

WEBINAR SERIES

# Public Reviews for the 2025 National Construction Codes

Canadian  
Home Builders'  
Association



*Webinar #1: Proposed code changes - overview*

 **November 17 @ 12:00 - 1:00 PM ET**

*Webinar #2: Introducing proposed code changes for renovation*

 **November 24 @ 12:00 - 1:00 PM ET** →



*Webinar #3: Deep dive into Part 9 energy efficiency and GHG requirements*

 **November 30 @ 12:00 - 1:30 PM ET** →



**RESERVE YOUR SEAT!**





# Proposed Code Changes – Overview

## Public Reviews 2023/2024

Frank Lohmann, November 17<sup>th</sup>

Canadian  
Home Builders'  
Association





# Proposed Code Changes – Overview –

1. Where we are in the code process
2. Changes already approved for the 2025 Code – Part 9
3. **By Subject: Energy Efficiency and GHG Requirements**
  - Significant Changes – in detail – focus on Part 9 - both public reviews
  - Other Changes – overview – Part 9 and NECB - both public reviews
4. **By Public Review: 2023 Fall Public Review**
  - Non-Energy Subjects
  - How to Submit Comments for Public Review
5. If time allows: Preview of Priorities for 2030 Codes



# 1. WHERE WE ARE IN THE CODE PROCESS



| Codes Timelines        | Committee Deadline                             | Public Review Opens | Public Review Closes     |
|------------------------|------------------------------------------------|---------------------|--------------------------|
| Fall 2023              | June 12, 2023                                  | October 23, 2023    | <b>December 18, 2023</b> |
| Winter 2024            | October 2, 2023                                | February 20, 2024   | <b>April 29, 2024</b>    |
| Fall 2024 (Ref'd Docs) | June 17, 2024                                  | October 21, 2024    | <b>December 16, 2024</b> |
| Code Publication       | Planned for <b>December 2025</b>               |                     |                          |
| P/T Code Adoptions     | Planned for <b>18 months after</b> publication |                     |                          |



## 2. SC APPROVED CHANGE: NEW LATERAL LOAD PROVISIONS



### Seismic Data

|              |                                                                                                                                                                                                                                                                                                                                         |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>What?</b> | <b>New seismic metric for Part 9</b> <ul style="list-style-type: none"><li>• <del>Seismic hazard trigger of <math>S_{a(0.2)}</math></del></li><li>• <b>Seismic design parameter <math>S_{max}</math></b><ul style="list-style-type: none"><li>• New for Part 9 construction</li><li>• Part 4 design already uses it</li></ul></li></ul> |
| <b>Why?</b>  | <ul style="list-style-type: none"><li>• Consistency with Part 4 Design</li><li>• Compatibility with modern seismic hazard maps</li></ul>                                                                                                                                                                                                |

Highly  
Recommended!

#### Structural Wood Detailing for NBC Part 9 Construction

Building Knowledge  
Canada: Critical Canadian  
Building Science Series

- Robert Jonkman
- Damian Oliveira
- Sarah Stevenson
- Cory McCambridge



## 2. SC APPROVED: NEW LATERAL LOAD PROVISIONS



### Resistance to Seismic and Wind Loads – Part 9

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| What?   | <ul style="list-style-type: none"><li>• 50+ pages of new code</li><li>• <b>Applies everywhere in the country (not only BC)!</b></li><li>• Key concepts remain: Braced Wall Bands/Panels</li><li>• Lower trigger for better resistance against wind loads</li><li>• Defined wood-frame wall types simplify design</li><li>• Look-up design procedure for braced wall panels</li><li>• <b>New simple prescriptive solution with strict limits to geometry and bldg height (and other aspects)!</b></li></ul> |
| Why?    | <ul style="list-style-type: none"><li>• <b>Better</b> resistance against earthquake forces</li><li>• <b>Improve</b> resistance against wind loads up to the same level of performance as for earthquake loads</li></ul>                                                                                                                                                                                                                                                                                    |
| Impact? | <ul style="list-style-type: none"><li>• <b>Estimated ~\$1,000 per house!</b></li><li>• <b>Likely causing more professional involvement in Part 9 construction!</b></li></ul>                                                                                                                                                                                                                                                                                                                               |

Highly  
Recommended!

#### Structural Wood Detailing for NBC Part 9 Construction

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# 3. Significant Changes (Focus on Energy & GHG)

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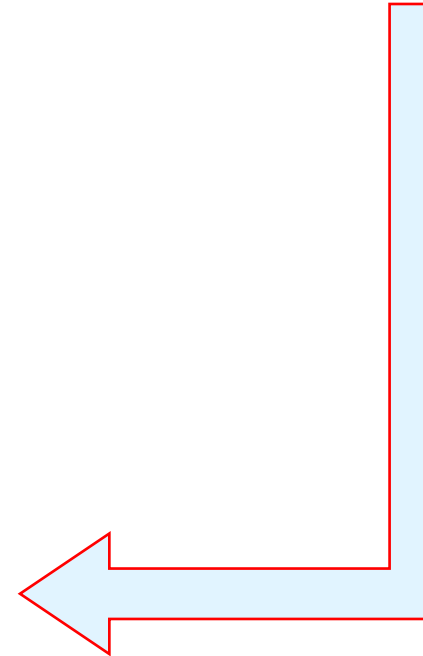
- **2023** and **2024** Public Review
  - At least 55 significant changes on Energy and GHG
  - 19 PCFs on Energy Efficiency (NBC 9.36)
    - 9 PCFs on Alterations to Existing Buildings
    - 9 PCFs on Prescriptive Trade off – Points
    - 1 PCF on Prescriptive Tier 5 – “Packages”
    - 1 PCFs on new Energy Use Metrics
    - 3 PCFs on Airtightness
    - 1 Solar Heat Gain & Peak Cooling
  - 7 PCFs on Greenhouse Gas Emissions (GHG)
    - 3 NBC and 4 NECB
  - 22 Other Energy Efficiency changes
- [2023 Public Review](#)
  - 40 proposed changes
    - 21 affecting Part 9 (hyperlinked)
      - 18 (of 55↑) on energy efficiency, GHG or existing bldgs.
        - 12 in Part 9



# ALTERATION TO EXISTING BUILDINGS



- Trigger:
  - Applies where the extent of the renovation includes one of the **technical areas**
  - **Does not mandate renovations**
- General Requirements (PCFs [1812](#), [1813](#), [1824](#))
  - Principles
  - Application & Exemptions
  - Definitions
- Technical Provisions
  - Service Water Heating Systems (PCF 1825) (\$)
  - HVAC Systems Requirements (PCF 1826) (\$)
  - Airtightness Requirements (PCF 1827) (\$)
  - Fenestration, Doors and Skylights (PCF 1828) !?
  - Above-grade Opaque Walls (PCF 1829) (\$\$\$)
  - Below Grade Building Assemblies (PCF 1850) (\$)



**Register for next  
week's webinar**

# PRESCRIPTIVE TRADE-OFF – “POINTS”





## Energy-Efficiency Changes Prescriptive Path 9.36.8.



**Example**

- 2000 ft<sup>2</sup> single-family home in Edmonton (w. conditioned basement, Climate Zone 7B)
- Comply with tier 1 and collect **10 points** to comply with tier 2

| Category                                | Specification                             | Points     |
|-----------------------------------------|-------------------------------------------|------------|
| Effective R-value of above ground walls | RSI 3.08 m <sup>2</sup> K/W (~R17.5)      | 0          |
| Effective R-value of below ground walls | RSI 2.98 m <sup>2</sup> K/W (~R16.9)      | 0          |
| <b>Tested Airtightness</b>              | <b>2.0 ACH (AL-2A)</b>                    | <b>6.1</b> |
| U-value or ER of fenestration and doors | U-value 1.44                              | 0          |
| <b>Ventilation equipment</b>            | <b>SRE 60% (HRV or ERV pre-requisite)</b> | <b>0.8</b> |
| <b>Service water heating equipment</b>  | <b>Gas fired storage type EF=0.8</b>      | <b>3.1</b> |
| Conditioned volume of building          | 780m <sup>3</sup>                         | 0          |



**PCF 1888  
corrects  
points for  
airtightness**

# PRESCRIPTIVE TRADE-OFF – “POINTS”



- What's New

- Trade-Off Point Targets for Tiers 3, 4, 5 (PCF 1890) → → →
- \* 5 points for Zone 8
- No small home relaxations!

| Energy Conservation Points (PCF 1890)  | Tier 1     | Tier 2     | Tier 3     | Tier 4     | Tier 5     |
|----------------------------------------|------------|------------|------------|------------|------------|
| Minimum Sum – <b>Total</b> Points*     | 0          | 10         | <u>20</u>  | <u>40</u>  | <u>75</u>  |
| Minimum Sum – Building Envelope points | 0          | 0          | <u>5</u>   | <u>15</u>  | <u>15</u>  |
| Minimum Airtightness Level (ACH)       | <u>2.5</u> | <u>2.5</u> | <u>2.5</u> | <u>2.0</u> | <u>1.5</u> |

- More Energy Conservation Measure (ECM) Points available:

- Drain water heat recovery ([PCF 1835](#))
- Gas-fired furnaces ([PCF 1836](#))
- Fenestration & Doors ([PCF 1889](#))
- Building Envelope (PCF 1923)
- Oil Furnaces (PCF 2000)
- ASHP at 60% minim Capacity / Load Fraction (PCF 2001)

# PRESCRIPTIVE TRADE-OFF – “POINTS”



## Proposed Section 9.36.8 - Airtightness

- More accurate and correct! points for airtightness in [PCF 1888](#)
- Interpolation according to [PCF 1834](#)

| Energy Conservation Measures and Points for Airtightness - Detached homes |                            |                                      |                             |                             |                             |                             |
|---------------------------------------------------------------------------|----------------------------|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Detached                                                                  | Zone 4                     | Zone 5                               | Zone 6                      | Zone 7a                     | Zone 7b                     | Zone 8                      |
| 2.5 ACH                                                                   | -                          | -                                    | -                           | -                           | -                           | -                           |
| 2.0 ACH                                                                   | <del>2.0</del> <u>2.2</u>  | <del>3.4</del> <u>3.2</u>            | 3.5                         | <del>4.6</del> <u>3.8</u>   | <del>6.1</del> <u>4.3</u>   | <del>6.1</del> <u>4.8</u>   |
| 1.5 ACH                                                                   | <del>4.0</del> <u>4.3</u>  | <del>6.7</del> <u>6.3</u>            | <del>7.0</del> <u>6.9</u>   | <del>9.3</del> <u>7.6</u>   | <del>12.1</del> <u>8.5</u>  | <del>12.1</del> <u>9.7</u>  |
| 1.0 ACH                                                                   | <del>5.9</del> <u>6.5</u>  | <del>10.1</del> <u>9.6</u>           | 10.5                        | <del>13.9</del> <u>11.4</u> | <del>18.0</del> <u>12.9</u> | <del>18.0</del> <u>14.7</u> |
| 0.6 ACH                                                                   | <del>7.6</del> <u>8.3</u>  | <del>13.0</del> <u>12.3</u>          | 13.4                        | <del>17.8</del> <u>14.7</u> | <del>22.7</del> <u>16.5</u> | <del>22.7</del> <u>18.8</u> |
|                                                                           | ✓                          | ← Possible Implications for Tier 2 → |                             |                             |                             |                             |
| Attached                                                                  | Zone 4                     | Zone 5                               | Zone 6                      | Zone 7a                     | Zone 7b                     | Zone 8                      |
| 3.0 ACH                                                                   | -                          | -                                    | -                           | -                           | -                           | -                           |
| 2.5 ACH                                                                   | <del>—</del> <u>2.1</u>    | <del>—</del> <u>3.2</u>              | <del>—</del> <u>3.5</u>     | <del>—</del> <u>3.8</u>     | <del>—</del> <u>4.3</u>     | <del>—</del> <u>4.8</u>     |
| 2.0 ACH                                                                   | <del>2.2</del> <u>4.3</u>  | <del>3.0</del> <u>6.4</u>            | <del>3.5</del> <u>6.9</u>   | <del>4.6</del> <u>7.6</u>   | <del>4.1</del> <u>8.5</u>   | <del>4.6</del> <u>9.6</u>   |
| 1.5 ACH                                                                   | <del>4.0</del> <u>6.4</u>  | <del>6.0</del> <u>9.6</u>            | <del>6.9</del> <u>10.4</u>  | <del>9.1</del> <u>11.5</u>  | <del>8.2</del> <u>12.8</u>  | <del>9.3</del> <u>14.5</u>  |
| 1.0 ACH                                                                   | <del>6.0</del> <u>8.6</u>  | <del>9.1</del> <u>12.8</u>           | <del>10.4</del> <u>14.0</u> | <del>13.6</del> <u>15.4</u> | <del>12.3</del> <u>17.2</u> | <del>14.2</del> <u>19.6</u> |
| 0.6 ACH                                                                   | <del>7.7</del> <u>10.4</u> | <del>11.6</del> <u>15.6</u>          | <del>13.3</del> <u>17.0</u> | <del>17.4</del> <u>18.7</u> | <del>15.6</del> <u>20.9</u> | <del>18.2</del> <u>23.8</u> |
|                                                                           | ✓                          |                                      |                             |                             |                             |                             |

## Implications:

### Edmonton Example:

Now: ~1.79 ACH = 6.1 points

# PRESCRIPTIVE TIER 5 – “PACKAGES”



## Single PCF (#1830 - Winter 2024)

- Like Energy Star Builder Option Packages
  - New Section 9.36.9.
  - Application
    - only for Tier 5!
    - housing only!
  - Prerequisites:
    - Airtightness testing
      - AL4-A or AL5-B = 1.0 ACH!
    - HRV or ERV
    - Heat pump as primary space heating
    - Min 1 Drain Water Heat Recovery unit
    - Electric Heat Pump Water Heater
- “Packages” (code tables)
    - RSI / U-Values, Equipment efficiency
    - Small home relaxations
    - Electric & Dual Energy Packages
  - Cost Impact Analysis
    - \$47,000 more than Tier 1 house !
    - Analysis
      - 2500 ft<sup>2</sup> house/walk-out basement
      - base case = electric
      - Halifax - Zone 6 (4000 HDD)
      - Costing data from October 2020

# PRESCRIPTIVE TIER 5 – “PACKAGES”



Two “Packages” as Examples → Dual Energy “Package” / Homes > 300m<sup>3</sup>

|                                                           | Zone 4                                                                                                                                                                                  | Zone 5     | Zone 6     | Zone 7A    | Zone 7B    | Zone 8     |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|
| <b>Ceilings Below Attics (Min RSI Value)</b>              | 10.43                                                                                                                                                                                   | 12.19      | 12.19      | 12.19      | 12.19      | 12.19      |
| <b>Cathedral Ceilings and Flat Roofs (Min RSI Value)</b>  | 4.67                                                                                                                                                                                    | 5.02       | 5.02       | 5.02       | 5.80       | 5.80       |
| <b>Floors Over Unheated Spaces (Min RSI Value)</b>        | 4.67                                                                                                                                                                                    | 5.02       | 5.02       | 5.02       | 5.42       | 5.42       |
| <b>Walls Above Grade (Min RSI Value)</b>                  | 5.69                                                                                                                                                                                    | 5.69       | 5.69       | 5.77       | 6.65       | 6.65       |
| <b>Foundation Walls (Min RSI Value)</b>                   | 3.46                                                                                                                                                                                    | 3.46       | 3.97       | 4.78       | 5.22       | 5.22       |
| <b>Unheated Floors above frost line (Min RSI Value)</b>   | 1.96                                                                                                                                                                                    | 1.96       | 1.96       | 1.96       | 2.84       | 2.84       |
| <b>Unheated Floors below frost line (Min RSI Value)</b>   | 1.96                                                                                                                                                                                    | 1.96       | 1.96       | 1.96       | 1.96       | 1.96       |
| <b>Heated and unheated Floors on permafrost</b>           | -                                                                                                                                                                                       | -          | -          | -          | 4.62       | 4.62       |
| <b>Heated Floors (Min RSI Value)</b>                      | 2.32                                                                                                                                                                                    | 3.72       | 3.72       | 3.72       | 4.62       | 4.62       |
| <b>Slabs-on-grade with an integral footing</b>            | 1.96                                                                                                                                                                                    | 3.72       | 3.72       | 3.72       | 4.62       | 4.62       |
| <b>Windows &amp; Sliding Glass Doors (Max. U, Min ER)</b> | 1.05 or 40                                                                                                                                                                              | 1.05 or 40 | 0.94 or 42 | 0.94 or 42 | 0.82 or 44 | 0.82 or 44 |
| <b>Skylight (Maximum U-Value)</b>                         | 2.02                                                                                                                                                                                    | 2.02       | 1.84       | 1.84       | 1.61       | 1.61       |
| <b>Space Heating Equipment — Heat Pump</b>                | HSPF V ≥ 8.7 / HSPF2 V ≥ 6.4 / SEER2 ≥ 15.2 / EER2 ≥ 11.7<br>Percent of Heating Capacity at -15 °C (5 °F) ≥ 70% of<br>that at 8.3 °C (47° F) / COP <sub>h</sub> ≥ 1.5 at -15 °C (5 °F). |            |            |            |            |            |
| <b>Electric Heat Pump Water Heater</b>                    | UEF ≥ 2.95                                                                                                                                                                              |            |            |            |            |            |
| <b>Supplementary Heating System</b>                       |                                                                                                                                                                                         |            |            |            |            |            |
| <b>Oil-fired Furnaces</b>                                 | AFUE ≥ 87 %                                                                                                                                                                             |            |            |            |            |            |
| <b>Gas-fired Furnaces</b>                                 | See Table 9.36.4.2.                                                                                                                                                                     |            |            |            |            |            |
| <b>Electric Heat Pump Water Heater(4)</b>                 | UEF ≥ 2.95                                                                                                                                                                              |            |            |            |            |            |

Fully Electric “Package” / Homes < 300m<sup>3</sup>

| Zone 4                                                                                                                                                                                  | Zone 5     | Zone 6     | Zone 7A    | Zone 7B    | Zone 8     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|
| 8.67                                                                                                                                                                                    | 8.67       | 8.67       | 10.43      | 10.43      | 10.43      |
| 5.02                                                                                                                                                                                    | 5.02       | 5.02       | 5.02       | 5.02       | 5.02       |
| 5.02                                                                                                                                                                                    | 5.02       | 5.02       | 5.02       | 5.02       | 5.02       |
| 3.23                                                                                                                                                                                    | 3.85       | 3.85       | 3.85       | 4.80       | 4.80       |
| 3.46                                                                                                                                                                                    | 3.46       | 3.97       | 4.78       | 5.22       | 5.22       |
| 1.96                                                                                                                                                                                    | 1.96       | 1.96       | 1.96       | 1.96       | 1.96       |
| 1.96                                                                                                                                                                                    | 1.96       | 1.96       | 1.96       | 1.96       | 1.96       |
| -                                                                                                                                                                                       | -          | -          | -          | 4.44       | 4.44       |
| 2.84                                                                                                                                                                                    | 2.84       | 2.84       | 3.72       | 3.72       | 4.62       |
| 2.84                                                                                                                                                                                    | 2.84       | 2.84       | 3.72       | 3.72       | 4.62       |
| 1.05 or 40                                                                                                                                                                              | 1.05 or 40 | 0.94 or 42 | 0.94 or 42 | 0.82 or 44 | 0.82 or 44 |
| 2.02                                                                                                                                                                                    | 2.02       | 1.84       | 1.84       | 1.61       | 1.61       |
| HSPF V ≥ 8.7 / HSPF2 V ≥ 6.4 / SEER2 ≥ 15.2 / EER2 ≥ 11.7<br>Percent of Heating Capacity at -15 °C (5 °F) ≥ 70% of<br>that at 8.3 °C (47° F) / COP <sub>h</sub> ≥ 1.5 at -15 °C (5 °F). |            |            |            |            |            |
| UEF ≥ 2.95                                                                                                                                                                              |            |            |            |            |            |

# NEW ENERGY USE METRICS



- New Method (PCF 1869)

- Applicable to all tiers
- New subsection
- Introduces

| Targets                                     | Tier 1 | Tier 2 | Tier 3 | Tier 4 | Tier 5 |
|---------------------------------------------|--------|--------|--------|--------|--------|
| Annual Energy Consumption Adjustment Factor | 100%   | 90%    | 80%    | 60%    | 30%    |
| Gross Space Heat Loss Adjustment Factor     | 100%   | 95%    | 90%    | 80%    | 60%    |

- absolute energy performance targets for a building
- simpler calculations for tier performance targets

- New “Budget” Metrics

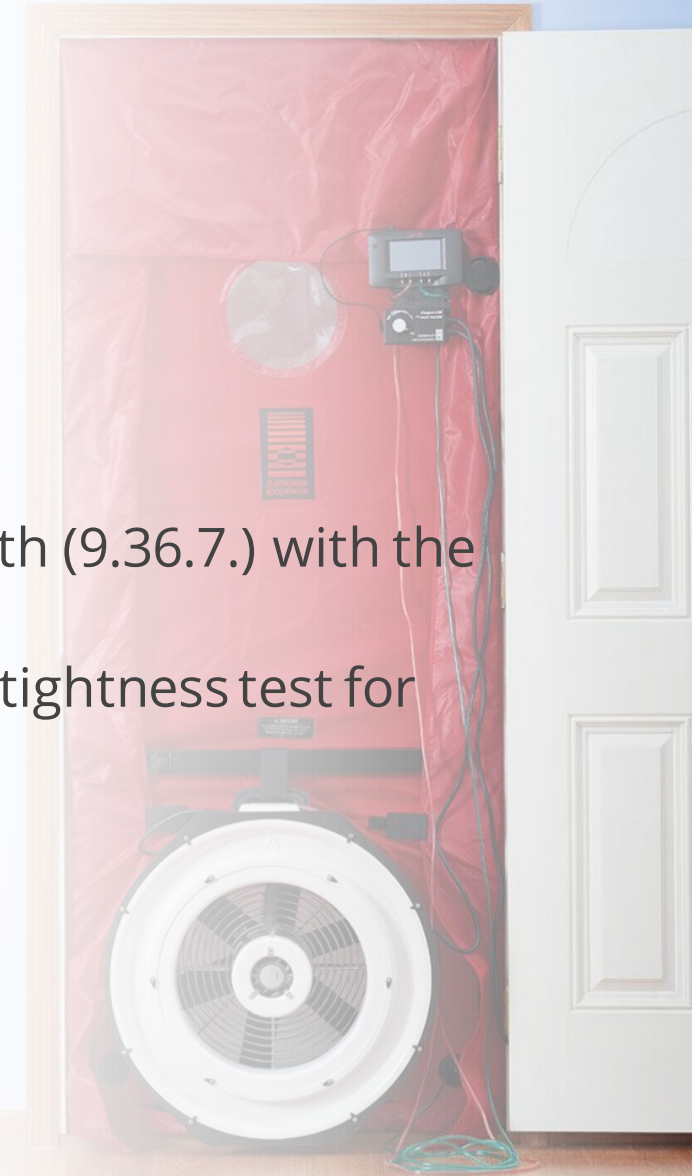
- Reference house **Annual Energy Consumption** in kWh/a X **Tier Adjustment Factor**
  - For compact homes
    - via Mechanical Energy Use Budget:  $((0.02 \times \text{HDD}) - 12.3) \times 115 \text{ m}^2 + 6500$
- Reference house **Annual Gross Space Heat Loss** in kWh X **Tier Adjustment Factor**
  - For compact homes
    - via Budget Gross Heat Loss per year:  $(0.02 \times (\text{HDD}) + 32.6) \times 115 \text{ m}^2$
- **Annual Design Cooling Load**
  - Reference house budget (CSA F280) **X 1.1** or **X 15 W/m<sup>2</sup>** or **install A/C**



# AIRTIGHTNESS TESTING



- Removes Normalized Leakage Area (NLA) ([PCF 1814](#))
- Replaces “air changes per hour” (ACH) metric with NLR metric (PCF 1819)
  - NLR = Normalized Leakage Rate
  - NLR50 will become airtightness metric in NBC Section 9.36.
  - aligns airtightness requirements in the *Tiered* Performance Path (9.36.7.) with the Performance Path (9.36.5.)
  - allows the use of 1.17 or 0.89 NLR50 for modelling without airtightness test for attached and detached houses
- Revises Administrative Provisions to “NLR” (PCF 1954)
  - Important for drawings and specifications for the proposed house



# SOLAR HEAT GAIN / PEAK COOLING



## [PCF 1823](#)

- **9.36.2.7 Prescriptive Path** – Maximum Solar Heat Gain Coefficient (SHGC) set so that energy efficient design does not contribute to overheating risk

| Table 9.36.2.7.-B Solar Heat Gain Coefficient of Fenestration and Doors |                                     |
|-------------------------------------------------------------------------|-------------------------------------|
| Fenestration and door area to gross wall area ratio (FDWR)              | Maximum solar heat gain coefficient |
| FDWR < 17%                                                              | 0.45                                |
| 17% < FDWR < 22%                                                        | 0.40                                |
| FDWR > 22%                                                              | 0.26!                               |

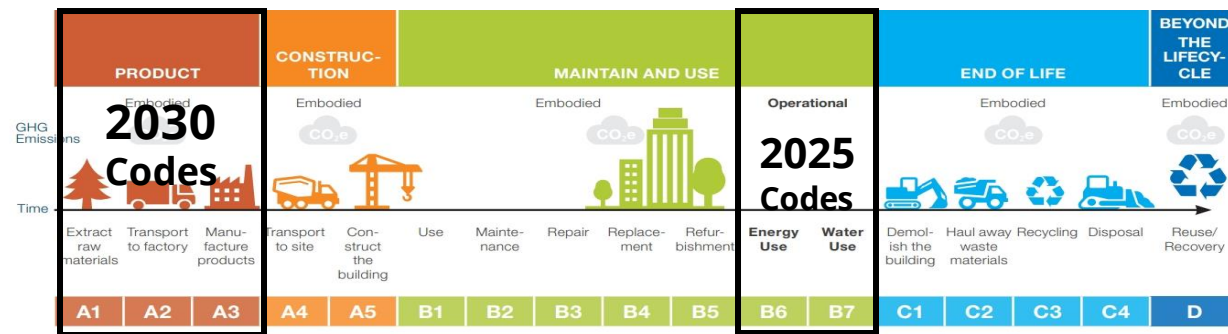
- **9.36.5.3. Performance Path** – Peak Cooling Criteria Compliance Relaxed
  - Install a **space-cooling system** in the proposed house, or
  - Calculate the peak cooling load with A/C:
    - peak cooling load **not greater than 110%** of the reference house
    - a **design cooling intensity not greater than 4.5 W/m<sup>3</sup>**



# GREENHOUSE GAS EMISSIONS



- Operational GHG emissions
  - proposed for **2025 Codes**
  - emissions from operation of equipment for space heating and cooling and water heating (B6/7)



- Embodied GHG
  - scheduled for **2030 Codes**
  - emissions from the production and generation of building materials (A1-A3) but not the construction process (A4/5)

## General Requirements

- NBC**
  - New NBC Objective and Functional Statements ([PCF 1843](#))
- NECB**
  - New NECB Objective and Functional Statements ([PCF 1820](#))
  - Application of GHG Requirements in NECB (PCF 1989)
  - New Abbreviations (PCF 2016)

# GREENHOUSE GAS EMISSIONS



## Performance Path (PCF 2003 NECB, PCF 2004 NBC 9.36.)

- Take Total Space Conditioning and Water Heating Energy **Demand Loads** from Model
- Multiply by regional **Emission Factor** based on proposed equipment fuel
- Compare against **Reference**:
  - Reference Emission Factor for Space Heating = 235g CO<sub>2</sub>e /kWh
  - Reference Emission Factor for Water Heating = 260g CO<sub>2</sub>e /kWh
- **No Credit for Renewables!**

| Performance Level | Emissions Target (%) | Improvement (%) |
|-------------------|----------------------|-----------------|
| A                 | ≤ 10%                | ≥ 90%           |
| B                 | ≤ 25%                | ≥ 75%           |
| C                 | ≤ 50%                | ≥ 50%           |
| D                 | ≤ 75%                | ≥ 25%           |
| E                 | ≤ 90%                | ≥ 10%           |
| F                 | ≤ 100%               | ≥ 0%            |

| GHG Emission Factors (g CO <sub>2</sub> e /kWh) |             |             |
|-------------------------------------------------|-------------|-------------|
| Province or Territory                           | Electricity | Utility Gas |
| Alberta                                         | 181.86      | 189         |
| British Columbia                                | 1.32        | 190         |
| Manitoba                                        | 0.00        | 185         |
| New Brunswick                                   | 77.88       | 185         |
| Newfoundland and Labrador                       | 11.08       | 185         |
| Northwest Territories                           | 6.82        | 185         |
| Nova Scotia                                     | 161.64      | 190         |
| Nunavut                                         | 465.16      | 190         |
| Ontario                                         | 57.90       | 185         |
| Prince Edward Island                            | 80.42       | 185         |
| Quebec                                          | 0.38        | 186         |
| Saskatchewan                                    | 146.60      | 185         |
| Yukon                                           | 25.00       | 190         |

# GREENHOUSE GAS EMISSIONS



- Prescriptive Path  
(PCF 2026, NBC only, not certain!)
- Lookup Table Concept  
for each Performance Level
- based on
  - Energy source for Space Heating
  - Energy source for Water Heating
  - Electricity Emission Factor
  - (sometimes Climate Zone)
- **No credit for Renewables!**

Excerpts, samples...

Minimum Energy Performance Tier for GHG Emissions **Performance Level B**

| Energy Source<br>Space Heating | Energy Source<br>Water Heating | Electricity<br>Emission Factor<br>(g CO <sub>2</sub> e/kWh) | Climate<br>Zone | Minimum <b>Energy</b><br>Performance Tier |
|--------------------------------|--------------------------------|-------------------------------------------------------------|-----------------|-------------------------------------------|
| (any) Electricity              | (any) Electricity              | < 25                                                        | Any             | 2                                         |
|                                |                                | 25 < EF < 100                                               | Any             | 4                                         |
|                                |                                | > 100                                                       | Any             | 5                                         |

Minimum Energy Performance Tier for GHG Emissions **Performance Level D**

| Energy Source<br>Space Heating | Energy Source<br>Water Heating           | Electricity<br>Emission Factor<br>(g CO <sub>2</sub> e/kWh) | Climate<br>Zone | Minimum <b>Energy</b><br>Performance Tier |
|--------------------------------|------------------------------------------|-------------------------------------------------------------|-----------------|-------------------------------------------|
| Natural Gas                    | Natural Gas                              | Any                                                         | Any             | 4                                         |
| Electricity                    | Electricity                              | GEF ≤ 170                                                   | Any             | 2                                         |
| Natural Gas                    | Electricity                              | GEF ≤ 100                                                   | Any             | 1                                         |
| Electric Heat<br>Pump          | Electric Heat<br>Pump or Storage<br>Tank | GEF < 200                                                   | Any             | 1                                         |

# Other Energy Efficiency **Both** Public Reviews

Canadian  
Home Builders'  
Association



- 35 Other Energy Efficiency Changes
  - 12 PCFs NBC 9.36.
    - 3 PCFs on Airtightness
    - 2 PCF on Thermal Bridging
    - 1 PCF on Energy Use Metrics
    - 2 PCFs on Potential Consequences of High-Performance Homes
    - 4 PCFs on Miscellaneous
  - 17 NECB PCFs
    - Energy Use Metrics
    - Thermal Bridging
    - Climatic Data
    - Miscellaneous
    - Alterations to Existing Buildings





### NBC 9.36. – Other Energy Efficiency

- **Thermal Bridging**

- **Insulation of Masonry Fireplaces.** This proposed change clarifies the requirements for insulation of masonry fireplaces. ([PCF 1831](#))
- **Continuity of Insulation.** This proposed change lowers the insulation requirements for rough opening gaps around windows and doors, excluding the sill. (PCF 1951)

- **Potential Consequences Of High-Performance Homes**

- **! NBC Section 9.27. – Protection of windows and doors from precipitation** This proposed change clarifies the Code requirements for protection of windows and doors from precipitation to more closely align with established building science principles and standards. (PCF 1950)



### NBC 9.36. – Other Energy Efficiency – Cont'd

- **Miscellaneous**

- **Water Heater Efficiency update from EF to UEF.** Update CSA Standard CAN/CSA-C745 'Energy Efficiency of Electric Storage Tank Water Heaters and Heat Pump Water Heaters'. (PCF 2011)
- **Performance requirement of HVAC equipment not listed in Table 9.36.3.10.** The proposed change closes a loophole and aligns the requirements in Clause 9.36.5.15.(7)(b) with Table 9.36.3.10 in NBC 2020. (PCF 2019)
- **Option for Insulation Under Ducts (Factory-Constructed Buildings)** The proposed change updates Sentence 9.36.2.11.(6) to recognize an existing thermal resistance trade-off provision for insulation under trunk ducts installed below insulated floor framing in factory-constructed buildings. ([PCF 1664](#))
- **! New Performance Metrics for Small Single-Phase Air Conditioners and Heat Pumps.** This proposed change introduces new energy metrics for small single-phase air conditioners and heat pumps. ([PCF 1833](#))

# OTHER ENERGY EFFICIENCY

## 2023 FALL AND WINTER 2024 PUBLIC REVIEW



### National Energy Code for Buildings

- **Energy Use Metrics**

- Building Performance Target Path (NECB). This proposed change introduces a new compliance path based on the absolute energy performance target of the building. (PCF 1868)

- **Thermal Bridging**

- **! Design Procedure – NECB.** This proposed change update thermal bridging requirements in the NECB to reflect new modelling and standards. ([PCF 1821](#))

- **Appendix C Climatic Data**

- **Missing Degree-Days Below 15°C Values.** This proposed change adds values that are missing from Table C-1 under "Degree-Days Below 15°C." ([PCF 1732](#))

- **Miscellaneous**

- **Application of Lighting Requirements.** This proposed change extends the application of NECB Part 4 to lighting that is located on the building site, irrespective of whether or not the lighting is connected to the building's electrical service. ([PCF 1724](#))
- **New Performance Metrics for Small Single-Phase Air Conditioners and Heat Pumps.** This proposed change introduces new energy metrics for small single-phase air conditioners and heat pumps. ([PCF 1832](#))

# OTHER ENERGY EFFICIENCY

## 2023 FALL AND WINTER 2024 PUBLIC REVIEW



### National Energy Code for Buildings – Cont'd

- **Alterations of Existing Buildings – General Provisions**
  - **Definitions.** The proposed change copies the defined term “alteration” from the NBC into the NECB. (PCF 1990)
  - **Scope and application of Part 13.** The proposed changes states the scope and application of Part 13 of the NECB to alterations of existing buildings. (PCF 1991)
  - **Application of the NECB to the Alteration of Existing Buildings.** This proposed change modifies the application of the NECB generally, and Parts 3 to 8 and 10 and proposed Part 11 specifically, to include the alteration of existing buildings. ([PCF 1839](#))
- **Alterations of Existing Buildings – Technical Requirements**
  - **Building envelope.** The proposed changes add requirements defining the application of NECB Part 3 to building envelope subject to alterations. (PCF 1857)
  - **Lighting systems.** The proposed changes add requirements defining the application of NECB Part 4 to lighting systems subject to alterations. (PCF 1858)
  - **Service water heating systems.** The proposed changes add requirements defining the application of NECB Part 6 to service water systems subject to alterations. (PCF 1860)
  - **Electrical power systems and motors.** The proposed changes add requirements defining the application of NECB Part 7 to electrical powers systems and motors subject to alterations. (PCF 1861)



### National Energy Code for Buildings – Cont'd

- **Alterations of Existing Buildings – Administrative Provisions in Division C**

- **Service water systems (Division C).** The proposed changes add administrative requirements related to alterations of service water systems. (PCF 1865)
- **Electrical power systems and motors (Division C).** The proposed changes add administrative requirements related to alterations of Electrical Power Systems and Motors. (PCF 1866)
- **HVAC systems (Division C).** The proposed changes add administrative requirements related to alterations of HVAC systems. (PCF 1864)
- **Lighting Systems (Division C).** The proposed changes add administrative requirements related to alterations of lighting systems. (PCF 1863)
- **Building envelope (Division C).** The proposed changes add administrative requirements related to alterations of the building envelope. (PCF 1862)

# 2023 Fall Public Review

Canadian  
Home Builders'  
Association



From Oct 23 to Dec 18, 2023

Total 40 PCFs

- *19 Energy Efficiency and GHG (presented)*
- **21 PCFs on Non-Energy/GHG Subjects**
  - 1 PCF on NBC Part 2 (Farm Building)
  - 1 PCFs NBC Part 9
  - 4 PCFs NBC Part 3 / NBC Part 9
  - 7 PCFs NBC Part 3
  - 4 PCFs NBC Part 5
  - 1 PCF on National Plumbing Code
  - 3 PCFs on National Fire Code





- **National Building Code – Part 2 (Farm Buildings)**
  - **Maximum Window Sill Height Used for Exit.** This proposed change introduces a maximum sill height from inside of a large farm building for an openable window used as an exit. ([PCF 1784](#))
- **National Building Code – Part 9**
  - **Radon – Ballast for Ground Cover in Heated Crawl Spaces.** This proposed change clarifies the requirements for proper ballast to weigh down ground cover in heated crawl spaces. ([PCF 1809](#))
- **National Building Code – Part 3 and Part 9 Accessibility**
  - **Accessible Controls for Manual Fire Alarm Stations** This proposed change clarifies that the requirements for accessible control requirements also apply to manual stations. ([PCF 1768](#))
  - **Projection of Protruding Building Elements** This proposed change extends the requirement on the projection of protruding building elements in corridors to barrier-free paths of travel. ([PCF 1765](#))
  - **Access to Doors from Non-Exit Stairs (Part 3 / Part 9)** This proposed change expands the application of Sentences 9.9.6.6.(1) to access to doors from non-exit stairs in Part 3 buildings. Stairs serving dwelling units remain exempt. ([PCF 1878](#))
  - **Illumination Levels** This proposed change introduces Part 9 minimum illumination levels over escalators, moving walkways and at controls and signs in public areas. ([PCF 1762](#))



- **National Building Code – Part 3**

- Fire Protection**

- **Terminology for Gypsum Board** This proposed change replaces the term “tightly adhering paper” with “tightly adhered facer” in Sentence 3.1.5.13.(1). ([PCF 1841](#))
  - **Firestopping of Penetrations in Tested Fire-Rated Assemblies** This proposed change expands explanatory Note A-3.1.9. to clarify that the requirements of Article 3.1.9.1. are not meant to supersede the design details of an otherwise tested assembly. ([PCF 1847](#))
  - **Exposure of Mass Timber Elements. (Part 3)** This proposed change revises the encapsulation requirements for mass timber elements based on recent research. ([PCF 1870](#))
  - **Fire Resistance of Seismic Isolators (Part 3)** This proposed change introduces an explanatory Note A-3.1.7.5.(1)-2025 reinforcing that seismic isolators are subject to the same fire protection requirements as other loadbearing building elements. ([PCF 1874](#))
  - **Exposure of Mass Timber Elements (Part 3)** This proposed change expands the application of encapsulation materials from two to three layers of Type X gypsum board with a greater encapsulation rating. ([PCF 1963](#))
  - **Removal of the Term "Storage Tank" from Part 3 of the NBC.** This proposed change removes the definition of "storage tank" for the purposes of Part 3 from the NBC. ([PCF 1965](#))



- **National Building Code – Part 5**

- **Requirements for Wind Resistance of Vegetated Roof Assemblies.** This proposed change introduces a requirement for the testing of the dynamic wind uplift resistance and wind flow resistance of vegetated roof assemblies in accordance with the CAN/CSA-A123.24:21 standard. ([PCF 1754](#))
- **Replacement of Reference to Outdated CAN/CGSB Standard with a Reference to an ASTM Standard.** This proposed change replaces the reference to CAN/CGSB-37.58-M86, "Membrane, Elastomeric, Cold-Applied Liquid, for Non-Exposed Use in Roofing and Waterproofing," with a reference to ASTM C836/C836M-18, "Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course," in Table 5.9.1.1. ([PCF 1973](#))
- **Deletion of Reference to Duplicate Standard.** This proposed change deletes the reference to ASTM D2178/D2178M-13a, "Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing," from Table 5.9.1.1. ([PCF 1974](#))
- **Replacement and Addition of Standards in Table 5.9.1.1.** This proposed change replaces the standard CAN/CGSB-41.24-95, "Rigid Vinyl Siding, Soffits and Fascia," with ASTM D3679-17, "Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding," and ASTM D4477-16, "Standard Specification for Rigid (Unplasticized) Poly(Vinyl Chloride) (PVC) Soffit," in Table 5.9.1.1., and adds the standards ASTM D7254-17, "Standard Specification for Polypropylene (PP) Siding," and ASTM D7793-17, "Standard Specification for Insulated Vinyl Siding," to the Table. ([PCF 1332](#))



- **National Plumbing Code**

- **Introduction of Requirements for Oil Separators** This proposed change adds requirements for oil separators to the NPC by introducing a reference to CAN/ULC-S656-14, "Standard for Oil-Water Separators." ([PCF 1377](#))

- **National Fire Code**

- **Revisions to Protection Requirements for EMTC During Construction.** This proposed change revises the minimum requirements and exceptions for encapsulation of mass timber elements in buildings permitted to be of encapsulated mass timber construction. ([PCF 1872](#))
- **Revisions to Protection Requirements for EMTC During Construction.** This proposed change clarifies the requirement for the maximum exposed surface area of structural mass timber walls during building construction in Clause 5.6.4.3.(1)(d) and introduces explanatory Note A-5.6.4.3.(1)(d). ([PCF 1879](#))
- **! Protection of Adjacent Buildings.** This proposed change expands explanatory Note A-5.6.1.2.(1) to clarify the intent of the related provision. ([PCF 1797](#))

# 2024 Winter Public Review

Canadian  
Home Builders'  
Association



- Feb 20 to Apr 29, 2024

*Stay tuned ...*

- There will be other changes!
- 1 change we already know about:
  - **Applies to All Codes**
    - **NBC Appendix C – Updated Climatic Data to Future Projections**
    - PCF 1979
    - Appendices C for all codes including Tables C2 are being updated to incorporate the effects of future climate change.



# How to Enter Public Review Comments

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[Home](#) > [Public review of proposed changes to the 2020 National Model Codes](#)

## Public review of proposed changes to the 2020 National Model Codes

This national public review runs from **October 23 to December 18, 2023**.

The Canadian Board for Harmonized Construction Codes (CBHCC) invites code users, the Codes community, and the public to participate in the fall 2023 public review of proposed changes to the 2020 editions of the National Model Codes. The proposed changes included in this public review address the following topics in the National Building Code of Canada, the National Fire Code of Canada, the National Energy Code of Canada for Buildings, and the National Plumbing Code of Canada:

- alterations to existing buildings
- greenhouse gas emissions
- radon
- airtightness
- accessibility – illumination levels and projection of protruding building elements
- building envelope – thermal bridging and insulation
- building fire safety
- climatic loads
- combustible construction – fire protection and safety
- encapsulated mass timber construction
- HVAC equipment efficiency
- large farm buildings
- hazardous materials and activities
- plumbing materials and equipment
- fire protection
- use and egress
- penetrations
- prescriptive trade-off path
- vegetated roof assemblies
- windows, doors and skylights
- environmental separation standards
- lighting
- fenestration – thermal characteristics



See the [summary of key proposed changes](#) below for more details.

The purpose of this public review is to:

- provide code users, the Codes community, and the public with a detailed look at proposed technical changes, and
- seek comment on each proposed technical change as to whether it should be approved, altered or withdrawn.

The public review will close at 11:59 pm PST on December 18, 2023, after which comments will no longer be accepted.

The result of the public review process is a collection of comments on proposed code changes. The comments are sorted and

# CHBA PROCESS FOR PUBLIC REVIEW COMMENTS



**CHBA communicates** Public Review to its members



CHBA National staff reviews the proposed changes and **drafts comments**



CHBA holds **webinar series** for members and gathers broad feedback



**TRC-Mgmt Committee reviews draft comments and gathers provincial HBA feedback**

National **staff revises and submits final comments**  
(Local/Provincial HBAs or individual members may want to submit reinforcing comments)

**CHBA's aim is to ensure alignment with all three levels of the Association before submitting comments.**

# PUBLIC REVIEW COMMENTS



## Well-written comments can make a big difference!

- Describe how the proposed change applies to your situation
- Describe what works, what doesn't
- Explain why you can't support the change
- Propose modifications, suggest alternative approaches
- Justify your proposed modifications/alternatives
- Support them with evidence, or cost, if possible
- Be concise and precise
- If your comment gets long
  - stick to one comment/idea per paragraph
  - number your comments/ideas/issues, and/or
  - use headings



Go to CBHCC's  
Public Review Site



# Preview of the Priorities for the 2030 Harmonized Construction Codes

Draft Work Plan  
(September 2023)





## EXPANDING NEW SUBJECTS

- Accessibility
  - Buildings
  - Dwellings Units !
  - Healthcare Facilities
  - Egressibility - Buildings
- Alterations to Existing Buildings
  - GHG Emissions!
    - Embodied Carbon
    - Operational Carbon
  - HVAC for Safety Concerns
  - Modular Construction!

## CLIMATE CHANGE

- Climate Change – Adaptation
  - Durability/Resistance to Deterioration !
  - Lateral Loads (Seismic) - Part 9
  - Overheating
  - Permafrost
  - Wildland urban interface (WUI) !
  - Extreme Wind !
  - Emerging Technologies
- Climate Change – Mitigation
  - Emerging Technologies
  - Operational GHG Emissions
    - Prescriptive Requirements - NECB
    - Prescriptive Requirements in Small Buildings
    - NBC Section 9.36.- Homes
  - Embodied Carbon !
    - NBC Section 9.36. – Performance Path
    - NECB - Performance Path





## CODE SYSTEM & MAINTENANCE

- Maintenance
  - Climatic Data
  - Fire and Sound Transmission Class Ratings
  - Live Loads
  - Seismicity
  - Review and Updates to New and Already Referenced Standards
  - User's Guide - NECB
  - User's Guide - Part 4 Structural Commentaries
  - User's Guide - Part 9 Illustrated
- Harmonization
  - Harmonization of Select Requirements Identified by the FPTs !
- Performance-Based Codes
  - Policy Discussion on Performance-Based Codes !
  - Technical Discussions
    - Earthquake
    - Egress
    - Fire Protection
    - RdRo (Seismic Forces)

## 'TARGETED' TOPICS

- Emerging Housing Technology
  - Modular Construction !
  - Prefabrication of Components
  - Relocatable Buildings
  - Single Egress and small multi-unit residential !
  - Tiny Homes (Harmonization) !
  - Infill/Retrofit to Subdivide Existing Buildings into Dwelling Units
- Life Safety
  - Fire Performance of Floor Assemblies in Houses !
  - Grab Bars !
  - Means of Egress in Assembly Occupancies
  - Radon Gas Mitigation !
  - Stairs, Ramps, Handrails, Guards
  - Water Quality - Water Heaters and Legionella
- Other
  - Wood Construction- Encapsulated Mass Timber Construction
  - Large Farm Buildings
  - Indoor Environment - Ventilation - Care and Treatment Occupancies

# Questions?

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