CITY OF VICTORIA

Committee of the Whole Report
For the Meeting of January 18, 2018

To:	Committee of the Whole	**Date:**	December 19, 2017
From:	Jonathan Tinney, Director, Sustainable Planning and Community Development		
Subject:	Direction to Consult with Industry on Proposed Approach to BC Energy Step Code		

RECOMMENDATION

That Council direct staff to engage with development industry representatives on the following proposed approach to the BC Energy Step Code:

1. For new Part 9 buildings:
    a. Step 1 building bylaw requirement starting in November 2018 for all new Part 9 buildings
    b. Step 3 building bylaw requirement starting in January 2020 for all new Part 9 buildings with the exception of garden suites
    c. Step 2 building bylaw requirement starting in January 2020 for all new garden suites
    d. The exploration of a rebate or tiered fee structure program to support Part 9 builders to use an energy advisor, conduct a mid-construction blower-door test, and conduct a post-construction verification blower-door test.
2. For new Part 3 buildings:
    a. Step 1 building bylaw requirement starting in November 2018
    b. Step 3 building bylaw requirement starting in January 2020.

EXECUTIVE SUMMARY

The purpose of this report is to seek Council's direction to consult with members of the development community on a proposed adoption approach to the BC Energy Step Code.

The BC Energy Step Code is a new performance-based building code that establishes measurable performance-based energy-efficiency requirements for new construction. It comes into effect on December 15, 2017, after which local governments can choose to opt in and either require or incentivize meeting the requirements of the Step Code.

Since August 2017, staff have been collaborating with the CRD and local municipalities on education, industry engagement and training opportunities scheduled for summer and fall 2017. This engagement helped to inform the recommended approach to adoption of the Step Code presented in this report, which includes the adoption of Step 3 as a base building requirement by January 2020, with an interim period of Step 1 adoption beginning in November 2018 in order to minimize risks of non-compliance and provide time for the industry to prepare.

Should Council approve the recommendations in this report, staff will hold a second industry workshop in collaboration with the Urban Development Institute – Capital Region, Canadian Home Builder's Association – Vancouver Island, Capital Regional District and District of Saanich with the purpose of providing feedback on this proposed approach.

PURPOSE

The purpose of this report is to seek Council's direction to consult with members of the development industry on a proposed adoption approach to the BC Energy Step Code.

BACKGROUND

Council Commitments and the 2018 Climate Leadership Plan

In August 2016, Council committed to a long-term greenhouse gas (GHG) reduction target of 80% GHG reduction by 2050 for both corporate and community emissions, including a corresponding specific target of 100% renewable energy.

The building sector accounts for 50% of the City's GHG emissions, and represents the largest opportunity for improvement. Based on our 2007 community GHG emissions, residential buildings contributed 16.5% of all GHG emissions, while commercial buildings contributed over 25%, with half of the total GHGs coming from space heating and cooling.

The 2018 Climate Leadership Plan sets out goals and targets for Low Carbon, High Performance Buildings, and the adoption of the Step Code aligns with *Goal 1: Buildings are highly energy efficient, using only a small fraction of their 2017 operational energy needs,* and aligns directly with the target that states *"By 2030, all new buildings are 'net zero energy ready'."*

Overview of the BC Energy Step Code

The BC Energy Step Code is a voluntary roadmap that establishes progressive performance steps in energy efficiency for new buildings from the current BC Building Code level to net zero energy ready buildings by 2032, aligning with commitments and targets laid out in the BC Climate

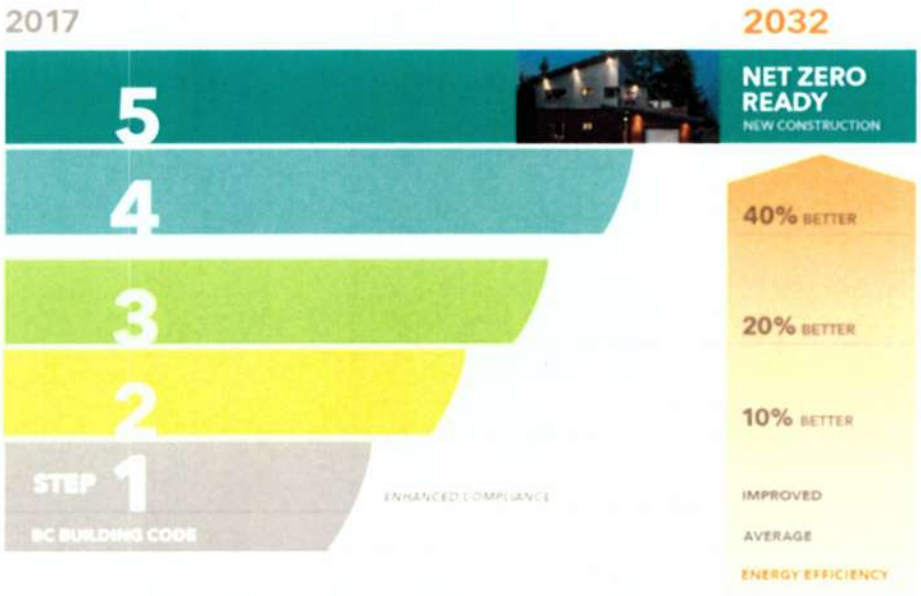

Figure 1 - the five steps of the Step Code for Part 9 Buildings

Leadership Plan. The BC Energy Step Code was developed through wide-ranging stakeholder consensus over a two year period, through a series of working groups and committees convened by the Province's Building and Safety Standards Branch.

The Step Code will apply to new residential and commercial construction, and does not currently apply to institutional buildings such as hospitals, recreation centres, and aquatic centres. There are several approaches the City may take in adopting the Step Code, ranging from the adoption of a building bylaw requiring a minimum step to be adopted city-wide to the use of incentives for developers to achieve higher steps than the minimum level.

Performance Steps in the BC Energy Step Code

The Step Code is organized into Lower and Upper Steps according to building types (see Figure 1 and 2). To achieve Step 1, builders need to use a whole-building energy model to calculate the energy use of the building and conduct an airtightness test, but the performance of the building only needs to be as good as the base BC Building Code requirements for energy efficiency. The purpose of Step 1 is to familiarize builders with a new way of measuring energy efficiency though the prescriptive construction requirements of the building are unchanged.

Figure 2 - Definition of Lower and Upper Steps by building type (Part 9 and Part 3)

Lower Steps of the Step Code

To achieve the Lower Steps, 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. Builders and designers are advised to collaborate with the energy modeller to select the most cost effective way to meet the requirements. These Lower Steps give builders new flexibility in how to achieve modest gains in efficiency through improved envelopes and/or upgraded systems.

Upper Steps of the Step Code

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. These techniques and materials are potentially more costly and challenging without additional training and experience.

Step Code Engagement Process

The Energy Step Code has been developed following a multi-year process involving representatives from the Province, local government, utilities, and the building, development and design sectors. There was active involvement by the Urban Development Institute, the Greater Vancouver Home Builders Association, and the Canadian Home Builders Association.

In terms of the City's approach, starting in August 2017 staff have been collaborating with the CRD, District of Saanich, and other local municipalities on a program of education, industry engagement and training opportunities to help inform a recommended approach to adoption of the Step Code. The engagement approach has included both external stakeholders and an internal staff working group, and is summarized below.

External Engagement (building industry, other local government staff)

Engagement with external stakeholders included the following activities:

1. Building Industry Online Survey (August 11 – September 15, 2017)
    - 57 Respondents
    - Collaborated with CRD and District of Saanich
2. CRD Housing Action Team Presentation (October 30, 2017)
    - Presented alongside District of Saanich, CRD and Province of BC
3. Building Industry Workshop #1 (November 1, 2017 and a follow-up survey until November 27, 2017)
    - 90 attendees
    - Co-hosted by Urban Development Institute – Capital Region, Canadian Home Builders Association – Vancouver Island, City of Victoria, District of Saanich, District of North Saanich, CRD CAP
4. Regional Building Inspectors Compliance Report Working Session (November 3, 2017)
    - 41 attendees
    - Presented alongside District of Saanich and CRD
5. Local Government Elected Official & Executive Staff Step Code Presentation & Bus Tour (November 10, 2017)
    - 25 attendees
    - Presented alongside District of Saanich, CRD and Province of BC
6. BC Housing Building Smart Series – Lower Steps (November 16, 2017)
    - Presentation provided
7. Local Government Staff Step Code Policy Workshop (November 30, 2017)
    - 31 attendees
    - Presented alongside District of Saanich, CRD and City of New Westminster.

Internal Engagement (City staff)

A Step Code working group was formed with staff from Permits & Inspections, Development Services and Community Planning, in order to establish an internal processes to accommodate the Step Code administrative changes and to ensure a smooth transition.

Other Engagement Activities

Working with developers and architects, staff developed a series of local building Case Studies to showcase projects that have been built in Victoria to the equivalent of various Steps in the code, to share lessons learned with the development community and to show "what it takes" to build to various levels of the Step Code. See Attachment A for the Case Studies.

An Inter-Municipal Working Group has also been convened by the CRD to help share information and the potential to inform a wider regional approach to adoption in the Capital Region.

ISSUES & ANALYSIS

Through engagement with development industry representatives, home builders, building inspectors, elected officials, and other local government staff in the CRD, staff have heard a wide variety of feedback and needs with regard to successful implementation of the Step Code. This feedback is organized into categories below.

Value in Regional Coordination

The most consistent piece of feedback we heard at all engagement events was the value in a consistent and coordinated approach to adoption across the region. Staff have been working closely with the District of Saanich throughout the fall engagement and intend to align in the proposed approach to take to industry. Working with the CRD's inter-municipal working group, staff have shared the wide variety of feedback with the members of this group, including the value in a consistent approach to adoption. Moreover, the notion of a coordinated approach was communicated to local government staff from across the CRD at a Local Government Staff workshop November 30, 2017.

Cost Implications

The *BC Energy Step Code 2017 Metrics Research Study* — also known as the "costing study" — represents the most comprehensive assessment of energy efficiency in affordable-housing building types ever undertaken for a code update in Canada, and is based on data generated by builders from all across British Columbia.

The study shows that meeting the requirements of the Lower Steps of the BC Energy Step Code involves only very modest construction cost premiums. In most situations, builders can achieve the Lower Steps for less than a two percent premium above that of a home built to the requirements of the *BC Building Code*. The construction cost premiums associated with Step 1 compliance is even less — just a small fraction of a percent.

There have been some construction premiums mentioned in the media and other sources that are higher than those reported in this costing study. It is unclear what the source of these numbers are, aside from verbal estimates from builders. The costing study was one of the most robust and detailed studies ever conducted for a code change in Canada, and was highly vetted through industry representation including home builders' associations and UDI. Therefore staff feel the study is of merit and are comfortable using and citing the values in this study as one input to the adoption process.

It is important to note that while the Upper Steps of the Code have higher incremental costs associated with them, the City is focused on the Lower Steps in terms of an adoption approach to balance affordability and industry capacity.

Builder Training

Builder training is provided by organizations such as the Canadian Home Builder's Association and BC Housing, and the City itself does not provide training. BC Housing's Building Smart program has begun BC Step Code training sessions across the Province, and staff attended and presented at the Victoria Building Smart session this fall. The City can support training by hosting and providing a free space for the sessions, and promoting training sessions through the City's communication channels.

Clarity around Timelines

A clear message heard from building industry representatives was the importance of providing ample time to prepare for any code changes as well as clarity around adoption timelines and when higher Steps of the code will be anticipated. Clarity around timelines will help the industry prepare for changes and ensure a smooth transition to minimize issues of non-compliance.

The proposed approach outlined in this report includes clear proposed timelines for Step Code adoption. Moreover, an information handout for inclusion with permit packages has been created, offering clarity around timelines and information regarding how the Step Code could affect projects and timelines should it be adopted by Council. If Council decides to enact the Step Code, at that time applicants that have previously applied for a land use application or building permit will be considered 'in-stream' and will 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 of land use approval.

Moreover, the Provincial Policy establishes minimum timelines for implementing new requirements. If Council decides to enact the Step Code, there will be a grace period following that decision before enforcement of the Step Code occurs, to provide ample notice to industry with regard to the change.

Initial Feedback from Organizations

In addition to the categorical feedback described above, we have heard from several building industry organizations, home builders associations, and advocacy groups. Their feedback is below:

Urban Development Institute – Capital Region

- supportive of the engagement process and has collaborated with the City on the industry workshop event
- not advocating for the adoption of a particular Step of the Code

Canadian Home Builders' Association – Vancouver Island

- supportive of the engagement process and has collaborated with the City on the industry workshop event
- wrote a letter of general support for the Step Code to Mayor and Council (see Attachment B)
- not advocating for the adoption of a particular Step of the Code

Victoria Residential Builders Association

- initial support of Step 2 with incremental increases in the Code every 5 years, but no longer in support the Step Code in any way
- invited to co-host the November 1, 2017 industry engagement event with UDI and CHBA-Vancouver Island, but declined the invitation
- wrote multiple letters to Mayor and Council (see Attachment C, D and E)

"Three for All" advocacy group

- advocates for the adoption of Step 3 for all projects
- letter of support and stance written to Mayor and Council (see Attachment D)
- group includes the following members:
    - The Canada Green Building Council
    - Integral Group
    - The Open Green Building Society
    - Passive House Canada
    - The Pembina Institute
    - Recollective Consulting.

Approach to the Step Code in other BC Communities

- The District of Saanich is at the same point in their adoption processes as the City of Victoria, and Saanich staff will be recommending to Council engagement with industry in the same approach to adoption of the Step Code as is recommended in this report. Engagement on the proposed approach is intended to be coordinated between the two municipalities.

- The City of North Vancouver has adopted the Step Code with the following approach:
    - Part 9 residential (over 1,200 sq. ft.): Step 2 of 5 is a requirement as of December 15, 2017; Step 3 of 5 as a requirement in July 2018
    - Part 9 residential (under 1,200 sq. ft.): BC Building Code only as of December 15, 2017; Step 1 of 5 as a requirement in July 2018
    - Part 3 residential: Step 1 of 4 is a requirement as of December 15, 2017; Step 3 of 4 as a rezoning policy in January 2018; Step 2 of 4 as a requirement in July 2018
    - Part 3 commercial: Step 1 of 3 a requirement as of December 15, 2017; Step 2 of 3 as a rezoning policy in January 2018; Step 1 of 3 as a requirement in July 2018.
    - In addition, the Moodyville zones will be required to achieve either Passive House design (equivalent to the highest step of the Step Code); or the second highest step of the Step Code plus additional noise mitigation measures.

- At the time of writing, the following municipalities have provided a notification to the Province stating their intent to engage with industry on an adoption approach to the Step Code:
    - City of Richmond
    - City of North Vancouver
    - City of Campbell River
    - City of Duncan
    - District of North Vancouver
    - District of Saanich
    - Comox Valley Regional District
    - District of North Saanich
    - Resort Municipality of Whistler
    - District of West Vancouver
    - City of Surrey
    - City of New Westminster.

OPTIONS & IMPACTS

Guiding Principles and Options Evaluation Criteria

The approach taken to date has been guided by a goal of providing balance between the criteria below, and each option for consideration is assessed in terms of how well it addresses the evaluation criteria.

1. Industry capacity and readiness
    - ensure, through engagement and dialogue, that the building industry is able to deliver projects at the proposed Step(s)
    - minimize risk of non-compliance with the adopted Step(s)
2. The City's climate action goals
    - understand and articulate the City's goals to stakeholders and ensure the approach is reflective of the City's climate action goals
3. Cost implications
    - acknowledge and identify costs associated with each Step and minimize potential impacts to housing affordability
    - understand and communicate potential operational cost savings resultant from energy efficiency
4. Regional coordination
    - reduce confusion across municipal boundaries and aim for a coordinated, performance-based approach to building in the region with our municipal neighbours
5. Clarity regarding timelines and steps
    - provide clear expectations regarding what Step(s) will be required and when they will be required, to allow time to plan and execute to the required levels of performance.

Options for Part 9 Buildings

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, townhomes and small apartment buildings.
Since 2012, the City has seen an average of 40 applications per year for the construction of Part 9 residential projects, including:

- an average of 27 single-family homes per year
- an average of 4 townhomes per year
- an average of 9 duplexes per year.

Options and Considerations

Options	Considerations				
	Industry Capacity and Readiness	**Climate Action Goals**	**Cost Implications**	**Regional Coordination**	**Clarity regarding timelines**
Option 1 Step 1 November 2018 Step 3 January 2020	Industry representatives have said 'Step 3 is doable but a stretch for some' Minimizes risk of instances of non-compliance for first year	Arrives at Step 3 in short order to achieve a strong level of energy efficiency	Very low cost implications for Step 1 (0.2%) and Step 3 (0.8%)	Potential for coordination with Saanich	Provides ample notice and time to support training for achieving Step 3

Options	Considerations				
	Industry Capacity and Readiness	**Climate Action Goals**	**Cost Implications**	**Regional Coordination**	**Clarity regarding timelines**
Option 2 Step 2 November 2018 Step 3 January 2020	Risk of instances of non-compliance at Step 2 (increased need for training support)	Arrives at Step 3 in short order to achieve a strong level of energy efficiency	Low cost implications for Step 2 (0.2%) and Step 3 (0.8%)	Some potential for coordination with Saanich	Provides notice but less of a 'grace period' than Option 1
Option 3 Step 3 November 2018 Step 4 January 2024	Higher risk of instances of non-compliance at Step 3 (high need for training support)	Highest level of energy efficiency required from start	Some cost implications for Step 3 (0.8%) and Step 4 (1.8%)	Less potential for coordination with Saanich	Provides clarity but may be too fast of a timeline for industry to deliver Step 3

Recommended Option for Part 9 Buildings

Option 1:

- Step 1 November 2018
- Step 3 January 2020.

Analysis

Staff recommend Option 1 as it presents an approach that achieves the best balance between the criteria. Risks associated with non-compliance are minimized for a short interim period of Step 1 requirement, so that new applicants familiarize themselves with the requirements of the Step Code. Following the interim period, a Step 3 requirement provides a strong level of energy performance (at least 20% better than current code) at less than a 1% construction cost premium. Moreover, this option provides a good potential for coordination with the District of Saanich and provides the industry with clear and ample notice to support training in advance of the Step 3 requirement.

As noted previously in the report, the Step Code requires applicants to hire an energy advisor and conduct a post-construction blower door test. Feedback to date suggests that these process requirements represent a substantial shift in project delivery for some Part 9 applicants. Acknowledging this may present challenges to applicants, staff propose the exploration of a rebate or tiered fee structure program for builders' first time through the new process. To be eligible for this program, applicants will have to [1] hire a licensed energy advisor, [2] conduct a mid-construction blower door test[1], [3] conduct a final, post-construction blower door test, and [4] complete an EnerGuide rating for the new home. The amount and structure of this program is to

[1] A mid-construction blower door test is not a requirement of the BC Energy Step Code. However, feedback from industry has noted how important the mid-construction test is in terms of providing an interim sense of how air tight the building will be, and making it easier to make any necessary air tightness changes before drywall is installed.

be determined following further analysis and engagement, however, it is worth noting that BC Hydro has announced a funding offer of up to $20,000 to assist eligible communities in providing such a program.

Recommended Option for Garden Suites

- Step 1 November 2018
- Step 2 January 2020.

Analysis

A slightly different approach is recommended for garden suites, primarily due to the fact that some of the air tightness metrics are more difficult to achieve and the costing report has a higher associated incremental construction cost premium for each of the steps. Staff recommend the same interim period of Step 1 requirement for garden suites, but with the adoption of Step 2 performance requirements following the interim period (as opposed to Step 3 with the other Part 9 typologies). As these buildings are smaller and therefore lower energy users on aggregate, staff recommend this as an appropriate approach to garden suites.

Options for Part 3 Buildings

Part 3 buildings are four storeys and taller, and greater than 600 square metres in building area. They include larger apartment buildings, condos and office buildings. Part 3 buildings also include institutional buildings such as schools, civic facilities and hospitals, although at this time the BC Step Code applies only to residential and commercial occupancies. The majority of new housing units in the City of Victoria are in Part 3 buildings.

- Since 2012, the City has seen an average of eight applications per year for the construction of new Part 3 residential projects, and an associated average of 593 total units per year.
- Since 2012, the City has seen an average of three applications per year for the construction of new Part 3 office projects.

Options and Considerations

Options	Considerations				
	Industry Capacity and Readiness	**Climate Action Goals**	**Cost Implications**	**Regional Coordination**	**Clarity regarding timelines**
Option 1 Step 1 November 2018 Step 3 January 2020	Many projects built to this level today (particularly for mid-rise and office), and use of energy model is common Has design implications for high-rise concrete Minimizes risk of instances of non-compliance for first year	Arrives at Step 3 in short order to achieve a strong level of energy efficiency	Low cost implications for Step 3 (0.8% for high-rise; 0.6% for low-rise; 0.0% for commercial office)	Potential for coordination with Saanich	Provides ample notice and time to support training for achieving Step 3

Options	Considerations				
	Industry Capacity and Readiness	**Climate Action Goals**	**Cost Implications**	**Regional Coordination**	**Clarity regarding timelines**
Option 2 Step 2 November 2018 Step 3 January 2020	Many projects built to this level today (particularly for mid-rise and office), and use of energy model is common Risk of instances of non-compliance at Step 2 (increased need for training support)	Arrives at Step 3 in short order to achieve a strong level of energy efficiency	Low cost implications for Step 2 (0.4% for high-rise; 0.5% for low-rise; -0.2% for commercial office) and Step 3 (as noted in Option 1)	Less potential for coordination with Saanich	Provides notice but less of a 'grace period' than Option 1

Recommended Option for Part 3 Buildings

Option 1

- Step 1 November 2018
- Step 3 January 2020.

Analysis

Staff recommend Option 1 as it presents an approach that achieves the best balance between the criteria. Many of the factors and justification described in the previous analysis for Part 9 projects also apply to this recommended approach (e.g. minimizing risks associated with non-compliance with the interim Step 1 period, potential for coordination with the District of Saanich, and industry clarity around expectations). Moreover, many Part 3 project teams are already familiar with the use of an energy model and this process requirement is anticipated to be less of a substantive change to project delivery than for Part 9 projects.

It should be noted that Step 3 is considered an Upper Step for two Part 3 typologies: high-rise residential and office buildings. While the costing study shows Step 3 is achievable with minimal incremental cost, it should be noted that for high-rise residential, the study assumed minimal window-to-wall ratio in its assumptions and meeting Step 3 may require substantial changes in building design, layout, framing techniques, system selection, and materials. However, the building vernacular in Victoria tends to lend itself to buildings with lower window to wall ratios in light of the heritage context, and therefore Step 3 is believed to be more achievable in this context than in other cities with highly-glazed residential and commercial towers. In addition, the City does not receive many applications for large commercial office buildings per year, and most are built to a high performance level today due to acknowledged benefits of operational savings and tenant attraction.

Accessibility Impact Statement

The BC Energy Step Code will not impact a builder, designer, or developer's ability to incorporate accessible design requirements, and all existing code requirements regarding safety and access remain.

2015 – 2018 Strategic Plan

The BC Energy Step Code aligns with objectives 1 - Innovate and Lead, 3 - Strive for Excellence in Planning and Land Use, 12 - Take Climate Action and Prepare for Emergencies, and 13 - Demonstrate Regional Leadership.

Impacts to the Financial Plan

The implementation of a rebate or tiered fee structure program for Part 9 builders as described in the report may require some additional staff resources in terms of administration. BC Hydro does have a funding offer of up to $20,000 for eligible local governments to assist in the implementation of such a program.

Official Community Plan Consistency Statement

OCP Sustainability Vision:

"Victoria is an urban sustainability leader inspiring innovation, pride and progress towards greater ecological integrity, livability, economic vitality, and community resiliency confronting the changes facing society and the planet today and for generations to come, while building on Victoria's strengths as a harbour-centred, historic, capital city that provides exceptional quality of life through a beautiful natural setting, walkable neighbourhoods of unique character, and a thriving Downtown that is the heart of the region."

Section 12 - Climate Change and Energy Goals:

- 12(b) - New and existing buildings are energy efficient and produce few greenhouse gas emissions.

Section 12 – Climate Change and Energy Broad Objectives:

- 12(a) - That climate change is mitigated through the reduction of greenhouse gas emissions from buildings, transportation and solid waste
- 12(c) - That community energy consumption and generation are managed to give priority to conservation and efficiency, diversification of supply, renewable energy, and low carbon fuels.

CONCLUSIONS

This report outlines a recommended approach to adoption of the BC Energy Step Code, for Council direction to communicate to industry and receive feedback. The proposed approach provides a balance between evaluation criteria and goals, which are reflective of what staff have heard to date through the project engagement process. Following the next round of engagement with industry stakeholders, a final recommended adoption approach will be presented to Council.

Respectfully submitted,

Devon Miller
Community Energy Planner
Community Planning Division

Jonathan Tinney, Director
Sustainable Planning and Community
Development Department

Report accepted and recommended by the City Manager: Jocelyn Jenkyns

Date: JAN 5, 2018

List of Attachments

- Attachment A: Local Case Studies
- Attachment B: Letter from Canadian Home Builders' Association – Vancouver Island
- Attachment C: Letter from Victoria Residential Builders' Association (May 3 2017)
- Attachment D: Letter from Victoria Residential Builders' Association (September 14 2017)
- Attachment E: Letter from Victoria Residential Builders' Association (November 2 2017)
- Attachment F: Three for All advocacy group media release.