

## **Appendix D: Consultation Response Letters**

Letters from:

- UBC Okanagan
- Okanagan Innovative Energy Forum
- Total Home Solutions Inc.
- CHBA – Central Okanagan



THE UNIVERSITY OF BRITISH COLUMBIA

Office of Campus Planning and Development  
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March 14, 2019

City of Kelowna  
1438 Water Street  
Kelowna, BC V1Y 1J4

Attention: Michelle Kam, Sustainability Coordinator [mkam@kelowna.ca](mailto:mkam@kelowna.ca)

Subject: City of Kelowna Energy Step Code Implementation Strategy

Thank you, for the opportunity to comment on the City of Kelowna's Energy Step Code Implementation Strategy for Part 9 residential buildings. We recognize the Step Code's importance in advancing the design and construction of low-carbon, high performance buildings, towards meeting Provincial net zero energy ready requirements by 2032.

In response to the climate imperative generally, UBC Okanagan is systematically improving the energy performance of its buildings with a focus on energy efficiency and connection to low carbon district energy systems. Our Point Grey campus requires all new Part 3 residential construction meet a minimum of Step 2 of the BC Energy Step Code (ESC). UBC Okanagan is also developing UBC's first Passive House Building, a 220 unit residence equivalent to Step 4 of the ESC. Future buildings will be developed to align with the evolving ESC, as outlined in the recently completed UBC Okanagan Design Guidelines. These projects can help build local capacity in upper Step design, specialized trades, application of innovative products and emergence of new enterprise.

In line with UBC's commitment to climate action generally, UBC Okanagan supports the City of Kelowna's adoption of the ESC for Part 9 (Step 1 in Dec 2019). Given the urgency of climate change (IPCC AR5) and the ESC leadership demonstrated by many local governments, UBC Okanagan recommends the City consider implementing the ESC, or equivalent GHG reduction measures, at an accelerated pace. Currently, the Province reports that many local governments are adopting advanced steps of the ESC (in advance of the BCBC mandated Step 3 requirements by 2022). This suggests that a market and industry transformation across the province is underway. Locally, for example, the City of Penticton and the District of Lake Country have implemented Step 1 of the ESC for Part 9 residential buildings. A similar approach across the valley will help accelerate the market shift toward a higher standard of building design and construction, towards a more climate-friendly future! Several of our local and Vancouver faculty members are also active in enhancing society's understanding of green buildings through their research.

We understand the City of Kelowna's Energy Step Code Implementation Strategy for Part 3 buildings is anticipated this spring and look forward to providing input at that time. Should you have any questions please feel free to contact me directly.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Waldron', with a long horizontal flourish extending to the right.

David Waldron  
Director, Campus Planning and Development  
University of British Columbia, Okanagan Campus

April 3, 2019

Michelle Kam  
Sustainability Coordinator  
City of Kelowna

**Re: Support for BC Energy Step Code Implementation in Kelowna**

Dear Michelle,

I am writing on behalf of a group of professionals that live and work in Kelowna who, after reviewing the Energy Step Code ("Step Code") Implementation Plan for Kelowna, support the City of Kelowna ("the City") adopting Step 1 earlier on September 1, 2019 and Step 3 on October 1, 2020 (the City's original proposed implementation date). Adopting Step 3 in Fall 2020 will ensure that the homes that start construction in 2021 will meet Step 3. This timeframe aligns with the District of Lake Country to provide consistency in the region and avoid confusion. However, this implementation date is later than the City of Penticton and many other cities in BC so the City will not be alone. The proposed timeline to adopt Step 1 on December 1, 2019 and Step 3 on June 1, 2021 means another 1,200 homes will be built to the current building code which would be a missed opportunity to improve homes when it is least expensive (compared to renovating them).

We believe that the Step Code is good for homeowners and our community based on our work and experience with the building community. The adoption of Step 1 of the Step Code will allow the City to collect data on the performance of homes built in Kelowna. This data will show the level of performance that today's building practices achieve to identify the best ways to support builders in moving to higher levels of the Step Code. It will give builders a chance to identify the changes they need to make to meet higher steps (if any). Our consultation indicates that there are currently eight energy advisors active in the Kelowna area with an additional 10 individuals attending Energy Advisor training in April 2019, enough to meet the demand.

Beyond Step 1, improving home energy performance will save homeowners money over the long term and make their homes healthier, more comfortable, and more durable. Adopting the higher levels of Step Code will lead to more efficient designs, improved durability, better indoor air quality, better insulation, fewer drafts, lower cost HVAC systems, reduced operating costs, better indoor air quality, and reduced community GHG emissions. We need to shift discussion away from the first cost of homes to focusing on the total cost of ownership. We believe that people who can afford to build homes can easily afford a small increase in construction cost for a Step 3 home that realizes these benefits.

It makes sense to start building better, healthier homes today. Many builders in Kelowna are already exceeding current building code. In our experience, we believe that builders often achieve Step 3 with no extra work and a small increase in material costs. The time to act is now to build better homes that will reduce GHG emissions for the next 100 years. Early adoption may have some challenges, but we encourage the City of Kelowna to show leadership in BC's interior and adopt the Step Code to serve as an example for other communities to move forward as well.

Sincerely,

Okanagan Innovative Energy forum (OkIE) c/o Steven Groves, P. Eng.

## Support for BC Energy Step Code Implementation in Kelowna

[illegible]

To Whom It May Concern,

Total Home Solutions is continually grateful for the opportunity to work with the City of Kelowna, local stakeholders and industry professionals to assist in the implementation plan for step code. We are also a part of the local CHBA-CO's step code committee, which we applaud for their due diligence in understanding what this means for the local building industry and the concerns they have.

Before we look at these concerns, one thing is for certain, that the BC Building Code is changing in 2022 to make performance path modelling to **STEP 3** the base building code! Kelowna, and other municipalities have the opportunity to set our industry up for success by gradually implementing each step of the code leading up to this Provincial Building Code before it is mandated.

That is what Step Code is, an evolution of the building code.

The definition of a building code is a set of rules that specify the standards for constructed objects such as buildings and nonbuilding structures. The main purpose of building codes is to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. The building code becomes law of a particular jurisdiction when formally enacted by the appropriate governmental or private authority.

As technology advances so does the building code, it is a natural evolution to protect public health, safety and general welfare as stated in the definition of a building Code. Every building code change we've had in the past has come with potential cost increases, however, with BC Energy Step Code, for the first time, designers, builders and homeowners have more options how to achieve the building code targets.

The Province of BC has committed to increase energy efficiency requirements in the BC Building Code in order to provide the basic definition of the building Code with the introduction of the BC Energy Step Code.

With BC Energy Step Code there is a significant emphasis on heat loss control through assemblies, most notably air leakage. Therefore, air sealing is of the utmost importance to control. Because "uncontrolled airflow (i.e. leakage) through the building envelope can be a major source of heat loss and can lead to other problems. Since warm air can carry large amounts of water vapour, airflow is also the main means by which moisture is carried into the envelope."

In today's construction world builders are not required to test their air barrier system so there are no quantitative measures to ensure that it is functioning as intended.

Enter the BC Energy Step Code. The BC Energy Step Code now focuses primarily on the performance-based approach rather than the traditional prescriptive approach. The BC Energy Step Code does not specify how to construct a building but identifies an energy-efficiency target that must be met and lets the designer/builder decide how to meet it.

Included in different levels of the Energy Step Code are air sealing targets. Before a builder would just rely on the insulator to install the air barrier "correctly". They would also assume that any trades poking holes in the air barrier would seal those up. Or perhaps the builder was oblivious to the impact that

inefficient air barriers would have on the air changes per hour and the efficiency and comfort of the home. However, through blower door tests and energy modelling we can determine what the actual air change per hour rating is of every home!

Step 1 will provide the framework for local builders and contractors to have complete control over the air barrier in the homes they build.

What the Step Code is aiming to achieve is a level of efficiency in home building where we are less reliant on non-renewable fuel sources to power our homes. It also aims to have complete transparency between builder and consumer regarding the actual construction of the home. The consumer will now have a way to gauge the fuel consumption of the home they are going to build BEFORE it's built.

Being a part of the Step Code Committee with the local CHBA, Total Home Solutions is aware of the concerns and have attempted to address them within the committee.

### **1. Cost Increase to Design/Build process for Step 1:**

- a. A cost study completed by the CHBA-CO seemed to show a significant increase in potential costs just to achieve Step 1.
- b. The misconception that Step 1 is meant to “introduce Step Code” to the industry is actually not the intention of Step 1. Step 1 is the base code for the Building Code, meaning that to build a home to minimum code is to achieve Step 1 or higher. The home that the CHBA-CO cost study alludes to does not meet those minimum standards. Therefore, the issue is within the design of the house, not step code. That is what a building code does, assess whether a house design is safe, healthy and now, energy efficient. If a house design does not meet minimum code then there should be costs associated to bring it up to code.

### **2. Time Delays:**

- a. The initial plan modelling, and energy calculations are completed during the design phase. This is typically an ongoing communication between the plan designer, builder and Energy Advisor. There are certain requirements the City of Kelowna plan checking department needs in order to process permits. This will be the same system when reviewing step code calculations.
- b. To avoid potential delays within this framework does it not make sense to implement Step 1 sooner than later to ensure that any potential delays are ironed out before the Province makes Step 3 Code?
- c. As an actual Service Organization and team of Energy Advisors, Total Home Solutions is currently working with builders and designers in real time. There have been no significant delays in any part of the permit process. By implementing Step 1 The City of Kelowna will be able to streamline the permit process so that Energy Advisors, Builders and the Building Permit departments plan checkers will all be on the same page regarding the information required to issue a building permit.



### 3. Not enough Energy Advisors to handle the capacity:

- a. This is an inaccurate statement. Kelowna is in a unique position because we currently have 4 certified Energy Advisors with Total Home Solutions, 2 certified Energy Advisors working with ROV Consulting and 1-2 Energy Advisors with Enforma, all located within Kelowna. There are also Certified Energy Advisors in Penticton, Lake Country, Vernon and Kamloops, meaning that the EA's here in Kelowna are not in fact servicing the rest of BC interior.
- b. Let's do the math. CHBA-CO states that in 2018 in the BC Interior there are 2,162 SFD Building Permits. Broken down into the South Okanagan (Penticton, Peachland, West Kelowna, Kelowna and Lake Country) there were 1,145 SFD Building Permits Issued. Conservatively, an Energy Advisor can complete an entire evaluation (initial plan modelling, mid construction Air Test and Final) in 2 days, keep in mind this is a very conservative number. With 10 Energy Advisors in South Okanagan, that would be 25 homes per week, 100 per month and 1,200 per year. You can see the capacity is there and growing. Keep in mind that not all municipalities will be implementing Step Code right away and not every home will have a Mid Construction Blower Door Test.
- c. No more than we worry about builders, plan designers and other valuable trades having to service all areas of the interior BC, to assume that EA's in Kelowna are having to service the entire interior BC is just not true.
- d. Another point made was that ROV has been trying to hire EA's for 4 months. However, EA's aren't typically "hired" in conventional terms. An EA completes extensive training and exams, then mentors under a senior EA to complete test files. That Energy Advisor is now certified and typically operates as an independent contractor not a traditional employee. This may explain why ROV has not had success with "hiring" EA's.
- e. It should also be noted that Total Home Solutions is conducting training April 15, 2019 with 10 trainees. Majority of the trainees will be certified and completed their test homes within 6 months. Meaning the Okanagan and other areas will be getting an influx of EA's.

### 4. Retrofit Code Implemented by City of Kelowna:

- a. Retrofit and new construction are two completely different animals. To think that we need to have a retrofit strategy/plan in place in order to increase the efficiency of our new homes is not realistic. The Retrofit strategy is going to take quite a bit of planning to implement. Retrofits are more costly to make energy efficient than new home builds. 90% of the money lost on home builds happens in design phase. We have the framework and the methods now to ensure that we won't be having this conversation in 15 years about homes we are building today about how to make them more energy efficient.
- b. A retrofit strategy is important however not at the cost of the potential energy savings we can implement now with new home construction.

One thing that everyone can agree on is that implementing a different design strategy is going to come with issues and growing pains, it has happened with every addition and change to the conventional

April 5, 2019

building code. That is part of the process and impossible to predict. To think that Kelowna can wait until other communities have ironed out these details is not going to set up our building industry and our community for success. Of all the municipalities in the Okanagan, Kelowna has by far the most SFD building permits issued per year. We also have several Energy Advisors to handle the capacity. While we wait to see what other municipalities are doing, we are losing valuable time to design a process that will be near flawless when the Provincial Mandate of Step 3 comes in 2022, as well as EA's who may relocate to municipalities that are more progressive with Step Code. Not to mention the amount of energy losses experienced between now and when the City of Kelowna chooses to move forward with Step Code.

Early implementation of Step 1 is imperative to ensuring our building community (builders, designers, building officials, trades, energy advisors) can start educating themselves on improving the energy efficiency of our homes and the process from plan design to permit. Much like the home itself should imply the "house-as-a-system" approach, everyone involved in the construction of the home are part of that same approach. We are all working together to provide the best possible product to the consumer. As much as we believe that this should be a priority and implemented before the stated date of December 19, 2019, Total Home Solutions will continue to support our local building industry and the City of Kelowna with the direction we choose to go.

Kelowna is and always has been a leader of change and growth in the South Okanagan. Total Home Solutions is dedicated to work with the City of Kelowna to continue that trend!

With Gratitude,



Scott Hilder

Total Home Solutions

203 – 5309 Main St

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April 5, 2019

**Attention: Building & Planning Department**

Re: BC Energy Step Code

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To whom it may concern,

The Canadian Home Builders Association of the Central Okanagan (CHBA CO) applauds the ongoing efforts by Central Okanagan cities and municipalities to ensure a uniform and collaborative approach to the BC Energy Step Code. The CHBA CO has attended several round table discussion groups with municipalities and we are encouraged by the open dialog between stake holders. CHBA CO has conducted the cost analysis on the BC Energy Step Code and have sent it to all City's and District's for review.

The Step Code Solutions Lab that was hosted by the City of Kelowna on February 12, 2019 was incredibly well received from our members that attended. CHBA CO would like to applaud the City's effort on this and take note that our members found it meaningful, beneficial, well organized and the set up at each table was well done.

On December 12, 2018 David Pfuetzner of Align West Homes and Les Bellamy of Bellamy Homes presented to the BC Energy Step Code Council at BCIT on the cost analysis that was conducted by CHBA CO on the BC Energy Step Code. From this meeting, it was clear that there are some issues with the current BC Energy Step Code in our climate zone.

The most concerning factor that was found by the BC Energy Step Code Council is that one home owner could potentially be paying an additional \$11,000 for their home, due to the orientation, while another home owner on the same street, might not have any additional costs. That would not be reflected in the value of the home and would put that one home owner at a financial disadvantage. The BC Energy Step Code Council agreed that this result is not their intent. Step 1 is supposed to be about the process and introducing the Step Code to the industry; it was not intended to have any additional costs. With changes still occurring to the metrics and reference house, we should not be in a rush to implement the BC Energy Step Code, something that will be a drastic change to the construction industry.

In the report from the City of Kelowna "*BC Energy Step Code Implementation Strategy March 2019*", under "*Addressing Concerns*" on page 16, point three, it states that there will be no additional delays with the implementation of the BC Energy Step Code because the modeling is done during the design phase. This is simply not true. Any additional time needed on a house build, will result in further delays. For example, you may need to modify plans with the designer based on the modeling or the extra communication between the builder and Energy Advisor for any revisions. This is all extra time that has not been accounted for. To put it clearly, you can not add more work to a project without adding more time or resources to that project.

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On page 9 of the "BC Energy Step Code Implementation Strategy March 2019", it states each City and/or District that has adopted the BC Energy Step Code. CHBA CO would like to request that the City of Kelowna outlines which climate zone each City/District are in. Since this document will be presented to City Council, it is important to note which climate zones are looking at implantation or have adopted the Step Code to provide insight into any gaps in specific climate zones there may be.

As we have stated before, we are also faced with the challenge of available Energy Advisors. Implementing modelling and blower door testing are just not feasible with the current availability of Energy Advisor's throughout the Okanagan. We also recognize that in order for the Energy Advisor's to grow their businesses they are wanting some level of implementation; however, it will not make a difference as the demand is already there to hire Certified Energy Advisors. ROV Consulting has been trying to hire Energy Advisors from across Canada for 4 months now and have had no results.

2018	Penticton	Peachland	West Kelowna	Kelowna	Lake Country	Vernon	Armstrong	Salmon Arm	RDCO	Kamloops	TNRD	Williams Lake	Total
SFDH	217	58	44	800	79	139	14	20	49	438	220	84	2,162

Between Penticton and Kamloops there has been 2,162 building permits issued in 2018 for Part 9 buildings. Right now, we are concerned about the total number of Energy Advisors in this region when they are currently working throughout the Thompson-Nicola Valley.

Currently, Cassidy deVeer and Bahar Reza are participating on a Review Committee that has been formed to address the difference in costing studies around the Province. The study is an analysis and comparison of previous costing studies completed around the BC Energy Step Code, with three objectives:

1. Following economic analysis best practices, provide a detailed understanding of the source(s) of, or reason(s) for, differences in the findings of existing costing studies regarding the incremental capital construction costs of building to the BC Energy Step Code.
2. Provide advice or guidance on how to better gather and share information about the cost impacts of the BC Energy Step Code.
3. Provide advice or guidance on how future studies can be improved to consider multiple perspectives, provide data that can be compared more easily across different studies, and improve the study validity.

Most of the studies chosen for the costing review focused on BC Energy Step Code specifically. However, several other studies were included as well as they provided relevant information relevant to this exercise. These other studies provide additional data points looking at energy savings or net zero ready construction in other target frameworks and locations to provide a wider range of information.



*Table 1: List of Studies Considered*

Tag	Study Name	Commissioned By
1	Step Code Metric Report (Original)	BC Housing
2	Step Code Metric Report (Updated)	BC Housing
3	Energy Step Code: A Study by Industry for Consumers	CHBA (Central Okanagan)
4	CHBA Central Interior Energy Step Code: Building Beyond the Standard	CHBA (Central Interior)
5	The Economics of Passive House: Costing Study on Passive House for Single Family Homes in Vancouver	City of Vancouver
6	City of Vancouver Zero Emissions Building Plan - Costing Info	City of Vancouver
7	City of Richmond - Step Code costing info	City of Richmond
8	City of Surrey - Step Code costing info	City of Surrey
9	UBC Study	UBC
10	Making the Case for Buildings to Zero Carbon	CAGBC and others

Based on the above, CHBA CO would like to make the following requests to the City of Kelowna:

1. No implementation of the BC Energy Step Code until there is a 'Retrofit Code' implemented by the City of Kelowna. Both retrofits and the BC Energy Step Code should happen simultaneously and it is unfair to have one come before the other. Retrofits would be much more effective as 60% of existing housing stock in BC was built before 1990. National studies report on average, homes built before 1990 consume 100% more energy than a home built today. Stats Canada reports another 39% of existing stock was built between 1990 and 2012. The same National study reports homes built in that time frame on average consume 60% more energy than a home built today. For clarity – 99% of all existing housing in BC on average consume between 60% and 100% more energy than homes built today.
2. Before any implantation occurs, the City will need to work with the development community to amend their zoning bylaws and design guidelines to better complement the BC Energy Step Code requirements.
3. The City of Kelowna monitors the implementation of the BC Energy Step Code in the City of Penticton, that was implemented on March 15, 2019. The City of Penticton has had issues with design drawing details not matching energy assessment assemblies. There has also been issues with engineering drawings not being submitted properly.
4. There needs to be more Certified Energy Advisors in our region and we should re-evaluate the number of Certified Energy Advisors in June 2019 to see if we are ready for implementation in December 2019. We would like to work on this list with the City so we can disperse it to our membership. *See attached "BC Energy Advisors 2019 for reference.*

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5. The City of Kelowna to work on a home through the permitting process, in turn will help train staff on the Step Code. CHBA CO is happy to work with the City to provide a 'pilot home' similar to what the City of Kamloops has done.

CHBA BC, our provincial body has been on top of the BC Energy Step Code by developing two new courses, one being available to members and non-members of CHBA that will be delivered online, and the other is training for the Step Code for both builders and Energy Advisors. CHBA BC will be forming a Step Code Task Group that will have members from across BC to help contribute to the Step Code Council. Vanessa Joehl, Director, Environmental Programs & Service Organization Manager with CHBA BC, is the co-chair for the Compliance and Energy Advisor subcommittee of the Step Code Council which focuses on compliance and implementation practices for the Step Code. Lastly, CHBA BC has relayed all issues and concerns from members across BC with their challenges with the new Step Code metrics back to the province. CHBA BC has provided courses to train Certified Energy Advisors and from their intake within the past year of 67 students, there is only one in our Central Okanagan region that may become an Energy Advisor, contingent on them passing the final exam.

We'd like to thank the City of Kelowna for providing incentives to those who choose to build to any level of the Step Code and the ongoing effort and initiative that has continued between the City of Kelowna and CHBA CO. We look forward to further discussion on the BC Energy Step Code within the coming months.

Regards,



Cassidy deVeer  
CHBA CO President