Building By-Law: Climate Emergency New Low-Rise Updates





Three Aims

Zero Emission

Zero emissions space heating + hot water and increased resilience

Alignment

Closer alignment of Vancouver's Building By-law with Step 4 of BC's Energy Step Code



Increased flexibility for builders with a performance path





Context

New Construction Focus

Aimed at new low rise residential construction and new work

Global warming relative to 1850-1900 (°C)

human-caused warming to date

1980

2000

2020

we can limit how hot it gets with quick responsible action

2040

1960

3.0

2.5

2.0

1.0

0.5

Sources: IPCC Fifth Assessment Report, IPCC Special Report on Global Warming of 1.5°C

2060

2080

2100

Climate Emergency

BIG MOVE

4



ZERO EMISSIONS SPACE AND WATER HEATING

By 2025, all new and replacement heating and hot water systems will be zero emissions.



the biggest emissions source in Vancouver is burning natural gas for heat and hot water.





38% then comes burning gas and diesel in vehicles













26% MID-/HIGH-RISE (>4 STOREYS)

CITY-WIDE BUILT RESIDENTIAL FLOOR AREA (2014-18)

BC ASSESSMENT (2019)

LOW-RISE IS NEARLY 70%

> 55% SINGLE-FAMILY

5% LOW-RISE (≤4 STOREYS)



9% DUPLEX, TH, RH, MCD

New Build Structures Approved (previous 12 months)









Goals & Approach





1

Single Family Home Space Heating Needs (kWh annual, rounded)



Single Family Home Carbon Pollution (Tonnes Annually)



Alignment





tonne limit at present

Large Homes 325m²+

tonne limit recommended



E VANCOUVER DAILY

VANCOUVER, B.C., TUESDAY, SEPTEMBER 28, 1948



GREENEST

VANCOUVER

What is a heat pump

How it works

How a heat pump works

Heat pump

- The system pulls cold air from the home
- 2. The outdoor unit absorbs heat from the cold air outside into the refrigerant



4. Warm air is released back into your home





Heat pump or A/C unit

- The system pulls hot air from your home
- The outdoor unit squeezes heat out of the refrigerant
- 3. Refrigerant becomes cold and is sent back into your home
- 4. Cool air is released back into your home



How a heat pump works

Improving Resilience



Character and Heritage

Three project types

Modest Renovation

No New Requirements **Addition**

The addition is new construction and meets the VBBL in force at the time

Reconstruction

Meets the VBBL in force at the time

Working with character advocates on renovation

Updated bulletin for heritage and character clarifying renovations The bulletin will give examples and outline relaxations as they apply to typical projects

Recommendation

Continue to treat new work as new

Infill, reconstruction, and additions continue to be treated as new work

Costing

Operating Costs

Most home buyers or renters will save money on a monthly basis in terms of operating **c**osts compared to a typical hóme.

Up to \$50/month savings

\$30-\$50 less to operate per month in 68% of new homes Modest savings or increase for large homes

from \$8 saved to \$0-8 increase per month in **32% of new homes**

Capital Costs

Costing was completed by local builders and developers, reviewed by a costing consultant.

Townhomes

incremental construction cost averages \$1.40/sq ft, or 0.1% of sale price Single-Family Homes

incremental construction cost is \$3.90/sq ft or 0.3% of sale price

Cost of Inaction

Delaying a zero emissions switch on new construction would mean more retrofits needed

\$6M+ added future
retrofit costs
for homeowners
for each year
delay

What it means to a homeowner/renter

Consultation

HAVAN, UDI AIBC, EGBC

Over 50,000 individuals represented

Changes made with industry over 9 months height and space requested

Fortis BC, CIPH-BC, Pembina, Unaffiliated Builders

Responding to COVID-19

Timeline response 2022

Industry seeking additional implementation time

City providing support on training development

Training

Designer

Industry is developing system design training with CIPH-BC and TECA

Trades

Industry is developing trades training for trades currently installing gas systems

Training development is involving groups working throughout BC

Timeline

Engagement
+ FeedbackEducation
For IndustryEffective
DateJUN 2019-FEB 2020JANUARY 2021JANUARY 2022Collaborative
changesFirst Course
DeliveredBy-Law
Effective Date

Outcomes

Outcomes

Significant

A carbon pollution reduction of 63% compared to 2019 and 86% compared to our 2007 baseline

Aligned

Aligning with the BC Step code and Energy Star (national) opens business opportunities

A responsible transition developed with our local industry and improved home resilience

Thank You