

March 29, 2018

Dear Member of Vancouver's Building Industry:

**RE: Proposed Energy Efficiency and Water Updates to the Vancouver Building By-law and Rezoning Policy**

Thank you to everyone that participated in our consultation process, including three townhall meetings and written feedback via email.

As part of the consultation, we asked specifically for feedback on the most appropriate step of the BC Energy Step Code to align with for high-rise residential buildings. We heard that Step 3 is achievable, that some projects are already pursuing Step 3 levels of performance, and are finding solutions that work for them. We also heard that there are still some uncertainties around the most cost-effective ways to achieve Step 3, and it was recommended that more time be allowed for industry to gain experience with applying these solutions in more cases.

In response to these recommendations we have adjusted our proposals to include alignment with Step 2 effective June 3, 2019, and with Step 3, and with the GHGI limits of the Green Buildings Policy for Rezoning, effective June 1, 2021. The proposed Step 3 limits will also seek to include the LCES pathway of that policy. For staged projects, the Stage 1 building permit application date (accepted by the City) will determine the energy requirements under the by-law. Water efficiency updates, consulted-on with industry in 2016, are also included in Section 2 of the following pages. These updates will be presented to City Council on May 2, 2018.

For more information, please visit [vancouver.ca/zeroemissions](http://vancouver.ca/zeroemissions), or contact us at [green.buildings@vancouver.ca](mailto:green.buildings@vancouver.ca). If you have specific feedback on these proposals that you would like to share with us, please send it by Wednesday, April 11, 2018.

Yours truly,

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cc: Sean Pander, Green Buildings Program Manager  
Pat Ryan, Chief Building Official

**Section 1: The following proposals are applicable to new construction, through the Vancouver Building By-law:**

| Item  | Description                                   | Proposal  |   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
|---|---|---|---|--|--|--|--|---|--|---|----------------|-----|----|----|--------|-----|----|---|--------|-----|----|---|-------|-----|----|----|
| <b>1.1 Align with Step 2 of the provincial Energy Step Code for Office, Retail, and Hotel buildings, and 7+ storey MURBs</b><br>Effective June 1, 2019  |   |   |   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| 1.1.1   | Energy Performance Requirements               | <ul style="list-style-type: none"> <li>• Adopt greenhouse gas, heat loss, and energy limits as proposed in the Zero Emissions Building Plan (ZEBP, 2016), while aligning with the heat loss and energy use limits of <b>Step 2</b> of the provincial Energy Step Code. Please refer to Table 1 below. The limits do not have a prescriptive path.</li> <li>• Ensure the greenhouse gas target maintains fuel choice for natural gas in space heating and hot water, or other uses.</li> <li>• In addition to the limits in the table below, additional compliance paths will be provided that align with a higher step of the Energy Step Code, without a GHGI limit.</li> <li>• Apply these limits to Part-9 non-residential as well.</li> </ul> |   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| <table border="1"> <thead> <tr> <th colspan="4">TABLE 1: VBBL - Proposed Energy Use, Heat Loss, and Greenhouse Gas Limits</th> </tr> <tr> <th></th> <th>Energy Use (TEUI)<br/>[kWh/m<sup>2</sup>a]</th> <th>Heat Loss (TEDI)<br/>[kWh/m<sup>2</sup>a]</th> <th>Greenhouse Gas Intensity (GHGI)<br/>[kgCO<sub>2e</sub>/m<sup>2</sup>a]</th> </tr> </thead> <tbody> <tr> <td>7+ Storey MURB</td> <td>130</td> <td>45</td> <td>14</td> </tr> <tr> <td>Office</td> <td>170</td> <td>30</td> <td>7</td> </tr> <tr> <td>Retail</td> <td>170</td> <td>30</td> <td>5</td> </tr> <tr> <td>Hotel</td> <td>170</td> <td>30</td> <td>14</td> </tr> </tbody> </table> <p>Note: Effective June 1, 2021, the limits for these building types will align with Step 3, and the GHGI limits of the Green Buildings Policy for Rezoning, and will seek to include the LCES pathway of that policy. For more information on this policy, please visit <a href="http://www.vancouver.ca/zeroemissions">www.vancouver.ca/zeroemissions</a>.</p> |   |   | TABLE 1: VBBL - Proposed Energy Use, Heat Loss, and Greenhouse Gas Limits |  |  |  |  | Energy Use (TEUI)<br>[kWh/m <sup>2</sup> a] | Heat Loss (TEDI)<br>[kWh/m <sup>2</sup> a] | Greenhouse Gas Intensity (GHGI)<br>[kgCO <sub>2e</sub> /m <sup>2</sup> a] | 7+ Storey MURB | 130 | 45 | 14 | Office | 170 | 30 | 7 | Retail | 170 | 30 | 5 | Hotel | 170 | 30 | 14 |
| TABLE 1: VBBL - Proposed Energy Use, Heat Loss, and Greenhouse Gas Limits   |   |   |   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
|   | Energy Use (TEUI)<br>[kWh/m <sup>2</sup> a]   | Heat Loss (TEDI)<br>[kWh/m <sup>2</sup> a]  | Greenhouse Gas Intensity (GHGI)<br>[kgCO <sub>2e</sub> /m <sup>2</sup> a] |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| 7+ Storey MURB  | 130   | 45  | 14  |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| Office  | 170   | 30  | 7   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| Retail  | 170   | 30  | 5   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| Hotel   | 170   | 30  | 14  |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| 1.1.2   | Direct Ventilation                            | <ul style="list-style-type: none"> <li>• Similar to requirement for all buildings following the Energy Step Code, all buildings must have a ventilation system that provides outdoor air directly to all occupiable spaces, in the quantities defined by code.</li> </ul>   |   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |
| 1.1.3   | Whole-Building and Suite Airtightness Testing | <ul style="list-style-type: none"> <li>• Similar to the requirement for all buildings following the Energy Step Code, all buildings and major occupancies must be tested for airtightness.</li> <li>• All buildings must meet an airtightness target of 2.0 L/s/m<sup>2</sup> @ 75Pa, or be sealed to good engineering practice.</li> <li>• Residential suites must meet an airtightness target of 1.2 L/s/m<sup>2</sup> @50 Pa</li> </ul>  |   |  |  |  |  |   |  |   |                |     |    |    |        |     |    |   |        |     |    |   |       |     |    |    |

**1.2 Align with 2018 BC Building Code energy efficiency requirements for all other building types that do not have Step Code targets**

Effective June 1, 2019

- 1.2.1 Energy Performance Requirements
- The VBBL is required by legislation to be at least as stringent as the BCBC. The BCBC is proposing to update energy efficiency standard references to **ASHRAE 90.1-2016** and to **NECB 2015**, and the VBBL will be updated accordingly.

**1.3 Apply the energy efficiency requirements of 1-6 storey MURBs (approved by Council in February 2017) to mixed-use MURBs <7 stories**

Effective June 1, 2019

- 1.3.1 Energy Performance Requirements
- Apply the energy efficiency requirements for 4-6 storey residential buildings (approved by Council in February 2017), to the residential portions of mixed-use buildings <7 stories as well (the limits of the performance path are in Table 2 below).
  - Maintain the prescriptive option, applying the prescriptive requirements to all portions of mixed-use buildings <7 stories, with an adjusted minimum performance requirement for storefront glazing of  $U_{SI} 2.27$  ( $U_{IP} 0.40$ ) or better.

Note: All mixed-use buildings use an area-weighted average of the limits for each building type. For example, a building with 9 stories of residential over 1 storey of retail would need to meet an area-weighted average of the residential portion (i.e. 45 TEDI), and the retail portion (i.e. 30 TEDI). Item 1.3.1 proposes that for mixed-use buildings <7 stories, the targets of the residential portion are as per Table 3 (i.e. 25 TEDI).

|   | Energy Use (TEUI)<br>[kWh/m <sup>2</sup> a] | Heat Loss (TEDI)<br>[kWh/m <sup>2</sup> a] | Greenhouse Gas Intensity (GHGI)<br>[kgCO <sub>2e</sub> /m <sup>2</sup> a] |
|---|---|--|---|
| Residential Portion of Mixed-Use Buildings <7 Stories | 110   | 25   | 5.5   |

**Section 2:** The following water efficiency proposals are applicable to those activities in all building types which trigger the Vancouver Building By-law (examples: new construction, major renovations)<sup>1</sup>, unless otherwise noted. Please note that many of these provisions are required to align with the 2018 BC Plumbing Code, and all were previously consulted on with industry in 2016.

| Item                  | Description                                 | Proposal   |
|-----------------------|---|--|
| <b>2.1 Fixtures</b>   |   |  |
| 2.1.1                 | Lavatory faucet (for public use)            | <ul style="list-style-type: none"> <li>Requirement that this is a <b><i>self-closing plumbing fixture</i></b>.</li> <li><b><i>Self-closing plumbing fixture</i></b> means a plumbing fixture that closes automatically upon the deactivation of a mechanical or electronic control mechanism.</li> <li>Alignment with 2018 BC Plumbing Code proposed changes.</li> </ul> |
| 2.1.2                 | Shower head (for public use)                | <ul style="list-style-type: none"> <li>Where multiple shower heads installed in a public showering facility are served by one temperature control, each shower head shall be a <b><i>self-closing plumbing fixture</i></b>.</li> <li>Alignment with 2018 BC Plumbing Code proposed changes.</li> </ul>   |
| 2.1.3                 | Kitchen faucet (residential)                | <ul style="list-style-type: none"> <li>Maximum flow rate of 6.8 L/min @ 415 kPa (60 psi). May temporarily increase to 8.3 L/min @ 415 kPa but must default to 6.8 L/min.</li> <li>Note: Kitchen faucet (non-residential) is unchanged at 8.3 L/min @ 415 kPa (60 psi).</li> </ul>  |
| <b>2.2 Appliances</b> |   |  |
| 2.2.1                 | Clothes washer (residential and commercial) | <ul style="list-style-type: none"> <li>Complies with Energy Star Product Specification for Clothes Washers Version 8.0 or be of acceptable equivalency.</li> <li>“Residential clothes washer” and “commercial clothes washer” are as defined by Energy Star Program Requirements Product Specification for Clothes Washers Version 8.0.</li> </ul>                       |
| 2.2.2                 | Dishwasher (residential)                    | <ul style="list-style-type: none"> <li>Complies with Energy Star Product Specification for Residential Dishwashers Version 6.0 or be of acceptable equivalency.</li> <li>“Residential dishwasher” is as per the definition of “dishwasher” by Energy Star Program Requirements Product Specification for Residential Dishwashers Version 6.0.</li> </ul>                 |

<sup>1</sup> Vancouver Building By-law water efficiency requirements as of January 1, 2018 can be found at <http://vancouver.ca/building-bylaw> (Refer to “Set three”).

| Item             | Description                  | Proposal  |
|------------------|------------------------------|---|
| 2.2.3            | Dishwasher (commercial)      | <ul style="list-style-type: none"> <li>Complies with Energy Star Product Specification for Commercial Dishwashers Version 2.0 or be of acceptable equivalency.</li> <li>“Commercial dishwasher” is as per the definition of “dishwashing machine” by Energy Star Program Requirements Product Specification for Commercial Dishwashers Version 2.0. Dishwashers intended for laboratory applications are exempted.</li> </ul> |
| 2.2.4            | Ice maker                    | <ul style="list-style-type: none"> <li>Complies with Energy Star Product Specification for Automatic Commercial Ice Makers Version 2.0 or be of acceptable equivalency.</li> <li>“Commercial ice maker” is as per the definition of “automatic commercial ice maker” by Energy Star Program Requirements Product Specification for Automatic Commercial Ice Makers Version 2.0.</li> </ul>                                    |
| 2.2.5            | Steam cooker                 | <ul style="list-style-type: none"> <li>Complies with Energy Star Product Specification for Commercial Steam Cookers Version 1.2</li> <li>“Commercial steam cooker” is as per the definition of “commercial steam cooker” by Energy Star Program Requirements Product Specification for Commercial Steam Cookers Version 1.2.</li> </ul>   |
| 2.2.6            | Combination oven             | <ul style="list-style-type: none"> <li>Complies with Energy Star Product Specification for Commercial Ovens Version 2.2</li> <li>“Combination oven” is as per the definition of “combination oven” by Energy Star Program Requirements Product Specification for Commercial Ovens Version 2.2. Combination ovens shall not consume more than 38 litres per hour in the full operational mode.</li> </ul>                      |
| <b>2.3 Other</b> |                              |   |
| 2.3.1            | Tempering with potable water | <ul style="list-style-type: none"> <li>Prohibit the use of potable water to temper steam condensate and other discharges to the sanitary or storm system.</li> </ul>  |
| 2.3.2            | Single pass systems          | <ul style="list-style-type: none"> <li>Administrative: Incorporate into the VBBL the requirements of Water Works By-law Section 3.9, prohibiting once through cooling equipment; non-recirculating liquid ring pumps; non-recirculating wet-hood scrubbers; and venturi-type flow-through vacuum generators or aspirators in which running water is used solely for the venturi effect.</li> </ul>                            |

**Section 3:** The following proposals are applicable to all rezoning applications received since May 1<sup>st</sup>, 2017, through the Green Buildings Policy for Rezonings:

| Item   | Description                   | Proposal   |
|--|-------------------------------|--|
| <b>3.1 Changes to Pathway A – Near Zero Emissions Buildings (i.e. Passive House Certified)</b><br><u>Effective immediately upon Council approval</u> |                               |  |
| 3.1.1  | Energy Metering and Reporting | <ul style="list-style-type: none"> <li>Add requirements for energy metering and reporting to match those in Pathway B</li> </ul>   |
| 3.1.2  | Low VOC Materials             | <ul style="list-style-type: none"> <li>Add requirements for low VOC materials to match those in Pathway B</li> </ul>   |
| <b>3.2 Changes to Pathway B – Low Emissions Green Buildings</b><br><u>Effective immediately upon Council approval</u>                                |                               |  |
| 3.2.1  | Heat Loss Limit               | <ul style="list-style-type: none"> <li>Align the heat loss limit (TEDl) for 7+ storey MURBs with Step 3 of provincial Energy Step Code, with the limit changing to 30 from 32.</li> </ul>                                      |
| 3.2.2  | Alternate Performance Limits  | <ul style="list-style-type: none"> <li>In addition to the limits in the policy currently, additional compliance paths will be provided that align with a higher step of the Energy Step Code, without a GHGI limit.</li> </ul> |

**Section 4:** The following proposals are applicable to new construction subject to the General Policy for Higher Buildings:

(Note: City staff are aiming to bring these changes to Council in June, 2018)

| Item  | Description                      | Proposal   |
|---|----------------------------------|--|
| <b>4.1 Changes to Energy Efficiency and Leadership</b><br><u>Effective date TBD</u> |                                  |  |
| 4.1.1   | Energy Efficiency and Leadership | <ul style="list-style-type: none"> <li>Update the energy efficiency and leadership in sustainable design requirements of the policy to align with the objectives and strategies of the Zero Emissions Building Plan.</li> <li>We are continuing focused consultations on this item.</li> </ul> |