

Meeting Notes Building Research Council (BRC)

Wednesday November 17, 2021, 9:00 a.m. to 12:00 p.m.

Online Meeting

In Attendance:

Denisa Ionescu, BC Housing Chair
Albert Lam, Brantwood Consulting
Alexander McGowan, WSP Canada Inc.
Allison DenToom, Engineers and Geoscientists BC
Andriana Beauchemin, EcoAmmo Sustainable Consulting
Antje Wahl, Forestry Innovation Investment
Arash Azadeh, BC Housing
Asala Elnaffar
Bo Li, BCIT
Brent Bélanger, Certain Teed Canada
Cara Lozinsky, University of Toronto
Cindy Moran, BC Housing
David Bruce
Don Munich, Travelers Canada
Douglas Bennion, Quadlock
Fitsum Tariku, BCIT
Fred Tai, Simpson Strong-Tie Canada, Limited
Glade Schoenfeld, RJC
Hamid Ghanbari, EduBuild Solutions
Harshan Radhakrishnan, Engineers and Geoscientists BC
Ivan Lee, Morrison Hershfield

Jean-François Côté, SOPREMA
Jieying Wang, FPInnovations
Laurence Matzek, RCABC
Lily Shields-Anderson, UDI
Malamarie Sinha, BC Housing
Michelle Lee, BC Housing
Monte Paulson, RDH Building Science
Murray Frank, Build it Right
Neal Holcroft, FPInnovations
Patrick Roppel, EVOKE Buildings Engineering Inc.
Patrick Shek, City of Burnaby
Pierre-Michel Busque, Busque Engineering
Ralph Evins, University of Victoria
Randy Van Straaten, Building Enclosure Labs Inc.
Remi Charron, BC Housing
Richard Kadulski, Richard Kadulski Architect
Robert Jonkman, Canadian Wood Council
Robert Marshall, Cedaridge Services Inc.
Robert Sloat, Surety Association of Canada
Scott Williams, Building and Safety Standards Branch
Tony Gioventu, CHOA BC

1. Approval of Agenda/Additional Items

The meeting was called to order at 9.00 a.m. D. Ionescu welcomed everyone to the meeting on behalf of the BRC followed by a roundtable introduction. The meeting agenda was approved.

2. Approval of April 20, 2021, Meeting Minutes

The minutes from the April 20, 2020, BRC meeting were approved.

3. Low Carbon Solutions for Multi-unit Residential Buildings, Randy Van Straaten, Building Enclosure Labs and Patrick Roppel, EVOKE

There is a growing body of evidence that embodied carbon is as important as operational energy savings. However, an analysis that is accurate and repeatable is needed to quantify embodied carbon and effectively balance reductions with energy efficiency. Patrick Roppel and Randy Van Straaten, presented on a study that investigated how embodied carbon can be meaningfully reduced for new construction and retrofits for the full building lifecycle. Findings will be used to guide decision making at the component and system level and highlight solutions that balance emissions with durability, cost, and occupant comfort.

- 4. Free Cooling Potential and its Application in Single-family Residential House**, Dr. Bo Li, BCIT Building Science Centre of Excellence and Western University
Canadian cooling energy has increased by 150% since 1990 and it's expected to continue rising. Dr. Bo Li presented on a study that quantified the available free cooling of outside air and its usable portion for a typical house. Using BEopt to develop a series of thermal models, the research investigated the ability of air-sided economizers to meet the cooling needs of a residential house, and the potential for energy savings when free cooling can be thermally stored.
- 5. Building and Safety Standards Updates**, Scott Williams, Building Safety and Standards Branch
Scott Williams summarized changes to the BC Building Code (BCBC), which was recently updated to harmonize with the National Building Code, without reducing its current targets. Supporting the BCBC is the CleanBC Roadmap to 2030, which outlines the provinces commitment to move towards Net-Zero by 2032, with an incremental improvement of 20% in 2022, and aims to build zero carbon new construction by 2030.

Andy also introduced the provinces Homes for BC: A 30-Point Plan for Affordable Housing in British Columbia, through which the province aims to strengthen the housing market by making the largest investment in affordability in B.C.'S history.

- 6. Lesson Learned about Summer Comfort in a Passive House MURB**, Monte Paulson, RDH Building Science
Monte Paulson presented a study that addressed seven factors that contribute to overheating and six conditions that affect resident comfort during summer. Current recommendations encourage building highly efficient buildings; however, modeling data is outdated and limits the efficiency of structures. This research investigated a Seniors Housing MURB in Smithers BC, built to Passive House standards and modeled using current criteria. Results provide key considerations when designing MURBS, including recommendations to prevent overheating and increase resident comfort.
- 7. R22 Wall Testing: Performance**, Neil Holcroft, FPInnovations
Neil Holcroft presented the results of a study that investigated various R-22 effective wall configurations in a test hut in Vancouver; research findings will be used to provide recommendations to ensure durable wood-frame walls meet or exceed R22 requirements. By generating moisture performance data specifically for R22 wood-frame walls, researchers were able to demonstrate the importance of validating hygrothermal modelling, when providing an accurate assessment of durability risks and to gain a better understanding of model limitations.

The final report will include validated WUFI models and sensitivity analysis to identify which parameters should be prioritized.

A new study has been initiated that will investigate cross-laminated timber walls under the same conditions.

8. Development of a Net-Zero Navigator Platform, Ralph Evans, University of Victoria

Ralph Evans provided an update on an online platform, developed to guide the exploration of new building designs in relation to net-zero ready targets, and improve building energy understanding. The interactive tool uses 'surrogate modelling' to help designers make more informed decisions earlier on in the design process. The finished product will include a full set of Department of Energy archetype buildings and will allow users to add weather models to predict building outputs, capture peak-loads and help determine the effectiveness of the building design.

9. Forum Discussion

No forum discussion.

10. Next BRC Meeting

Is scheduled for Tuesday April 20, 2022, 9:00 a.m. – 11:30 a.m. via Zoom