

NO: R179

COUNCIL DATE: July 23, 2018

REGULAR COUNCIL

TO: Mayor & Council **DATE: July 19, 2018**

FROM: General Manager, Parks, Recreation & Culture **FILE: 0512-01**
General Manager, Planning & Development
General Manager, Engineering

SUBJECT: BC Energy Step Code – Proposed Approach for City of Surrey

RECOMMENDATION

The Parks, Recreation & Culture Department, the Engineering Department and the Planning & Development Department recommend that Council:

1. Receive this report for information;
2. Endorse the proposed approach set out in this report for adopting the BC Energy Step Code, effective April 1, 2019;
3. Authorize staff to implement the BC Energy Step Code through bringing future reports to Council regarding appropriate amendments to Surrey's Building Bylaw, Official Community Plan, Development Permit Procedures and Delegation Bylaw, Development Permit Area Guidelines for Form & Character, Development Application Fees Bylaw, Minimum Land Development Application Submission Requirements, and the Sustainable Development Checklist;
4. Approve a requirement for new eligible buildings to participate in building energy benchmarking or home energy labelling as generally described in this report; and
5. Endorse an allocation from the City of Surrey's carbon tax (CARIP) rebate of \$20,000 towards a capacity building incentive to support mid-construction airtightness testing for Part 9 buildings.

INTENT

The purpose of this report is to seek Council approval of the proposed approach to adopt and implement the BC Energy Step Code in Surrey. The approach has been iteratively developed in consultation with industry stakeholders and City staff. It addresses performance requirements, City staff and processes, industry education and capacity building, ongoing monitoring and adaptation, and tools to support data-driven decision making. This proposal is the first formal step in a long-term transition to zero-emission new construction in Surrey.

BACKGROUND

The BC Energy Step Code

Enacted in May 2015, the *Building Act* (the “Act”) is designed to modernize and streamline the building regulatory system in BC. One of the primary objectives of this Act is to establish consistency for the development and construction industry by limiting local government authority to set technical building requirements. Given the patchwork of approaches that have been employed by local governments to address energy efficiency in new construction, the Building and Safety Standard Branch of the Ministry of Municipal Affairs and Housing led a two-year consultation to develop the BC Energy Step Code (“Step Code”). This consultation involved local governments, the building and development sectors (and the trades and professions that support them), utilities, and other stakeholders.

The Step Code is designed as a set of incremental building energy performance levels, termed “Steps” (Figure 1). The Step Code applies to Part 9 and Part 3 residential and commercial buildings, as classified in the BC *Building Code*. According to the BC *Building Code*, Part 9 buildings are three storeys or less and have a building area no more than 600 square metres. These include single family homes, duplexes, townhouses, and small apartment buildings. Part 3 buildings are four storeys or more and have a building area greater than 600 square metres. These include larger apartment buildings, condos, office buildings, and retail buildings. The Step Code further separates Part 3 buildings into Wood Frame Residential, Concrete Residential, and Commercial. As can be seen in Figure 1, each categorization has a different number and breakdown of Steps; however, the highest Step for each of these is intended to lead to the construction of buildings with “net-zero energy” levels of energy performance. “Net-zero energy” buildings are able to generate (supply) enough energy on-site to meet the building’s annual energy consumption (demand).

Each building categorization is also separated into Lower Steps and Upper Steps. As described in the BC Energy Step Code Best Practices Guide for Local Governments published by the Energy Step Code Council and the Building and Safety Standards Branch:

- To achieve the Lower Steps, builders and designers 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, 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.



Figure 1 Overview of BC Energy Step Code levels and classification of Lower and Upper Steps

Three key aspects of the Step Code that distinguish it from current BC *Building Code* energy requirements are as follows:

- 1) Performance-based, offering builders design flexibility, as opposed to a lengthy suite of prescriptive technical requirements for individual building components.
- 2) Envelope-focused, recognizing the need to help ensure that the building envelope (e.g. walls, foundation, ventilation), which is unlikely to change or be upgraded over the building’s life, is designed and constructed efficiently from the beginning.
- 3) Explicit about airtightness, the lowest cost way to improve building performance, but an area where buildings in BC lag behind the rest of the country.

The technical building requirements of the Step Code are included in an amendment made in April 2017 to Subsections 9.36.6 and 10.2.3 of the BC *Building Code*. Step Code performance requirements are summarized in Appendix I.

The Province has stated its intention to require that buildings be built to the highest steps by 2032 by steadily raising the BC *Building Code* requirements. In taking this approach, the Step Code provides industry with clarity on current and future energy performance requirements, while providing local governments the flexibility to adopt building energy efficiency beyond the baseline requirements of the current BC *Building Code* and necessary to achieve local climate and energy commitments. For Surrey, this approach means the City needs to determine how best to initially implement the Step Code and, over time, manage the shift to buildings with “net-zero energy” levels of performance within Surrey’s local context and City processes.

Surrey's Climate Commitments and Co-Benefits

Surrey has set community-wide greenhouse gas (GHG) emission reduction targets through both the Official Community Plan and Community Energy and Emissions Plan:

- 33% reduction in GHG emissions per capita from 2007 levels by 2020.
- 80% reduction in GHG emissions per capita from 2007 levels by 2050.

These targets have been established as the City of Surrey's commitment to mitigating the local and global impacts of climate change, while also recognizing the substantial growth and development anticipated in the City over the next several decades.

Buildings account for nearly one-third of the City's GHG emissions and the City's rapid growth will continue to increase GHG emissions from buildings if left unabated. Zero-emission, or close to zero-emission, buildings will be necessary to achieve the City's long-term GHG reduction target. The Step Code offers a significant opportunity to reduce future building emissions by exercising influence at the time of rezoning, development, and building permitting. If the "net-zero energy" buildings targeted at the top levels of the Step Code can be made to emit zero or close to zero GHG emissions, the Step Code offers an effective policy tool to support the City in achieving its 2050 GHG reduction target.

While the primary intent of the Step Code is to reduce building energy consumption and in turn GHG emissions, the Step Code provides additional co-benefits for building occupants and the community. These include improved occupant comfort, noise reduction, better air quality, lower energy bills, and increased resilience to extreme weather events.

Approach to Step Code in other BC Communities

At the time of writing, the following local governments have adopted the Step Code:

- Township of Langley;
- City of New Westminster (proposed implementation framework endorsed in principle);
- City of North Vancouver;
- District of North Vancouver;
- District of West Vancouver;
- City of Victoria; and
- District of Sparwood.

Although the City of Vancouver has its own building bylaw, their energy performance requirements for most residential buildings are equivalent to Step 3 of the Step Code. When added to the list above, around 38% of annual residential building permits will soon occur in local governments that have adopted the Step Code. An additional 18 local governments have initiated or completed stakeholder engagement and are expected to bring recommendations to Council over the next year, including the Cities of Richmond and Burnaby, both of which have developed approaches after consultations with industry and other stakeholders. The approach recommended for the City of Surrey is generally in line with these other communities.

While the Township of Langley and City of New Westminster have adopted the Step Code, the other local governments proximate to Surrey (including City of Delta and City of White Rock) have not yet formally notified the Province of their intention to engage. Through discussions, staff have learned that these local governments are at various stages of the adoption process and are engaged with Step Code peer networks to help determine the appropriate paths forward.

Determining an Approach for the City of Surrey – Stakeholder Engagement

Since November 2017, City staff have been collaborating internally, engaging with industry stakeholders and other local governments, and conducting research and analysis to understand the potential implications of the Step Code for Surrey. Surrey's development context is very diverse, and the City's approach to the Step Code must consider impacts on other City priorities and services, including Surrey City Energy's district energy system, secondary planning processes, existing land use plans, infill development, social and affordable housing, and custom projects.

City staff conducted two rounds of industry engagement in January and April 2018. The second round of industry engagement centred on a revised approach that was developed in response to feedback received through the first round of engagement. External participants in this process have included the Urban Development Institute – Pacific Region, the Greater Vancouver Home Builders' Association, BC Housing, FortisBC, and BC Hydro, as well as a variety of industry stakeholders through multiple rounds of engagement, as further discussed below. Presentations were also made to the City's Development Advisory Committee and Environmental Sustainability Advisory Committee, as well as committees at the Surrey Board of Trade. Feedback on four key areas from both rounds of engagement, as well as a summary of the overall stakeholder and City staff engagement process, are shown in Appendix "II". The final approach proposed herein evolved and was refined through this iterative engagement process, and is designed to work with the needs and current capacities of local industry, Surrey citizens, and City staff.

Sustainability Office staff have also convened internal consultations. These have focused on ensuring the City's approach aligns with other City requirements and priorities, including urban design requirements and the district energy system, as well as adapting City processes, where necessary, to support the Step Code requirements. These consultations have focused on understanding how area planners, building inspectors, plan checkers, and front desk staff may be affected by the new Step Code requirements, and how to prepare these staff for implementation.

DISCUSSION

Guiding Objectives

The proposed approach to the Step Code has been guided by five objectives:

1. Provide a clear timeline of upcoming changes;
2. Promote alignment with neighbouring jurisdictions;
3. Leverage existing training and support resources;
4. Implement an efficient compliance process; and
5. Ensure greenhouse gas reductions are being achieved.

Recommended Steps and Adoption Schedule

City-Wide Application to Part 3 and Part 9 Buildings

Staff recommend that the City adopt Step Code requirements according to the schedule summarized in Table 1. Table 1 includes an optional path for Part 3 residential buildings connected to Surrey City Energy or which satisfy low-carbon energy system requirements. This optional path helps ensure adequate energy demand in Surrey City Centre to support the planned transition of Surrey City Energy to low-carbon energy sources, while providing an equitable path for buildings outside Surrey City Centre that are also constructed to primarily use low-carbon energy. Box 1 provides a draft definition of low-carbon energy system requirements, the specifics of which will be refined through further modelling and discussions with organizations that provide, operate, and maintain low-carbon on-site energy systems.

Table 1 Recommended Steps and Schedule for Immediate Adoption

		Building permit application filed on or after	
		April 1, 2019	January 1, 2021
Part 9 Buildings*	Single Family Detached and Semi-Detached ($\geq 1200\text{ft}^2/111.5\text{m}^2$)	Step 1	Step 3
	Small Single Family Detached and Semi-Detached ($< 1200\text{ft}^2/111.5\text{m}^2$)	Step 1	Step 2
	Townhouses and Low-Rise Apartments and Condos	Step 1	Step 3
Part 3 Buildings*	Wood Frame Residential	Step 3 OR Step 2 for buildings connected to Surrey City Energy or that satisfy low-carbon energy system requirements	
	Concrete Residential	Step 3 OR Step 2 for buildings connected to Surrey City Energy or that satisfy low-carbon energy system requirements	
	Commercial Office and Mercantile	Step 2	

*As classified according to the BC *Building Code*.

Box 1 Draft of proposed low-carbon energy system requirements

A low-carbon energy system means an approved on-site energy system that is designed to meet a minimum 75% of the building’s annual heating, cooling, and domestic hot water energy demand, and is professionally operated and maintained, where approved systems include electrical air source heat pump or variable refrigerant flow, geo-exchange, sewer heat recovery, biomass, solar, or other low-carbon energy system as approved by the City.

Furthermore, and to fulfill the City’s objective to provide a clear timeline of upcoming changes to industry, staff recommend that the City signal its plan to adopt Upper Steps for most building types starting in 2023. Actual implementation beyond 2021 will be determined based on a review of the City’s and industry’s experience with the first two phases of adoption (2019 and 2021), including costs, performance outcomes, industry capacity, and development timelines. The City will also account for Provincial updates to basic energy requirements as the Province moves towards “net-zero energy ready” buildings for 2032.

Table 2 summarizes an estimated adoption timetable City staff can use to communicate future intentions so industry stakeholders can adequately prepare.

Table 2 shows that the optional path for Part 3 residential buildings may be split in two, with different performance requirements for buildings connected to Surrey City Energy than for buildings that satisfy low-carbon energy system requirements. This split recognizes the need to ensure adequate energy demand in Surrey City Centre to support the planned transition of Surrey City Energy to low-carbon energy sources.

This estimated adoption timetable of the Step Code’s Upper Steps helps keep the City on a trajectory to achieve Council’s 2050 GHG emission reduction commitments. This provides a clear timeline of upcoming changes well in advance of actual design and construction to allow industry stakeholders and City staff to plan and prepare accordingly.

The Energy Step Code Council and Building and Safety Standards Branch are currently developing more archetype-specific requirements for Part 3 commercial buildings (e.g. office, retail). If the Province adds more archetypes to the Step Code, the details and timing of the City’s requirements for these archetypes will be determined through consultation and brought forward for Council’s approval in a future report.

Table 2 Estimated Timetable for Future Adoption of Upper Steps

		Estimated Timetable for Future Adoption	
		2023/24	2025/26
Part 9 Buildings*	Single Family Detached and Semi-Detached ($\geq 1200\text{ft}^2/111.5\text{m}^2$)	Step 4	Step 5
	Small Single Family Detached and Semi-Detached ($< 1200\text{ft}^2/111.5\text{m}^2$)	Step 3	Step 4
	Townhouses and Low-Rise Apartments and Condos	Step 4	Step 5
Part 3 Buildings*	Wood Frame Residential	Step 4 OR Step 3 for buildings that satisfy low-carbon energy system requirements OR Step 2 for buildings connected to Surrey City Energy	
	Concrete Residential	Step 4 OR Step 3 for buildings that satisfy low-carbon energy system requirements OR Step 2 for buildings connected to Surrey City Energy	
	Commercial Office and Mercantile	Step 3	

*As classified according to the BC Building Code.

Costs

The Province commissioned a costing study covering all building archetypes included in the proposed requirements entitled Energy Step Code: Building Beyond the Standard – 2017 Metrics Research Full Report. The results of the study show that nearly all of the Steps proposed for April 1, 2019 and January 1, 2021 can be achieved for less than 1.1% of average construction costs. This is below the 2% construction cost premium deemed a maximum acceptable cost by the Energy Step Code Council with its industry representatives. It is important to note that these are average building costs, and impacts will vary from builder to builder. Furthermore, process changes and the learning curve for industry may mean higher costs on the initial projects constructed.

Staff reviewed an additional analysis of estimated costs entitled UBC Modelling Study: Residential Archetypes. For a high-rise apartment complex, Step 3 was found to have an incremental capital cost between 0.3% (in the best case) and 1.1% (in the worst case). For the low-rise apartments, Step 3 was found to have an incremental capital cost between 0.3% and 0.7%. With the district energy and low-carbon energy system path, builders can choose to build to Step 2 under certain conditions, if they feel this would be more cost-effective or suitable to their existing processes.

Finally, as stated in the Province's costing study, some building components (e.g. high efficiency heat recovery ventilators, air source heat pumps, certain wall assemblies), although proven, are in early stages of market adoption in North America. As such, costs for higher performing buildings will decline as economies of scale, supply chain maturation, and technological learning by manufacturers push down the costs of these components, particularly as increased standards like the Step Code are adopted across Canada and the United States. One example is the federal government's commitment to develop a "net-zero energy ready" model building code by 2030, as part of the Pan-Canadian Framework on Clean Growth and Climate Change.

Rationale

The proposed approach responds to and incorporates stakeholder feedback (Appendix "II"). These changes include reducing the requirements for townhouses and low-rise apartments, as well as offering the district energy and low-carbon path to Part 3 wood frame residential buildings, rather than only concrete residential buildings. Although not raised by industry stakeholders, staff recommend adding the separate stream for small Part 9 single family buildings to avoid potential challenges with cost and development time that could occur if requiring a high performance from these smaller buildings too soon.

Stakeholder feedback is also reflected in a longer transition period from Step 1 to Step 3 (21 months rather than one year as initially proposed) for all Part 9 residential buildings. Initially, staff recommended only a one year transition period from Step 1 to Step 3 for Part 9 single family buildings and starting at Step 2 for Part 9 multifamily buildings. However, staff recognize that certain aspects of the Step Code will take time for some builders to become accustomed to and, particularly in the City's diverse development context, it is important to provide industry with time to learn and become accustomed to the new Provincial standards. Keeping all Part 9 buildings at the lowest Step for nearly two years will help accomplish this. City staff, and particularly area planners, plan checkers and building inspectors, will also benefit from additional time adapt to the new requirements.

Overall, the proposed approach to the Step Code balances between the five objectives noted above, with minimal to negligible increases in building costs for the initial Steps. The approach provides a clear timeline of upcoming changes and the City's intended trajectory beyond 2021. By monitoring the compliance paths that builders pursue over time, as well as construction costs and energy and emissions performance, the City is able to determine effective and cost-effective ways to achieve the City's long-term GHG emissions reduction targets.

Application Process, Sign-off Requirements, and Treatment of In-Stream Applications

Planned Approach

The proposed application process and sign-off requirements for buildings under the Step Code will align with the City's existing processes for each building type, while relying on Provincial compliance forms expected to be used across other jurisdictions. These forms are available at energystepcode.ca alongside other industry resources.

For all buildings, applicants would be required to complete all sections of the Province's pre-construction and as-built compliance forms, regardless of minimum Provincial requirements. The pre-construction form must be completed and submitted digitally at time of building permit application, along with the associated energy model report and model files. The as-built compliance form, model report, and model files must be submitted alongside an airtightness test report prior to final building inspection. Staff are seeking a digital submission process to reduce staff processing time and help limit user error.

For Part 9 single family detached and semi-detached buildings, the forms can be completed either by a licensed energy advisor with proof of liability insurance or a registered professional. For all Part 3 buildings and Part 9 townhouses and small apartments and condos, the forms must be completed by a registered professional and submitted alongside letters of assurance. Staff propose that applicants for these building types also be required to provide an airtightness testing plan at the time of building permit application. These plans are often only one to two pages in length, but experiences in other jurisdictions indicate this requirement helps ensure the applicant allocates adequate testing time while getting used to the new Provincial requirements, thereby helping avoid unwanted delays in building occupancy.

A clear priority emerging from stakeholder consultation is the treatment of development and building applications already in-process. For the City's initial implementation of Step Code on April 1, 2019, staff propose to align the treatment of in-stream developments with the City's most recent *Development Cost Charge Bylaw* (Bylaw No. 19478), with one exception recommended by the Province and important to stakeholders. The Province's best practice guidance for a *Grace Period for In-Stream Applicants* states:

“At the time a local government enacts the BC Energy Step Code, applicants that have previously initiated an application for a new building(s) – rezoning, development permit, development variance permit, or building permit – with detailed design drawings, are considered “in-stream” and should be permitted to build to the energy standards in place at the time of application, as long as they have submitted an application for a full building permit application within one year.”

Staff recommend that a “previously initiated...application for a new building(s)” be required to meet the *Development Cost Charge Bylaw’s* definition of “In-stream”. Similarly, staff recommend that a “full building permit application” be required to meet the *Development Cost Charge Bylaw’s* definition of “Issuable”, with one exception. Rather than requiring the permit be issuable, staff recommend the permit only need to be submitted to the City. This recognizes changing energy standards can impact building design, rather than simply increasing City fees.

Staff recommend that the in-stream application process defined above not apply to subsequent increases in performance requirements under the Step Code. As with other work required to detail the Step Code implementation process (see below), the treatment of in-stream applications will be communicated to prospective building permit applicants through multiple channels at time of inquiry and development application, as well as other key intervention points identified in collaboration with relevant City staff.

Ongoing Work to Prepare for Implementation of the Step Code

Over the coming months, staff will explore the best process mechanisms for Step Code implementation, including amendments to the *Buildings Bylaw* as well as to the Minimum Land Development Application Submission Requirements and/or Development Permit Area Guidelines for Form & Character (energy components). An additional report recommending an overall implementation process will be forthcoming to Council detailing proposed changes to existing bylaws that will support the use and integration of the BC Energy Step Code into new development standards in Surrey. Staff will also integrate the Step Code requirements into front counter outreach information (e.g. bulletins to applicants) and COSMOS, both of which are typical entry points for applicants seeking information about their property. Appendix II provides more information on implementation items currently under development. Staff are also engaging with the Province and various Step Code committees to develop appropriate requirements. All necessary changes will be in place before April 1, 2019.

Complementary Proposals to Support Data-Driven Decision Making

Building Energy Benchmarking Requirement for Eligible New Buildings

To support the implementation of the Step Code, staff propose adopting a building energy benchmarking requirement for all new Part 3 and eligible Part 9 buildings. Building energy benchmarking allows for ongoing tracking of actual performance (rather than modelled performance) through automatic utility data transfers (already established by both utilities) to ENERGY STAR® Portfolio Manager®, the Natural Resources Canada-supported benchmarking platform used to track and compare building performance across North America.

Eligibility for Part 9 buildings would be determined based on the Multifamily Housing property types supported in ENERGY STAR® Portfolio Manager®. Builders of an eligible building would be required to set up an ENERGY STAR® Portfolio Manager® account and provide a designated City staff with Read Only Access and Exchange Data permissions. Staff recommend implementing this by establishing administrative requirements as part of the development approval and building permit processes, the specifics of which will be determined alongside appropriate staff.

Data gathered through benchmarking is crucial to track Step Code outcomes in the short-term and achieve strategic and cost-effective GHG emissions reductions in buildings over the long-term. Providing account access to City staff allows the City to review the actual energy and emissions outcomes alongside cost estimates collected by the City and Province, with no ongoing resources required of building owners. Having the resulting data enables the City to make better, data-driven decisions regarding future requirements and any ongoing supports. Importantly, no personal information is required to meet benchmarking requirements.

Although stakeholders expressed a preference for a single benchmarking standard across the Province, they also acknowledged that a Provincial standard does not appear imminent, and with the implementation of the Step Code, Surrey and other cities need data to understand actual Code outcomes so they can better implement the long-term transition to the “net-zero energy” level of performance required at the highest Steps. Industry stakeholders also noted the need to better educate homeowners and buyers as to building energy performance, which benchmarking can support by enabling performance disclosure both in the building and online, including on MLS®-based websites. Both City staff and industry stakeholders agreed that benchmarking data would be used for information and awareness, and would not be used for compliance purposes. The adoption of the Step Code presents an opportunity to introduce this requirement for eligible new buildings in Surrey. Staff will begin consultation with industry stakeholders and the Province regarding extending the benchmarking requirement to existing buildings in the near future, to ensure existing building owners have the same access to energy performance information and the City has the data necessary to cost-effectively reduce GHG emissions from existing buildings.

Home Energy Labelling Requirement for Eligible New Part 9 Residential Buildings

Staff propose adopting a home energy labelling for all new eligible Part 9 buildings. Smaller residential buildings are not eligible for benchmarking in ENERGY STAR® Portfolio Manager®. Instead, the focus here is on summarizing and communicating modelled energy performance to homeowners, homebuyers, and the City.

Builders of eligible buildings would be required to transfer a subset of building design inputs and modelled energy performance outputs to a home energy label with the minimum set of required fields, then to affix the label within the home and provide the label to the City. All required information would be available in the energy modelling files already required for Step Code. Developers would simply need to direct their energy advisor to procure the label(s) as part of reporting out on the energy model results. As with benchmarking, staff recommend implementing this by establishing an administrative requirement as part of the development approval and building permit process, the specifics of which will be determined alongside appropriate staff. As with benchmarking, no personal information is required to meet labelling requirements.

Industry stakeholders recommended considering home energy labelling during a consultation meeting with the Development Advisory Committee. During previous sessions, industry stakeholders had requested support in communicating the Step Code to homeowners and buyers. Home energy labelling uses a consistent standard and clear label to help make understanding energy performance clear and simple for occupants and prospective homebuyers. As with benchmarking, Step Code adoption presents an ideal time to introduce this requirement for new homes. All necessary data is already captured through Provincial modelling requirements, meaning the energy performance can be summarized and disclosed with little additional effort by the energy advisor already contracted to do the energy modelling.

Having transparent performance data not only helps the City develop effective and efficient policy, it also helps homeowners and buyers better integrate energy performance (and costs) into purchase and retrofit decisions. Adopting this requirement for new buildings will introduce the labelling process to local builders and homebuyers. See Figure 2 for an example and overview of Natural Resource Canada’s EnerGuide label. As with benchmarking, staff will begin consultation with industry stakeholders and the Province regarding extending the home energy labelling requirement to existing homes. Doing so would provide homebuyers across the City the information needed to make more informed purchase decisions, while providing City staff real-world performance data to craft future building energy policy.

LEARN ABOUT YOUR HOME’S ENERGY rating

You will receive a rating of the home’s energy consumption in gigajoules

AIM TOWARDS zero

The lower the number on the new **EnerGuide** scale, the better the energy performance of your home

UNDERSTAND HOW YOU USE energy

The label breaks down energy consumed by source

COMPARE YOUR HOME’S performance

The label shows how your home’s performance compares to a benchmark home

FIND OUT WHERE MOST ENERGY IS consumed

The label shows proportion of energy consumed by heating, cooling, ventilation, etc.

SEE YOUR IMPACT ON THE environment

The label shows your home’s Greenhouse Gas Emissions

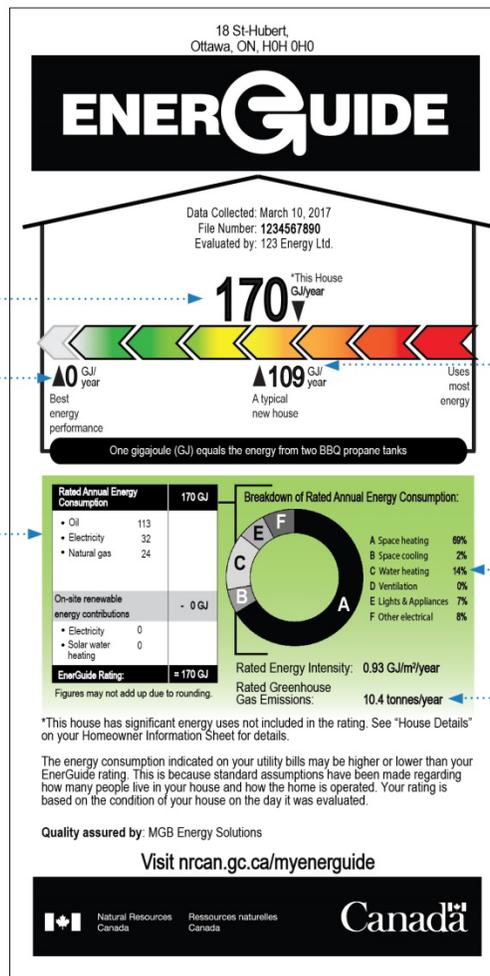


Figure 2 Example and descriptive overview of Natural Resources Canada's EnerGuide label for homes. (Source: Natural Resources Canada)

Costs

The financial costs of building energy benchmarking and home energy labelling are minimal, particularly if done at time of construction, when necessary building details are easily accessible. For benchmarking, developer staff would require a few hours to set up an ENERGY STAR® Portfolio Manager® account for each eligible building in the development. Going forward, nothing would be required of building owners/operators. For home energy labelling, all necessary data will be generated by Provincial modelling requirements, with most of it captured in the Province-developed compliance forms provided to the City, so the only additional work involves procuring the label, affixing it within the home(s), and providing it to the City.

Support for Industry Capacity Building and Local Market Transformation

With the proposed approach to implementing the Step Code in the City of Surrey, various means of support will be needed by the building and development industry to ease this critical transition to high-efficiency, low-emission buildings. Most necessary supports have been or are being provided by the Provincial government in collaboration with the BC Energy Step Code Council, including an ongoing series of training sessions provided by BC Housing, courses developed in conjunction with the British Columbia Institute of Technology, as well as design guides, webinars, and other useful resources hosted on the Province's Step Code website.

City staff plan to leverage these resources to ease the transition in Surrey, including through a new Step Code webpage on Surrey's website. This webpage will summarize performance and administrative requirements, refer to bylaws, provide a communication channel to ask the City questions, summarize answers to frequently asked questions, list upcoming education opportunities, and provide updated links to resources developed by the Province and others. The website will provide an option for visitors to sign up for email updates whenever the page is edited, allowing for active dissemination of new resources and information to local industry.

City staff have also collected requests and recommendations for in-person support to be provided by the City, and plan to host up to three training sessions in conjunction with regional building experts. Additional planned supports include City bulletins, materials in the City permitting office, and training for City staff affected by the new code requirements and/or interacting with development and building permit applicants.

After hearing from industry stakeholders, staff are planning additional Surrey-specific supports to help industry adjust to the new requirements. In anticipation of the Step Code, the City developed a guide to support industry in the Surrey-specific design of these buildings, entitled *Designing for Energy Efficient Buildings: A Reference for Planners and Designers*. Moving forward, staff recommend a support program to help developers involved in Part 9 single family detached and semi-detached homes understand and adapt to both the new process and performance requirements, as this group is anticipated to have the greatest challenges adapting to the new requirements in Surrey.

Funding for Mid-Construction Airtightness Testing

Airtightness testing at building completion is a core requirement of the Step Code that will be new to many builders, particularly smaller developers and builder-owners, of which there are many in Surrey. At Step 1 as proposed for April 1, 2019, the Province requires that builders conduct a final airtightness test, but do not need to achieve Provincial airtightness performance requirements until Step 2 or above.

Staff recommend the City also establish an incentive program for mid-construction airtightness tests of Part 9 buildings. Interested builders would be eligible to have the City pay for an energy advisor to conduct a single mid-construction airtightness test. To receive the funding, builders would be required to submit the test results and associated energy advisor recommendations to the City. The program would be available immediately, for Part 9 buildings not yet required to comply with the Step Code, and until funding is depleted. A portion of the City's CARIP allocation is recommended to be used to establish the pool of funds.

Experience in other jurisdictions (including regionally) clearly demonstrates that conducting a mid-construction airtightness test is an effective way to expose construction staff and tradespeople to the implications of airtightness testing and performance requirements. Using one's actual building is more effective and efficient than taking a training course because the assessment and lessons relate specifically to the how the team builds. The energy advisor doing the testing can also show construction staff and contractors on site where simple steps can be taken to inexpensively improve airtightness, and will then provide a report summarizing the results and recommendations. Builders will be encouraged to use the experience as an opportunity to assemble all relevant staff and tradespeople.

Costs

An airtightness test for the most commonly built Part 9 buildings costs approximately \$350 each. Staff recommend allocating a total of \$40,000 towards this program. Staff will apply to BC Hydro to cover up to \$20,000 of this program, and recommend the remaining \$20,000 be drawn from the City's carbon tax (CARIP) rebate.

SUSTAINABILITY CONSIDERATIONS

The proposed approach to implementing the BC Energy Step Code will assist in achieving the objectives of in the City's Sustainability Charter 2.0. The BC Energy Step Code will specifically support the following Desired Outcomes (DO) and Strategic Directions (SD):

- Built Environment and Neighbourhoods
 - DO8: The built environment enhances quality of life, happiness and well-being.
 - DO9: All aspects of planning, design and construction include climate change impacts, greenhouse gas (GHG) mitigation, adaptation, and resiliency strategies.
 - DO11: Surrey is at the forefront of sustainable and restorative building design and technology.
 - DO13: Buildings are healthy and energy and resource efficient.
 - SD13: Continue to support low-carbon district energy networks.
 - SD14: Promote and strengthen high quality design and healthier, more energy efficient buildings in public and private development.
- Public Safety
 - SD5: Build community resilience and capacity to respond effectively in an emergency.
- Economic Prosperity and Livelihoods
 - DO1: Diverse and meaningful employment and business opportunities are available close to where people live, and provide incomes that can support a high quality of life.
 - DO9: Surrey's economy is able to adapt and thrive in response to external forces, such as the changing climate.
 - DO13: Surrey businesses demonstrate environmental stewardship in their products, services and practices.
 - SD3: Collaborate with businesses, non-profits and senior levels of government to support skills development within the workforce.
- Ecosystems
 - SD4: Develop, apply, monitor and enforce standards and strategies to minimize the impacts of development on the natural environment, ecosystems and urban forest.

- SD8: Work with senior governments, TransLink, other local governments, non-governmental organizations and the private sector to reduce greenhouse gas emissions and ensure good air quality throughout Surrey.
- Infrastructure
 - DO3: Infrastructure systems are designed to protect human health, preserve environmental integrity, and be adaptable to climate change impacts.
 - DO7: Per capita emissions are low, and align with global, national and provincial GHG reduction targets.
 - DO8: Neighborhood-scale district energy systems provide low-carbon energy in dense urban neighborhoods.
 - DO9: Energy is produced locally, using distributed and renewable sources when economically feasible.
 - DO10: Buildings in the community are energy-efficient and offset energy use with onsite energy generation.
 - SD5: Work collaboratively with diverse stakeholders to lower greenhouse gases and to improve air quality.
 - SD6: Identify and implement renewable energy opportunities.
 - SD8: Identify areas (residential, commercial and industrial) where low-carbon district energy is viable and support development of new systems.

CONCLUSION

With the Province's enactment of the BC Energy Step Code, all local governments have the opportunity to adopt performance, administrative, and complementary requirements that are most appropriate to the local context. The approach proposed herein was developed in consultation with key industry stakeholders, other governments, and City staff, and strikes a balance between the readiness of Surrey's current development industry and the new building performance required to achieve the greenhouse gas reduction targets in the City's Official Community Plan and Comprehensive Energy and Emissions Plan.

Based on the above discussion, the Parks, Recreation & Culture Department, the Engineering Department and the Planning & Development Department recommend that Council:

- Endorse the proposed approach set out in this report for adopting the BC Energy Step Code, effective April 1, 2019;
- Authorize staff to implement the BC Energy Step Code through bringing future reports to Council regarding appropriate amendments to Surrey's Building Bylaw, Official Community Plan, Development Permit Procedures and Delegation Bylaw, Development Permit Area Guidelines for Form & Character, Development Application Fees Bylaw, Minimum Land Development Application Submission Requirements, and the Sustainable Development Checklist;
- Approve a requirement for new eligible buildings to participate in building energy benchmarking or home energy labelling as generally described in this report; and

- Endorse an allocation from the City of Surrey's carbon tax (CARIP) rebate of \$20,000 towards a capacity building incentive to support mid-construction airtightness testing for Part 9 buildings.

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Appendix "I" - Summary of BC Energy Step Code Performance Requirements

Appendix "II" - Summary of Stakeholder and City Staff Engagement Process and Feedback

APPENDIX “I”

SUMMARY OF BC ENERGY STEP CODE PERFORMANCE REQUIREMENTS

Use of the terms Part 9 and Part 3 refer to the definitions in the *BC Building Code*.

Part 9 Buildings

Step	Bldg Energy Model	Airtightness		Performance Requi't Building Envelope			Performance Requi't Building Equipment & Systems		
		Blower door test	ACH @ 50Pa	TEDI (thermal energy demand intensity) kWh/m ² · year		PTL (peak thermal load) W/m ²	Reference house: % better than ERS		MEUI (mech energy use intensity) kWh/m ² · year
1	✓	✓	Report score	Conform to subsection 9.36.5			0%	or	Conform to subsection 9.36.5
2	✓	✓	≤ 3.0	≤ 45	or	≤ 35	10%	or	≤ 60
3	✓	✓	≤ 2.5	≤ 40	or	≤ 30	20%	or	≤ 45
4	✓	✓	≤ 1.5	≤ 25	or	≤ 25	40%	or	≤ 35
5	✓	✓	≤ 1.0	≤ 15	or	≤ 10			≤ 25

Part 3 Residential Buildings

Step	Building Energy Model	Airtightness Test (report score)	Performance Requi't Building Envelope TEDI (thermal energy demand intensity) kWh/m ² · year	Performance Requi't Building Equipment & Systems TEUI (total energy use intensity) kWh/m ² · year
1	✓	✓	Conform to Part 8 NECB	Conform to Part 8 NECB
2	✓	✓	≤ 45	≤ 130
3	✓	✓	≤ 30	≤ 120
4	✓	✓	≤ 15	≤ 100

Part 3 Commercial Buildings

Step	Building Energy Model	Airtightness Test (report score)	Performance Requi't Building Envelope TEDI (maximum thermal energy demand) kWh/m ² · year	Performance Requi't Building Equipment & Systems TEUI (total energy use intensity) kWh/m ² · year
1	✓	✓	Conform to Part 8 NECB	Conform to Part 8 NECB
2	✓	✓	≤ 30	≤ 170
3	✓	✓	≤ 20	≤ 120

APPENDIX “II”

SUMMARY OF STAKEHOLDER AND CITY STAFF ENGAGEMENT PROCESS AND FEEDBACK

Determining an Approach for Surrey

Since November 2017, staff have been collaborating internally, engaging with industry stakeholders and other local governments, and conducting research and analysis to understand the potential implications of the BC Energy Step Code for Surrey. Surrey’s development context is very diverse, and the City’s approach to the Energy Step Code must consider impacts on other City priorities and services, including Surrey City Energy’s district energy system, secondary planning processes, existing land use plans, infill development, social and affordable housing, and custom projects.

Staff undertook multiple rounds of industry engagement between January and June. In addition to developers and related industry stakeholders, representatives from the following key organizations attended most Building Industry Workshops:

- Greater Vancouver Home Builders’ Association;
- Urban Development Institute – Pacific Region;
- BC Housing;
- FortisBC; and
- BC Hydro.

Industry Engagement on Proposed Approach

Staff began formal engagement with industry stakeholders in January 2018. Staff presented industry stakeholders with an initial adoption proposal and collected feedback related to the Steps, timeline, the application process, support needs, and other issues. Based on this feedback, and subsequent research, analysis, and discussions, staff developed a revised adoption proposal and presented it to industry stakeholders during second round of engagement in April 2018. Staff also sought additional feedback via questionnaires and from committees. These activities are listed below. Key feedback is summarized in a subsequent section.

1. Part 9 Building Industry Workshop #1 (January 15, 2018) • 27 attendees
 - Attendees included representatives from the Greater Vancouver Home Builders’ Association, the Urban Development Institute – Pacific Region, Surrey City Development Corporation, and the Township of Langley, as well as builders, architects, and related consultants.
 - Participants were asked to complete a follow-up questionnaire on key issues.
2. Part 3 Building Industry Workshop #1 (January 16, 2018) • 29 attendees
 - Attendees included representatives from the Greater Vancouver Home Builders’ Association, the Urban Development Institute – Pacific Region, and Surrey City Development Corporation, as well as builders, architects, and related consultants.
 - Participants were asked to complete a follow-up questionnaire on key issues.
3. Part 3 Building Industry Workshop #2 (April 23, 2018) • 36 attendees
 - Attendees included representatives from the Greater Vancouver Home Builders’ Association, the Urban Development Institute – Pacific Region, FortisBC, BC Housing, and Surrey City Development Corporation, as well as builders, architects, and related consultants.
 - Participants were asked to complete a follow-up questionnaire on key issues.

4. Presentation to Environmental Sustainability Advisory Committee (April 25, 2018)
5. Part 9 Building Industry Workshop #2 (April 26, 2018) • 34 attendees
 - Attendees included representatives from the Greater Vancouver Home Builders' Association, the Urban Development Institute – Pacific Region, FortisBC, and BC Housing, as well as builders, architects, and related consultants.
 - Participants were asked to complete a follow-up questionnaire on key issues.
6. Consultation with Development Advisory Committee (May 24, 2018)
 - a. Attendees included representatives from the Greater Vancouver Home Builders' Association and the Urban Development Institute – Pacific Region.
7. Presentation to Surrey Board of Trade Environment Team (June 19, 2018)
8. Presentation to Surrey Board of Trade Development and Land Use Committee (June 21, 2018)

Feedback from Industry on Proposed Approach

Through industry engagement, consultations with and presentations to industry stakeholders, and ongoing discussions, staff collected feedback from development industry representatives, home builders, architects, designers, engineers, energy advisors, energy modellers, and others. Staff asked for feedback on four key aspects of the proposed approach and ongoing implementation for both Part 9 and Part 3 buildings:

1. the proposed Steps and timelines,
2. the application process,
3. complementary program elements, and
4. priorities for ongoing capacity building support.

As noted above, two rounds of industry engagement were conducted. The second round of industry engagement centred on a revised approach that was developed in response to feedback received through the first round of engagement. Feedback on each of the four key areas from both rounds of engagement can be found in this section.

Overall Feedback from Industry Engagement Round 1, January 2018

Staff sought feedback related to the technical requirements of the proposed Steps, as well as industry capability and readiness for building to those requirements in the proposed timelines. For this first round of engagement, staff sought feedback on the following timelines:

- Step 1 for all Part 9 buildings effective Q4 2018, followed by Step 3 effective Q4 2019
- Step 4+ for all Part 9 buildings in future local area plans (or equivalent GHG emissions performance)
- Step 2 for Part 3 residential buildings outside city centre effective Q4 2018, followed by Step 3 effective Q4 2019
- Step 1 for Part 3 commercial office and mercantile buildings outside city centre effective Q4 2018, followed by Step 2 effective Q4 2019
- Step 4 for Part 3 residential buildings in future local area plans (highest Step, or equivalent GHG emissions performance)
- Step 3 for Part 3 commercial office and mercantile buildings in future local area plans (highest Step, or equivalent GHG emissions performance)

Feedback from Part 9 industry stakeholders:

- Feedback from some builders that 1 year between Step 1 and 3 may not be enough time to adapt to new requirements, while feedback from some tract builders indicated they are ready and intend to build to Step 3 now
- Request to clarify how phased developments be handled
- Request clarity on outcomes of not meeting airtightness performance requirements
- Recommendation to host session(s) with all parties involved in building (designers, builders, trades, City inspectors) to step through new process together
- Recommendation to have additional training offered on airtight building
- Recommendation to start alerting people coming in for development permit questions/ planner discussions as soon as possible

Feedback from Part 3 industry stakeholders:

- Request for clarity on requirements for demonstrating equivalence for low-carbon option, and concern this not take significant additional time for approval
- Request for an "easing in" period for Step 2 due to concern about not meeting airtightness level included in model in first few projects
- Feedback that 1 year is too short to move from Step 2 to 3, and recommendation for a longer transition period to allow for learning on a couple of projects
- Request for 1 year "grandfather" period – allowing development permits with detailed designs in place 1 year to get BPs without having to meet new requirements
- Recommendation to host airtightness testing seminar and site visit during testing
- Recommendation to connect industry with other key capacity building efforts – into to building pathfinder, overview of energy modeling, tips for airtight building, etc.
- Recommendation to alert developers coming into City to discuss development options in upcoming local area plans as soon as possible if going to Upper Steps
- Recommendation that City review other fee changes and minimize other new fees / requirements coming in at same time

Based on this feedback, staff investigated and revised the proposed approach for further engagement with industry. The remaining feedback, summarized below, was collected through or alongside the second round of industry engagement in and after April 2018.

Proposed Steps and Timelines

Staff sought feedback related to the technical requirements of the proposed Steps, as well as industry capability and readiness for building to those requirements in the proposed timelines. For the second and final round of engagement, staff sought feedback on the following timelines:

- Step 1 for Part 9 single family detached, duplex, and other residential buildings effective Jan 1, 2019, followed by Step 3 effective Jan 1, 2021
- Step 3 for Part 9 townhouses and apartments effective Jan 1, 2019, with no change on Jan 1, 2021
- Step 4+ for all Part 9 buildings in greenfield areas covered by future neighbourhood concept plans (NCPs), either through the NCP process or via a development permit area (DPA)
- Step 3 for Part 3 residential concrete towers effective Jan 1, 2019 with an option to build to Step 2 if connected to district energy or using an approved on-site low-carbon energy system for a minimum amount of annual thermal energy demand, with no change on Jan 1, 2021
- Step 3 for Part 3 residential wood frame low/mid-rise buildings effective Jan 1, 2019, with no change on Jan 1, 2021

- Step 2 for Part 3 commercial office and mercantile buildings effective Jan 1, 2019, with no change on Jan 1, 2021
- Step 4 for Part 3 residential buildings in greenfield areas covered by future NCPs, either through the NCP process or via a DPA
- Step 3 for Part 3 commercial office and mercantile buildings in greenfield areas covered by future NCPs, either through the NCP process or via a DPA
- An estimated timetable to adopt Upper Steps for all building types starting in 2023 and increased again in 2025, with optional pathways for buildings connected to district energy or using an approved on-site low-carbon energy system for a minimum amount of annual thermal energy demand

The major changes between this revised proposal (presented in April) and the initial proposal (presented in January) include:

- Split Part 9 buildings into separate streams to recognize different levels of industry readiness and opportunity to increase proposed Step for townhouses and apartments
- Expanded Part 3 proposal to also cover city centre
- Split Part 3 residential buildings into separate streams to introduce pathway for district energy-connected and low-carbon buildings
- Increased the proposed Step for all Part 3 buildings, while keeping the originally proposed Step available for Part 3 residential concrete towers connected to district energy or meeting low-carbon energy system requirements
- Added estimated timetable for adopting Upper Steps

Feedback from Part 9 industry stakeholders:

- Feedback that it will likely be challenging for townhouses to go straight to Step 3

Feedback from Part 3 industry stakeholders:

- Feedback that the proposed Step 3 requirement is aggressive, therefore it is important to accompany this with flexible options (e.g. low-carbon systems)
- Feedback that the option for meeting a lower step with a low-carbon system is good and provides flexibility
- Recommendation to consider providing the option for low-carbon systems to low and mid-rise buildings (not only high-rise concrete)
- Recommendation that the City only apply higher step requirements to new land use planning processes where developers have not yet started buying up land
- Recommendation to track and review actual costs as this rolls out before moving to Step 4

Application Process

Staff sought feedback on the application process, which included an outline of expectations in terms of administration (e.g. compliance forms), the role of energy advisors vs. the role of registered professionals in energy performance sign-off, and the plan for in-stream applicants.

Feedback from Part 9 industry stakeholders:

- Feedback that 1 year limit on conversion from development permit to building permit may exceed in-stream allowance
- Recommendation that City develop a compliance approach that effectively addresses owner-builders that do not have ongoing relationships with tradespeople

Feedback from Part 3 industry stakeholders:

- Recommendation to change in-stream definition to time of application for development permit (or building permit, as applicable) rather than at time of approval

Complementary Program Elements

In addition to the proposed approach to the core aspects of the Energy Step Code, staff sought feedback on additional program elements intended to support the development of high performance buildings and the longer term market transformation required to reach higher Steps.

These complementary elements included requiring a mid-construction airtightness test for most Part 9 buildings, requiring fundamental building commissioning for most Part 3 buildings, and requiring eligible new Part 3 buildings to participate in an ongoing building energy benchmarking program. A proposal to require an airtightness testing plan for Part 3 buildings was introduced to industry stakeholders through consultation with the Development Advisory Committee, but had not been discussed during earlier engagement activities.

Feedback from Part 9 industry stakeholders:

- Feedback that mid-construction airtightness test requirement be applied to only a sample of townhouses in large developments, and recommendation to review BC Housing's approach for this
- Recommendation to provide builders with a process to apply to be exempted from mid-construction airtightness test requirement where previous performance success can be demonstrated
- Recommendation to consider requiring home energy labelling for Part 9 buildings, in part to help support buyer and homeowner education part of market transformation

Feedback from Part 3 industry stakeholders:

- Feedback that the building commissioning requirement needs further study to determine impact on costs and project timelines
- Feedback to ensure that benchmarking requirement is used for awareness only, not compliance

Support for Ongoing Capacity Building

Having informed stakeholders of the City's intention to focus on supporting capacity building, rather than offer incentives, staff sought feedback on what in-person supports would be most useful, what reference supports would be most useful (e.g. a downloadable checklist), and how best to reach industry stakeholders that have not yet been formally engaged.

Feedback from Part 9 industry stakeholders:

- Recommendation that City improve understanding of local capacity for envelope specialists and energy advisors
- Recommendation that City create a Surrey-specific webpage with links to all relevant resources and updates
- Recommendation that the City provide airtightness testing training and free test at mid-construction in advance of requirements
- Recommendation to provide info sessions, videos, and several other formats to improve familiarity with energy modeling process and airtight building
- Recommendation to create education / training resources specifically for trades

Feedback from Part 3 industry stakeholders:

- Feedback that training for new commissioning requirement will be very important

- Recommendation for training focused on how to meet the low-carbon system path, Part 3-specific airtightness training, and how to use Building Pathfinder tool
- Recommendation for City website to include forms, requirements, process resources, and links to Provincial resources

Changes to Previously Proposed Approach

Staff made the following changes to the proposed Step Code approach after the second round of industry stakeholder engagement in April 2018:

- Decreased the proposed Step for Part 9 townhouses and low-rise apartments and condos from Step 3 to Step 1 in response to industry feedback that it would be very difficult for local builders to achieve Step 3 right away and additional information on airtightness test results of new townhouses in the region
- Subsequently, delayed the Step 3 requirement for Part 9 townhouses and low-rise apartments and condos from January 1, 2019 to January 1, 2021
- Added the lower Step path option (for buildings connected to district energy or that satisfy low-carbon energy requirements) to Part 3 wood frame residential buildings (previously only offered to concrete residential buildings) in response to feedback from industry stakeholders and staff in the City's District Energy
- Added a new Part 9 building category to capture small single family detached and semi-detached residential buildings (<1200ft²/111.5m²) due to greater difficulty in and higher costs associated with achieving higher levels of performance than other single family detached and semi-detached buildings¹
- Changed the policy mechanism proposed to require higher steps for all buildings in greenfield areas covered by future NCPs to a geographic delineation in the *Building Bylaw*, rather than through either through the NCP process or via a DPA, based on Energy Step Code policy guidance provided by the Province²
- For the City's estimated adoption timetable for Upper Steps beyond 2021, added a potential GHG emissions requirement for buildings seeking to take the low-carbon energy system pathway

Internal Consultations and Ongoing Collaborations

Sustainability Office staff have also convened internal consultations. These have focused on ensuring the City's adopted approach aligns with other City requirements and priorities as well as adapting City processes, where necessary, to support the Energy Step Code requirements.

The following list summarizes consultation focused on ensuring the City's adopted Energy Step Code approach aligns with other City requirements and priorities:

Architectural and urban design requirements: Consulted with both the new and outgoing City Architects regarding whether the proposed Steps could affect building architecture and design, such that it would affect builders' ability to meet built form and urban design requirements, such as access to outdoor space and priorities for exterior wall systems. Through multiple discussions, staff determined there would likely be no problems with the proposed requirements. Staff agreed to revisit these issues before further increasing requirements.

¹ *Energy Step Code: Building Beyond the Standard – 2017 Metrics Research Full Report*, prepared for BC Housing and the Energy Step Code Council by Integral Group, Morrison Hershfield, and E3 Eco Group, with support from Remi Charron.

² As found on p.26 of *BC Energy Step Code: A Best Practices Guide for Local Governments*, published on September 15, 2017 by the Energy Step Code Council and the Building and Safety Standards Branch

District energy system: Consulted with the District Energy Manager to understand how higher efficiency requirements could affect the financial plan for switching the primarily renewable energy, a critical component for achieving the City's GHG reduction targets. With the support of a modelling study commissioned by the District Energy Manager, staff determined that the proposed requirements would not impede the fuel switching plans.

Land use and neighbourhood planning and policy: Consulted with Community Planning Manager and Planners actively involved in neighbourhood concept plans (NCPs) regarding the proposal to require higher steps in greenfield NCPs and the best mechanisms by which to do so. Received support for the proposal and the recommendation to determine the geographic area based on the status of NCP schedules. Further, received the recommendation to accomplish this through a new development permit area, a mechanism provided to local governments by the Province explicitly for these purposes, if it could not be achieved directly in the *Building Bylaw*.

Regarding City processes, Sustainability Office staff initiated ongoing consultations in March 2018 with the Deputy Chief Building Official, the Plan Review Section Manager, and key support staff. These consultations have focused on understanding how building inspectors, plan checkers, and front desk staff may be affected by the new Energy Step Code requirements, and how to prepare these staff for enforcement. The first phase of this work was reflected in the proposed approach presented to industry stakeholders in April 2018, with participation of the Deputy Chief Building Official and the Plan Review Section Manager at those sessions.

This work will continue through and beyond the initial enforcement date of the proposed requirements, if adopted. The next phase will focus on developing a comprehensive implementation system that will require amending existing bylaws, as well as work to prepare staff, support materials, and IT systems. As part of this, Sustainability Office staff secured complimentary Energy Step Code training for several building inspectors and plan checkers, and engagement has begun with the Business Improvement Manager to automate review of Provincial Energy Step Code compliance forms, both to reduce any impact on review timelines and lower the chance of human error, and capture new required and valuable building data from these forms in AMANDA. Sustainability Office staff will continue collaborating with these internal staff through the detailed development of all elements of the City's Energy Step Code approach. Key issues are listed below.

- Finalizing adjustments and communicating information to relevant development review, plan checking, building inspection, and front desk staff;
- Determining appropriate noncompliance deterrents and consequences for both Part 3 and Part 9 builders, including Part 9 owner-builders;
- Assessing and designing a mid-construction airtightness test requirement to maximize impact on improving builder performance before enforcing Step 3. Example design considerations included covered buildings, sampling approach in multi-unit buildings, and process to apply for excusal from requirement based on past performance;
- Integrating building energy benchmarking and home energy labelling as administrative requirements in the permitting process;
- Designing and integrating processes and resources to ensure as many prospective building permit applicants as possible are made aware of the energy requirements as soon as possible and are ready to comply with them, including but not limited to front desk staff responding to inquiries (awareness), planning staff engaged in land use planning

processes (awareness), and design review staff involved in development applications (awareness, readiness to comply);

- Determining whether a floor space exclusion would be appropriate for buildings meeting Step 3 or above due to anticipated increases in envelope thickness;
- Establishing an online application and digital reading system for Step Code compliance forms; and
- Updating AMANDA and COSMOS to incorporate the key new submission requirements.