

December, 2017  
BUILDING DIVISION

# ***ENERGY EFFICIENCY***

**(2012 BC Building Code Part 9 and Part 10 of Division B)**

British Columbia's commitment to reduce greenhouse gases related to buildings and construction has prompted building code requirements for energy efficiency since September 2008. This guide has been prepared to summarize these requirements for commercial, industrial, institutional, and multi-family buildings.

## **General Information**

The BC Building Code contains the acceptable solutions, objectives, and functional statements attributed to energy efficiency. In general, the energy efficiency requirements apply to all new buildings and building systems, as well as new construction in existing buildings, including tenant improvements. Requests for interpretations and exemptions (e.g. alternative solutions) will be evaluated on a case by case basis. It is strongly recommended that Registered Professionals incorporate energy efficiency considerations early in the design and construction process in order to achieve the greatest degree of flexibility and compliance.

For all Part 3, Part 9 multi-family, and Part 9 non-residential buildings, the building permit application requires Registered Professionals to submit Letters of Assurance (Schedule B) for their respective disciplines. The Architectural, Mechanical, and Electrical disciplines include a specific responsibility for energy efficiency compliance to the BC Building Code requirements. Where applicable, the building permit application drawings should include sufficient information to demonstrate energy efficiency compliance.

## **Building Code Requirements**

### Part 9 Single and Two Family Dwellings:

Please refer to the bulletin "Part 9 Energy Efficiency and Ventilation Requirements (For Single and Two Family Dwellings)".

### Other Part 9 Buildings:

Buildings containing any F-2 occupancy or more than 300 m<sup>2</sup> of non-residential occupancy:

- Compliance with NECB "National Energy Code of Canada for Buildings" (2011 Edition)

Buildings containing only dwelling units and maximum 20% common space floor area:

- Compliance with the prescriptive path of Subsections 9.36.2 to 9.36.4, or
- Compliance with the performance path of Subsection 9.36.5, or
- Compliance with NECB “National Energy Code of Canada for Buildings” (2011 Edition), or
- Compliance with the Energy Step Code of 9.36.6

Buildings not mentioned above:

- Compliance with the prescriptive path of Subsections 9.36.2 to 9.36.4, or
- Compliance with NECB “National Energy Code of Canada for Buildings” (2011 Edition), or
- Compliance with the Energy Step Code of 9.36.6

#### All Part 3 Buildings:

Compliance with:

- ASHRAE 90.1 “Energy Standard for Buildings Except Low-Rise Residential Buildings” (2010 Edition), or
- NECB “National Energy Code of Canada for Buildings” (2011 Edition), or
- Energy Step Code of 10.2.3

#### **ASHRAE 90.1**

ASHRAE 90.1 is an internationally recognized standard for energy efficiency in buildings, providing minimum requirements for building envelope, HVAC, service water heating, electric power distribution, and lighting. All mandatory provisions in each Section must be met. The prescriptive requirements in each Section must be met directly or through the permitted trade-off methods. In lieu of complying with the prescriptive requirements of each Section, the Energy Cost Budget (ECB) method can be used for trade-offs between building systems. The ECB method requires computer modelling to demonstrate that the overall proposed building energy performance is equal to or better than that of the reference building. The reference building is one that complies exactly with the prescriptive requirements. The ASHRAE 90.1 modelling performance criteria is energy-cost based.

#### **NECB**

NECB is a Canadian standard for energy efficiency in buildings, providing minimum requirements for building envelope, lighting, HVAC, service water heating, and electric power distribution. The prescriptive requirements in each Part must be met directly or through the permitted trade-off methods. In lieu of complying with the prescriptive requirements of each Part, computer modelling can be used for trade-offs between building systems and to demonstrate compliance of the overall proposed building. The NECB modelling performance criteria is energy-usage based.

#### **Energy Step Code**

The Energy Step Code is a provincial standard that provides an incremental and consistent approach to achieving more energy-efficient buildings that go beyond the base requirements of the BC Building Code, by establishing a series of measurable, performance-based energy-efficiency targets to be met. In the City of Surrey, the Energy Step Code is currently an optional compliance path to meet the applicable BC Building Code energy efficiency requirements.

## **Additional Information**

Although some building types can achieve greater energy efficiency with ASHRAE 90.1 and others with NECB, buildings must comply in their entirety with either one or the other standard. ASHRAE 90.1 classifies the Vancouver region as Zone 5 while NECB classifies the same region as Zone 4. To enable a fair comparison, the BC Building and Safety Standards Branch issued a bulletin clarifying that Zone 4 can also be used for the ASHRAE 90.1 compliance option.

In general, for shell and speculative buildings, all spaces shall be considered conditioned unless approval is granted by the Authority Having Jurisdiction to designate a space as semi-heated or unconditioned. If approved, this restriction will be noted on the building permit and the approved permit drawings for the purposes of future tenant improvement applications and plan reviews.

For industrial warehouse shell buildings, the roof, exterior walls, and ground floor slab must comply with the conditioned space insulation requirements, and any tenant demising walls must comply with the semi-exterior envelope insulation requirements. Alternatively, only the roof and ground floor slab must comply with the conditioned space insulation requirements, provided that a restrictive covenant is registered on title stating that the intended building occupancy is suitable for unconditioned or semi-heated space, and that if the occupancy is later changed to those requiring semi-heated or conditioned space, the exterior walls and tenant demising walls must be upgraded to comply with the applicable insulation requirements.