 Department Manager	 Director	 CAO
---	---	--

The Corporation of **THE CITY OF NORTH VANCOUVER**
PLANNING & DEVELOPMENT DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Tim Ryce, Chief Building Official
Mike Friesen, Manager, Environmental Sustainability

Subject: CONSTRUCTION REGULATION BYLAW AMENDMENTS TO SUPPORT
INCREASED ENERGY EFFICIENCY AND LOW CARBON SYSTEMS

Date: June 28, 2023 File No: 11-5280-14-0001/2023

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Chief Building Official and Manager, Environmental Sustainability, dated June 28, 2023, entitled “Construction Regulation Bylaw Amendments to Support Increased Energy Efficiency and Low Carbon Systems”:

THAT “Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2023, No. 8986” (BC Energy Step Code and Zero Carbon Step Code Updates) be considered.

ATTACHMENTS

1. “Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2023, No. 8986” (BC Energy Step Code and Zero Carbon Step Code Updates) (CityDocs [#2380906](#))
2. Staff Report: Proposed Consultation on Strengthened BC Energy Step Code Building Requirements and New Mechanical Permit Process (CityDocs [#2337810](#))

SUMMARY

The purpose of this report is to provide Council the results of stakeholder consultation regarding a proposal to move to higher energy efficiency and low carbon building standards, and to present for Council consideration amendments to “Construction Regulation Bylaw, 2003, No. 7390” to move Part 9 buildings from Step 3 to Step 4 of the BC Energy Step Code, and to align the City’s low carbon pathway with the Province’s

new Zero Carbon Step Code (ZCSC). The proposed amendments are also being considered in the Districts of North and West Vancouver; adoption will ensure continued regulatory consistency across the North Shore.

BACKGROUND

At the Council meeting of February 27, 2023, the following resolution was unanimously endorsed:

“PURSUANT to the report of the Planner 2, Environmental Sustainability, and Chief Building Official, dated February 15, 2023, entitled “Proposed Consultation on Strengthened BC Energy Step Code Building Requirements and New Mechanical Permit Process”:

THAT staff be directed to consult with industry groups with respect to proposed amendments to the Construction Regulation Bylaw and new mechanical permit to strengthen Energy Step Code requirements for Part 9 buildings.”

In the City, carbon pollution from buildings accounts for 43% of community-wide emissions, with the majority being attributed to natural gas combustion for space heating and domestic hot water. In order to achieve the City’s target of zero emissions by 2050, addressing emissions from buildings means reducing the amount of energy used through better constructed buildings, and meeting remaining energy needs with low carbon energy systems. Transitioning to high performance new homes with zero-carbon emission mechanical systems will reduce emissions from the building sector and supports better quality construction, improved comfort, and better indoor air quality.

Since staff received Council direction in February, the Province has released the Zero Carbon Step Code that provides jurisdictions with a path to reducing greenhouse gas emissions related to mechanical systems that is consistent across the province. The Energy Step Code regulates building efficiency – reducing the amount of energy required to heat or cool a home – while the Zero Carbon Step Code regulates the emissions – or the types of fuels that are used – to heat and cool a building. The City has had a low carbon pathway in place to reduce emissions related to mechanical equipment since 2021; we are now proposing to adopt the Provincial pathway – at a comparable level – to ensure our regulations align with provincial requirements and to provide a more consistent regulatory framework for industry partners.

This report provides an update to Council on the results of consultation with interested parties and presents a bylaw amendment informed by this consultation for consideration for Part 9 buildings. Part 9 buildings are generally small residential buildings that include dwellings such as single family homes, duplexes, triplexes, fourplexes, coach houses, and some townhouses. For additional information concerning the BC Energy Step Code, and recent changes to the BC Building code, please refer to the attached staff report “Proposed Consultation on Strengthened BC Energy Step Code Building Requirements and New Mechanical Permit Process,” dated February 27, 2023 (Attachment #2).

The City of North Vancouver, the District of North Vancouver, and the District of West Vancouver have maintained a coordinated approach to Energy Step Code implementation for Part 9 buildings across the North Shore in an effort to provide a simplified regulatory framework for development; the two districts are also considering the proposed amendments.

CNV's Building Step Code Journey

Since the inception of the BC Building Code's Step Code, the City of North Vancouver has consistently been implementing higher levels of the Step Code than what has been required. This includes the implementation of a lower emissions pathway since 2021. With the introduction of the proposed amendments we are able to align our Low Carbon Pathway in the City's Building Bylaw with the recently introduced Provincial Zero Carbon Step Code (or Pathway). These two serve the same purpose of reducing emissions related to the heating and cooling of space and water.



DISCUSSION

Engagement

Staff facilitated several opportunities for industry and public engagement, and provided information concerning the proposed changes and opportunities for feedback. These included:

- Discussion with Urban Development Institute (UDI) and Homebuilders Association Vancouver (HAVAN) members during City Development Industry Liaison Committee meetings on January 30 and June 12, 2023;
- Targeted outreach to contractors, designers and tradespeople who do business on the North Shore;
- A virtual meeting hosted on April 20, 2023 to present the proposed changes, to learn from a high efficiency building expert, to hear concerns, and to answer questions and provide clarification;
- A survey concerning the proposed changes and the opportunity to provide feedback via alternate means (letter, email, telephone) as needed.

The level of engagement was high, with the virtual meeting being attended by approximately 50 interested parties, including designers, architects, tradespeople, general contractors, energy advisors and developers. Twenty-five responses were received through the consultation process; key takeaways from the feedback include:

- A majority of respondents (85%) had already worked on a high efficiency (Step 4 or 5) project;
- 48% of the respondents consider themselves fully ready to transition to Step 4 and more than 90% of respondents consider themselves at least moderately ready for the transition. Only 2 respondents consider themselves unprepared to move to Step 4;
- Key feedback on primary challenges of moving to Step 4 include: cost, potential supply chain concerns, training and skilled labour, design and construction coordination and homeowner perception;
- Key feedback on benefits of moving to Step 4 include: consistency across the North Shore, the potential for greater coordination through the future proposed mechanical permit and improved environmental outcomes.

Response to Feedback

Considering the positive response and industry preparedness to the proposed regulatory changes – in addition to the broader environmental, social and health benefits – staff recommend proceeding with adoption of the new regulations. However, in order to support our industry partners, staff are preparing training and coordination initiatives that include:

- Training Opportunities – Should Council adopt the proposed regulations, staff are prepared to roll out training supports that will include: Builder’s Breakfast meetings to present best practice and information sharing; a proposed site tour of a high performance building being constructed on the North Shore to provide hands on opportunities; and an agreement with BCIT to support North Shore tradespeople accessing the High Performance Building program at a reduced cost.
- Coordination – Ensuring a common understanding for construction projects – both internally for the project team and externally between the project team and the City – emerged as a key theme. To address this concern staff are recommending to align our existing Low Carbon Pathway with the Province’s new ZCSC to ensure consistency between jurisdictions across the province (for more information see the Environmental Impact section below). Additionally, staff will move forward with creating a Mechanical Permit process to support better coordination between different professions responsible for the design and construction of high performance mechanical systems and to reduce the likelihood of delays as a result of mechanical systems (for more information see the Mechanical Permit section below).

Environmental Impact

The proposed regulatory changes will improve the efficiency of new buildings by at least 20%. Improving the efficiency of buildings is the first step to reducing energy demand and subsequently reducing carbon emissions associated with building heating/cooling and hot water provision. Higher Steps mean that homes are more resilient to power outages and climate events: they will stay warmer in the winter, cooler in the summer

and provide a healthier indoor environment when smoke from forest fires is present. Moving from Step 3 to Step 4 will maintain the City's leadership in advancing high performance construction to reduce energy demand, and help to achieve our GHG emission reduction targets.

When combined with a low carbon pathway, which caps the greenhouse gas emissions of mechanical equipment, moving to Step 4 for Part 9 buildings is a tangible step towards eliminating carbon emissions from buildings, using our energy efficiently, improving construction quality and improving health and comfort. As a part of the BC Building Code update, the province introduced a new provincial low carbon pathway, known as the Zero Carbon Step Code (ZCSC). In order to ensure our regulations align with Provincial Code, the proposed bylaw amendment transitions the City from its locally-developed low carbon pathway to the new Provincial regulation. The proposed pathway has been designed to work with the Energy Step Code. There should be minimal impact on design and construction in the City of North Vancouver, other than ensuring consistency across the province for designers and tradespeople. The ZCSC consists of four "Emission Levels" that regulate GHG emissions:

1. Measure-only (Emission Level 1) - requires modelling and measurement of a building's emissions without reductions, and is intended to build knowledge and capacity.
2. Moderate Carbon Performance (Emission Level 2) - in most cases, will require electrification of space heating, but natural gas water heating and cooking likely still possible/allowed.
3. Strong Carbon Performance (Emission Level 3) - in most cases, will require electrification of both space heating and water heating, but fossil fuel water heating could still be allowed dependent on design and natural gas cooking still possible/allowed.
4. Zero Carbon Performance (Emission Level 4) - in most cases, will require the full electrification of a building.

The Strong Carbon Performance (Emission Level 3) level of the ZCSC aligns with the City's existing pathway and is proposed to be the new requirement.

Cost

Based on industry research prepared for the Ministry of Housing, it is estimated that moving from Step 3 to Step 4 will increase construction costs between 0.3 to 0.4%, depending on the size of the dwelling. In the City of North Vancouver, this would result in an increase to construction costs between \$1,500 and \$4,500 for typical projects. These construction costs can be partially offset as the improved efficiency allows for the right-sizing of mechanical equipment; smaller, more efficient, and cheaper heat pumps and ventilation systems can be installed when the new dwellings are better able to maintain consistent indoor air-temperature.

The City can further work to reduce construction costs through the implementation of the proposed mechanical permit. The modernization of this portion of the City's permitting process will support greater coordination, reducing delays to the project by

minimizing the potential for missed requirements or duplication of effort of the design team, and reducing the likelihood of failed or incomplete inspections concerning mechanical equipment. Our industry partners identify delays as a major driver of cost increases.

While right-sizing mechanical equipment and decreasing expensive delays are significant, the greatest reduction in cost will be achieved by the occupants of the dwelling for the life of the building. Increasing the energy efficiency of homes directly reduces the costs associated with heating and cooling those spaces. Any minimal increase in construction or purchase cost will be more than offset through energy savings over the life of the building.

Mechanical Permit

A portion of the industry consultation was dedicated to gathering feedback on the future introduction of a new construction permit type – a ‘mechanical permit’ – to support staff in administering low-carbon energy systems. Staff presented an all-encompassing approach to regulating these systems, proposing a single permit structure through which they will review designs and monitor installation of all ventilation, heating, cooling, and domestic hot water systems. Feedback received was overwhelmingly positive, with industry representatives particularly keen to see a process implemented that would provide clarity and define responsibility for oversight for these systems.

Staff continue to review industry best practice in this area and develop a proposed Permit process. Development work is being carried out in concert with the CLEAR (Coordinated, Lean, and Efficient Approvals Refresh) project currently underway. Staff propose to align activation of the new mechanical permit with the broader construction permit process modernization, anticipated in 2024.

Bylaw Amendment

The bylaw amendment consists of two primary elements:

1. Move the requirement for Part 9 buildings from Step 3 to Step 4; and
2. Replacing the City’s current low carbon pathway with the provincial Zero Carbon Step Code.

The proposed amendments retain the dual pathway approach which provides new construction the option of building to Step 4 with low carbon mechanical equipment, or build to Step 5 with no mechanical restrictions. The Table below illustrates the proposed changes:

Building Type	Current Requirement	Proposed Requirement
Part 9 Residential (single family, multiplex, etc.)	<i>Pathway 1: Low Carbon Step 3 of 5 + Low Carbon</i> <i>Pathway 2: High Step Step 5 of 5</i>	<i>Pathway 1: Low Carbon Step 4 of 5 + ZCSC EL-3</i> <i>Pathway 2: Higher Step</i>

		Step 5 of 5 + ZCSC EL-1 (Reporting Only)
--	--	---

The bylaw amendment also includes a housekeeping amendment for several types of Part 3 (large and complex) buildings. This amendment is housekeeping only – to align with certain changes to Provincial code – and does not have any implications for construction of these types of buildings.

The proposed regulations will come into effect in November, allowing adequate time for projects that are in progress to complete their designs and submit their application for building permit under existing regulations.

FINANCIAL IMPLICATIONS

Should Council approve the proposed bylaw amendments, staff will implement the proposed training opportunities. Funds for this project have already been appropriated. There are no additional financial implications pertaining to this report; changes can be implemented by existing staff resources.

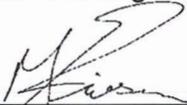
STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

Continuing to advance high performance construction and ensuring low carbon mechanical systems are necessary to reduce emissions from buildings. The proposed amendments support the City's target of achieving net zero emissions by 2050 and is consistent with the City's Official Community Plan and Council's Strategic Plan.

RESPECTFULLY SUBMITTED:



Tim Ryce
Chief Building Official



Mike Friesen
Manager, Environmental Sustainability

MINUTES OF THE REGULAR MEETING OF COUNCIL HELD IN THE COUNCIL CHAMBER AND ELECTRONICALLY (HYBRID) FROM CITY HALL, 141 WEST 14TH STREET, NORTH VANCOUVER, BC, ON **MONDAY, FEBRUARY 27, 2023**

REPORT

8. Proposed Consultation on Strengthened BC Energy Step Code Building Requirements and New Mechanical Permit Process – File: 11-5280-14-0001/2023

Report: Planner 2, Environmental Sustainability, and Chief Building Official,
February 15, 2023

Moved by Councillor McIlroy, seconded by Councillor Valente

PURSUANT to the report of the Planner 2, Environmental Sustainability, and Chief Building Official, dated February 15, 2023, entitled “Proposed Consultation on Strengthened BC Energy Step Code Building Requirements and New Mechanical Permit Process”:

THAT staff be directed to consult with industry groups with respect to proposed amendments to the Construction Regulation Bylaw and new mechanical permit to strengthen Energy Step Code requirements for Part 9 buildings.

CARRIED UNANIMOUSLY



 Department Manager	 Director	 CAO
---	---	--

The Corporation of **THE CITY OF NORTH VANCOUVER**
PLANNING & DEVELOPMENT DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Larisa Lensink, Planner 2, Environmental Sustainability
Tim Ryce, Chief Building Official

Subject: PROPOSED CONSULTATION ON STRENGTHENED BC ENERGY
STEP CODE BUILDING REQUIREMENTS AND NEW MECHANICAL
PERMIT PROCESS

Date: February 15, 2023 File No: 11-5280-14-0001/2022

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Planner 2, Environmental Sustainability and Chief Building Official, dated February 15, 2023, entitled "Proposed Consultation on Strengthened BC Energy Step Code Building Requirements and New Mechanical Permit Process":

THAT staff be directed to consult with industry groups with respect to proposed amendments to the Construction Regulation Bylaw and new mechanical permit to strengthen Energy Step Code requirements for Part 9 buildings.

ATTACHMENTS

1. Report to Council from the Chief Building Official and Manager, Environmental Sustainability, dated November 4, 2020, entitled "Low Carbon Building Bylaw Amendments" (CityDocs #1995130)
2. Information Report dated November 9, 2022, entitled "BC Building Code Update Public Review" (CityDocs #2296493)

PURPOSE

The purpose of this report is to seek direction to consult with industry groups regarding proposed amendments to the City's Construction Regulation Bylaw to strengthen BC Energy Step Code requirements for homes and the introduction of a mechanical permit

process to support the administration of low carbon mechanical systems. The proposed changes to the Step Code requirements and new mechanical permit process will continue to advance high performance, healthy construction and take another step towards net zero new homes, a key strategy in meeting the City’s climate targets.

BACKGROUND

Transitioning to Zero Carbon, High Performance New Homes

In the City, carbon pollution from buildings account for 43% of community-wide emissions with the majority being attributed to natural gas combustion to heat space and water. Addressing emissions from buildings means reducing the amount of energy used through better constructed buildings, and meeting remaining energy needs with low carbon energy sources. Transitioning to zero carbon, high performance new homes will reduce emissions from the building sector and supports better quality construction, improved comfort, and better indoor air quality.

BC Energy Step Code

The provincial government uses the BC Energy Step Code to allow local government to require better building energy performance and ultimately to support market transformation towards higher performance buildings. The Step Code establishes a series of incremental energy efficiency targets for new buildings; the higher the “Step”, the better the building performance. The Step Code also communicates the intent of Building Code requirements whereby all new buildings will be “net zero ready” by 2032 (Figure 1).

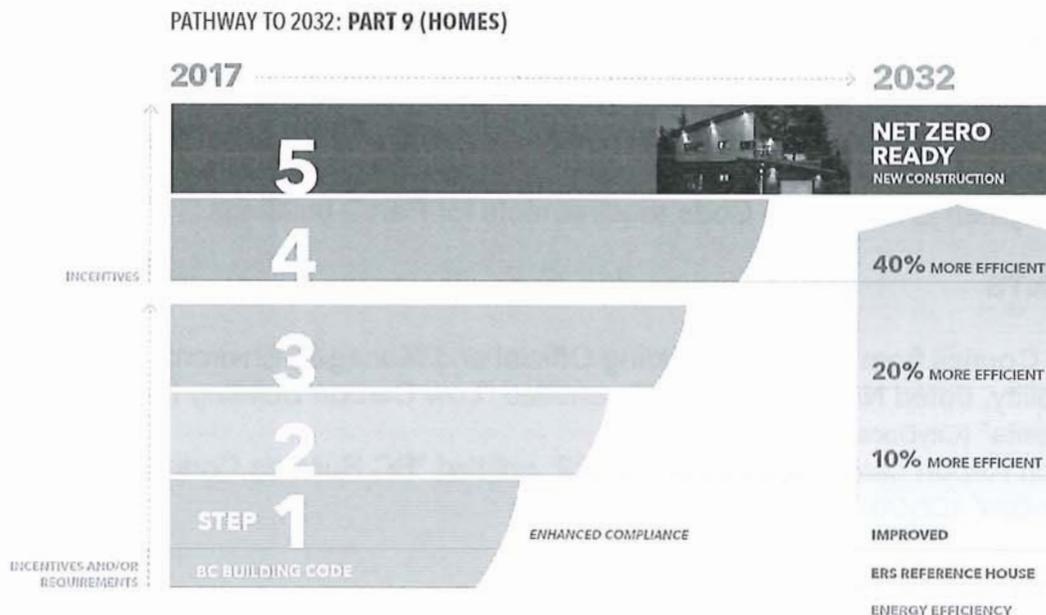


Figure 1. The BC Energy Step Code for new Part 9 homes.

Building Types in the BC Building Code

The BC Building Code regulates buildings in two main categories:

- Part 3 Buildings (Complex): Larger and taller (over three storeys) buildings with a variety of uses including multi-family buildings, commercial buildings and institutional buildings.
- Part 9 Buildings (Simple): Smaller (single family dwellings, duplexes, and small townhouse buildings under three storeys) buildings, with the most common use being residential.

This report addresses the City's regulation of Part 9 residential buildings.

Step Code Requirements for Part 9 Homes on the North Shore

The City was the first municipality to introduce Step Code requirements for all buildings in December 2017. Since then, the City has coordinated closely with the District of West Vancouver and the District of North Vancouver to provide builders with consistent requirements across the North Shore.

The City's Step Code requirements for Part 9 (simple) residential buildings have changed twice since the Step Code was first introduced in 2017 (Table 1). The City started with Step 2 in 2017 and then increased the requirements to Step 3 in July of 2018. In July of 2021, the City began to incentivize low carbon space and water heating systems (usually electric heat pumps), by allowing builders two options: build to Step 5; or build to Step 3 with low carbon space and water heating. Electric heat pumps are low carbon and also provide mechanical cooling, increasing the resiliency of homes to higher summer temperatures and heat events.

	December 2017	July 2018	July 2021
Residential buildings over 1,200 sq. ft.	Step 2 of 5	Step 3 of 5	Pathway 1: Low Carbon Step 3 of 5 + Low Carbon
Small residential buildings¹ (houses under 1,200 sq. ft.)	BC Building Code only	Step 1 of 5 steps	Pathway 2: Higher Step Step 5 of 5

Table 1. The City's requirements for Part 9 (small and simple) residential buildings since the introduction of the Step Code.

Upcoming Changes to the BC Building Code for Part 9 Buildings

In 2022, the Province announced upcoming changes to the BC Building Code to support cleaner, more energy efficient new construction. The City provided comments to the Province on the proposed changes through the public review process (Attachment #2). The most substantial proposed change to the BC Building Code is the increase of

¹ An exception was originally made for coach houses as the cost differential is higher for smaller buildings, however this was removed in July 2021.

minimum energy efficiency standards by 20% for all buildings. For Part 9 buildings, this means Step 3 will be required province-wide.

The release of the finalized BC Building Code update has been delayed from its original timeline of December 2022 and is anticipated imminently.

DISCUSSION

The provincial update to the BC Building Code provides an opportunity to strengthen the City’s Step Code requirements and align permitting process with climate action objectives in order to continue the City’s leadership in the provision of healthy and climate-resilient homes.

Impacts of the BC Building Code Changes on the City’s Leadership

The update to the BC Building Code to increase energy efficiency of new buildings by 20% means that the City’s requirements for energy efficiency for new homes will become the minimum code requirements. For over a decade, the City has had measures in place to ensure new buildings achieve progressive energy targets above the minimum requirements of the BC Building Code and has been recognized as a leader in moving industry towards high performance construction. The high quality construction which has resulted from the City’s energy efficiency standards offers a number of benefits to residents including reduced energy costs, better indoor air quality and improved comfort - especially during heat and wildfire events.

Proposed Step Code Requirements for Part 9 Residential Buildings: Increase low carbon pathway to Step 4

An increase from Step 3 to Step 4 is proposed to the City’s current low carbon compliance pathway for Part 9 buildings (Table 2) to achieve higher energy performance in new homes. As homes move to the higher steps of the Step Code, more stringent standards require the integration of high performance building strategies and materials to allow the buildings to be more efficient. A Step 3 home and a Step 5 home will look nearly identical, but the incorporation of additional insulation, and higher quality doors and windows will result in homes that are more comfortable, quieter, and that require less energy to heat or cool.

Current Requirement	Proposed Requirement
Pathway 1: Low Carbon Step 3 of 5 + Low Carbon	Pathway 1: Low Carbon Step 4 of 5 + Low Carbon
Pathway 2: Higher Step Step 5 of 5	Pathway 2: Higher Step Step 5 of 5

Table 2. Proposed change to Step Code requirements for Part 9 buildings.

This change is recommended to be considered through consultation as it offers a number of advantages:

- Maintains the City's leadership in advancing high performance construction by requiring energy efficiency standards above minimum code requirements;
- Prepares industry for net zero energy ready homes by taking another incremental step towards this goal;
- Continues to incentivize low carbon mechanical systems, especially electric heat pumps, through the voluntary compliance pathway which reduces emissions and increases resiliency through mechanical cooling;
- Harmonizes requirements with the Districts of West and North Vancouver, maintaining consistency across the North Shore; and
- Ensures new homes are efficient, healthy, comfortable and cost-effective to operate.

Proposed New Mechanical Permit Process

A new mechanical permit process is proposed for Part 9 homes to provide the design review and installation oversight necessary to effectively monitor the low carbon heating, domestic hot water, and ventilation systems in high performance new construction. This permit would be required for the installation of any space heating or cooling systems and domestic hot water systems, as well as for ventilation systems other than kitchen exhaust and bathroom fans.

The proposed mechanical permit will consolidate information currently dispersed across building, gas, plumbing, and electrical permits, and allow for better coordination between the project's designer, energy advisor, and mechanical contractor. No new technical requirements are anticipated to be created through this proposed permit process.

NEXT STEPS

Should Council direct staff to proceed with consultation regarding the above proposed requirements, staff will initiate industry consultation this spring following the release of the BC Building Code update and report back to Council with the results before the summer break. Staff will work closely with the Districts of North and West Vancouver to coordinate consultation and work towards consistency across the North Shore. The timeframe for the implementation of new regulations will be informed via the engagement process; a more detailed timeline will be presented when staff next report to Council.

CONCLUSION

Continuing to advance high performance construction and ensuring quality installation of low carbon mechanical systems are critical strategies in reducing emissions from buildings. The proposed increase to Step 4 for the low carbon compliance pathway, supported by a new mechanical permit process, will ensure new homes are low carbon, climate-resilient and healthy, and one step closer to being net zero energy ready.

Bringing these requirements forward now for consideration aims to maintain a coordinated North Shore approach and achieve greater consistency for industry.

FINANCIAL IMPLICATIONS

Should Council endorse the report recommendation, staff will proceed with consultation with industry using funds that have already been appropriated.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

This policy approach supports the City's target of achieving net zero emissions by 2050 and is consistent with the City's Official Community Plan, Council's Strategic Plan, and early directions of the forthcoming Climate and Environment Strategy.

RESPECTFULLY SUBMITTED:



Larisa Lensink
Planner 2, Environmental Sustainability



Tim Ryce
Chief Building Official

**MINUTES OF THE REGULAR MEETING OF COUNCIL, HELD ELECTRONICALLY FROM
CITY HALL, 141 WEST 14TH STREET, NORTH VANCOUVER, BC, ON
MONDAY, NOVEMBER 16, 2020**

REPORT

9. Low Carbon Building Bylaw Amendments – File: 11-5280-14-0001/2020

Report: Chief Building Official and Manager, Environmental Sustainability,
November 4, 2020

Moved by Councillor McIlroy, seconded by Councillor Girard

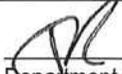
PURSUANT to the report of the Chief Building Official and the Manager,
Environmental Sustainability, dated November 4, 2020, entitled “Low Carbon Building
Bylaw Amendments”:

THAT “Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2020,
No. 8810” (Low Carbon Pathway Amendments Under the BC Energy Step Code) be
considered;

AND THAT the City’s Sustainable Development Guidelines be updated to reflect the
new requirements.

CARRIED UNANIMOUSLY



 Department Manager	 Director	 CAO
---	---	--

The Corporation of **THE CITY OF NORTH VANCOUVER**
PLANNING & DEVELOPMENT DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Tim Ryce, Chief Building Official
Caroline Jackson, Manager, Environmental Sustainability

Subject: LOW CARBON BUILDING BYLAW AMENDMENTS

Date: November 4, 2020 File No: 11-5280-14-0001/2020

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Chief Building Official and the Manager, Environmental Sustainability, dated November 4, 2020, entitled “Low Carbon Building Bylaw Amendments”:

THAT “Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2020, No. 8810” (Low Carbon Pathway Amendments Under the BC Energy Step Code) be considered;

AND THAT the City’s Sustainable Development Guidelines be updated to reflect the new requirements.

ATTACHMENTS

1. Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2020, No. 8810 (Low Carbon Pathway Amendments Under the BC Energy Step Code) (Document [#1987950](#))
2. Report to Council from the Manager, Environmental Sustainability, and the Chief Building Official, dated June 17, 2020, entitled “Proposed Consultation on Low Carbon Building Bylaw Amendments (Document [#1928254](#))

SUMMARY

The purpose of this report is to provide Council with the results of stakeholder consultation regarding low carbon building bylaw amendments, and to present for

Council's consideration Construction Regulation Amendment Bylaw, No. 8810 to introduce a low carbon compliance pathway for the City's BC Energy Step Code requirements. This policy directly supports the City's target of zero emissions by the year 2050.

BACKGROUND

At the June 22, 2020 Council meeting, the following resolution was unanimously endorsed:

“PURSUANT to the report of the Manager, Environmental Sustainability, and Chief Building Official, dated June 17, 2020, entitled “Proposed Consultation on Low Carbon Building Bylaw Amendments”:

THAT staff be directed to consult with stakeholders with respect to proposed low carbon amendments to “Construction Regulation Bylaw, 2003, No. 7390”.

The transition to low carbon heating systems presents a significant opportunity to reduce greenhouse gas emissions from buildings and is a key strategy in achieving the City's target of zero emissions by 2050. While the BC Energy Step Code provides a pathway to more energy efficient and higher quality construction homes, it does not specify limits for greenhouse gas emissions from buildings. In BC, due to the Province's low carbon electricity supply, buildings that rely on electricity compared to natural gas produce relatively few emissions, regardless of the Step under the Energy Step Code.

This report provides an update to Council on the results of consultation with stakeholders and presents a bylaw amendment informed by this consultation for consideration for Part 9 buildings. Part 9 buildings under the Building Code are small residential buildings (three storeys and under) including single family homes, duplexes, coach homes and some townhouses. Further background on the BC Energy Step Code and the low carbon compliance pathway is summarized in the staff report entitled “Proposed Consultation on Low Carbon Building Bylaw Amendments,” dated June 17, 2020 (Attachment #2).

DISCUSSION

Staff held a series of meetings with various stakeholder groups to obtain feedback on the proposed changes to the Construction Regulation Bylaw. For Part 9 buildings, these changes consist of updating the City's Step Code requirement to Step 5, the highest step of Energy Step Code while adding a low carbon compliance pathway of the current step, Step 3, provided a low carbon energy system, potentially an electrically powered heat pump, is in place. For Part 3 buildings, these changes consisted of migrating the City's existing Rezoning Policy requirements into the Construction Regulation Bylaw to achieve greater administrative efficiency.

Stakeholder Consultation

Meetings were held to obtain feedback on the proposed approach as outlined in the following table:

Stakeholder Group	Meeting Date
Urban Development Institute (UDI) and Homebuilders Association Vancouver (HAVAN) members	July 7, 2020
Climate and Environment Task Force	July 7, 2020
HAVAN members	July 22, 2020
Thermal Environmental Comfort Association (TECA) members and Heating, Ventilation and Air Conditioning (HVAC) contractors	October 2, 2020

Through these meetings, follow up correspondence with stakeholders and conversations with industry experts, staff heard the following:

- General support for pursuing low carbon requirements for new buildings as a response to the climate crisis;
- Maintaining consistency of requirements across the North Shore and the broader region is very important;
- Proposed Step 3 with low carbon system option is reasonable since it is one of two options provided and only requires a change in mechanical system, not in energy performance;
- Industry is ready for widespread installations of air to air heat pumps for space heating in new Part 9 homes, although contractor certification requirements are advisable to avoid poor installations of low quality heat pumps;
- Significant challenges remain for air to water heat pump system installations due to a lack of technology available on the market and a lack of industry installation capacity and experience;
- A greenhouse gas intensity limit could be easily met with conventional electric tanks or electric baseboards;
- Encouragement to also consider embodied carbon, especially the impact of higher steps on embodied carbon of building materials, and to collect data to make informed policy decisions and understand their unintended consequences;
- Concerns remain about the impact of building electrification to affordability and the ability of BC Hydro to meet increased demand; and
- An extended implementation timeline would be appreciated to allow for sufficient contractors to go through certification and training programs that have recently been developed.

Flexible Approach

Feedback obtained from stakeholders provided significant insight into industry readiness for the proposed low carbon compliance pathway and has influenced the bylaw requirements and implementation timeline outlined in this report. While the air to air heat pump market and industry is well developed, gaps in technology and capacity

exist for the air to water heat pump market, making a heat pump requirement premature in staff's view.

Bylaw 8810 thus requires that low carbon energy system homes must simply meet an overall greenhouse gas intensity (GHGI) limit for the building. The GHGI limit can be met in a number of ways and staff expect that some builders will choose to install air to air heat pumps or air to water heat pumps, while others may choose to install electric baseboards. While this is a departure from the District of West Vancouver's approach, where heat pump technology is a requirement, this approach is consistent with the City of Vancouver's approach (regulations coming into effect in January 2022).

Natural gas fireplaces and cooktops can also still be accommodated within the GHGI limit proposed in the bylaw.

Energy Step Code Requirements for Part 9 (Simple) Buildings

The Energy Step Code for Part 9 buildings consists of five steps with the highest (Step 5) similar to net zero building performance. The City has required Step 3 since July 1, 2018 for all Part 9 buildings. Bylaw 8810 increases the City's current requirement for Part 9 buildings to Step 5, while also offering an alternate pathway of Step 3 with a low carbon energy system (Table 1). The low carbon energy system option is defined as a maximum modeled greenhouse gas intensity (GHGI) for all space and water heating systems in the building. This approach provides flexibility in the technologies installed and is consistent with the performance-based approach of the Energy Step Code.

Table 1. Summary of Part 9 Changes

	Current Requirement	Proposed Requirement	
		Pathway 1: Low Carbon	Pathway 2: Higher Step
Small Part 9 residential buildings	Step 1 of 5	Step 3 of 5 + Low Carbon	Step 5 of 5
Part 9 residential buildings over 1,200 sq. ft.	Step 3 of 5	Step 3 of 5 + Low Carbon	Step 5 of 5

Energy Step Code Requirements for Part 3 (Complex) Buildings

As discussed in the June 2020 staff report, migrating the current Rezoning Policy requirements for Part 3 buildings into the Construction Regulation bylaw (Table 2) will achieve greater administrative efficiency. As the majority of Part 3 projects undergo a rezoning process prior to Building Permit application, this proposal will standardize the energy efficiency requirements that are largely already in effect for Part 3 buildings. Part 3 buildings under the Building Code are larger buildings (over three storeys) with a variety of uses including multi-family residential, commercial and institutional buildings.

An Energy Step Code requirement of Step 1 for institutional buildings is also included, as the Energy Step Code was recently expanded to include buildings with institutional occupancies such as schools and hospitals. Currently, the Step Code for these

buildings consists of only one step, Step 1, which requires energy modeling and airtightness testing for new buildings, but does not require specific energy performance targets to be achieved. Performance requirements beyond Step 1 have yet to be set by the Province for institutional buildings.

Table 2. Summary of Proposed Part 3 Changes

Use	Current Requirement	Proposed Requirement
Residential	Step 2 of 4 (Rezoning: Step 3 of 4)	Step 3 of 4
Commercial	Step 1 of 3 (Rezoning: Step 2 of 3)	Step 2 of 3
Institutional	None	Step 1

North Shore Coordination and Implementation Timeline

Since the Energy Step Code was first implemented in December 2017, the City has collaborated with the neighbouring North Shore municipalities regarding Energy Step Code requirements, and all three municipalities intend to introduce a low carbon compliance pathway to take effect in 2021. The District of West Vancouver adopted a low carbon Energy Step Code bylaw amendment in March 2020 with an implementation date of March 2021, while the District of North Vancouver Council recently directed staff to introduce low carbon Energy Step Code requirements with an anticipated implementation date of July 1, 2021.

Should Council adopt Bylaw 8810, requirements would take effect on July 1, 2021, consistent with the District of North Vancouver's expected timeline and exactly three years after Energy Step Code requirements were last increased across the North Shore. While staff had originally considered an implementation date of March 2021 consistent with the District of West Vancouver, following the feedback received during industry consultation, an extended implementation timeline is advisable to allow the industry additional time to deliver new certification and training programs already underway. The extended timeline will also allow staff sufficient time to develop robust internal administration processes. The timeline is approximately six months ahead of similar low carbon requirements taking effect in the City of Vancouver (January 2022).

Carbon Pollution Impact

Implementing a low carbon Energy Step Code compliance pathway for Part 9 buildings in the City is estimated to result in a reduction in greenhouse gas emissions of over 1,500 tonnes, the equivalent of taking almost 500 passenger vehicles off the road over the next 30 years.

FINANCIAL IMPLICATIONS

The implementation of the proposed low carbon Energy Step Code requirements will be accommodated within existing budgets and staff resources.

INTER-DEPARTMENTAL IMPLICATIONS

This report and accompanying bylaw amendment were reviewed by the City Solicitor.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

This policy supports the City's Livable City goal as articulated in Council's Strategic Plan along with the City's climate target of achieving net zero emissions by 2050.

RESPECTFULLY SUBMITTED:



Tim Ryce, P. Eng.
Chief Building Official



Caroline Jackson, M.Sc.
Manager, Environmental Sustainability

THE CORPORATION OF THE CITY OF NORTH VANCOUVER

BYLAW NO. 8810

A Bylaw to amend “Construction Regulation Bylaw, 2003, No. 7390”

The Council of The Corporation of the City of North Vancouver, in open meeting assembled, enacts as follows:

1. This Bylaw shall be known and cited for all purposes as “**Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2020, No. 8810**” (Low Carbon Pathway Amendments Under the BC Energy Step Code).
2. “Construction Regulation Bylaw, 2003, No. 7390” is amended as follows:

- A. In Part 3 – Definitions, by adding the following definitions:

“Energy Step Code” means the incremental energy performance requirements defined in sections 9.36.6 and 10.2.3 of the Building Code.

“Low Carbon Energy Systems” means all mechanical systems in a Building that provide thermal conditioning and domestic hot water heating such that the modeled Greenhouse Gas Intensity for the floor area of conditioned space of the Building is no more than 3 kg CO₂e/m²/year.

- B. By deleting Subsections 8.7.3. and 8.7.4. and replacing with the following:

8.7.3 Applications for a Building Permit for a Building that contains one or more uses contained in Table 1 and is required to comply with Part 3 of the Building Code shall:

- (a) be designed to meet or exceed the specified Energy Step Code requirements for the Step indicated in Table 1; and
- (b) provide sufficient documentation to demonstrate compliance with this Step to the satisfaction of the Chief Building Official.

Table 1

Use	Energy Step Code Step
Schools other than colleges	Step 1
Libraries	Step 1
Colleges	Step 1
Recreation Centres	Step 1
Hospitals	Step 1
Care Centres	Step 1

Hotels and Motels	Step 3
Other Residential Occupancies	Step 3
Offices	Step 2
Other Business and Personal Service or Mercantile Occupancies	Step 2

8.7.4 Applications for a Building Permit for a building containing a residential Occupancy that is required to comply with Part 9 of the Building Code shall:

- (a) be designed to meet or exceed the specified Energy Step Code requirements for the Step indicated in Table 2; and
- (b) provide sufficient documentation to demonstrate compliance with this Step to the satisfaction of the Chief Building Official.

Table 2

Energy System	Energy Step Code Step
Buildings equipped with Low Carbon Energy Systems	Step 3
Buildings not equipped with Low Carbon Energy Systems	Step 5

C. By deleting Subsections 8.7.5 and 8.8.4. in their entirety.

3. This Bylaw is to come into force and take effect on July 1, 2021.

READ a first time on the <> day of <>, 2020.

READ a second time on the <> day of <>, 2020.

READ a third time on the <> day of <>, 2020.

ADOPTED on the <> day of <>, 2020.

MAYOR

CORPORATE OFFICER

**MINUTES OF THE REGULAR MEETING OF COUNCIL, HELD IN THE CAO MEETING ROOM, CITY HALL, 141 WEST 14TH STREET, NORTH VANCOUVER, BC, ON
MONDAY, JUNE 22, 2020**

REPORTS

16. Proposed Consultation on Low Carbon Building Bylaw Amendments
– File: 11-5280-14-0001/2020

Report: Manager, Environmental Sustainability, and Chief Building Official,
June 17, 2020

Moved by Councillor McIlroy, seconded by Councillor Girard

PURSUANT to the report of the Manager, Environmental Sustainability, and Chief Building Official, dated June 17, 2020, entitled “Proposed Consultation on Low Carbon Building Bylaw Amendments”:

THAT staff be directed to consult with stakeholders with respect to proposed low carbon amendments to “Construction Regulation Bylaw, 2003, No. 7390”.

CARRIED UNANIMOUSLY



----- Department Manager	 Director	 CAO
--------------------------------	---	--

The Corporation of **THE CITY OF NORTH VANCOUVER**
PLANNING & DEVELOPMENT DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Caroline Jackson, Manager, Environmental Sustainability
Tim Ryce, Chief Building Official

Subject: PROPOSED CONSULTATION ON LOW CARBON BUILDING BYLAW
AMENDMENTS

Date: June 17, 2020 File No: 11-5280-14-0001/2020

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Manager, Environmental Sustainability, dated June 17, 2020, entitled "Proposed Consultation on Low Carbon Building Bylaw Amendments":

THAT staff be directed to consult with stakeholders with respect to proposed low carbon amendments to the Construction Regulation Bylaw as detailed in this report.

PURPOSE

The purpose of this report is to advise Council of the need for a low carbon pathway in the City's BC Energy Step Code requirements for new buildings in order to achieve the City's climate targets, and to seek direction to consult with stakeholders regarding proposed low carbon amendments to the City's Construction Regulation Bylaw.

BACKGROUND

A Critical Decade for Climate Action

The International Panel on Climate Change (IPCC) released a report in October 2018 warning that urgent and unprecedented action is required over the next decade to avoid the most far-reaching effects of climate change. In February 2019, Council unanimously adopted new community-wide greenhouse gas emissions reduction targets of an 80% reduction in emissions by 2040 and net zero emissions by 2050, and directed staff to incorporate these targets into plans, policies, and business practices.

Building Emissions

Approximately half of the City’s greenhouse gas emissions, on a community-wide basis, are attributed to building energy use. These emissions are primarily due to space and water heating using natural gas heating systems. Transitioning to electric and other low carbon heating systems represents a significant opportunity to reduce emissions from buildings and will be a critical strategy in achieving the City’s emissions reduction targets.

Given that buildings constructed today will be in operation in 2050 and beyond, it is important that they are powered by zero emission heating systems. Equipping buildings with low emission electric heating systems at the time of construction is simpler and more cost-effective than retrofitting them later.

BC Energy Step Code

The BC Energy Step Code was introduced in 2017 to support market transformation towards higher performance buildings through progressive energy efficiency targets, and to provide consistency in building requirements across BC. As a voluntary compliance pathway in the BC Building Code, the Energy Step Code establishes a series of incremental energy efficiency targets for new buildings that local governments can encourage or require. The Energy Step Code also communicates the future intent of Building Code requirements with the goal of all new buildings being net zero energy ready by 2032 (all energy needs could be met through on-site energy generation).

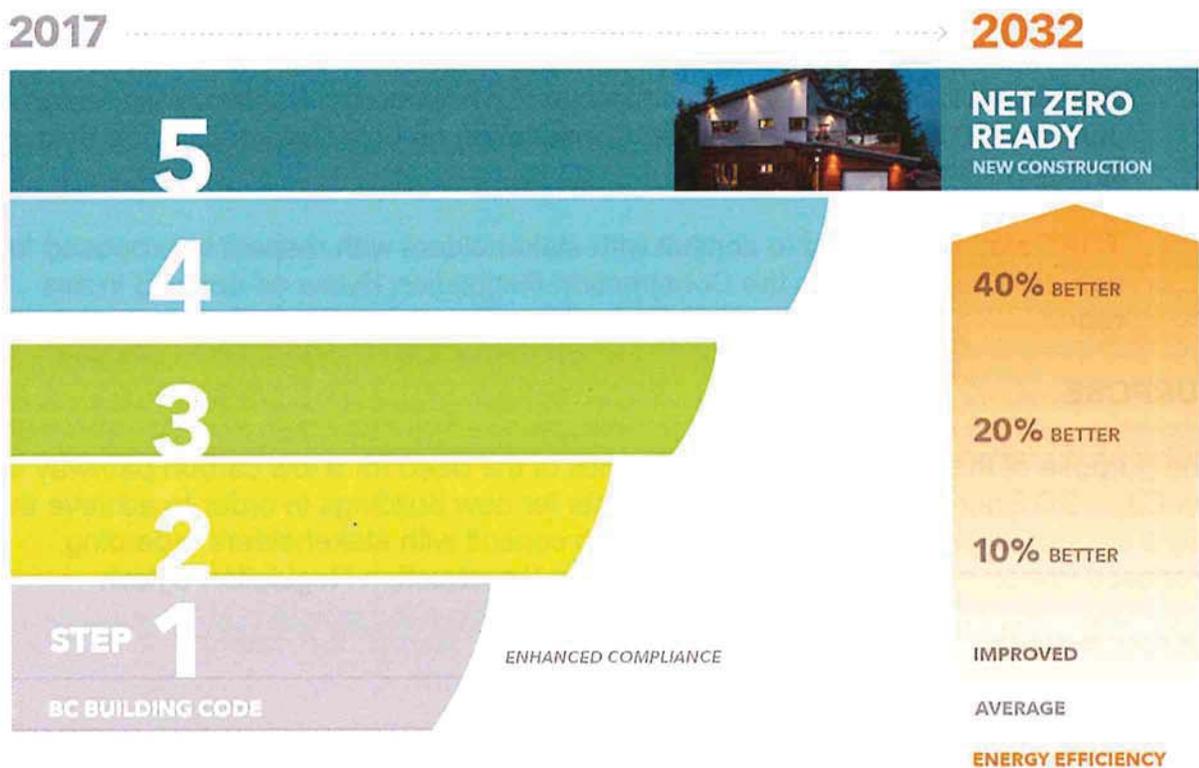


Figure 1. BC Energy Step Code

The Step Code thus allows local governments to require higher levels of energy efficiency in new construction above the minimum requirements of the BC Building Code. Over time, the minimum requirements of the Building Code will be increased

according to the Steps with the target of all buildings achieving the highest Step by 2032.

The transition to higher performance buildings through the Energy Step Code supports better quality construction, improved comfort, and better indoor air quality.

Step Code Requirements on the North Shore

The City first introduced Step Code requirements in December 2017, becoming one of the first municipalities in BC to implement Step Code requirements for all buildings. The City has coordinated closely with the District of West Vancouver (DWV) and the District of North Vancouver (DNV) to provide builders with consistent requirements across the North Shore. Builders have now been building to the current Step Code requirements for approximately two years and have consistently met or exceeded the energy performance targets.

Part 9 (Simple) Buildings. Part 9 buildings under the Building Code are typically small residential buildings (three storeys and under) and other non-complex buildings. The City has required Step 3 of 5 for the majority of residential buildings in this category (with the exception of coach houses, where Step 1 is required) since 2018. The exception was made for coach houses as the cost differential is higher for smaller buildings.

Part 3 (Complex) Buildings. Part 3 buildings under the Building Code are typically larger and taller (over three storeys) buildings with a variety of uses including multi-family residential buildings, commercial buildings and institutional buildings. The City has required Step 2 of 4 for the majority of Part 3 residential buildings and Step 1 of 3 for Part 3 commercial buildings since 2018. In both cases, projects seeking rezoning are required to achieve an additional step above these base requirements per the Step Code Rezoning Policy.

DISCUSSION

While the Energy Step Code has been successful in increasing overall energy efficiency, achieving better construction quality and building more comfortable and climate resilient homes, it does not alone accomplish the emissions reductions necessary to achieve the City's climate targets.

BC Energy Step Code and Greenhouse Gas Emissions

In BC, due to the Province's low carbon electricity supply, building-related greenhouse gas emissions are directly correlated with heating type. Buildings that rely on electricity compared to natural gas produce relatively few emissions, regardless of the step under the Energy Step Code.

While the Step Code can result in emissions reductions, it can still result in buildings that continue to emit significant emissions over their lifetimes, and does not guarantee the level of emissions reductions necessary to drive emission to zero or near-zero levels.

Depending on the home heating system selected, the greenhouse gas emissions intensity can vary by over 90%, since the Step Code does not require designers to select a low-carbon heating system. For example, when a home is heated using natural gas, even at the highest Step, emissions are only reduced by half (Figure 2).

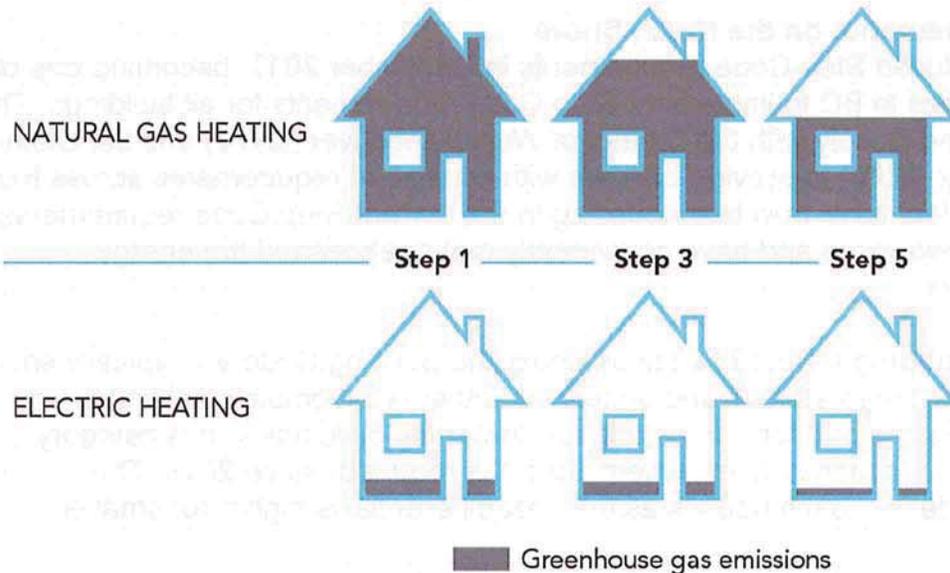


Figure 2. Greenhouse gas emissions by heating type and step of Energy Step Code (Source: Metro Vancouver Climate 2050 Buildings Discussion Paper)

Low Carbon Path in Part 9 Buildings

To achieve the necessary reductions in emissions from buildings, low carbon heating systems are needed in addition to the Energy Step Code performance requirements. Recent guidance from the Province has highlighted that local governments can use the inherent flexibility of the Energy Step Code requirements to advance emissions reductions goals by offering a low carbon compliance pathway.

A number of municipalities, including Surrey, Burnaby, and Richmond have implemented a Step Code low carbon path option by requiring a higher step and offering a voluntary compliance of a lower step with a low carbon (electric) heating system. Most recently, the District of West Vancouver implemented a requirement for Part 9 buildings for Step 5 with an option permitting Step 3 (the City's current step) when a low carbon heat pump energy system is used.

Heat Pump Technology in Part 9 Buildings

Heat pumps are increasingly being implemented as heating systems in Part 9 buildings. Heat pump technology involves using a small amount of energy to pull heat from the outside air to heat a building. Heat pumps work very efficiently, as they simply transfer heat rather than burning a fuel to create heat.

A key advantage of heat pumps is that they also function in reverse to provide cooling, resulting in a more resilient housing stock. Climate projections predict that over the coming decades, our region will experience summer heat similar to that currently

experienced in Southern California, and mandatory mechanical cooling is already being considered by Provincial authorities to safeguard health under a warming climate. During heat and forest fire smoke events, heat pumps can contribute to maintaining comfortable temperatures and good air quality in homes.

Proposed Requirement for Part 9 Residential Buildings: Increase to highest step with voluntary low carbon compliance option

An increase is proposed to the City’s current requirement for most Part 9 buildings to the highest Step (Step 5) while offering a voluntary compliance option of the City’s current (2018) requirements along with a low carbon (electric heat pump) heating system (Table 1). This proposed requirement is consistent with bylaws adopted by the District of West Vancouver earlier this year, and with a proposed approach currently under consideration by the District of North Vancouver.

This approach offers a number of advantages:

- Harmonized approach with the Districts of West and North Vancouver, maintaining consistency across the North Shore;
- Maintaining the City’s existing Step 3 standard for Part 9 residential buildings (in place since 2018), with the addition of a low carbon heating system requirement thus providing flexibility and reducing the need for industry to adopt substantial new building practices; and
- Ensuring mechanical cooling can be provided, creating a more resilient future-proof residential building stock; and
- Avoiding future retrofit costs for these buildings to ensure zero emissions are achieved by 2050.

Table 1. Summary of Proposed Part 9 Changes

	Current Requirement	Proposed Requirement	
		Pathway 1: Low Carbon	Pathway 2: Higher Step
Small Part 9 residential buildings	Step 1 of 5	Step 3 of 5 + Low Carbon	Step 5 of 5
Part 9 residential buildings over 1,200 sq. ft.	Step 3 of 5	Step 3 of 5 + Low Carbon	Step 5 of 5

Approach for Part 3 (Complex) Buildings

Staff are also examining requirements for Part 3 buildings to determine options for achieving the City’s 2050 target. Given the complexity and diversity of these building types, analysis specific to Part 3 buildings is required before determining any future proposed changes.

For these building types, the B.C. Energy Step Code consists of four steps for residential Part 3 buildings, and three steps for commercial Part 3 buildings. Under the City’s current requirements in the Construction Regulation Bylaw, residential Part 3

buildings are required to meet Step 2 of 4 while commercial Part 3 buildings are required to meet Step 1 of 3. However, the majority of these Part 3 buildings undergo a rezoning process and thus are subject to the City's 2017 Step Code Rezoning Policy, where residential buildings are required to be built to Step 3 of 4 and commercial buildings are required to be built to Step 2 of 3.

Most Part 3 buildings are over 1,000 m² and thus are required to connect to the City's Lonsdale Energy Corporation (LEC) district energy system. LEC is currently incorporating low carbon heat sources including waste heat from the new North Shore Wastewater Treatment Plant to reduce emissions.

Further research and dialogue is required with internal and external stakeholders to determine potential policy options for consideration for Part 3 buildings, and staff will bring forward further information in due course for Council's consideration.

Proposed Requirement for Part 3 (Complex) Buildings

A measure under consideration would be to achieve greater administrative efficiency by migrating the current Rezoning Policy requirements into the Construction Regulation bylaw directly, while continuing to review possible future changes to achieve low carbon objectives.

As the majority of projects undergo a rezoning process prior to Building Permit application, this proposal will standardize the energy efficiency requirements that are largely already in effect for Part 3 buildings.

Table 2. Summary of Proposed Part 3 Changes

	Current Requirement	Proposed Requirement
Part 3 residential buildings	Step 2 of 4 (Rezoning: Step 3 of 4)	Step 3 of 4
Part 3 commercial buildings	Step 1 of 3 (Rezoning: Step 2 of 3)	Step 2 of 3

NEXT STEPS

Should Council direct staff to proceed with consultation regarding the above proposed requirements, staff will initiate industry consultation, and work to achieve consistency across the North Shore, with the goal of matching the District of West Vancouver's implementation date of March 2021. Staff will report back to Council in the fall.

CONCLUSION

Incentivizing low carbon heating systems in new construction will play a significant role in reducing emissions from buildings. Given the long lifespan of buildings and high retrofit cost, it is important that this transition happens in the near term in order to advance carbon reduction goals. Bringing these requirements forward now for

consideration will maintain a coordinated North Shore approach and achieve greater consistency for industry.

FINANCIAL IMPLICATIONS

Should Council endorse the report recommendation, staff will proceed with consultation with industry using existing resources and will report back to Council.

INTER-DEPARTMENTAL IMPLICATIONS

This report and recommendation were reviewed by the City Solicitor.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

This policy supports the City's Livable City goal as articulated in Council's Strategic Plan of achieving net zero emissions by 2050, and is considered an early action in progressing the City's Environment Strategy.

RESPECTFULLY SUBMITTED:



Caroline Jackson, M.Sc.
Manager, Environmental Sustainability

RESPECTFULLY SUBMITTED:



Tim Ryce, P. Eng.
Chief Building Official



 M.F. Department Manager	 J.P. Director	 W. CAO
-----------------------------------	----------------------	---------------

The Corporation of **THE CITY OF NORTH VANCOUVER**
PLANNING & DEVELOPMENT DEPARTMENT

INFORMATION REPORT

To: Mayor Linda Buchanan and Members of Council

From: Larisa Lensink, Planner 2, Environmental Sustainability

Subject: BC BUILDING CODE UPDATE PUBLIC REVIEW

Date: November 8, 2022 File No: 11-5280-14-0001/2022

ATTACHMENTS

1. City of North Vancouver's Submission to the Office of Housing and Construction Standards in the BC Building Code Public Review (City Docs [#2239370](#))

PURPOSE

The purpose of this report is to provide a summary of the proposed updates to the BC Building Code and to provide Council the attached submission to the recent public review process (Attachment 1).

DISCUSSION

On September 23, 2022, the Province of BC launched a public review of changes to the BC Building Code to support cleaner, more energy efficient construction. The proposed updates can be summarized into two key changes:

1. Increasing the energy efficiency requirements for most new buildings by 20%
 According to the previously announced timeline for energy efficiency regulatory requirements (Figure 1), the Province is proposing to update the BC Building Code to increase the minimum energy efficiency of new construction by approximately 20%. This would mean increasing the base code requirements to Step 3 for Part 9 (small) buildings and Step 2 for Part 3 (large) buildings.



Table 1. Target Energy Step Code timeline showing energy efficiency improvements over 2018 BC Building Code requirements.

Step 3 for Part 9 buildings requires the use of an energy advisor to perform energy modeling and airtightness testing. In anticipation of a shortage of energy advisors in some areas, the Province is proposing a prescriptive compliance pathway, requiring specific building components, instead of energy performance metrics. The prescriptive option would be available to builders in all areas of the province where Step 3 is required, including the City. For the City and other municipalities that have already been requiring the modeled performance metrics of Step 3 through use of an energy advisor, the prescriptive pathway is a deviation this performance-based approach and requires an additional compliance and inspection process for building departments to administer.

2. Introducing a carbon pollution standard for local governments

To support the transition to zero carbon buildings by 2030, the Province is proposing to introduce a new tool to set emissions targets for new buildings. The carbon pollution standard is a response to advocacy from local governments for the ability to regulate emissions from new buildings, recognizing this limitation of the Step Code which focuses on energy efficiency. Similar to the implementation of the Step Code, the carbon pollution standard would be available to local governments to opt-in at first, and provides multiple options for levels of stringency. Local governments could set targets to require medium, low and zero carbon-ready buildings, measured by the modeled emissions from operational energy use. Over time, the Province would incorporate these requirements into the BC Building Code to achieve zero carbon new construction by 2030.

To enable a compliance pathway for the carbon pollution standard that does not require use of an energy advisor, the Province has developed a prescriptive option achieved by “decarbonizing” energy sources of building systems. In the BC Building Code “decarbonize” means the energy source achieves an emissions factor equal to or less than that of electricity. To meet the targets of the carbon pollution standard, natural gas would need to be up to 90% renewable

and to achieve the policy intent, this would need to be sustained for the lifetime of the building. Currently, the British Columbia Utilities Commission is reviewing a proposal from FortisBC to provide 100% renewable gas to every newly constructed home connecting to the gas system, which would achieve the intention of the carbon pollution standard if approved. However, given the availability of electric technology options for home heating, the supply of renewable gas in the province might be better utilized in harder to decarbonize sectors such as industry, existing buildings and heavy-duty vehicles.

While these two changes represent significant progress towards low carbon, high performance new construction, a number of concerns have been raised by local governments. The City has provided the attached comments in the BC Building Code public review process to communicate the concerns identified and anticipated impacts to leading local governments.

The changes to the BC Building Code are expected to take effect in December 2022. Staff will continue to follow the BC Building Code update and keep Council apprised of significant advancements.

RESPECTFULLY SUBMITTED:



Larisa Lensink
Planner 2, Environmental Sustainability

THE CORPORATION OF THE CITY OF NORTH VANCOUVER

BYLAW NO. 8986

A Bylaw to amend “Construction Regulation Bylaw, 2003, No. 7390”

The Council of The Corporation of the City of North Vancouver, in open meeting assembled, enacts as follows:

1. This Bylaw shall be known and cited for all purposes as “**Construction Regulation Bylaw, 2003, No. 7390, Amendment Bylaw, 2023, No. 8986**” (BC Energy Step Code and Zero Carbon Step Code Updates).
2. “Construction Regulation Bylaw, 2003, No. 7390” is amended as follows:
 - A. In Part 3 – Definitions, by deleting the following definition:

“Low Carbon Energy Systems” means all mechanical systems in a Building that provide thermal conditioning and domestic hot water heating such that the modeled Greenhouse Gas Intensity for the floor area of conditioned space of the Building is no more than 3 kg CO₂e/m²/year.
 - B. By deleting Subsections 8.7.3. and 8.7.4. and replacing with the following:
 - 8.7.3 Applications for a Building Permit for a Building that contains one or more uses contained in Table 1 and is required to comply with Part 3 of the Building Code shall:
 - (a) be designed to meet or exceed the specified Energy Step Code requirements for the Step indicated in Table 1; and
 - (b) provide sufficient documentation to demonstrate compliance with this Step to the satisfaction of the Chief Building Official.

Table 1

Use	Energy Step Code Step
Schools other than colleges	Step 2
Libraries	Step 2
Colleges	Step 2
Recreation Centres	Step 2
Hospitals	Step 2
Care Centres	Step 2
Hotels and Motels	Step 3
Other Residential Occupancies	Step 3

Offices	Step 2
Other Business and Personal Service or Mercantile Occupancies	Step 2

8.7.4 Applications for a Building Permit for a building containing a residential Occupancy that is required to comply with Part 9 of the Building Code shall:

- (a) be designed to meet or exceed the specified Energy Step Code and greenhouse gas emissions requirements for the Step indicated in Table 2; and
- (b) provide sufficient documentation to demonstrate compliance with this Step to the satisfaction of the Chief Building Official.

Table 2

Option	Energy Step Code Step	GHG Emission Level
Option 1	Step 4	EL-3
Option 2	Step 5	EL-1

3. This Bylaw is to come into force and take effect on November 1, 2023.

READ a first time on the <> day of <>, 2023.

READ a second time on the <> day of <>, 2023.

READ a third time on the <> day of <>, 2023.

ADOPTED on the <> day of <>, 2023.

MAYOR

CORPORATE OFFICER