

March 20, 2019
BUILDING DIVISION

BC Energy Step Code Requirements: Part 9 Single- and Two-Family Dwellings

DISCLAIMER: The information presented below is subject to addition and revision in future versions of this Building Division Bulletin. Notes below indicate some, but not all, items that may be revised. To be notified whenever this Bulletin is updated, sign up for email alerts at bit.ly/SurreyStepCodeAlerts.

Purpose and Background:

On July 23, 2018, Surrey City Council approved Corporate Report R179¹ that requires new buildings to be constructed to the energy efficiency requirements set under the BC Energy Step Code. This bulletin is provided to inform applicants and designers of new single- and two-family dwellings about the City of Surrey's BC Energy Step Code and building energy labelling requirements.

- Refer to the **Additional Information** section at the bottom of this bulletin for additional Step Code information and resources.
- Refer to **Appendix 1** for details on the City's building energy labelling requirements.
- BC Energy Step Code and associated requirements for other building types can be found in similar City bulletins for **Part 9 Multi-Family Residential Buildings** and **Part 3 Buildings**.

Implementation:

Effective April 1, 2019, Step 1 of the BC Energy Step Code will apply to all new building permit applications for single- and two-family buildings. To comply with the BC Energy Step Code, builders must work with a Licensed Energy Advisor and/or a Registered Professional to ensure building designs meet all applicable energy performance and administrative requirements.

All Registered Professionals are encouraged to follow the Joint Architectural Institute of BC and Engineers and Geoscientists BC *Professional Practice Guidelines – Whole Building Energy Modelling Services*.²

Rezoning and Development Permit Applications and Approvals:

As part of rezoning and development permit applications, applicants are expected to conduct energy modelling and provide a statement to the City that their proposed design will meet the City's Energy Step Code requirements in place at the time of the associated building permit application. This statement must be submitted prior to the City considering the rezoning and/or development permit application. It is incumbent on applicants to ensure their proposed building design will meet the City's Energy Step Code requirements. Any revisions to building design may require applicants to reapply for updated rezoning and/or development permit approvals.

¹ The July 2018 Council Report is available online. Any information in the Council Report that is inconsistent with City bylaws or bulletins should be considered out-of-date: https://www.surrey.ca/bylawsandcouncilibrary/CR_2018-R179.pdf

² Download AIBC and EGBC's *Joint Professional Practice Guidelines for Whole Building Energy Modelling Services* here: <https://www.egbc.ca/Practice-Resources/Professional-Practice-Guidelines>

Building Permit Submission Requirements:

All building permit applications for new single- and two-family buildings must demonstrate compliance with either the EnerGuide Rating System or 9.36.5 pathways listed in the Compliance Pathway Requirements table below. Be aware that in the future the City will require all building permit submission documents to be sealed and submitted electronically.

Applicants are expected to use conservative airtightness assumptions in energy models for Step 1. Applicants that do not use a conservative airtightness assumption risk designing and constructing homes that will not meet the Step 1 performance requirements and delaying occupancy at Final Building Inspection. The Province is developing a series of bulletins regarding airtightness assumptions to guide Licensed Energy Advisors and Registered Professionals in this work. This bulletin will be updated when those Provincial bulletins are available. If you are new to airtightness and have any questions regarding what value to assume, please work with your Licensed Energy Advisor.

Compliance Pathway Requirements at Building Permit Submission	
The following documents must be completed and submitted <u>with the Building Permit application package.</u>	
<u>City's Preferred Path</u>	
EnerGuide Rating System: <i>Licensed Energy Advisor</i>	9.36.5: <i>Registered Professional required</i>
<ol style="list-style-type: none"> 1. <i>BC Energy Compliance Report – Performance Paths for Part 9 Buildings: Pre-Construction form</i>³ completed by a Licensed Energy Advisor. Sections A, B, D, E, and F must be completed, as well as Section G where applicable. 2. Printed copy of HOT2000 Full House report.* 3. For each Licensed Energy Advisor, a copy of a valid certificate of insurance showing general liability insurance and errors and omissions insurance. 4. Plan drawings clearly showing all energy efficiency upgrades and type of air barrier. 	<ol style="list-style-type: none"> 1. <i>BC Energy Compliance Report – Performance Paths for Part 9 Buildings: Pre-Construction form</i>³ stamped with signature and date by a Registered Professional. Sections A, B, C, E, and F must be completed, as well as Section G where applicable. 2. Printed copy of the HOT2000 Full House report or alternative energy model report stamped with signature and date by a Registered Professional.* 3. For each Registered Professional, a copy of a valid professional liability certificate of insurance. 4. Plan drawings clearly showing all energy efficiency upgrades and type of air barrier.

*Note: The City may contact the Energy Advisor or Registered Professional to submit the associated model files for auditing purposes.

Building Insulation Inspections Process Requirements:

As indicated in Corporate Report R179, the City is considering a mid-construction blower door test requirement. If adopted, applicants will be required to complete a mid-construction blower door test and submit a complete *BC Energy Compliance Report – Mid-Construction form*⁴ before the City will conduct insulation inspection. The City will update this bulletin when this requirement has been determined, and will notify everyone that has signed up for Surrey Step Code email alerts (see the **Additional Information** section at the bottom of this bulletin).

Applicants are encouraged to begin scheduling and conducting mid-construction (pre-drywall) blower door tests in advance of the City's BC Energy Step Code requirements coming into force to understand the airtightness of their current building practices and identify where and how any needed improvements can be made cost-effectively before installing drywall and throughout the remainder of the construction process.

³ Download the *BC Energy Compliance Report – Performance Paths for Part 9 Buildings: Pre-Construction form* here: <https://energystepcode.ca/for-industry>

⁴ The *BC Energy Compliance Report – Mid-Construction form* is currently under development by the Province. This bulletin will be updated when the form is available, and subscribers to Surrey's Step Code email alerts will be notified.

To learn about funding available to support mid-construction blower door tests during the initial implementation of Step Code in Surrey, monitor the resources listed under the **Additional Information** section at the bottom of this bulletin.

Final Building Inspection Requirements:

All new single- and two-family buildings must demonstrate compliance with either the EnerGuide Rating System or 9.36.5 pathway listed in the Compliance Pathway Requirements table below. Note the building energy label requirement and see **Appendix 1** for more information.

Compliance Pathway Requirements at Final Building Inspection	
City's Preferred Path	9.36.5: Registered Professional required
EnerGuide Rating System: Licensed Energy Advisor	9.36.5: Registered Professional required
<ol style="list-style-type: none"> 1. Post-construction blower door test is required. Provide Building Inspections Section with a minimum 48-hour advance notice of a scheduled blower door test so that a Building Official may attend the testing, at the City's discretion. 2. <i>BC Energy Compliance Report – Performance Paths for Part 9 Buildings: As-Built form</i>⁵ completed by a Licensed Energy Advisor, indicating post-construction blower door test results and verification of all building energy efficiency upgrades. Sections A, B, D, E, and F must be completed, as well as Section G where applicable. 3. Revised printed copy of HOT2000 Full House report for each building as constructed.* The model must incorporate the post-construction blower door test result in the HOT2000 “n-file” energy model. 4. An EnerGuide Rating System label affixed on or near the electrical panel. 	<ol style="list-style-type: none"> 1. Post-construction blower door test is required. Provide Building Inspections Section with a minimum 48-hour advance notice of a scheduled blower door test so that a Building Official may attend the testing, at the City's discretion. 2. <i>BC Energy Compliance Report – Performance Paths for Part 9 Buildings: As-Built form</i>,⁵ stamped with signature and date by a Registered Professional, indicating post-construction blower door test results and verification of all building energy efficiency upgrades. Sections A, B, C, E, and F must be completed, as well as Section G where applicable. 3. Revised HOT2000 Full House report or alternative energy model report stamped with signature and date by a Registered Professional for each building as constructed.* The model must incorporate the post-construction blower door test result in the HOT2000 or other energy model. 4. EnerGuide Rating System, Passive House Certification or other eligible home energy label affixed on or near the electrical panel. See Appendix 1 for information required for a valid comparable Home Energy Label.

***Note:** The City may contact the Energy Advisor or Registered Professional to submit the associated model files for auditing purposes.

In-Stream Applications:

Buildings constructed after April 1, 2019 may be eligible to be subject to the energy standards in force before April 1, 2019 if meeting one of the following two sets of requirements:

1. Applicants that have submitted and paid for a *complete* building permit application *with detailed drawings* and all other required supporting documentation prior to April 1, 2019 will be subject to the energy standards in force at the time of application.
2. Applicants that have previously initiated a subdivision, rezoning, or development permit application before April 1, 2019 will be subject to the energy standards in place before April 1, 2019 as long as a *complete* building permit application *with detailed drawings* and all other required supporting

⁵ Download the *BC Energy Compliance Report – Performance Paths for Part 9 Buildings: As-Built form* here: <https://energystepcode.ca/for-industry>

documentation is submitted and paid for before April 1, 2020. This path is only available for the City's initial adoption of Step Code. It is not available at future increases in Step level requirements, such as when Part 9 single- and two-family dwellings are required to meet Step 3 starting January 1, 2021. Applicants are expected to know the City's Step Code requirements and plan accordingly.

The City reserves the right to revoke a previously granted in-stream status if additional submissions or substantial changes to the permit application(s) are required on or after April 1, 2019. In this case, the building(s) must be constructed to the performance requirements and abide by all administrative requirements in force on and after April 1, 2019.

Non-Compliance with Energy Step Code requirements:

If a building does not meet the BC Energy Step Code requirements after the post-construction blower door test, a Building Official *may* issue an inspection notice for occupancy if the following conditions are met:

- a. The applicant demonstrates that all reasonable measures were taken to improve the energy performance of the building *after* the initial post-construction blower door test.
- b. Another post-construction blower door test is conducted by a Licensed Energy Advisor or Registered Professional.
- c. The applicant submits a revised *BC Energy Compliance Report – Performance Paths for Part 9 Buildings: As-Built form* completed by the Licensed Energy Advisor or Registered Professional, indicating the updated post-construction blower door test results and verification of all building energy efficiency upgrades.
- d. The building constructed must demonstrate compliance with an alternative energy efficiency performance or prescriptive requirement set out in the BC Building Code for Part 9 construction.

Additional Information:

BC Energy Step Code:

- Receive up-to-date information by signing up for the Province's BC Energy Step Code Stakeholder Update newsletter: bit.ly/StepCodeStakeholderNewsletter.
- To learn more about the BC Energy Step Code, including performance requirements, resources for industry, and upcoming events, visit energystepcode.ca.
- If you have additional questions regarding the BC Energy Step Code, visit energystepcode.ca/contact-us/ or email building.safety@gov.bc.ca.

City of Surrey's Implementation of the BC Energy Step Code:

- Sign-up for email notifications whenever new information is available, including bulletin updates, education and engagement opportunities, and incentives and capacity building opportunities: bit.ly/SurreyStepCodeAlerts.
- For information about the City of Surrey's implementation of the BC Energy Step Code, visit www.surrey.ca/stepcode.
- If you have additional questions regarding the City's Implementation of the BC Energy Step Code, please email stepcode@surrey.ca.

Appendix 1: Requirements for Home Energy Labels

As an administrative requirement for occupancy, the City of Surrey requires that an energy label be affixed on or next to the electrical panel in each housing unit where an electrical panel is present.

The following energy labels are acceptable:

- EnerGuide Rating System energy label, OR
- Passive House Certificate, OR
- A “comparable energy label” including all required information.

The “comparable energy label” can be used when:

- Energy modellers are using software tested in accordance with ANSI/ASHRAE 140 Evaluation of Building Energy Analysis Computer Programs;
- Energy advisors not registered with the EnerGuide Rating System use Hot2000 to model a home and produce a BC Energy Compliance Report; OR
- Registered energy advisors are using HOT2000 but are unable to produce a formal EnerGuide Rating System home energy label. (e.g. when energy advisors use HOT2000 to model an townhome or row home as-a-building rather than as a unit). Note also that when EnerGuide Rating System energy advisors are using alternate energy modelling and blower door testing procedures they are not able to produce an EnerGuide home energy label.

“Comparable energy labels” must include the following information:

Address:	<ul style="list-style-type: none"> • The street address of the home.
Modeller:	<ul style="list-style-type: none"> • The date that the evaluation was conducted.
	<ul style="list-style-type: none"> • The company name and name of energy modeller that conducted the evaluation.
	<ul style="list-style-type: none"> • The name of the entity that provides quality assurance.
Energy Rating:	<ul style="list-style-type: none"> • Energy Rating: Energy consumption of the home in GJ per year, including baseloads.
	<ul style="list-style-type: none"> • Reference House Energy Rating: Reference house energy consumption in GJ per year, with baseloads.
Energy Metrics:	<ul style="list-style-type: none"> • Rated Annual Energy Consumption: Energy consumption GJ per year, broken down by fuel type (Natural Gas, Electricity, Oil, and Propane).
	<ul style="list-style-type: none"> • Breakdown of Rated Annual Energy Consumption by system: Percentage of total energy consumption GJ per year by end use (space heating, space cooling, water heating, ventilation, lights & appliances, and other electrical)
	<ul style="list-style-type: none"> • Rated On-site Renewable Energy Contributions: Energy generated annually from onsite renewable sources (solar PV, wind, solar hot water).
	<ul style="list-style-type: none"> • Rated Energy Intensity: Measured in gigajoules per square meter per year.
	<ul style="list-style-type: none"> • Rated Greenhouse Gas Emissions: Annual amount of greenhouse gases emitted in tons/year.
	<ul style="list-style-type: none"> • Total Heated Floor Area: The total usable heated floor area of the building unit, including all above-grade heated areas regardless of ceiling height, and all below-grade heated areas with a ceiling height of more than 1.2m (i.e. basements).