

# Board Report

**Date of Report:** February 27, 2023  
**Date & Type of Meeting:** March 16<sup>th</sup>, 2023 Regular Open Board Meeting  
**Author:** Chris Gainham, Building Manager and Shari Imada P.Eng, Senior Energy Specialist  
**Subject:** Energy Step Code Update  
**File:**  
**Electoral Area/Municipality:** All RDCK Areas

## SECTION 1: EXECUTIVE SUMMARY

The purpose of this report is to provide the Board with an information update related to regulatory changes to the BC Energy Step Code including the move to a mandatory requirement to construct buildings that are 20% more energy efficient starting on May 1<sup>st</sup> 2023; equivalent to Step 3 for Part 9 construction (homes and small buildings) and Step 2 for Part 3 construction (complex buildings). In addition, the province has introduced a new opt-in Building Carbon Pollution Standard for new buildings that may be referenced in local government building and zoning bylaws.

## SECTION 2: BACKGROUND/ANALYSIS

### ENERGY STEP CODE OVERVIEW



The BC Energy Step Code was introduced by the province of British Columbia in April 2017 and was developed in collaboration with stakeholders as part of the Province's efforts to improve the energy efficiency and environmental sustainability of buildings to meet the province's climate action goals – providing a pathway to reach a net-zero energy ready target by 2032.

The Energy Step Code was introduced as a voluntary standard establishing a series of energy efficiency performance targets, or "steps", for new construction and major renovations in the province. These steps represent increasing levels of performance related to building energy efficiency. Its introduction was also intended to provide a more flexible and performance-based approach to building code compliance, allowing the market, new materials and methods and the ingenuity of builders and designers, to drive, innovate and achieve higher levels of energy efficiency and sustainability in their projects. To demonstrate compliance with the Energy Step Code, a building must meet or exceed the performance requirements set out in each step. These requirements address building envelope, airtightness, and mechanical equipment and systems.

Upon introduction, local governments had the option to adopt the Step Code, and to date it has been adopted by approximately 70 local governments in the province, with each local government choosing how to specifically put the new standard to work - typically by requiring mandatory compliance achieving Step 1 to 3 for Part 9 Buildings. On November 19<sup>th</sup> 2020, the Regional District of Central Kootenay Board discussed and adopted the Regional District's bylaw update to adopt Step 1 of the BC Energy Step Code, helping to better prepare the building

community and Building Department staff for the eventual jump to Step 3, and the district for a more sustainable future.

The current provincial Step Code targets are as follows:

Energy Efficiency for Buildings Constructed to 2018 BC Building Code	Mandatory Adoption Date	BCBC Part 9 – Housing and Small Buildings  * buildings 3 storeys and under with a footprint of 600 square metres or less (e.g. houses, duplexes, small apartments)	BCBC Part 3 – Large Buildings  * buildings over 3 storeys or with a footprint over 600 square metres (residential, business and personal services, mercantile occupancies)
20% better	May 1, 2023	Step 3	Step 2
40% better	2027	Step 4	Step 3
80% better	2030	Step 5	Step 4

Note that Step 5 is considered ‘net-zero energy ready’. The remaining 20% of energy efficiency relates to the fuel type or energy source available.

To achieve Step 3, building and design professionals and trades can rely on conventional building designs with careful air-sealing practices, and incrementally incorporate some key elements in the design, building envelope, and equipment and systems.

To achieve the upper steps of 4 and 5, builders and designers will need to adopt a more integrated approach to building design and may need to incorporate more substantial changes in building design, layout, framing techniques, system selection, and materials.

Further information on the Energy Step Code can be seen at <https://energystepcode.ca/>.

**CURRENT STATUS**

With the adoption of the Step Code in 2020, RDCK building permit applications received after December 31st 2020 for new buildings needed to demonstrate "enhanced compliance" with Step 1 of the Step Code. Step 1 is a no-fail option which uses a third-party energy assessment, by a Certified Energy Advisor, to measure and report the air-tightness and energy performance of new residential buildings. Currently, buildings can also voluntarily be built to a higher step (2 – 5).

By adopting the Step Code in the RDCK, the Board not only increased the energy efficiency of buildings within the region, but helped builders prepare for a more stringent rollout of the Energy Step Code requirements legislated by changes to the BC Building Code. Builders in the RDCK have shown their readiness in constructing more energy efficient buildings, and have been effective in meeting and regularly exceeding the required Step 1, with many residential builds achieving Steps 3 and 4, and with a few even achieving Step 5.

## ENERGY STEP CODE CHANGES WITH UPCOMING BC BUILDING CODE REVISION

Until now, the decision to use the BC Energy Step Code has been in the hands of local governments. This will change starting on May 1<sup>st</sup> 2023 (Ministerial approval of the changes occurred mid-February 2023), when the BC Building Code will require every new building to deliver a level of energy-efficiency performance equivalent to 20% more energy efficient (Step 3). With this increase in Energy Step Code requirements, we will see a move of small residential homes to Step 3, with more complex buildings (Part 3) required to meet Step 2. This change will not affect existing in-progress building permits, however applications received after May 1<sup>st</sup> 2023 will need to design the building to the new mandatory Step Code requirements.

### Summary of Changes - Part 9 Buildings

- More airtightness testing options
- New energy performance improvement compliance calculations
- Introduces the Zero Carbon Step Code, an optional/opt-in building carbon pollution standard for operational carbon that local government Boards can choose to adopt (see following section for more information)
- Introduces a prescriptive option for Step 3, Part 9 buildings if a local government passes an enabling bylaw.
- Backup heat from wood stoves and decorative gas fireplaces will be excluded from GHG modelling in Part 9 buildings. This responds to feedback from communities that experience frequent power outages.

### Summary of Changes Part 3 Buildings

- Introduces the Zero Carbon Step Code, an opt-in building carbon pollution standard for operational carbon (see following section for more information)
- Introduces modified Total Energy Use Intensity ((TEUI - this is the total amount of energy a building uses per square metre in a year (kWh/m<sup>2</sup>)) targets for office and retail occupancies.

### Other Significant Changes

The performance approach for meeting Step 3 in Part 9 construction remains the default option and is a familiar process to builders and they will continue to use the services of a Certified Energy Advisor, energy modeling software and on-site testing to demonstrate that both their design and the constructed building meet the requirements of the standard.

Local governments wishing to enable a prescriptive energy efficiency approach for Step 3 in Part 9 construction must pass a bylaw to enable that approach. In providing this option, the Province responded to feedback from rural and remote communities who wish to maintain a prescriptive-based option, while also meeting requests from other local governments wishing to retain the performance-based approach.

### Log homes

The unique nature of the construction of Log Homes is specifically addressed in the draft release of code changes – Log homes are exempt from the Energy Step Code and exempt from selected Effective Thermal Resistance requirements laid out in the code for both above and below ground opaque assemblies and fenestration.

## IMPACT OF STEP CODE CHANGES

The Prescriptive Path option for energy compliance is presented as optional/opt-in and local governments can choose to adopt via a bylaw. Adopting a prescriptive compliance pathway will have capacity and administrative implications on the building department that are not yet fully understood, but it would require the adoption of new processes on how applications are received and administered. It is anticipated that plan reviews may require additional time, effort, and expertise which will slow down the process and add uncertainty and costs on the building community when there are already issues with inflation and labor and supply shortages. In consulting with other building departments

Non-compliance with the Energy Step Code is a possibility for some builds due to deficiencies in construction. As with other deficiencies, these will need to be addressed and rectified prior to issuing Occupancy and passing a Final inspection. Should owners/builders be unable or unwilling to achieve code compliance in this respect, enforcement action up to and including placing a Notice On Title is the typical pathway.

## ZERO CARBON STEP CODE (OPTIONAL) OVERVIEW

The new Zero Carbon Step Code focuses on operational carbon emissions performance, and works towards the goal of consistent, province-wide standards using an ever-rising ‘floor’ of minimum standards, similar to the Energy Step Code. It is anticipated that mandatory requirements will be put in place by 2024 for Part 9 and Part 3 buildings, with increased minimum standards in 2027 and 2030.

The Zero Carbon Step Code concentrates on the de-carbonization of space heating, hot water, and auxiliary equipment. De-carbonization relates to the fuel type or energy source, and can be achieved by providing electricity-supplied systems or renewable energy sources in place of natural gas-fed systems. It is not clear at this point if renewable natural gas would be eligible as an input for de-carbonization.

High-level details of the Zero Carbon Step Code can be seen in the following table:

<b>Carbon Performance Level</b>	<b>Mandatory Adoption Date</b>	<b>Building Element to be De-Carbonized</b>
Moderate	2024	Space heating
Strong	2027	Space heating and hot water
Zero	2030	Space heating, hot water, equipment and appliances

The requirement to achieve Zero Carbon Step Code levels will influence equipment and fuel choice for new construction.

Local governments are permitted to voluntarily opt-in early to the Zero Carbon Step Code, or to pair any level of the Zero Carbon Step Code with either the base energy efficiency requirements of BC Energy Step Code effective at the time, or to exceed requirements.

## RDCK OUTREACH AND CONTRACTOR TRAINING OPPORTUNITIES

RDCK Building Development and Community Sustainability through the Senior Energy Specialist are collaborating to develop outreach opportunities to inform contractors and the public on the Energy Step Code changes, as follows.

### Outreach

- One-on-one conversations between building officials and contractors
- Development of information sheets on Step Code /energy efficiency / carbon pollution topics
- Media release and social media posts
- Webinar co-hosted with RDCK to inform contractors
- RDCK ‘information booth’ at contractor training events
- ‘Tailgate’ meetings in Nakusp, East Shore and other areas in the RDCK

The Senior Energy Specialist is also working with Community Energy Association through the Kootenay Clean Energy Transition Program to coordinate contractor training efforts. Current training opportunities are as follows, and are published on the RDCK website [here](#).

### Upcoming Contractor Training Opportunities

- CEA Mechanical and Ventilation Webinar Series Mar 27 and April 25
- CHBABC-South Okanagan Branch High Performance Building Enclosure Seminar May 11
- Town of Creston Energy Efficiency and Holistic Building Practices June 8-9

## SECTION 3: DETAILED ANALYSIS

### 3.1 Financial Considerations – Cost and Resource Allocations:

**Included in Financial Plan:**  Yes  No      **Financial Plan Amendment:**  Yes  No  
**Debt Bylaw Required:**  Yes  No      **Public/Gov’t Approvals Required:**  Yes  No

Costs associated with the review of new BC Building Code requirements and changes from the previous code, including the move to mandatory Step Code compliance are contained within existing budget allowance.

### 3.2 Legislative Considerations (Applicable Policies and/or Bylaws):

At this time, Energy Step Code changes are presented to the Board as information only, with future staff reports presented to the Board

### 3.3 Environmental Considerations

Building projects that are completed now use methods and materials that are typically much more environmentally sustainable than even a few years ago. New builds are subject to current provincial legislation and RDCK bylaws that offer enhanced protection to the natural environment and each iteration of the BC Building Code typically strengthens energy efficiency requirements, representing a reduction in the carbon footprint – the replacement of old-stock buildings with modern structures has a large impact on greenhouse gas emissions in the province. Achieving higher steps in new building construction will help in achieving the RDCK goals of 50% reduction of GHG emissions in 2030 and 100% reduction by 2050.

### 3.4 Social Considerations:

Building more energy efficient residences and buildings lowers operating energy costs throughout the region. The resulting high performance buildings result in more durable buildings which have longer lifespans and

provide healthy environments. Building to higher levels of energy efficiency will deliver many benefits to owners, including cost savings, a lower carbon footprint, indoor comfort, improved air quality, reduction of exterior noise, and greater resilience, to name a few.

### **3.5 Economic Considerations:**

The BC Energy Step Code is supporting economic development with a new generation of building contractors who are learning new technologies and acquiring expertise to build high performance buildings. Additionally, energy costs for the life of the resulting buildings will be realized by owners and occupants, which will then be spent in the local economy. It is expected that FortisBC will continue to offer rebates for achieving Step 3, 4 and 5.

### **3.6 Communication Considerations:**

RDCK Building Development and Community Sustainability are collaborating to develop outreach opportunities to inform contractors and the public on the Energy Step Code changes.

### **3.7 Staffing/Departmental Workplace Considerations:**

The project is led by the General Manager – Development and Community Sustainability, the Building Manager and Manager, Building Development and Special Projects and the Senior Energy Specialist. The workplan includes outreach and education for the building community on energy efficiency, greenhouse gas emissions reduction, and Energy Step Code.

### **3.8 Board Strategic Plan/Priorities Considerations:**

To adapt to our changing climate and mitigate greenhouse gas emissions.  
To excel in governance and service delivery.

## **SECTION 4: OPTIONS & PROS / CONS**

None at this time.

## **SECTION 5: RECOMMENDATIONS**

None at this time.

Respectfully submitted,  
Chris Gainham, Building Manager

## **CONCURRENCE**

General Manager of Development Services and Community Sustainability – Sangita Sudan  
Chief Administrative Officer – Stuart Horn

Approved

Approved