3.(5) for requirement on placement of insulation. Thedesign of slabs-on-grade with an integral footing is addressed inPart 4 (see Article 9.16.1.2.).

[9.36.11.6.] --- HVAC Systems

[1] --) HVAC systems, equipment and installations shall be designedand constructed in accordance with Articles 9.36.3.2. to 9.36.3.8.and 9.36.3.11. and this Article.

[2] --) Where HVAC systems, equipment or techniques other than thosedescribed in Articles 9.36.3.2. to 9.36.3.8. and 9.36.3.11. and thisArticle are used, the *building* shall bedesigned and constructed in accordance with the energy efficiencyrequirements of the NECB.

[3] --) Ventilation systems serving *buildings* to which this Subsection applies shall be equipped with a heat/energyrecovery ventilator conforming to Article 9.36.3.9.

[4] --) The sensible recovery efficiency (SRE) measured at an outsideair test temperature of 0°C of the heat/energy recovery ventilatordescribed in Sentence (3) shall be not less than

[a] -- 60% for climate zones 4 and 5, or

[b] -- 70% for climate zones 6, 7A, 7B and 8.

Note A-9.36.11.1.(2) Other Compliance Options.

Buildings that do not comply with requirements of the Tier2 prescriptive path set out in Subsection 9.36.11. are permitted tomeet the requirements of the performance path (Subsection 9.36.7.or 9.36.8.)or the points-based prescriptive trade-off path (Subsection 9.36.9.)to achieve the Tier 2 energy performance target provided in Table9.36.7.2.

Impact analysis

This proposed change would improve energy performance by following the prescriptive requirements for building envelopes and HVAC systems to achieve Energy Performance Tier 2. Detailed costing data can be found in the supporting document. The total incremental cost to achieve Tier 2 is a very small percentage of the total construction cost.

Buildings with a total volume of conditioned space of less than or equal to 300 m^3 have the following energy performance: a percent improvement of ≥ 0%, a percent energy target of ≤ 100% and a percent heat loss reduction of ≥ 0%.

Buildings with a total volume of conditioned space of greater than 300 m^3 have the following energy performance: a percent improvement of ≥ 10%, a percent energy target of ≤ 90% and a percent heat loss reduction of ≥ 5%.

Incremental Costing for Tier 2 by Archetype

Archetype A1 - Apartment/condominium unit, one bedroom

Table 1. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A1

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	13.93
Floor area	46.30
Insulated attic area	46.30
Window area	2.36
Conditioned Space	**Total Volume, m^3**
Conditioned space	105.45

There is no incremental cost compared to Tier 1 for Archetype A1 as the building volume is less than 300 m^3.

Archetype A2 - Bungalow, detached without basement or garage

Table 2. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A2

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	126.05
Ground floor area	95.00
Slabs-on-grade	101.7
Insulated attic area	95.00
Window area	10.75
Conditioned Space	**Total Volume, m^3**
Conditioned space	217.44

There is no incremental cost compared to Tier 1 for Archetype A2 as the building volume is less than 300 m^3.

Archetype A3 - Bungalow, detached with basement and garage

Table 3. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A3

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	69.49
Foundation walls	46.10
Ground floor area	90.45
Insulated attic area	90.45
Window area	19.74
Conditioned Space	**Total Volume, m^3**
Conditioned space	411.36

Table 4. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A3

Building Component	**Incremental Cost, $**					
	Climate Zone					
	4	**5**	**6**	**7A**	**7B**	**8**
Ceilings below attics	0.00	0.00	760.68	0.00	0.00	0.00
Above-grade walls	−301.59*	0.00	0.00	0.00	0.00	0.00
Foundation walls	1,141.44	0.00	23.05	24.43	24.43	0.00
Unheated floors above frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	759.79	1,765.35	1,005.56	1,005.56	911.99	911.99
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL	**1,599.64**	**1,765.35**	**1,989.29**	**1,229.99**	**1,136.42**	**1,111.99**

*See supplemental document Section 3.4.

Archetype A4 - 2-storey, detached

Table 5. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A4

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	142.78

Foundation walls	22.69
Ground floor area	57.25
Insulated attic area	70.56
Window area	15.74
Conditioned Space	**Total Volume, m^3**
Conditioned space	427.46

Table 6. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A4

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	593.41	0.00	0.00	0.00
Floors over unheated spaces	0.00	0.00	0.00	0.00	0.00	0.00
Above-grade walls	–619.67*	0.00	0.00	0.00	0.00	0.00
Foundation walls	561.80	0.00	11.35	12.03	12.03	0.00
Unheated floors below frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	605.83	1,407.63	801.80	801.80	727.19	727.19
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL	**547.97**	**1,407.63**	**1,606.55**	**1,013.82**	**939.21**	**927.19**

*See supplemental document Section 3.4.

Archetype A5 - Row house, 2-storey

Table 7. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A5 (Mid-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	38.44
Foundation walls	7.14
Ground floor area	54.50
Insulated attic area	74.05
Window area	12.12
Conditioned Space	**Total Volume, m^3**
Conditioned space	425.35

Table 8. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A5 (Mid-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	622.76	0.00	0.00	0.00
Floors over unheated spaces	0.00	0.00	0.00	0.00	0.00	0.00
Above-grade walls	–166.83*	0.00	0.00	0.00	0.00	0.00
Foundation walls	176.79	0.00	3.57	3.78	3.78	0.00
Unheated floors below frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	466.50	1,083.89	617.39	617.39	559.94	559.94
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**476.46**	**1,083.89**	**1,443.72**	**821.18**	**763.73**	**759.94**

*See supplemental document Section 3.4.

Table 9. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A5 (End-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	90.34
Foundation walls	16.14
Ground floor area	54.50
Insulated attic area	74.05
Window area	13.59
Conditioned Space	**Total Volume, m^3**
Conditioned space	425.35

Table 10. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A5 (End-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	622.76	0.00	0.00	0.00
Floors over unheated spaces	0.00	0.00	0.00	0.00	0.00	0.00
Above-grade walls	–392.08*	0.00	0.00	0.00	0.00	0.00
Foundation walls	399.63	0.00	8.07	8.55	8.55	0.00
Unheated floors below frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	523.08	1,215.35	692.27	692.27	627.86	627.86
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**530.63**	**1,215.35**	**1,523.11**	**900.83**	**836.41**	**827.86**

*See supplemental document Section 3.4.

Archetype A6 - Row house, stacked 3-storey

Table 11. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A6 (Mid-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	65.51
Foundation walls	11.28
Ground floor area	58.07
Insulated attic area	59.85
Window area	20.92
Conditioned Space	**Total Volume, m^3**
Conditioned space	563.67

Table 12. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A6 (Mid-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	503.34	0.00	0.00	0.00
Above-grade walls	–284.31*	0.00	0.00	0.00	0.00	0.00
Foundation walls	279.29	0.00	5.64	5.98	5.98	0.00
Unheated floors above frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	597.36	1,870.88	1,065.66	1,065.66	966.50	966.50
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**592.34**	**1,870.88**	**1,774.64**	**1,271.64**	**1,172.48**	**1,166.50**

*See supplemental document Section 3.4.

Table 13. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A6(End-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	160.39
Foundation walls	29.43
Ground floor area	58.07
Insulated attic area	59.85
Window area	24.50
Conditioned Space	**Total Volume, m^3**
Conditioned space	563.67

Table 14. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A6(End-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	503.34	0.00	0.00	0.00
Above-grade walls	–696.09*	0.00	0.00	0.00	0.00	0.00
Foundation walls	728.69	0.00	14.72	15.60	15.60	0.00
Unheated floors above frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	943.01	2,191.04	1,248.03	1,248.03	1,131.90	1,131.90
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**975.60**	**2,191.04**	**1,966.08**	**1,463.63**	**1,347.50**	**1,331.90**

*See supplemental document Section 3.4.

Incremental Costing by Archetype by Region

Table 15. Climate Zones by Region

Degree-Days Below 18°C	BC	Alberta	Saskatchewan and Manitoba	Ontario	Quebec	Atlantic Canada	Northern Canada
Zone 4: HDD < 3000	Yes	No	No	No	No	No	No
Zone 5: HDD 3000 to 3999	Yes	No	No	Yes	No	Yes	No
Zone 6: HDD 4000 to 4999	Yes	Yes	Yes	Yes	Yes	Yes	No
Zone 7A: HDD 5000 to 5999	Yes	Yes	Yes	Yes	Yes	Yes	No
Zone 7B: HDD 6000 to 6999	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zone 8: HDD ≥ 7000	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 16. Incremental Cost to Achieve Tier 2 Compared to Tier 1 for Each Archetype by Region

Archetype		Incremental Cost, $						
		BC	Alberta	Saskatchewan and Manitoba	Ontario	Quebec	Atlantic Canada	Northern Canada
Archetype A1		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Archetype A2		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Archetype A3		1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,136.42
Archetype A4		547.97–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–939.21
Archetype A5	Mid-unit	476.46–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–763.73
	End-unit	530.63–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–836.41
Archetype A6	Mid-unit	592.34–1,870.88	1,166.50–1,774.64	1,166.50–1,774.64	1,166.50–1,870.88	1,166.50–1,774.64	1,166.50–1,870.88	1,166.50–1,172.48
	End-unit	975.60–2,191.04	1,331.90–1,966.08	1,331.90–1,966.08	1,331.90–2,191.04	1,331.90–1,966.08	1,331.90–2,191.04	1,331.90–1,347.50

Enforcement implications

This proposed change could be enforced by the infrastructure currently available to enforce the Code.

This proposed change would facilitate the effective enforcement of high-performance energy solutions in jurisdictions where complying with the performance path presents challenges.

Who is affected

Regulators, builders, designers, engineers, architects, contractors and consultants in provinces and territories where Energy Performance Tier 2 has been adopted for housing and small buildings.

Supporting Document(s)

Supporting Costing Information for PCF 2043 (pcf_2043_supporting_document.pdf)

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[9.36.11.1.] -- ([1] --)no attributions

[9.36.11.1.] -- ([2] --)no attributions

[9.36.11.1.] -- ([2] --)[F95,F100-OE1.1]

[9.36.11.2.] -- ([1] --)no attributions

[9.36.11.3.] -- ([1] --)no attributions

[9.36.11.3.] -- ([1] --)no attributions

[9.36.11.3.] -- ([1] --)[F92-OE1.1]

[9.36.11.3.] -- ([2] --)[F92-OE1.1]

[9.36.11.3.] -- ([3] --)[F92-OE1.1]

[9.36.11.4.] -- ([1] --)[F92-OE1.1]

[9.36.11.4.] -- ([2] --)no attributions

[9.36.11.4.] -- ([3] --)[F92-OE1.1]

[9.36.11.4.] -- ([4] --)[F92-OE1.1]

[9.36.11.4.] -- ([5] --)[F92-OE1.1]

[9.36.11.4.] -- ([6] --)no attributions

[9.36.11.4.] -- ([7] --)[F92-OE1.1]

[9.36.11.4.] -- ([8] --)[F92-OE1.1]

[9.36.11.5.] -- ([1] --)no attributions

[9.36.11.5.] -- ([1] --)no attributions

[9.36.11.5.] -- ([2] --)no attributions

[9.36.11.5.] -- ([2] --)[F92-OE1.1]

[9.36.11.6.] -- ([1] --)no attributions

[9.36.11.6.] -- ([2] --)no attributions

[9.36.11.6.] -- ([3] --)no attributions

[9.36.11.6.] -- ([3] --)[F95,F100-OE1.1]

[9.36.11.6.] -- ([4] --)[F95,F98,F100-OE1.1]