Township of Langley
Est. 1873

Bulletin
Permit, Licence & Inspection Services

April 2019

BC Energy Step Code – Energy Modeling Requirements

The purpose of this bulletin is to clarify the energy modeling documentation requirements for Part 9 buildings that must use the BC Energy Step Code to demonstrate compliance with the energy efficiency requirements of the BC Building Code.

Township of Langley Step Code Forms

The Township of Langley has issued its own version of the provincial Step Code forms in accordance with the Energy Step Code Council's recommendations. These forms must be used, and have recently been updated to become electronically fillable. Forms are available at www.tol.ca/stepcode

Note: Step Code metrics (TEDI and MEUI) must be calculated and reported for Step 1 projects, even though they are not performance gateways in the BC Building Code for compliance.

Consistency of Information between the Drawings and the Energy Model

The energy model (in particular the envelope details) **should be based on the drawings**. It is a common practice for Energy Advisors to make recommendations to their clients on how to best achieve code compliance (for example, to recommend substituting R-22 Batt insulation for R-20 Batt insulation). However, energy models for building permit applications must reflect the accompanying drawings. There must be coordination between the builder, Energy Advisor, and designer to ensure consistency of information. The Township will only accept building permit applications where the energy modeling report reflects the proposed design (that is, as per the drawings).

Climate Files & Metric Units

Energy models shall use **Abbotsford** climate files. Energy modeling reports shall provide required information in **metrics** units.

Ventilation Rates

The ventilation rates for the building as reported in the EnerGuide Home Owner Information Sheet, Whole-Home Ventilation Air Flow Rate section must reflect the ventilation requirements for the building as described in Table 9.32.3.5. of the BCBC.

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Whole Building Compliance for Part 9 Multifamily Projects (For Energy Advisors)

The Step Code requires compliance to be demonstrated for a building in a single energy modeling report. This means that EnerGuide reports for individual units of a Part 9 multifamily project cannot be used to demonstrate Step Code compliance. At the time of writing, the industry is awaiting energy modeling guidelines for Energy Advisors modeling Part 9 multifamily projects using Hot2000. It is expected that these will be available soon, however, until these are available the following temporary guidelines shall be used:

1. Set Hot2000 to General Mode.
2. The entire building envelope shall be modeled as a single building, as per the regular NRCan procedure.
3. Baseloads shall be set as the sum of:
    a. Appliances: 5.2 kWh/day/unit
    b. Interior lighting: 1.7 kWh/day/unit
    c. Other electrical: 4.4 kWh/day/unit
    d. Exterior use: 0.4 kWh/day/unit
4. Occupancy shall be set as the sum of:
    a. 2 adults per multifamily unit, or 2 adults and 1 child per row house or duplex unit.
    b. The limit of 9 adults can be overcome by substituting 2 children or infants for 1 adult.
    c. Occupancy shall be set to 50% for all occupants.
5. Domestic Hot Water
    a. The total daily domestic hot water consumption shall be set equal to 125 L/day/unit at 55℃.
    b. For DHW systems with a tank, the tank size shall be set as the sum of the tank sizes for all the units.
6. Ventilation rates (which shall be set as per BCBC Section 9.32) and fan power shall be modeled as a single system (the requirements of each unit is summed together into a single system).
7. The % Better than EnerGuide Reference House Step Code metric will not be used as a Step Code metric since the EnerGuide Rating System does not apply to whole building compliance approach.
8. Only one set of Step Code compliance documents shall be submitted per building permit application. Similarly, the Step Code Airtightness metric shall be evaluated for the building and not for individual units.

Airtightness Values Used in Energy Modeling

Design teams that wish to use airtightness values in the energy models less than 3.5 ACH at 50 Pa (for Part 9 buildings) or 0.2 L/s/m2 (for Part 3 buildings) should be prepared to demonstrate sufficient design details and project team experience to the satisfaction of the Township as part of the building permit application process.

This means that air barrier details must be marked (in red or pink) on the drawings submitted for the building permit application, and that the design and construction team should have demonstrable experience in achieving improved or advanced airtightness results.