

WEBINAR SERIES

# Public Reviews for the 2025 National Construction Codes

Canadian  
Home Builders'  
Association



*Webinar #4: Alterations to Existing Buildings  
(Renovations) – Part 2*

 **March 8th, 12:00-1:00 PM ET**



*Webinar #5: Code Change Overview – Winter And  
Spring 2024 Public Reviews*

 **March 21st, 12:00-1:30 PM ET**



*Webinar #6: Energy Modelling and Airtightness Testing*

 **April 12th, 12:00-1:30 PM ET**



*Webinar #7: Accessible Dwellings*

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## MISSED A WEBINAR IN THIS SERIES?

*Webinar #1: Proposed  
code changes - overview*

*Webinar #2: Introducing  
proposed code changes for  
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*Webinar #3: Deep dive into  
Part 9 energy efficiency and  
GHG requirements*

Check out the  
archive here



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# WHERE WE ARE IN THE CODE PROCESS



Codes Timelines	Public Review	
	Opens	Closes
Fall 2023	October 23, 2023	December 18, 2023
Winter 2024	February 27, 2024	April 29, 2024
Spring 2024 <small>NEW!</small>	May 22, 2024	July 27, 2024
Fall 2024 (Ref'd Docs)	October 21, 2024	December 16, 2024
Code Publication	Planned for <b>December 2025</b>	
P/T Code Adoptions	Planned for <b>18 months after</b> publication	



# Code Change Overview

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Winter and Spring 2024 Public Review

March 21, 2024

# Outline

- Alterations to Existing Buildings
- Operational Greenhouse Gas Emissions
- Energy Efficiency
- Potential Consequences for High Performing Homes
- Accessibility / Visitability / Adaptability
- Radon
- Part 9 Standards
- Part 9 Other
- Climatic Data and Loads
- Other NBC/Other Codes

# Alteration to Existing Buildings (AEB)

- AEB – NBC Section 9.36.
- AEB – NBC Part 9



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# AEB – NBC Section 9.36.

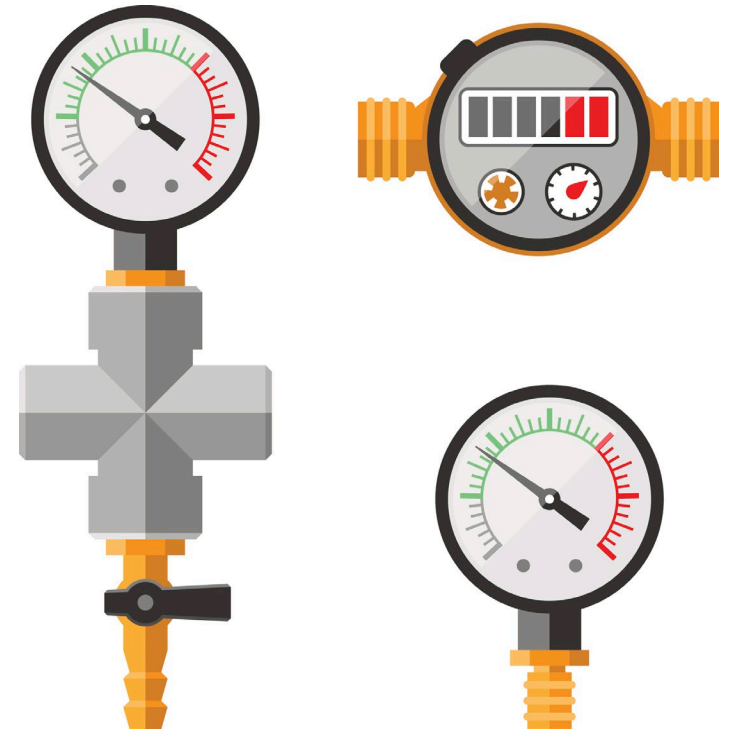
- **PCF 1825** Service Water Heating System Requirements
- **PCF 1826** Requirements for the Thermal Characteristics of Fenestration, Doors and Skylights
- **PCF 1827** Airtightness Requirements
- **PCF 1828** HVAC System Requirements
- **PCF 1829** Above-grade Opaque Walls
- **PCF 1850** Below-grade Assemblies



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# PCF 1825 on Service Water Heating System Requirements

- Introduces requirements for service water heating equipment being replaced in an alteration
- Provides exemption for maintenance and repair
- Improves energy performance by ~7%



# PCF 1826 on Requirements for the Thermal Characteristics of Fenestration, Doors and Skylights

- Introduces requirements for the thermal characteristics of fenestration, doors and skylights being replaced in an alteration
- Provides exemption for maintenance and repair, and some instances of replacement
- Improves energy performance by ~10% to 30%





# PCF 1827 on Airtightness Requirements

- Introduces requirements to improve air barrier systems impacted by an alteration
- Improves energy performance by ~8%



# PCF 1828 on HVAC System Requirements

- Introduces requirements for HVAC systems in an alteration
- Provides exemption for maintenance and repair
- Improves energy performance by ~10% to 30%
- Allows flexibility to continue using functional equipment



# PCFs 1829 & 1850 on Above-grade Opaque Walls and Below-grade Assemblies

- Introduces requirements applicable to above-grade opaque walls and below-grade assemblies in an alteration
- Improves energy performance by ~3 to 12%
- Provides flexibility to maximize energy performance upgrades while avoiding undue burden



# AEB – NBC Part 9

- **PCF 2032** Heat Transfer, Air Leakage and Condensation Control Requirements
- **PCF 2051** Explanatory Note for Heat Transfer, Air Leakage and Condensation Control Requirements
- **PCF 2033** Ventilation Requirements



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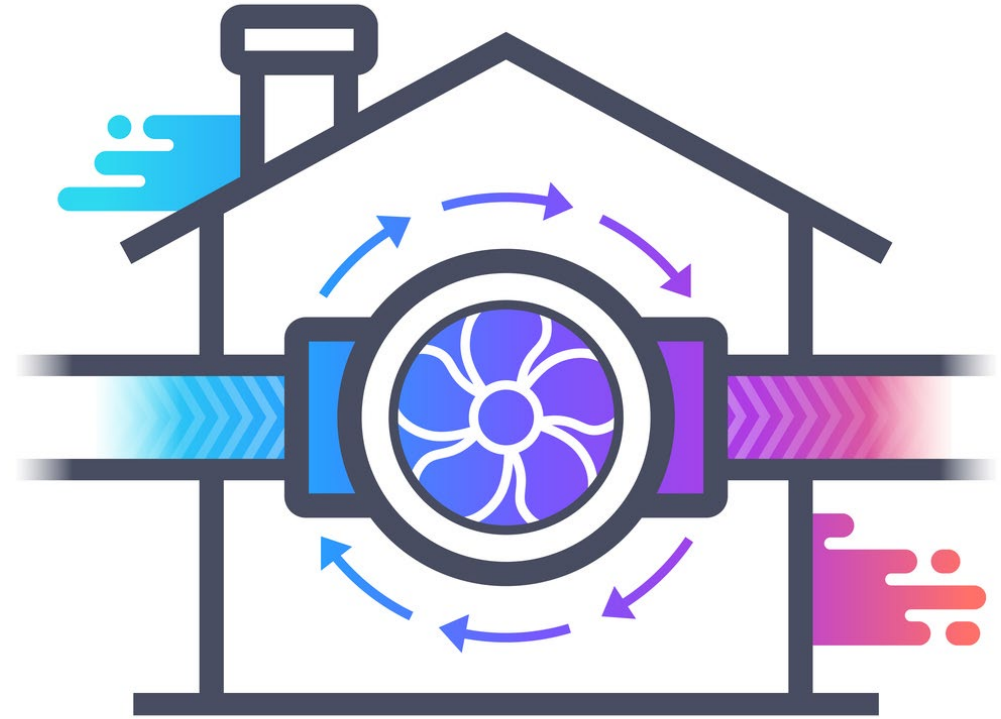
# PCF 2032 and 2051 – Heat Transfer, Air Leakage and Condensation Control Requirements

- Maintain air barrier system during alterations at floors-on-ground.
- New Part 10 requirements
- Cost impact of ~\$430
- Benefit to energy efficiency and indoor air quality



# PCF 2033 – Ventilation Requirements

- Clarifies ventilation system requirements for certain alteration types.
- Limit impact on the indoor air quality resulting from an alteration
- Cost impact of ~ \$1,500



# Operational Greenhouse Gas Emissions

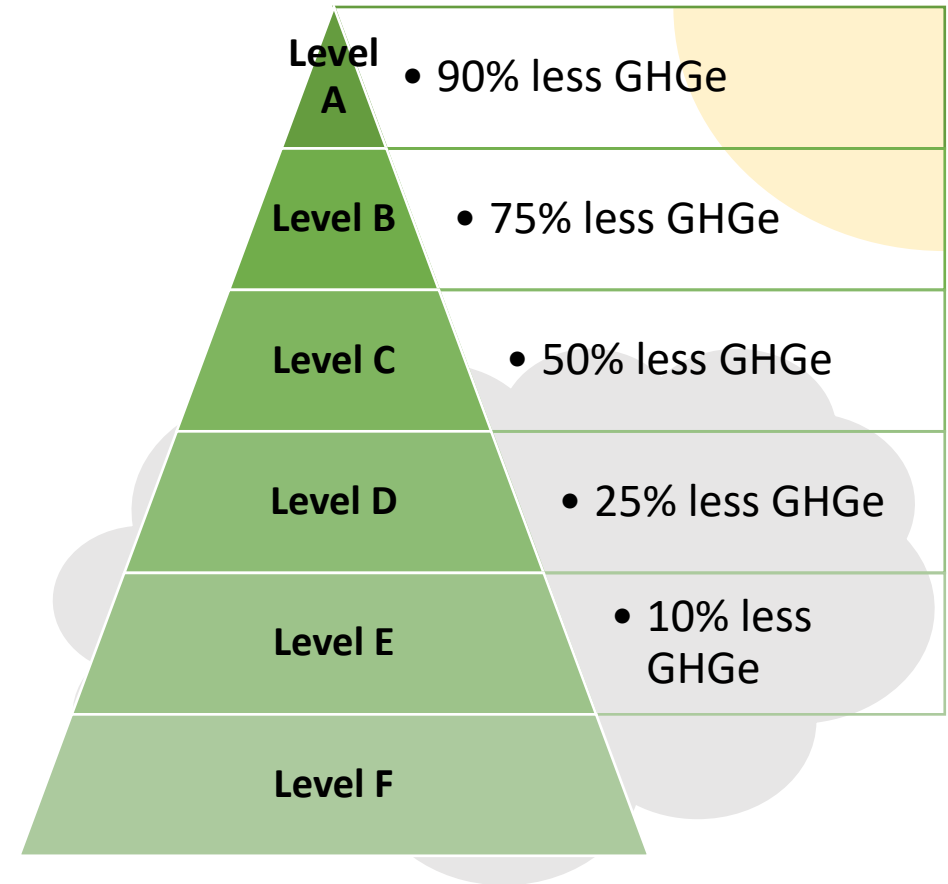
- **PCF 2004** Operational GHGe: Tiered Performance Requirements in NBC
- **PCF 2026** Operational GHGe: Tiered Prescriptive Requirements in NBC



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# PCFs 2004 on Operational GHG Emissions Tiered Performance Requirements

- Provides GHG emission factors (GEFs) for common energy sources
- Introduces performance levels for operational GHGe\* for buildings and houses
- Provides a consistent approach to converting expected energy use into expected GHGe
- P/T can adopt appropriate level to regulate operational GHGe





# PCF 2026 on Operational GHG Emissions – Tiered Prescriptive Requirements in NBC 9.36.

- Introduces prescriptive options for houses to comply with operational GHG emission levels
- Residential industry benefits from a prescriptive path
- Minimizes excessive operational GHG emissions



# Energy Efficiency

- Tiered Codes: Prescriptive Path
- Tiered Codes: Prescriptive Trade-off Path
- Airtightness
- Energy Use Metrics

# Tiered Codes: Prescriptive Path

- **PCF 1830** Energy Performance Tier 5 of the Prescriptive Path
- **PCF 2042** Energy Performance Tier 1 of the Prescriptive Path



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# PCF 1830 on Tier 5 Prescriptive Requirements

- Introduces prescriptive requirements for Tier 5 energy performance compliance
- Adds an additional tier 5 compliance option
- Provides simplicity in achieving tier 5 energy performance goal
- Incremental cost for small 2-storey detached house is ~\$34K to \$40K for 70% energy savings



# PCF 2042 on Tier 1 Prescriptive Requirements

- Clarifies prescriptive requirements for tier 1 energy performance compliance
- Aligns tier 1 of the prescriptive path with tier 1 of the prescriptive trade-off path
- Entails no additional cost implications



# Tiered Codes: Prescriptive Trade-off Path

- **PCF 1838** HRV/ERV and Building Envelope
- **PCF 1923** Building envelope energy conservation measures
- **PCF 2000** Oil-fired furnaces
- **PCF 2001** Air-source heat pumps
- **PCF 1890** Total energy conservation points for Tiers 3, 4 and 5

# PCF 1838 on HRV/ERV and Building Envelope

- Updates energy conservation points for
  - HRVs/ERVs
  - existing building envelope measures
- Impact

Measure	Incremental Cost	Energy Savings
HRV/ERV	\$200-\$1,305	3% to 5%
Insulation	<\$98/m <sup>2</sup>	0.2% to 12.2%



# PCF 1923 on New Building Envelope Measures

- Assigns points to
  - ceilings below attics
  - cathedral ceilings and flat roofs
  - combined ceilings
  - exposed floors
  - slabs on grade
- Impact



Measure	Incremental Cost	Energy Savings
Insulation	<\$58/m <sup>2</sup>	0.2% to 3.1%



# PCF 2000 on Oil-fired Furnaces

- Assigns points to high-efficiency oil-fired furnaces
- Permits interpolation
- Impact

Measure	Incremental Cost	Energy Savings
High-eff oil furnace	\$2,224-\$4,124	1.2% to 5.9%



# PCF 2001 on Air-source Heat Pumps

- Assigns points to air-source heat pumps
- Impact

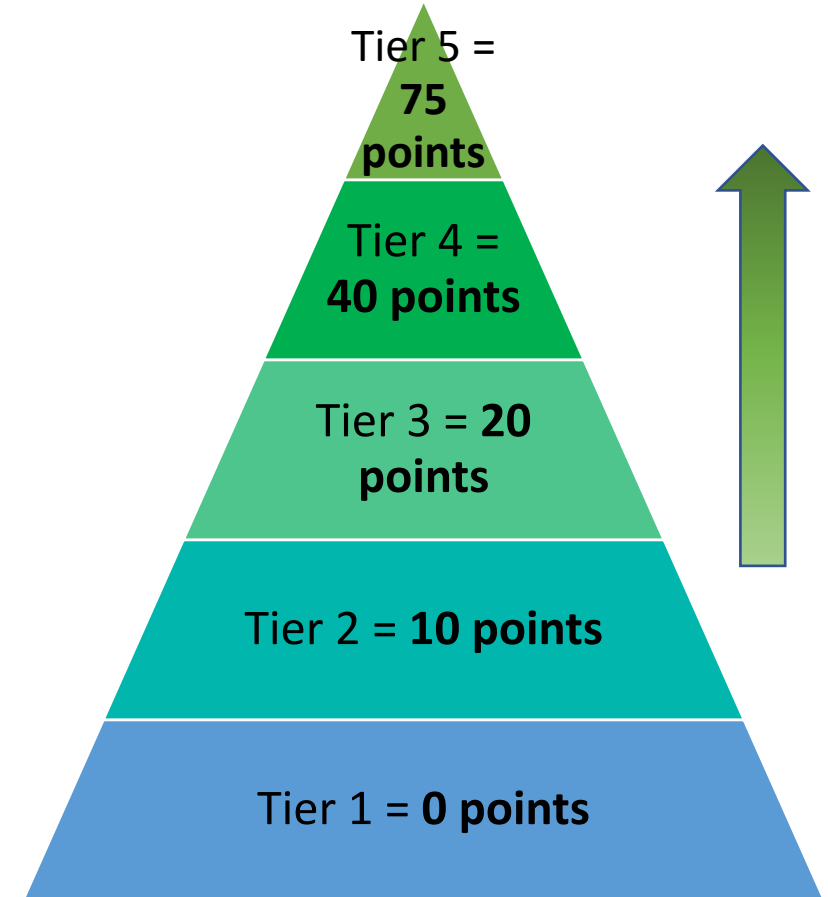
Measure	Incremental Cost	Energy Savings
ASHP	\$5,200-\$12,738	10% to 37%
CC-ASHP	\$7,000-\$24,000	19% to 40%



# PCF 1890 on Total Points for Tiers 3, 4 and 5

- States minimum sum of points to comply with Energy Performance Tiers 3, 4 and 5
- Sets a threshold for the minimum required building envelope points
- Specifies minimum airtightness levels for energy tiers 3, 4 and 5

Single detached house	Incremental Cost	Energy Savings
Tier 3	\$3,600-\$5,320	20%
Tier 4	\$8,390-\$11,310	40%
Tier 5	\$21,200-\$31,910	70%



# PCF 2011 – Updated Performance Metric for Heat Pump Water Heaters

- Interim update to CAN/CSA-C745
- Aligns the metric for heat pump water heater performance with updates to standard.
- EF → UEF



# Airtightness

- **PCF 1819** Remove  $ACH_{50}$  and Harmonize Airtightness Requirements in Section 9.36.
- **PCF 1954** Using NLR in Administrative Documents



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## PCF 1819 on Removing $ACH_{50}$ and Harmonizing Airtightness Requirements

- Replaces  $ACH_{50}$  with  $NLR_{50}$  as the regulating airtightness metric
- Aligns the airtightness requirements in the tiered performance path with the performance path
- Creates consistency across Section 9.36.



# PCF 1954 on Using NLR in Administrative Documents

- Replaces ACH with NLR as the regulating airtightness metric in the drawings and specifications for the proposed house
- Aligns the administrative requirements with the proposed technical requirements





# Energy Use Metrics

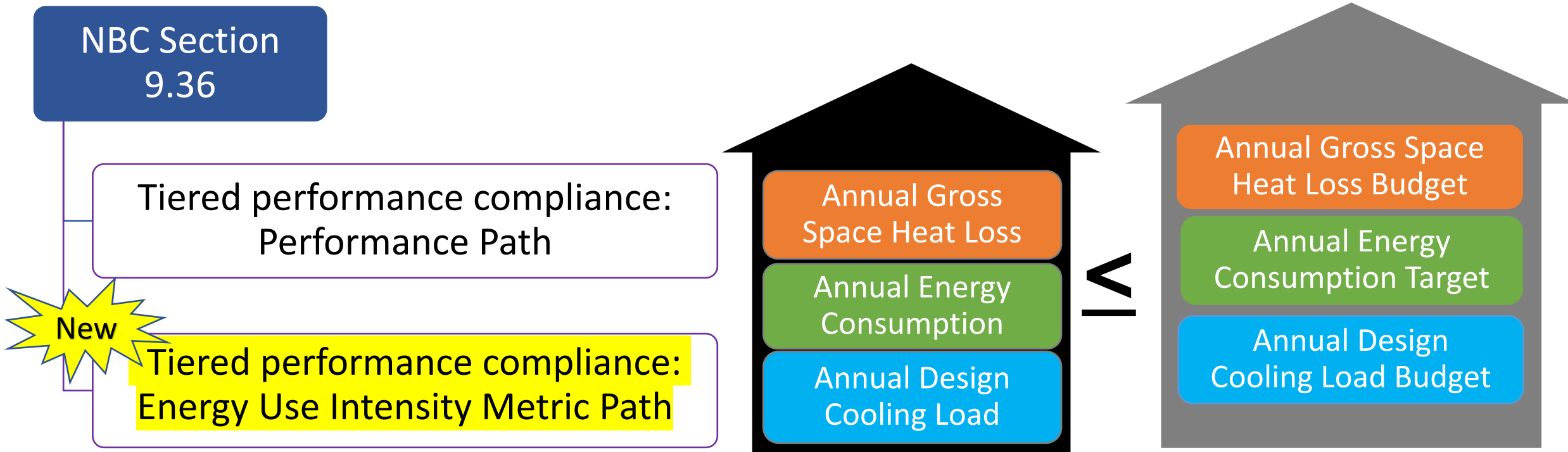
- **PCF 1869** Energy Use Intensity Metric Path (NBC)



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# PCF 1869 on Energy Use Intensity Metric Path



# Potential Consequences of High Performing Homes

- **PCF 1951** – Continuity of Insulation



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# PCF 1951 – Continuity of Insulation

- Relaxation of requirement for continuous insulation at the sill between window and rough opening.
- No significant cost impact expected.
- Benefit is to limit the probability of deterioration



# Accessibility/Visitability/ Adaptability (AVA)

- Objectives and Applications
- Adaptable Dwelling Units
- Visitable Dwelling Units
- Accessibility

# Objectives and Application

- **PCF 1880** Expanding the Application of the Accessibility Objective to All Dwelling Units
- **PCF 1881** Application of Accessibility Requirements
- **PCF 2028** Expanding the Scope of the Accessibility Requirements



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# PCFs 1880, 1881, 2028 – Objectives and Application

- Removes the Accessibility Objective (OA) exemption
- Broad application of adaptability features to dwelling units
- Selective application of visitability provisions
  - MURB units identified by an AHJ
  - Buildings that already have accessible entrance





# Adaptable Dwelling Units

- **PCF 1883** Adaptable Dwelling Entrance
- **PCF 1957** Reachable Controls in Dwelling Units
- **PCF 1882** Wall Reinforcement for the Future Grab Bars: Shower/Bathtub
- **PCF 2030** Wall Reinforcement for Future Installation of Grab Bars
- **PCF 2031** Wall Reinforcement for Future Installation of Grab Bars: Toilets



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# PCFs 1883, 1957 – Adaptability in Dwelling Units



One wide entrance  
to dwelling unit



Operating controls within  
reach



# PCFs 1882, 2030, 2031 – Adaptability in Dwelling Units



Wall reinforcement in  
washrooms

# Visitable Dwelling Units

- **PCF 1884** Washrooms in Visitable Dwelling Units
- **PCF 1958** Paths of Travel Within a Visitable Dwelling Unit



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# PCFs 1884, 1958 – Visitability in Dwelling Units

- Path of travel to normally occupied rooms on entrance level
- Washroom on entrance level with space for manoeuvring



# Accessibility

- **PCF 1766** Accessible Safety Signage
- **PCF 1769** Lighting within an Occupied Washroom



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# PCF 1766 – Accessible Safety Signage

- Requirements for tactile signage added to Part 3 of the NBC 2020
- Part 9 did not receive an equivalent update.
- PCF 1766 provides this update



**Spring 2024**

# PCF 1769 – Lighting within an Occupied Washroom

- Introduces the need for continuous illumination for public water closet rooms
- Minimum dwell time of 30 minutes



# Radon and Soil Gas

- **PCF 1713** – Passive Vertical Radon Stack
- **PCF 1993** – Sealed Overlapping Seams for Air Barriers on the Ground

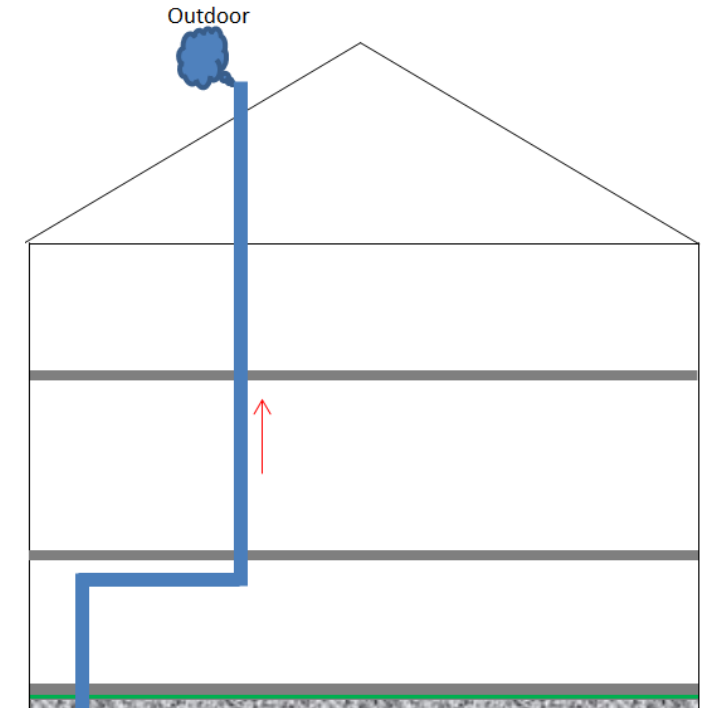


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# PCF 1713 – Passive Stack Radon Mitigation

- Provisions for installation of passive vertical stack radon mitigation systems
- For dwelling units and buildings containing residential occupancies in contact with the ground.



# PCF 1993 – Sealed Overlapping Seams for Air Barriers on Ground

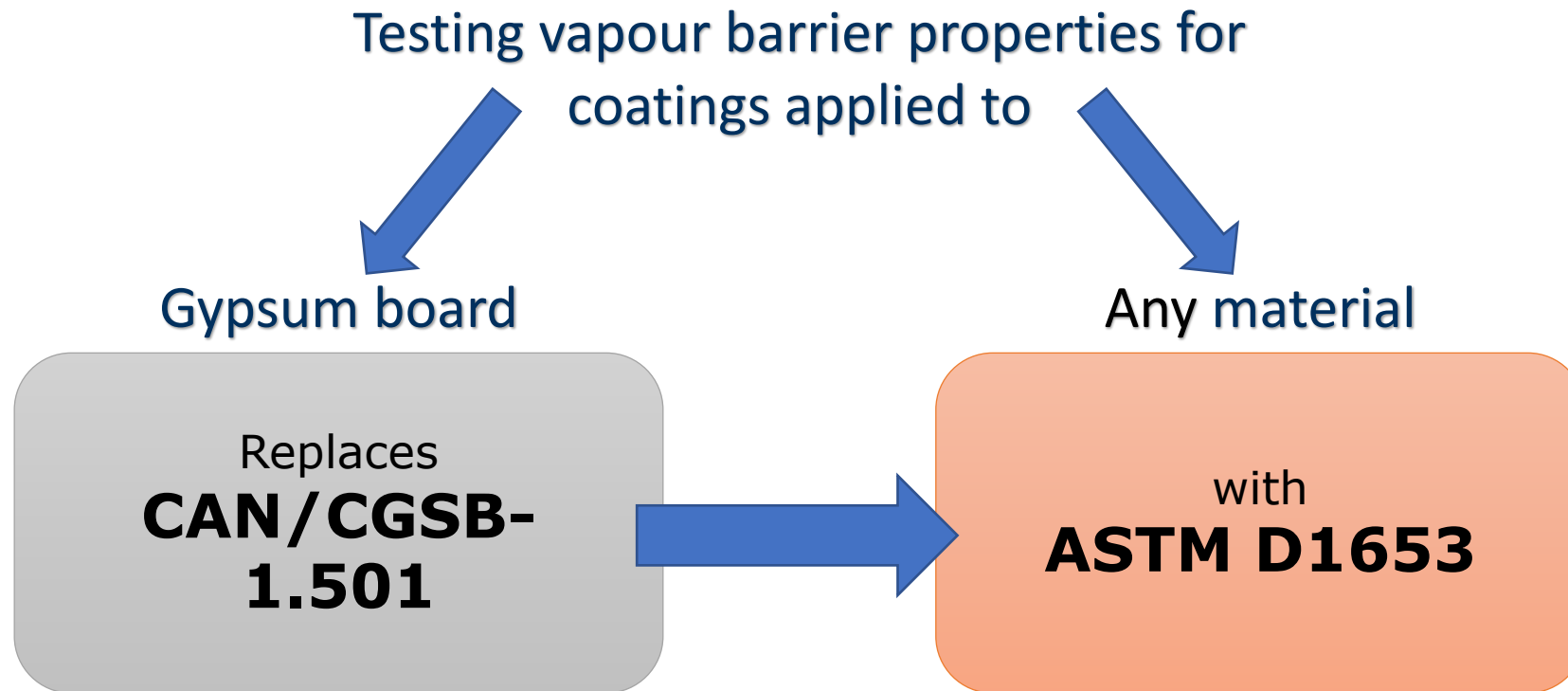
- Requires air barrier in contact with the ground to be sealed at overlapping seams.
- Currently rely on mechanical clamping of overlapped joists.
- Reduction in overlap required
  - From 300 mm to 100 mm
- Cost impact range \$55-\$60



# New Standards in Part 9

- **PCF 1427** Replacement of an Outdated CGSB Standard
- **PCF 1845** Introduction of Standards Related to Gypsum Board to Article 9.29.5.2.
- **PCF 1964** New Material and Installation Standards for Light-Density, Open-Cell, Spray-Applied Polyurethane Foam
- **PCF 1967** and **1969** Standard for Testing of Protective Coverings over Foamed Plastic Insulation

# PCF 1427 – Replacement of an Outdated CGSB Standard



# PCF 1845 – Introduction of Standards Related to Gypsum Board to Article 9.29.5.2.

- Two standards referenced elsewhere in the NBC but new to Part 9
- ASTM C1177/C1177M
- ASTM C1658/C1658M
- More options for Type X gypsum board





# PCF 1964 – New Material and Installation Standards for Light-Density, Open-Cell, Spray-Applied Polyurethane Foam

- Two new standard references in Part 9
- CAN/ULC-S712.1 and
- CAN/ULC-S712.2
- Limit inconsistent design, installation and performance



# PCFs 1967 & 1969 – New Standard for Testing of Protective Coverings Over Foamed Plastic insulation

- Adds a compliance path for testing assemblies that incorporate a protective covering
- CAN/ULC-S145
- Maintains harmonization between Part 3 and Part 9





# Part 9 Other

- **Overheating in Dwelling Units**



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# Overheating in Dwelling Units

- Currently being developed under a task group.
- Requires cooling facilities to maintain 26°C
- Unless proven unnecessary in Article 9.33.5.1. or good engineering practice
- One living space



# Climatic Data and Loads

- **PCF 1979** – Updated Climatic Data
- **PCF 1980** – Specified Wind and Snow Loads
- **PCF 2048** – Specified Wind and Snow Loads in Part 9



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# PCF 1979 – Updated climatic data

- Updates current data in Table C-2 for to temperature, rain, moisture index, snow and wind
- Adds new parameters to be used with PCF 1980 and 2048
- MiniMax approach



# PCF 1980 – Specified wind and snow loads

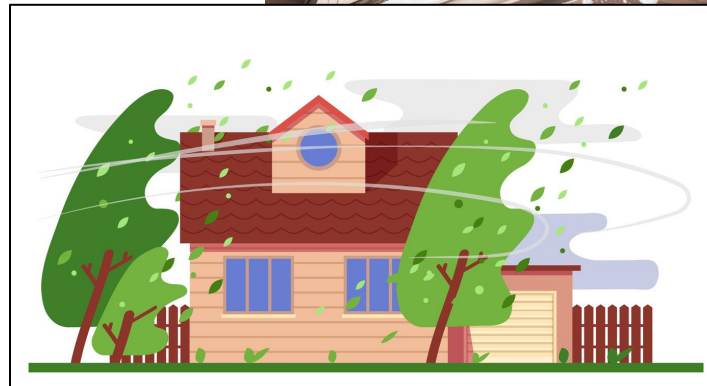
- Change in Part 4 to approach for snow and wind loads
- Proposes using longer return periods
  - 1-in-1000-year snow
  - 1-in-500-year wind
- New parameters addressing improved roof insulation and snow drift





# PCF 2048 – Specified wind and snow loads in Part 9

- PCF 1980 has an impact on Part 9.
- PCF 2048 addressed the impact and follows the Part 4 proposed approach for snow and wind.
- Introduces the
  - 1-in-1000-year snow
  - 1-in-500-year wind



# Changes in Other NBC Parts

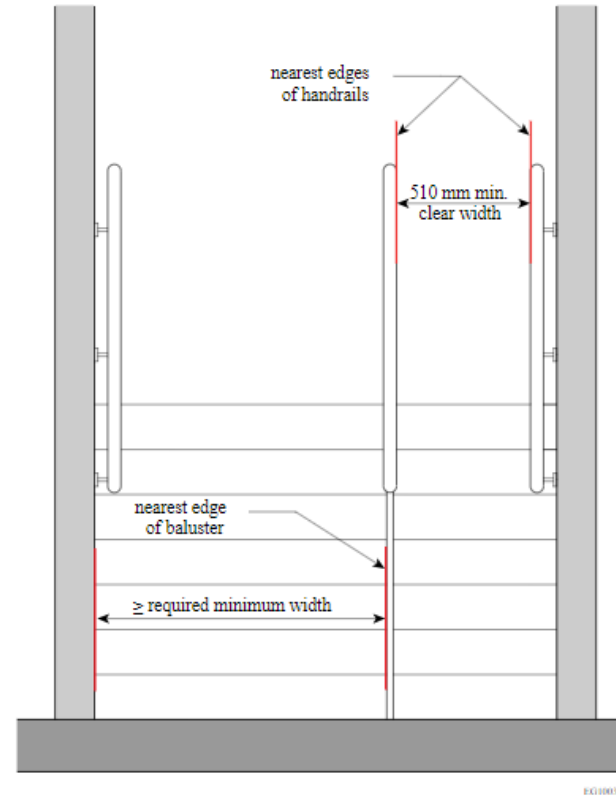
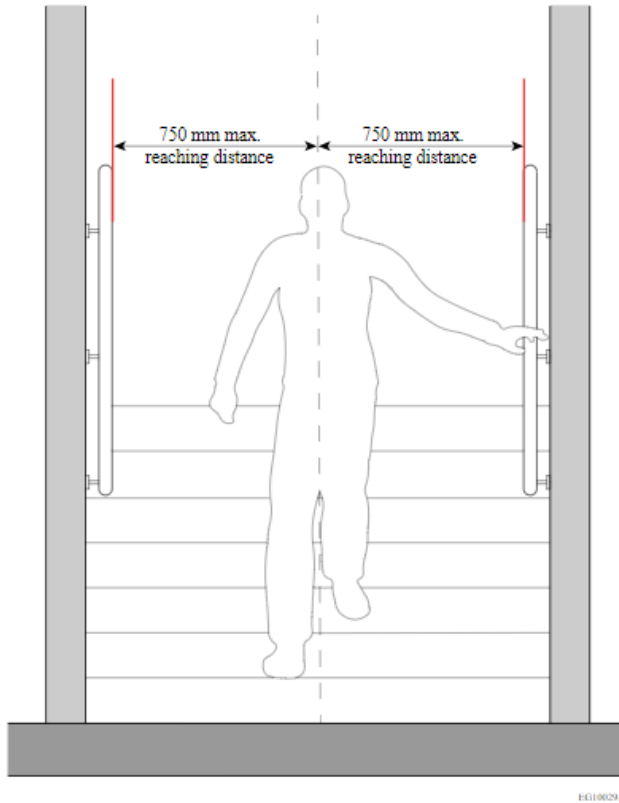
- **PCF 1994** – Exemptions List for Floor Assemblies over Basements
- **PCF 1772** – Minimum Width of Stairs or Ramps Between Handrails
- **PCF 1846** – Introduction of References to Standards Related to Gypsum Board to Sentence D-1.5.1.(2)



# PCF 1994 – Exemptions List for Floor Assemblies over Basements

- Adds two Sentences to the exemption list in Article 3.2.1.4.(1) for floor assemblies
  - Sentence 3.2.2.48.(3)
  - Sentence 3.2.2.51.(3)
- Resolves a conflict in the code.
- No impact to Part 9 buildings

# PCF 1772 – Minimum Width of Stairs or Ramps Between Handrails



# PCF 1846 – Introduction of References to Standards Related to Gypsum Board to Sentence D-1.5.1.(2)

- Related to PCF 1845
- References three standards located elsewhere in the NBC
- ASTM C1177/C1177M
- ASTM C1178/C1178M
- ASTM C1658/C1658M



# Change in Other Codes

- **PCF 1998** – Clarification of OS Safety Objective for Firefighter Safety
- **PCF 1690** – Condensate Drainage



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# PCF 1998 – Clarification of OS Safety Objective for Firefighter Safety

- Proposed a new safety objective for the NBC and NFC
  - OS6 – Firefighter Safety
- PCF 1998 circulated to SCs in August 2023
- FTP working group to review feedback





# PCF 1690 – Condensate Drainage

- Adds a defined term to Division A of the NPC.
- Revises defined terms for clear-water waste and drainage system.
- Within the scope of plumbing systems



# How to get involved

Available on [www.CBHCC-CCHCC.ca](http://www.CBHCC-CCHCC.ca)

- Learn about upcoming code development system events and meetings
- Submit a code change request for consideration in work planning
- Comment on proposed change during an open public review
- Volunteer to participate on a code development committee



# Thank you

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# WRITING PUBLIC REVIEW COMMENTS



## Your comments can make a difference!

*Well-written comments help codes committees make good decisions*

- Describe how the proposed change(s) applies to your situation
- Describe what works, what doesn't with the proposed change
- Explain why you can't support the change
- Propose modifications or alternative approaches
- Justify your proposed modifications
- Support them with evidence, if possible
- Make your comments concise and precise
- If your comment gets long, help the committee by numbering your ideas/issues or by using headings
- Separate different comments/suggestions, stick to one per paragraph



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# Questions?

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