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New Energy Requirements

BC has been pursuing energy efficiency and greenhouse gas reduction goals in buildings for more than six years. In April 2013, BC took the next step towards greater energy efficiency and greenhouse gas reduction with the adoption of the following new BC Building Code requirements.

Large Residential, Industrial, Commercial and Institutional Buildings (Part 3) – December 20, 2013

The adoption order is here: http://www.bccodes.ca/167_2013.pdf

BC will allow a choice of energy efficiency standards for Part 3 buildings (excludes houses and small buildings) that apply for permits on or after December 20, 2013. (See *Appendix FAQ #1*)

- *2011 National Energy Code for Buildings (NECB)*: BC supported the development of this new Canadian standard, which, in some respects, better addresses the climatic and construction practice conditions in BC. Adopting the NECB harmonizes BC with the national code development system.
- *ASHRAE 90.1(2010)*: This well-respected North American standard has an established infrastructure of education, training and support. The older 2004 edition has been in force within BC since 2008.

While the two standards share much of the same information base, there are differences in approach, which can be summarized as follows:

- Both have traditional prescriptive compliance paths.
- Both have performance compliance paths (whole building modeling/simulation), however:
 - NECB is energy-based;
 - ASHRAE is energy-cost based.
- Both have trade-off paths however:
 - ASHRAE has the trade off paths in the building envelope part only,
 - NECB has the trade-off paths in the building envelope part as well as in the lighting, HVAC and service hot water heating systems parts.

Some building types can be constructed more economically and/or achieve greater energy efficiency with ASHRAE and others with the NECB. NECB references more existing Canadian Standards than ASHRAE. Code users have welcomed the flexibility offered by having two options for energy efficiency standards. However, the availability

of two referenced standards comes with some special considerations. (See Appendix FAQ's #2 and #3)

Housing and Small Buildings (Part 9) - December 19, 2014

The adoption order is here: http://www.bccodes.ca/173_2013.pdf

The model code language is available at no cost here:
http://www.nationalcodes.nrc.gc.ca/eng/revisions_order_form.html

Note: The Building & Safety Standards Branch will be producing a consolidated version shortly.

The National Building Code (NBC) published a new section containing energy efficiency requirements for housing and small buildings in December 2012. Effective December 19, 2014, BC has adopted the package, which introduces Building Code performance standards for windows and heating equipment for the first time in BC. (See Appendix FAQ #4-7)

BC has chosen to harmonize the numbering with the NBC and move the current secondary suite provisions from 9.36 to 9.37. The 2014 effective date provides ample time to prepare in recognition that builders are currently adjusting to significant new lateral load requirements in the 2012 BC Building Code.

Next Steps

Professional organizations and other construction sector stakeholders are already planning their strategies to get up to speed on the new energy requirements. (See Appendix FAQ #8-10) All those involved in the design and construction of new buildings in BC are encouraged to seek out the training necessary to support a smooth transition to greater energy efficiency within the built environment.

New Energy Requirements - Appendix

FAQ's

Q1: Can I use bits and pieces from both standards?

A1: Builders will be able to choose which standard they will use to achieve compliance. Buildings will have to comply in their entirety with either one or the other standard. For example, a building could not comply with the building envelope requirements of NECB and the lighting requirements of ASHRAE 90.1.

Q2: For Part 3 buildings, what ventilation rates should I use?

A2: ASHRAE 90.1 (2010) dictates that ASHRAE 62.1 (2007) shall be used to establish ventilation rates. NECB dictates that whatever ventilation standard is referenced in Part 6 of the National Building Code is the one that shall be used. The 2010 NBC and therefore the 2012 BCBC reference ASHRAE 62.1 (2001) with all all amendments, revisions, reaffirmations, re-approvals, addenda and supplements effective to September 30, 2009 (except Addendum N). Although the choice of ventilation standards will have energy implications, ventilation is a health and safety issue rather than an energy issue. As such, all Part 3 buildings are required to use the ventilation standard referenced in Part 6 of the BCBC. Code users are advised to adjust the ventilation settings of modelling programs for the ASHRAE 90.1 (2010) standard, which are based on a different ventilation regime.

Q3: For Part 3 buildings, what climate data should I use?

A3: A key point for ASHRAE users to note is that ASHRAE's climate zones do not align with the climate data in the Canadian NBC. Designers should use the Canadian climate data, which puts the lower Fraser Valley and other South Coast locations under 3000 HDD.

Q4: Aren't there already minimum standards for window performance?

A4: For many years the BC Energy Efficiency Act has contained performance standards for building components. This Act and the Building Code will now overlap but continue to have two distinct purposes. Work has been done to harmonize the two for clarity and convenience.

Q5: Is the BC version of 9.36 exactly the same as the National Building Code 9.36?

A5: BC's version of the package includes a couple of variations from the NBC. For the time being, BC has dropped ER rating as a basis for choosing windows in the prescriptive path, although ER can still be considered by energy modellers working in the performance path to compliance. As well, BC has adjusted the performance target for electric water heaters to keep the building code aligned with BC's Energy Efficiency Act.

Q6: Will the 9.36 package change in between now and December 19, 2014?

A6: BC intended to reduce the sub-slab insulation requirements from full area to perimeter only. We intend to correct that omission prior to the effective date. Also, the ventilation requirements in Part 9 may need to be addressed but no other changes to the energy performance requirements are proposed.

Q7: What happened to the proposed ventilation changes in Part 9?

A7: Proposals to adjust the ventilation requirements for Part 9 housing to account for the anticipated improvements in air tightness were included in our online public review last fall. Unfortunately, consensus could not be reached on the most appropriate way forward prior to the code production deadlines.

The deferred implementation date of the housing energy package allows us to revisit this topic, do further consultation and undertake another public review before the energy package implementation date.

Q8: Are there resources available to learn more about the new requirements for Part 3?

A8: Yes, some background items and educational items are summarized below:

- *ASHRAE subscribers can access online and live workshop training resources for the 90.1 (2010) standard on the ASHRAE website at: <https://ashrae.org/education--certification/online-learning>*
- *Information on the NECB is available at: http://www.nationalcodes.nrc.gc.ca/eng/presentations/2011_necb_presentations.html*
- *[BC Energy Code Comparison](#) – Stantec Consulting Ltd., October 2012*
- *[ASHRAE 90.1 2010 and NECB 2011 Cross Canada Comparison](#) - Caneta Research Inc., January 2012*
- *[Summary Review Assessment of Energy Performance Codes](#) - ASHRAE 90.1-2004, 90.1-2010 and NECB for British Columbia - EnerSys Analytics Inc., December 2011*

Q9: Is anything else in the works for education and training on Part 3 requirements?

A9: Yes, the Canadian Codes Centre is also working on the following:

- *NECB Guide for release in December 2013*
- *NECB User Guide checklist (under development)*

- *Canquest (NECB modelling tool based on e-Quest) in final phase of validation for release in June, 2013*
- *Two Canquest training curricula are being developed:*
 - *A 1-day course for engineers, architects, planners, builders and building officials comprising an introduction to the NECB and to Canquest.*
 - *A 2-day technical course on Canquest for people who already use e-quest.*
- *Several tools (spreadsheets) on detailed tradeoffs are available as free downloads on the NRC website*

Q10: Is anything available or being planned for education and training on new Part 9 requirements?

A10: Yes, the Homeowner Protection Office is planning a BuildingSmart seminar tour of the province in the fall of 2013 to help the low rise residential construction sector prepare for the coming energy package. The Building Officials Association of BC and other stakeholder groups are also considering education and training options.

Additional information on the NBC 9.36 package on which the BC requirements are primarily based, is available at:

http://www.nationalcodes.nrc.gc.ca/eng/presentations/2012_eehsb_presentations.html