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December 5, 2014

Revised: January 9, 2015

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## City of Vancouver Neighbourhood Energy Interpretation Guide for Rezonings

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The intent of this guide is to clarify and simplify the compliance process for new buildings that are to be located within City-recognized low carbon neighbourhood energy areas and subject to either the General Policy for Higher Buildings or the Green Buildings Policy for Rezonings. City-recognized low carbon Neighbourhood Energy areas presently include both the Southeast False Creek (SEFC) and Northeast False Creek (NEFC) neighbourhood energy areas.

New buildings within all Neighbourhood Energy areas are to continue to be designed in accordance with the latest Vancouver Building Bylaw, applicable Rezoning Conditions, and when also applicable, the City of Vancouver's "Neighbourhood Energy Connectivity Standards - Design Guidelines".

On June 25<sup>th</sup>, 2014, the City of Vancouver updated its General Policy for Higher Buildings and its Green Buildings Policy for Rezonings to increase energy performance expectations and to improve the alignment between the policies and the neighbourhood energy objectives and requirements. These are independent policies yet both may be applied to a single project. Such a project would therefore be required to meet all the requirements of both policies (ex: 22% energy cost savings, 45% energy consumption savings, and LEED Gold etc).

- The 2013 General Policy for Higher Buildings (effective November 20<sup>th</sup>, 2013) required a minimum 40% lower energy consumption than ASHRAE 90.1-2007. The 2014 General Policy for Higher Buildings requires a 45% lower energy consumption than ASHRAE 90.1-2010.
- The 2010 Green Building Policy (effective January 31, 2011) required LEED Gold plus 6 LEED energy points. The 2014 Green Buildings Policy for Rezonings requires LEED Gold plus 22% lower energy cost than the ASHRAE 90.1-2010 energy standard.

The shift away from using LEED to demonstrate energy performance enables the City to recognize the improved environmental performance of green buildings that connect to neighbourhood energy systems that will convert to low carbon energy sources in the future. To achieve LEED certification, projects must still comply with all CaGBC requirements.

Although buildings within the SEFC and NEFC areas are to tie into their neighbourhood energy systems, compliance with the Vancouver Building Bylaw (VBBL) can be demonstrated with building energy performance models using high efficiency boilers in place of these neighbourhood energy systems. The following is a breakdown of options available for rezoning projects subject to NEU requirements.

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## NEU Projects Subject to the 2014 General Policy for Higher Buildings

Projects under the 2014 General Policy for Higher Buildings, with requirements to connect into City-recognized low carbon neighbourhood energy systems (SEFC and NEFC), now have the following clarifications for demonstrating compliance with the Development Permit Board and VBBL requirements.

Acceptable Methodologies (comply with all items, 1 through 3):

1. Comply with the current Vancouver Building Bylaw (referencing ASHRAE 90.1-2010);
  - a. Comply using the Prescriptive path, or the Building Envelope Trade-off path OR,
  - b. Comply by modelling using the Energy Cost Budget (ECB) Method, and
    - i. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
2. Demonstrate additional energy performance as required by the Development Permit Board beyond the Vancouver Building Bylaw's referencing of ASHRAE 90.1-2010 by showing;
  - a. 45% lower energy consumption than ASHRAE 90.1-2010\* by
    - i. Modelling using either the Energy Cost Budget (ECB) or Appendix G methodologies, and
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
3. Connect to a City-recognized low carbon neighbourhood energy system (SEFC or NEFC)

\* Note that satisfying item 2 by using the ECB method will likely automatically satisfy item 1.

## NEU Projects Subject to the 2013 General Policy for Higher Buildings

To be consistent with the intent of the changes made in 2014, projects under the previous General Policy for Higher Buildings, with requirements to connect into City-recognized low carbon neighbourhood energy systems, now have three options for demonstrating compliance with the Development Permit Board and VBBL energy requirements.

Option 1 (all items, 1 through 3):

1. Comply with the current Vancouver Building Bylaw (referencing ASHRAE 90.1-2010);
  - a. Comply using the Prescriptive path, or the Building Envelope Trade-off path OR,
  - b. Comply by modelling using the Energy Cost Budget (ECB) Method, and
    - i. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2007, Table 6.8.1.F
2. Demonstrate additional energy performance as required by the Development Permit Board beyond the 2007 Vancouver Building Bylaw by showing;
  - a. Minimum 40% lower energy consumption than ASHRAE 90.1-2007 by
    - i. Modelling using either the Energy Cost Budget (ECB) or Appendix G methodologies, and
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2007, Table 6.8.1.F
3. Connect to a City-recognized low carbon neighbourhood energy system (SEFC or NEFC)

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### NEU Projects Subject to the 2014 Green Buildings Policy for Rezoning

Projects under the 2014 Green Buildings Policy for Rezoning, with requirements to connect into City-recognized low carbon neighbourhood energy systems (SEFC and NEFC), now have the following clarifications for demonstrating compliance with the Development Permit Board and VBBL requirements.

Acceptable Methodologies (comply with all items, 1 through 4):

1. Comply with the current Vancouver Building Bylaw (referencing ASHRAE 90.1-2010);
  - a. Comply using the Prescriptive path, or the Building Envelope Trade-off path OR,
  - b. Comply by modelling using the Energy Cost Budget (ECB) Method, and
    - i. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
2. Register and submit for certification a LEED Gold project using LEED2009 NC to the CaGBC;
  - a. Achieve 1 water efficiency point
  - b. Achieve 1 storm water point
3. Demonstrate additional energy performance as required by the Development Permit Board beyond the Vancouver Building Bylaw's referencing of ASHRAE 90.1-2010 by showing;
  - a. 22% lower energy cost than ASHRAE 90.1-2010\* by
    - i. Modelling using either the Energy Cost Budget (ECB) or Appendix G methodologies, and
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
4. Connect to a City-recognized low carbon neighbourhood energy system (SEFC or NEFC)

\* Note that satisfying item 3 by using the ECB method will automatically satisfy item 1.

### NEU Projects Subject to the 2010 Green Buildings Policy for Rezoning

To be consistent with the intent of this recent Green Building Policy change, projects under the previous Green Buildings Policy for Rezoning, with requirements to connect into City-recognized low carbon neighbourhood energy systems, now have three options for demonstrating compliance with the Development Permit Board and VBBL energy requirements.

Option 1 (all items, 1 through 4):

1. Comply with the current Vancouver Building Bylaw (referencing ASHRAE 90.1-2010);
  - a. Comply using the Prescriptive path, or the Building Envelope Trade-off path OR,
  - b. Comply by modelling using the Energy Cost Budget (ECB) Method, and
    - i. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
2. Register and submit for certification a LEED Gold project using LEED2009 NC to the CaGBC;
  - a. Achieve 1 water efficiency point
  - b. Achieve 1 storm water point
3. Demonstrate additional energy performance as required by the Development Permit Board beyond the 2007 Vancouver Building Bylaw by showing;
  - a. 6 LEED energy points (EAc1)
4. Connect to a City-recognized low carbon neighbourhood energy system (SEFC or NEFC)

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Option 2 (all items, 1 through 4):

1. Comply with the current Vancouver Building Bylaw (referencing ASHRAE 90.1-2010);
  - a. Comply using the Prescriptive path, or the Building Envelope Trade-off path OR,
  - b. Comply by modelling using the Energy Cost Budget (ECB) Method, and
    - i. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from
      3. ASHRAE 90.1-2010, Table 6.8.1.F
2. Register and submit for certification a LEED Gold project using LEED2009 NC to the CaGBC;
  - a. Achieve 1 water efficiency point
  - b. Achieve 1 storm water point
3. Demonstrate additional energy performance as required by the Development Permit Board beyond the 2007 Vancouver Building Bylaw by showing;
  - a. 22% lower energy cost than ASHRAE 90.1-2007 by
    - i. Modelling using either the Energy Cost Budget (ECB) or Appendix G methodologies, and
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2007, Table 6.8.1.F
4. Connect to a City-recognized low carbon neighbourhood energy system (SEFC or NEFC)

Option 3 (all items, 1 through 4):

1. Comply with the current Vancouver Building Bylaw (referencing ASHRAE 90.1-2010);
  - a. Comply using the Prescriptive path, or the Building Envelope Trade-off path OR,
  - b. Comply by modelling using the Energy Cost Budget (ECB) Method, and
    - i. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
2. Register and submit for certification a LEED Gold project using LEED2009 NC to the CaGBC;
  - a. Achieve 1 water efficiency point
  - b. Achieve 1 storm water point
3. Demonstrate additional energy performance as required by the Development Permit Board beyond the 2007 Vancouver Building Bylaw by showing;
  - a. 12% lower energy cost than ASHRAE 90.1-2010\*\* by
    - i. Modelling using either the Energy Cost Budget (ECB) or Appendix G methodologies, and
    - ii. Modelling using an equivalent boiler system with;
      1. the Proposed Building using a 94% efficient boiler, and
      2. the Reference Building using the appropriate efficiency value from ASHRAE 90.1-2010, Table 6.8.1.F
4. Connect to a City-recognized low carbon neighbourhood energy system (SEFC or NEFC)

\*\* Note that satisfying item 3 within Option 3 by using the ECB method will automatically satisfy item 1 of Option 3, possibly reducing the number of building performance models needed to satisfy the entire list of requirements and conditions.

If you have questions about your options or requirements, please contact the City of Vancouver.