

DATE: February 20,2024

FILE: 3760-01

TO: Chair and Directors
Electoral Areas Services Committee

Supported by Marc Rutten,
A/Chief Administrative Officer

FROM: Marc Rutten
Acting Chief Administrative Officer

M. Rutten

RE: Introduction to Zero Carbon Step Code

Purpose

To provide information on the Zero Carbon Step Code (Carbon Code).

Recommendation from the Acting Chief Administrative Officer:

THAT staff be directed to report back with a proposal to adopt the Zero Carbon Step Code with phased implementation.

Executive Summary

The Carbon Code is included in the BC Building Code May 2024 revision. A zero-carbon building is highly energy-efficient and minimizes greenhouse gas emissions from building materials and operations.

- It establishes carbon performance tiers which align with carbon emissions levels associated with the energy used by a building's systems. The Carbon Code supports electrification of new construction and reduction of greenhouse gas emissions produced by buildings. Over time, the Province intends to make operational carbon limits mandatory, with the ultimate objective for all new buildings to be Zero Carbon by 2030.
- In 2030, the BC Building Code will require all new buildings to be Zero Carbon.
- The Carbon Code has four levels of increasing stringency.
- At this time the Carbon Code is voluntary for local governments to adopt.
- Staff will report back in 2024 with a proposal to adopt Carbon Code with phased implementation for the Board's consideration.
- Adoption of the Carbon Code over a defined timeline, will allow local stakeholders to adjust and implement the necessary changes progressively.

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Background/Current Situation

The Carbon Code was added to the BC Building Code in May 2023. Its purpose is to introduce limits on operational carbon emissions in new construction. Currently voluntary, the Province is making operational carbon limits mandatory over time. All new buildings will need to be Zero Carbon by 2030. Under the new regulation all new building applications will have to include the modeled greenhouse gas emissions for the proposed building.

Zero Carbon Step Code and Energy Step Code

The Carbon Code and Energy Step Code differ. The Carbon Code sets the Greenhouse Gas (GHG) emissions targets for new buildings and the Energy Step Code is a provincial standard that sets energy efficiency requirements for new buildings.

Both codes are part of the BC Building Code. The Energy Step Code is focused on the energy efficiency of buildings by three basic principles:

- How much air leaks through the building envelope (air tightness);
- The amount of annual heating energy needed to maintain a stable interior temperature;
- The efficiency of mechanical equipment.

The Carbon Code has four levels of increasing stringency and focuses on GHG emissions from building operations, namely space heating, water heating and indoor cooking:

Level 1 – Measure only: Requires measurements of building emissions only

Level 2 – Moderate carbon: Will likely require decarbonization/electric for either heating or domestic hot water systems

Level 3 – Strong Carbon: Will likely require decarbonization/electric for both heating and domestic hot water systems

Level 4 – Zero Carbon: Will likely require full electrical systems in buildings and as close to zero emissions as possible

There are a variety of pathways a builder can follow to meet the Carbon Code Level 4 requirements. Even with considerations of the building type and efficiency of the building envelope, compliance will likely require the use of electricity for the heating/cooling and hot water systems.

The Residential Emissions Reduction Action Plan (RERAP)

Adopted by the Board October, 2023, RERAP directs staff to explore energy efficiency opportunities and requirements in new construction, specifically including “determining how the Zero Carbon Step Code can be utilized to meet our 2030 GHG reduction target.” Strategy 5 of RERAP focuses on new construction, and this includes exploring the adoption of the Carbon Code in order to phase out fossil fuels as a primary heat source.

Phase-in of Zero Carbon Step Code

The Carbon Code is currently voluntary. The goal for CleanBC emission requirements is to be increasingly more stringent for new buildings in 2024 and 2027 (specific changes not yet announced). In 2030, the BC Building Code will require all new buildings to be zero carbon.

Until the province makes it mandatory, local government can determine which of the levels, if any, will be implemented in their jurisdiction. Staff propose to report back to the Electoral Areas Services Committee with options on phasing (including consideration of different approaches in different parts of the electoral areas).

For context on the current use of carbon emitting fuel systems in new construction, staff reviewed building permits that were issued between 2022- 2023 and found that 17 of 241 new dwelling units are using gas as their primary heat source. Among these 241 homes, 108 had a permit for natural gas or propane through Technical Safety BC. These permits could be for various gas appliances such as fireplaces, hot water on demand systems, or cooking facilities (indoor and/or outdoor).

There are a number of benefits for residents living in zero emission buildings as the buildings will increase comfort and reduce noise, have improved temperature control, improved health by better managing the fresh indoor air quality and lower energy bills (i.e. given the affordability of BC’s electrical grid).

Current “readiness” for Zero Carbon Step Code

Currently, a building permit application must include a pre-construction report for any new dwelling. Most certified Energy Advisors are completing the optional Carbon Code Section of the report and meeting EL-1 of the Carbon Code. The Building Code sets out GHG emission rates for different fuel types that an Energy

Advisor uses to model emissions for a proposed building, and changes to the design may be necessary to achieve the emission level. The results would be included in building permit application submissions. Staff does not have any concerns with local industry’s ability to meet Level 1 now (i.e. measure building emissions).

Partial adoption with phased implementation may involve a gradual local adoption of the Carbon Code over a defined timeline, allowing local stakeholders to adjust and implement the necessary changes progressively. Staff suggests that this type of approach balances the need for immediate climate action with the practical considerations of the local building industry by allowing more time for builders and developers who are less experienced with high performance buildings to gain necessary skills and capacity. A phased in approach will also allow staff to support community education about the Carbon Code and respond to potential concerns (e.g. changes in fuel source and cost, the ability to choose the fuel source, etc.).

If the Board supports staff’s recommendation to report back with a proposal to phase in adoption, staff will prepare a fulsome communication plan, including education sessions in conjunction with other updates to the CVRD’s building bylaw and a “Question and Answer” page on our website.

Assets and the Zero Carbon Step Code

As part of the Corporate Energy and Emissions Plan, a new green building policy is being developed. This policy will allow us to demonstrate leadership by ensuring new buildings are designed and built to align as closely as possible with Level 4 of the Carbon Code (and, of course, will comply with the requirements set by the jurisdiction having authority, as applicable).

Options

1. Direct Staff to report back with a proposal to adopt Zero Carbon Step Code with phased implementation.
2. Take no further action at this time.

This report recommends option one.

Financial Factors

Strategic Considerations - Strategic Drivers						
Fiscal Responsibility	Climate Crisis and Environmental Stewardship and Protection	✓	Community Partnerships	✓	Indigenous Relations	Accessibility, Diversity, Equity and Inclusion

1. Climate Crisis and Environmental Stewardship and Protection:

The adoption of the Carbon Code is a significant step toward environmental stewardship and protection. By promoting energy-efficient buildings and reducing greenhouse gas emissions, the CVRD contributes to the broader commitment to address the climate crisis and minimize its environmental impact.

2. Community Partnerships:

Implementation of the Carbon Code fosters community partnerships by engaging stakeholders, including builders, developers, and the public. Collaboration is essential for the successful adoption of sustainable building practices, promoting a shared commitment to environmental responsibility within the community. Staff have been in conversation with neighbouring municipalities and understand that there may be opportunities available to partner on the phased implementation of Carbon Code. Staff will explore these further and continue to identify any opportunities that would be mutually beneficial. This will be included in staff’s recommended report back this committee.

Strategic Considerations - Regional Growth Strategy Goals							
Housing	✓	Ecosystems, Natural Areas and Parks		Local economic development	✓	Transportation	
Infrastructure		Food Systems		Public Health and Safety	✓	Climate Change	✓

Housing:

The adoption of the BC Zero Carbon Step Code supports the Housing goal of the Regional Growth Strategy by encouraging the development of energy-efficient, sustainable housing options. This aligns with the objective of ensuring a diversity of housing options that meet evolving demographics and needs, contributing to a more resilient and environmentally responsible housing stock.

Local Economic Development:

The adoption of sustainable building practices is in line with the Local Economic Development goal. It fosters a sustainable, resilient, and dynamic economy by encouraging businesses involved in green construction and promoting entrepreneurship in the energy-efficient building sector.

Public Health and Safety:

The adoption of the BC Zero Carbon Step Code supports the Public Health and Safety goal by contributing to a high quality of life. Sustainable buildings enhance community health, safety, and well-being by providing healthier indoor environments and reducing the environmental impact associated with traditional construction.

Climate Change:

The adoption of the Carbon Code directly aligns with the Climate Change goal of minimizing regional greenhouse gas emissions and planning for adaptation. This initiative contributes to the overarching objective of addressing climate change impacts, specifically reducing community GHG emissions in the building sector.

Citizen/Public Relations

Work with the development community on public education/information sessions on key topics (e.g. CVRD processes, Carbon Code) will be included in the communication plan for the new building bylaw (introduced under separate cover).