Report to Council

Date:	February 24, 2025
To:	Council
From:	City Manager
Subject:	Next Steps on Energy Efficient and Low Carbon New Buildings
Department:	Climate Action and Environment

Recommendation:

THAT Council receives, for information, the report from the Climate Action and Environmental Stewardship Department dated February 24, 2025, with respect to Energy Step Code and Zero Carbon Step Code.

AND THAT Council directs staff to engage with the community on an Energy Step Code and Zero Carbon Step Code implementation plan that accelerates adoption of low-emission, efficient new buildings.

Purpose:

To receive an update on and direct staff to engage on policies related to energy efficient and low carbon new buildings.

Council Priority Alignment:

Climate & Environment

Background:

Buildings generate 40% of Kelowna's greenhouse gas (GHG) emissions, which is the second highest source of total community GHG emissions next to transportation. The City of Kelowna (the City) Official Community Plan and recently adopted Climate Resilient Kelowna Strategy both call for "a*ccelerating adoption of low-emission, efficient new buildings*" as a key action to reduce operational emissions from new buildings.

Currently, two main provincial policies enable energy and GHG emissions reductions from new buildings: i) Energy Step Code, which has been in effect in Kelowna since 2021 and ii) Zero Carbon Step Code, which is a new BC Building Code measure that will come into effect March 10, 2025 alongside other code changes related to seismic design and adaptable dwelling units.

Energy Step Code

A BC Building Code standard that progressively increases the energy efficiency of new buildings through a series of "steps", with the goal of approximately 80% more energy efficient buildings by 2032.

Historically, the City has been an early adopter of Energy Step Code requirements, having first adopted the policy in 2021, two years in advance of provincial requirements. The City currently meets the minimum provincial requirement for Energy Step Code, which makes new buildings approximately 20% more efficient than the 2018 base Building Code. The Province of BC (the Province) has committed to advancing to the next performance step by 2027, which would result in 40% more efficient buildings. At the time of writing, 22 jurisdictions in BC have Energy Step Code requirements beyond the provincial minimum standard.

Zero Carbon Step Code

A new BC Building Code standard that reduces operational carbon emissions (i.e., GHG emissions) of new buildings through a series of "emission levels", with the goal of new buildings producing near zero carbon emissions by 2030. While the City has not adopted any level of this policy to date, the Province recently announced implementation that all communities must at minimum implement the first step of Zero Carbon Step Code, called "Emissions Level 1 – measure only" starting on March 10, 2025. Zero Carbon Step Code has been available for voluntary adoption since 2023. 28 jurisdictions have already adopted Zero Carbon Step Code beyond the forthcoming provincial minimum requirement.

With provincial implementation on March 10, 2025, the City will require modelled GHG emissions from new buildings to be stated in energy reports submitted with new developments. **This is a "report-only" step, and results in no additional performance targets or requirements.** The Province has not provided clear timing on subsequent steps in the policy, but staff expect the next performance step in approximately 2027.

Zero Carbon Step Code Key Points:

Addresses the main sources of GHG emissions from buildings*:* most carbon emissions from residential and non-residential buildings comes from two main sources – how the building is heated, and how the building's hot water is heated. Even buildings with more varied energy uses – for example, an office building, will still typically have the majority of its GHG emissions resulting from heating and hot water.

Permits flexible energy options*:* Zero Carbon Step Code intends to gradually increase the share of low carbon fuels used to heat the building and its hot water through regulated "emission levels." Electricity is currently the lowest carbon primary heating fuel recognized in the BC Building Code.

Despite requiring increasing usage of low carbon fuel and equipment, the policy as outlined in BC Building Code does not result in banning the use of natural gas, or natural gas equipment or appliances in new buildings. Detailed evaluation reveals that a variety of heating systems including "dual-fuel" (electric-gas hybrid) heating systems, can still be utilized to meet low and zero carbon "emissions levels" and can still produce significant emissions reduction. Natural gas can also be used in decorative fireplaces, cooktops, and other gas appliances, with low or no impact to emissions level targets.

Discussion:

The introduction of Zero Carbon Step Code provincially is a recognition that Energy Step Code, in isolation, will not guarantee near zero emissions levels in new buildings. This is due to the inherent differences in carbon intensity of common energy types. Energy Step Code and Zero Carbon Step Code are considered complementary policies that will ensure new buildings are on track to align with the Province and the City's climate commitments.

Staff research on new low-density homes (e.g. single family, duplex, fourplex) from 2021-2023 shows that reaching the next step of both Energy Step Code and Zero Carbon Step Code is realistic and already being achieved in these building types in Kelowna. Detailed staff research on low-density new homes suggests that:

- Energy Step Code: 21% of homes achieved Step 4 or better (note: 40% of new homes in Kelowna could have met Step 4 with minor airtightness improvements only, which is widely considered the easiest and most cost-effective way to improve the home's energy efficiency).

- Zero Carbon Step Code: 27% of homes achieved moderate carbon performance or better (i.e., EL-2 to EL-4).
    - Achieving moderate carbon performance typically requires using an electric heat pump as a primary heating source, which is usually a simple, cost-effective upgrade (note: a heat pump is the same appliance as an air conditioner, with one added valve that allows it to both provide heating and cooling).
    - Heat pumps are common in Kelowna, with 25% of new homes already installing a heat pump, and the other 75% could upgrade from an air conditioner with very low cost.

At Council's direction, community engagement will allow staff to collect additional information to inform Kelowna's policy approach, especially with respect to complex building types, like mid/high rise residential, commercial, etc., where building technology, and energy use varies more widely.

<u>Benefits of community engagement and accelerated adoption</u>

- As a fast-growing community, significant GHG emissions reductions and future-proofing of new buildings for their operational lifetime (i.e. greater than 50 years).
- Buildings designed as low/zero carbon are likely to avoid expensive, costly, and challenging future upgrades when zero carbon space and water heating equipment is the new standard.
- It is far more cost effective to design and build efficiency and low carbon at time of construction, which will have lasting benefits for future residents in those buildings.
- Exploring community preference for specific mixes and levels of Energy Step Code and Zero Carbon Step Code.
- Facilitates detailed exploration of utility servicing capacity with utility providers.
- Ensures that the development industry and the City are fully prepared for when higher steps become provincially mandated (both likely coming in 2027). Industry representatives have indicated that the City's collaborative approach to early adoption of the Energy Step Code in 2021 enabled a smoother transition to new regulatory requirements.

Conclusion:

City staff recognize the value of early engagement on Energy Step Code and Zero Carbon Step Code to ensure that our recommendations are balanced, achievable, and supported by the community. Direction from Council to undertake this work will help staff effectively support Kelowna's development and construction industry in adopting both near and longer-term Building Code changes.

Proactively engaging with interest holders will allow staff to develop a policy approach in alignment with the Official Community Plan and Climate Resilient Kelowna Strategy in a way that is regionally tailored to Kelowna's climate and industry context. After engagement, staff intend to return to Council with community feedback and provide a recommended implementation plan to accelerate adoption of Energy Step Code and Zero Carbon Step Code.

Internal Circulation:

Communications
Development Engineering
Development Planning
Development Services
Housing Policy and Programs
Long Range Planning

Considerations applicable to this report:

Legal/Statutory Authority:
The City has authority to voluntarily adopt and enforce Energy Step Code and Zero Carbon Step Code requirements beyond the provincial minimum established in BC Building Code.

Existing Policy:

- OCP 2040
    - OCP Policy 12.1.1 - GHG Emissions Reduction Targets. In partnership with senior governments; local citizens and businesses; non-profits; external agencies; and utility providers; work towards reducing absolute community greenhouse gas emissions below 2007 levels by:
        - 40 per cent below 2007 levels by 2030,
        - Achieve net zero emissions by 2050.
    - Objective 12.4 – Improve energy efficiency and reduce greenhouse gas emissions of new buildings
        - Policy 12.4.1 - Energy Step Code. Incrementally increase the energy efficiency of new construction (Part 9 and Part 3) by accelerating Energy Step Code performance requirements towards net-zero energy ready buildings before 2032.
        - Policy 12.4.3 - Operational Greenhouse Gas Emissions. Explore tools to encourage new construction to achieve low or zero GHG emissions from operations.
- Imagine Kelowna
    - Take action in the face of climate change.
- Council Priorities

    - Climate and Environment – complete the Climate Resilient Kelowna Strategy.
- Climate Resilient Kelowna Strategy
    - Strategy B3: Accelerate adoption of low-emission, efficient new buildings
        - B3.1:Investigate and implement policy that reduces local barriers to building to the highest Energy Step Code or Zero Carbon Step Code.
        - B3.2: Accelerate Energy Step Code and/or Zero Carbon Step Code adoption.

Consultation and Engagement:
An engagement plan would be developed at Council's direction, and would commence in spring/summer 2025, targeting developers, builders, contractors, utilities, and interested community groups. Engagement is anticipated to consist of surveys, webinars, solutions-focused working groups, and other means deemed appropriate, with content tailored to those audiences.

Considerations not applicable to this report:
Legal/Statutory Procedural Requirements
Financial/Budgetary Considerations

Submitted by:

T. Brunner, Community Energy Specialist

Approved for inclusion: C. Ray, Climate Action and Environment Manager