

# Report to Council



**Date:** May 6, 2019  
**File:** 0920-02  
**To:** City Manager  
**From:** Sustainability Coordinator  
**Subject:** Updated Energy Step Code Implementation Strategy

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## **Recommendation:**

THAT Council receives, for information, the Report from the Sustainability Coordinator dated May 6, 2019 with respect to the Updated Energy Step Code Implementation Strategy;

AND THAT Council endorse the compliance of all new Part 9 residential buildings to the BC Energy Step Code to satisfy the energy efficiency requirements of the British Columbia Building Code as follows:

- i. Effective December 1, 2019 – Step 1 Energy Step Code requirement
- ii. Effective June 1, 2021 – Step 3 Energy Step Code requirements

AND THAT Council direct staff to use up to a maximum of \$75,000 from the Permit Averaging Reserve Account to provide building permit rebates as follows:

- i. \$500 for engaging an energy advisor for modelling and final blower door test between May 20, 2019 and November 30, 2019
- ii. \$500 for Step 4 residential buildings between May 20, 2019 and May 31, 2021 to incent achieving higher steps of the Energy Step Code.
- iii. \$1,000 for Step 5 residential buildings or certified Passive House between May 20, 2019 and May 31, 2021 to incent achieving higher steps of the Energy Step Code

AND THAT Bylaw No. 11823, being Building Bylaw Amendment No. 13 be forwarded for reading consideration.

AND FURTHER THAT Council direct staff to consult with key stakeholders on Energy Step Code implementation for Part 3 buildings as outlined in the report of the Sustainability Coordinator, dated May 06, 2019.

## **Purpose:**

To present Council with the Energy Step Code Implementation Strategy for Part 9 buildings for endorsement.

## Background:

The BC Energy Step Code is designed to improve the efficiency of new construction for Part 9<sup>1</sup> and Part 3<sup>2</sup> buildings. This provincial standard is intended to achieve the goals set out in the national Pan-Canadian Framework<sup>3</sup>, to help both local government and industry incrementally move toward a future in which all new construction across the province is “net-zero energy ready” by 2032.

Currently there are 65,000 housing units in Kelowna. These housing units account for 21 per cent of Kelowna’s community greenhouse gas emissions.<sup>4</sup> Over the next two decades, it is anticipated that the housing stock will grow to 90,000 units, so that by 2040, nearly 30 per cent of all housing units will have been built after 2018. This provides a significant opportunity to improve efficiency, as the easiest and most cost effective time to make energy efficiency upgrades is during the construction of new buildings, as recommended in both the Council-endorsed Community Climate Action Plan and the Healthy Housing Strategy.



### Advancements in the Energy Step Code

On August 27, 2018 Council deferred further consideration of the Energy Step Code implementation for Part 9 buildings and Text Amendment Application No. TA18-0007 in order for the Canadian Home Builders Association (CHBA-CO) to complete and submit their Energy Step Code Costing Study (R810/18/08/27). This original proposal was for Part 9 buildings with an implementation of Step 1 on April 1, 2019 and Step 3 on October 20, 2020.

Since that time, notable progress has been achieved on many fronts: 1) the Intergovernmental Panel on Climate Change has released a special report, 2) the Province has solidified their position regarding provincial implementation of the Energy Step Code, 3) more communities have referenced Energy Step Code in their building requirements, 4) new costing information has become available and, 5) staff has further engaged with the local building community. Table 1 summarizes the advancements in Energy Step Code since August 2018.

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<sup>1</sup> Part 9 buildings are buildings that are three storeys or less and have a building area no more than 600 m<sup>2</sup>. It includes single family homes, duplexes, townhomes, small apartment buildings and small stores, offices, and industrial shops. Source: [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/bcenergystepcode\\_guide\\_v1.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/bcenergystepcode_guide_v1.pdf)

<sup>2</sup> Part 3 buildings are buildings that are four storeys and taller and greater than 600 m<sup>2</sup> in building area. It includes larger apartment buildings, condos, shopping malls, office buildings, hospitals, care facilities, schools, churches, theaters and restaurants. Source: [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/bcenergystepcode\\_guide\\_v1.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/bcenergystepcode_guide_v1.pdf)

<sup>3</sup> The Pan-Canadian Framework is the federal government’s plan to meet Canada’s emission reduction targets, grow the economy and build resilience to a changing climate. <https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/climate-change-plan.html>

<sup>4</sup> City of Kelowna, 2018. Community Climate Action Plan. Based on 2012 residential emission data. Community greenhouse gas emissions come from on road transportation, buildings (residential and commercial) and waste.

Table 1: Advancements in Energy Step Code since August 2018

New Information	Description
Climate Information	<p>The Intergovernmental Panel on Climate Change’s (IPCC) special report, ‘Global Warming of 1.5°C’, released October 2018, stresses the urgency for rapid, far-reaching and unprecedented changes in all aspects of society by 2030 to limit global warming to 1.5°C, and avoiding catastrophic impacts associated with warming beyond that<sup>5</sup>.</p> <p>To compound matters, Canada’s Changing Climate Report released by Environment and Climate Change Canada (April 2019), shows that Canada is experiencing warming at twice the rate of the rest of the world. This will increase the severity of heatwaves and contribute to increased drought and wildfire risks.<sup>6</sup></p>
Province set timelines for Energy Step Code implementation within the BC Building Code	<p>The provincial CleanBC Strategy provides a step by step path for Energy Step Code implementation. Compared to current base BC Building Code, new Part 9 homes will be required to reach:</p> <ul style="list-style-type: none"> <li>• Step 3 by 2022 (20 per cent more energy efficient);</li> <li>• Step 4 by 2027 (40 per cent more energy efficient); and</li> <li>• Step 5 by 2032 (80 per cent more energy efficient / net-zero energy ready)<sup>7</sup>.</li> </ul>
More communities reference Energy Step Code in their building requirements	<p>BC communities that issue more than two-thirds of the province’s residential building permits have now referenced the BC Energy Step Code in building bylaws or policies.<sup>8</sup> This includes local jurisdictions including Penticton and Lake Country, which started requiring Step 1 for Part 9 buildings earlier this year (see Attachment A of the Energy Step Code Report for details).</p>
Energy Step Code costing information	<p>Released last fall, the 2018 Metrics Research Full Report Update modelled thousands of energy conservation combinations to determine how to achieve low costs for each step based on optimized building design. Part 9 buildings in Climate Zone 5 (which Kelowna is in) showed cost increments between 0.4 and 1.2 per cent for Step 3.<sup>9</sup></p> <p>The Canadian Home Builders Association of the Central Okanagan</p>

<sup>5</sup> IPCC, October 8, 2018. Intergovernmental Panel on Climate Change Press Release: Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments.

[https://www.ipcc.ch/site/assets/uploads/2018/11/pr\\_181008\\_P48\\_spm\\_en.pdf](https://www.ipcc.ch/site/assets/uploads/2018/11/pr_181008_P48_spm_en.pdf)

<sup>6</sup> Environment and Climate Change Canada, April, 2019. Canada’s Changing Climate Report.

<https://changingclimate.ca/CCCR2019/>

<sup>7</sup> Province of BC, 2018. CleanBC our nature. our power. our future.

[https://cleanbc.gov.bc.ca/app/uploads/sites/436/2018/12/CleanBC\\_Full\\_Report.pdf](https://cleanbc.gov.bc.ca/app/uploads/sites/436/2018/12/CleanBC_Full_Report.pdf)

<sup>8</sup> Energy Step Code Council, 2019. March 2019 Stakeholder Update email report.

<https://mailchi.mp/energystepcode/march2019?e=4cd7c05fad>

<sup>9</sup> BC Housing, 2018. Energy Step Code: 2018 Metrics Research Full Report Update.

[http://energystepcode.ca/app/uploads/sites/257/2018/09/2018-Metrics\\_Research\\_Report\\_Update\\_2018-09-18.pdf](http://energystepcode.ca/app/uploads/sites/257/2018/09/2018-Metrics_Research_Report_Update_2018-09-18.pdf)

New Information	Description
	<p>(CHBA-CO) costing study, released in November, took a different approach from the Metrics Report. The CHBA-CO study examined the incremental costs that would need to be added to an existing building design in order to meet the various steps for a small, medium, and duplex home. For Step 3, average cost increase ranged from 2.5 to 6.4 per cent.<sup>10</sup></p> <p>Case studies released by BC Hydro’s Community Energy Manager’s network detail costs of five recently constructed single family homes to meet Step 3 or 4. Cost increases varied from zero per cent in Campbell River to reach Step 3, to four per cent in Kamloops to achieve Step 4 (both of these locations are in the same climate zone as Kelowna).</p> <p>(Note: the “Addressing Concerns” section of the Energy Step Code report provides further explanations of the differences in costs between the studies).</p>
Additional Engagement on Energy Step Code	<p>Staff hosted an Energy Step Code Solutions Lab on February 12, 2019. The intent of the Solutions Lab was to gather a diverse group of representatives from the building industry to develop an implementation solution that builds industry capacity in advance of the Province mandating Step 3 in 2022. The majority of proposed solutions identified implementing Step 1 by the end of 2019. Further, 5 out of 6 proposed solutions identified Step 3 should become mandatory in Kelowna in advance of when the province requires it in 2022. Participants also recommended the desire for more training and incentives to support the implementation. (Attachment D in the Energy Step Code Report provides a summary of the Solutions Lab).</p>

Taking into consideration all of the new information received, and building on the work done prior to August 2018, staff have developed a revised implementation strategy for the Energy Step Code as detailed in Appendix A: Energy Step Code Implementation for Part 9 Residential Buildings.

Updated Energy Step Code Implementation Strategy

Table 2, below, summarizes the implementation strategy and illustrates how the strategy has evolved since the August 2018 Council presentation. (Note: Appendix B provides a more detailed table of the implementation strategy timeline).

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<sup>10</sup> Canadian Home Builder’s Association Central Okanagan, 2018. A study by Industry for Consumers. <https://www.chbaco.com/wp-content/uploads/2018/12/CHBA-CO-Step-Code-Costing-Report-Full-2018-12-05.pdf>

Table 2: Updated Energy Step Code Implementation Strategy

	Original Proposal (August 27, 2018)	Revised Implementation Strategy (May 6, 2019)
<b>Step 1</b>	April 1, 2019	December 1, 2019
<b>Step 3</b>	October 1, 2020	June 1, 2021
<b>City Financial Incentives</b>	Building Permit rebates: <ul style="list-style-type: none"> <li>• \$500 for Step 4 compliant homes</li> <li>• \$1,000 for Step 5 compliant homes or certified Passive House</li> </ul>	Building Permit rebates: <ul style="list-style-type: none"> <li>• \$500 for an energy advisor and final construction blower door test until November 30, 2019</li> <li>• \$500 for Step 4 compliant homes</li> <li>• \$1,000 for Step 5 compliant homes or certified Passive House</li> </ul>
<b>Zoning Incentives</b>	<ul style="list-style-type: none"> <li>• Relax setbacks for Step 5 homes or certified Passive House</li> </ul>	<ul style="list-style-type: none"> <li>• Relax setbacks for Step 5 homes or certified Passive house</li> </ul>
<b>Training</b>		<ul style="list-style-type: none"> <li>• City of Kelowna building officials training on Energy Step Code permitting process</li> <li>• Builders and trades training: understanding the permitting process for Energy Step Code</li> <li>• Explore other opportunities through Energy Step Code Council, FortisBC, and Okanagan College.</li> </ul>

The revised implementation strategy proposes implementing Step 1 for all new Part 9 residential construction on December 1, 2019. Step 3 is proposed to be implemented eighteen months later. Building Bylaw Amendment No. 13, attached as Appendix C for Council consideration, includes a section for Energy Step Code implementation to make explicit and provide transparency for the dates the different steps of Energy Step Code come into effect. The proposed bylaw amendment also includes wording to make the language in the bylaw gender neutral.

The revised implementation strategy also includes revisions to the City's proposed incentives. Adjustments have been made based on input from the Solutions Lab to include incentives prior to the implementation of Step 1, so the building industry can become familiar with the new procedures and using an Energy Advisor. Further, training will be offered by the City to the building industry this fall to acquaint them with the Energy Step Code permitting process.

As in the original proposal, the revised implementation strategy also includes a recommendation for a Zoning Bylaw amendment to ensure that the thicker walls (needed for additional insulation) required at Step 5 do not inadvertently impact the size of the home built, particularly on urban lots. Staff are in the process of preparing these amendments and will bring them for Council consideration in the coming weeks.

The proposed implementation strategy was circulated to a variety of stakeholders (including CHBA-CO, UDI, and BC Housing), attendees of the Solutions Lab, and the City's Energy Step Code e-scribe list (approximately 320 people) for final input, and four letters were received (see Appendix D). Three stakeholders (UBCO, Okanagan Innovative Energy Forum, and Total Home Solutions) stated that the City should adopt Energy Step Code at a more accelerated rate than what is proposed. One

stakeholder, CHBA-CO, reiterated their position that the Energy Step Code implementation should be delayed. The External Agencies / Public Comment section below provides additional information on these comments.

**Next steps:**

Consulting on the Energy Step Code for Part 3 buildings and creating a Community Energy Retrofit Strategy are the next steps for creating more energy efficiency buildings.

**Energy Step Code for Part 3 Buildings:**

Until recently, communities outside of Climate Zone 4 (the lower mainland and southern Vancouver Island) were only able to reference the Energy Step Code for Part 9 buildings. As of December 10, 2018, all municipalities can now reference Energy Step Code for Part 3 buildings, such as larger apartment buildings, condos, shopping malls, office buildings, hospitals, care facilities, schools, churches, theaters and restaurants. Like its Part 9 counterpart, the Province has mandated Part 3 buildings to also be 20 per cent more efficient by 2022. To help build capacity and reduce emissions from this sector prior to the Province mandating the change, the City needs to engage with stakeholders and develop a separate strategy for Energy Step Code Implementation for Part 3 buildings.

**Community Building Energy Retrofit Strategy:**

Approximately 72 per cent of the current housing stock in Kelowna was built prior to 2000.<sup>11</sup> Many of these homes are reaching the age where major structural components will need to be replaced. This offers an opportunity to increase energy efficiency through building envelope and mechanical system upgrades. The City's new Community Energy Specialist will be developing a Community Energy Retrofit strategy later this year that examines options and incentives to encourage energy retrofits. Further, FortisBC has selected Kelowna for a targeted campaign for building retrofits in 2019.

**Conclusion:**

The Energy Step Code is designed to improve the energy efficiency of new construction. The Province has established timelines to move the industry incrementally toward a future in which all new construction is net-zero energy ready by 2032. Municipalities that issue more than two-thirds of the province's residential building permits have already adopted Energy Step Code, including Penticton and Lake Country. Kelowna has an opportunity to follow the leadership taken by these communities in creating more energy efficient homes that reduce emissions while preparing the building industry for the changes that are coming.

The Energy Step Code Implementation Strategy takes into consideration numerous inputs including the mandated provincial timelines and the collaborative approach taken at the Energy Step Code Solutions Lab.

With the continued urgency to reduce climate change, it is critical to take action. Implementing the Energy Step Code directly aligns with the newly endorsed Council priority of environmental protection with the goal of being *adaptable in the face of climate change*. It also demonstrates the commitment to two Council-endorsed plans, the Community Climate Action Plan and the Healthy Housing Strategy. The implementation strategy will aid industry in moving towards more energy efficient buildings in an

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<sup>11</sup> City of Kelowna, 2018. Our Kelowna As We Take Action: Kelowna's Community Climate Action Plan. [https://www.kelowna.ca/sites/files/1/docs/community/community\\_climate\\_action\\_plan\\_june\\_2018\\_final.pdf](https://www.kelowna.ca/sites/files/1/docs/community/community_climate_action_plan_june_2018_final.pdf)

incremental manner with support from the City of Kelowna, and demonstrate a commitment and responsibility to the community's role in climate leadership.

### **Legal/Statutory Authority:**

To support energy conservation and greenhouse gas reduction objectives, Section 5 of the *Building Act* ("Unrestricted Matters") authorizes local governments in BC (except the City of Vancouver) to reference the *BC Energy Step Code* in their policies and bylaws, and may begin enforcing requirements as of December 15, 2017, subject to notification timelines.<sup>12</sup>

### **Existing Policy:**

The City of Kelowna has established a number of climate action goals and programs that are delivering on Council's commitment to low-carbon energy, including:

#### *Official Community Plan*

- OCP Objective 5.16. "Improve the energy efficiency and environmental performance of new buildings."
- OCP Objective 6.2. "Improve energy efficiency and reduce community greenhouse gas emissions."
- OCP Policy 6.2.1 GHG Reduction Target and Actions. The City of Kelowna will, in partnership with: senior governments; local residents and businesses; NGOs; external agencies; and utility providers, work towards reducing absolute community greenhouse gas emissions by:
  - 4% below 2007 levels by 2023;
  - 25% below 2007 levels by 2033; and
  - 80% below 2007 levels by 2050.

#### *Our Kelowna as We Take Action: Kelowna's Community Climate Action Plan (2018-2023):*

- Action # B5 Update Kelowna's Building Bylaw to reference the Energy Step Code as a city-wide requirement for Part 9 buildings with an adoption timeline of Step 1 by April 2019, graduating to Step 3 by October 2020 (carriage houses would require Step 2 compliance at this time).
- Action # B6 Relax the setback requirements in Kelowna's Zoning Bylaw to ensure thicker walls to accommodate more insulation (common to buildings constructed to Steps 4 and 5 of the Energy Step Code).
- Action # B7 Create a building permit fee rebate program for part 9 buildings to incentivize projects achieving Steps 4 and 5 of the Energy Step Code.

#### *Healthy Housing Strategy*

- i. Recommended action: Implement the Energy Step Code for New Housing: Develop an Energy Step Code Implementation Plan to increase energy efficiency and reduce utility costs in new builds to reduce household carrying costs.

### **Financial/Budgetary Considerations:**

\$75,000 from the Permit Averaging Reserve Account to provide building permit fee rebates:

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<sup>12</sup> Province of BC, 2017. BC Energy Step Code: A Best Practices Guide for Local Governments.

[https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/bcenergystepcode\\_guide\\_v1.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/bcenergystepcode_guide_v1.pdf)

- i. \$500 for engaging an energy advisor for modelling and final blower door test between May 15, 2019 and November 30, 2019 (maximum 10 rebates per builder)
- ii. \$500 for Step 4 residential buildings between May 20, 2019 and May 31, 2021 to incent achieving higher steps of the Energy Step Code.
- iii. \$1,000 for Step 5 residential buildings or certified Passive House between May 20, 2019 and May 31, 2021 to incent achieving higher steps of the Energy Step Code

**External Agency/Public Comments:**

Attachment B of the Energy Step Code Report summarizes almost 60 engagement contacts that have taken place during the development of the Energy Step Code implementation strategy. Further, Attachment C includes the results of the Industry Survey completed in 2018 and Attachment D summarizes the Energy Step Code Solutions Lab hosted in early 2019.

On March 12, 2019, the revised Energy Step Code Implementation Strategy was circulated for final comment to:

- ii. Energy Step Code Solutions Lab attendees
- iii. CHBA-Central Okanagan
- iv. UDI Okanagan
- v. FortisBC
- vi. Community Energy Association Network
- vii. City of Kelowna’s Energy Step Code e-subscribe list

Letters of comment were received from the following organizations (see Appendix D for copies of the letters):

Organization forwarding letter	Comment summary	How concerns were addressed
UBC-O	Support for City of Kelowna’s adoption for Step 1 in December 2019.  Recommend the City consider implementing the ESC at an accelerated pace.	The implementation dates were informed by the collaborative solutions proposed at the Energy Step Code Solutions Lab attended by a diverse group of building industry representatives with differing views on Energy Step Code.
Okanagan Innovative Energy Forum	Adopt Steps earlier than proposed: Step 1 on September 1, 2019 and Step 3 on October 1, 2020, which aligns with District of Lake Country.	The implementation dates were informed by the collaborative solutions proposed at the Energy Step Code Solutions Lab attended by a diverse group of building industry representatives with differing views on Energy Step Code.
Total Home Solutions Inc.	Adopt Step 1 prior to December 1, 2019.  Overall support for Energy Step Code Implementation	Implementation dates informed by the collaborative solutions proposed at the Energy Step Code Solutions Lab attended by a diverse group of building industry representatives with differing views on Energy Step Code.
CHBA-	1. No implementation of the BC	1. Several members, including the President



Organization forwarding letter	Comment summary	How concerns were addressed
<p><b>Central Okanagan</b></p>	<p>Energy Step Code until there is a "Retrofit Code" implemented by the City of Kelowna.</p> <p>2. Before implementation occurs, work with the Development community to amend Zoning Bylaws and Design Guidelines to better complement the BC Energy Step Code requirements.</p> <p>3. The City of Kelowna should monitor the implementation of the BC Energy Step Code in the City of Penticton.</p> <p>4. There needs to be more Certified Energy Advisors in the region and should re-evaluate in June 2019 to see if Kelowna is ready for implementation.</p>	<p>and other board members, of CHBA attended the Energy Step Code Solutions Lab, and provided input into a collaborative solution for implementation dates prior to the provincial requirements.</p> <p>Currently municipalities cannot require energy efficiency upgrades during retrofits. However, through the CleanBC plan, the Province has committed to develop a Retrofit Code for existing buildings by 2024 which would require efficiency upgrades during retrofits. The City will be developing a Retrofit Strategy in 2019 which will examine opportunities to encourage and incentivize energy retrofits in older homes. Further, FortisBC will be piloting a project in Kelowna in 2019 to encourage retrofits.</p> <p>2. Zoning Bylaw amendments are included in this package to relax side, rear, front and/or flanking street requirements so that the incremental additions of insulation needed to achieve the upper steps do not inadvertently impact the size of a home built on urban lots. Through the OCP update process, the Urban Design DP will be revised and will address Energy Step Code requirements. These will be in place prior to the implementation of Step 3.</p> <p>3. City of Kelowna staff will continue to communicate with other local jurisdictions on Energy Step Code implementation. In addition, staff will also continue to participate in a Local Government Step Code Peer Network to learn from other communities around the province.</p> <p>4. There are currently 8 energy advisors active in the Kelowna area. Lake Country and Penticton are the only jurisdictions currently requiring Energy Step Code. Further, there are 10 students registered for the April Energy Advisor course which could provide</p>

Organization forwarding letter	Comment summary	How concerns were addressed
	5. City and CHBA-CO work together on a home through the permitting process as a training opportunity.	additional advisors. <sup>13</sup> It has been communicated to staff that additional energy advisor capacity is contingent on governments enacting robust regulations to provide assurance to those wishing to hire or invest in training to become an Energy Advisor.  5. The City will work with CHBA-CO to look for training opportunities on the permitting process.

Two letters of support for Energy Step Code implementation provided as part of the August 27<sup>th</sup>, 2018 Council Report, from BC Housing and FortisBC, are still relevant to the revised strategy.

Submitted by:

M. Kam and T. Guidi

Approved for inclusion:



Danielle Noble-Brandt, Policy & Planning Department Manager

**Attachments:**

- Appendix A: Energy Step Code Implementation Strategy for Part 9 Buildings
- Appendix B: Energy Step Code Implementation Strategy Timeline Part 9 Residential Buildings
- Appendix C: Building Bylaw Amendment No. 13 for Energy Step Code
- Appendix D: Consultation response letters:
  - UBC Okanagan
  - Okanagan Innovative Energy Forum
  - Total Home Solutions
  - CHBA-CO

cc:  
 Divisional Director, Community Planning and Development  
 Development Services Director  
 Building & Permitting Manager  
 Energy Program Manager  
 Community Energy Specialist  
 Community Planning Supervisor  
 Legislative Coordinator

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<sup>13</sup> Total Home Solutions, April 5, 2019. Letter regarding Energy Step Code Implementation.