

# Tools to Help Design Building Envelopes for Net Zero Homes

February 16, 2017  
Webinar

Canadian  
Home Builders'  
Association



**netzero**  
home

The ultimate standard for comfort and efficiency

# Moderator

## Derek Satnik, P.Eng., LEED(r) AP - VP of Technology at s2e Technologies

Derek is a familiar face in CHBA and related discussions on sustainable housing. With nearly 40 million square feet of improved buildings on his resume and over 85,000 kW of renewable energy projects, Derek has made significant contributions to most of Canada's leading green building programs including ENERGY STAR, BUILT GREEN, LEED, Net-Zero, and related codes and legislation.

Now as VP of Technology at s2e Technologies, he leads s2e's Smart Communities business, working with leading developers, technology suppliers and community designers on some of the most sustainable and technologically advanced communities in the world.



# Housekeeping

Before we get started with the presentations...

- We have a large audience today, so everyone will be in listen only mode.
- There will be time at the end of all the presentations for the presenters to answer your questions. **Please submit your questions in the questions section of the dashboard** and I'll direct your questions to the appropriate presenter.
- This webinar is being recorded. CHBA members will be able to access the recording and the slide decks tomorrow at [www.chba.ca/NZwebinars](http://www.chba.ca/NZwebinars).



# Overview

## Tools to Help Design Building Envelopes for Net Zero Homes

- Today you will learn about some of the tools that Energy Advisors and Builders are using to help design Building Envelopes for Net Zero Homes.
- Each presenter will provide an introduction to their tool, highlighting the key functionality and outputs.
- You will learn where to access the tools and who to contact for more information.



## Our 1<sup>st</sup> Presenter

### Anil Parekh, P.Eng. - Senior Researcher with Natural Resources Canada

Anil has been working in the housing energy efficiency field for over twenty-five years focusing on building envelope technologies, energy analysis and performance evaluations. He is also Technical Advisor for the leading-edge standards such as R-2000, ENERGY STAR and EnerGuide Rating System.



## Our 1<sup>st</sup> Presenter

**Anil Parekh, P.Eng. - Senior Researcher with Natural Resources Canada**

HOT2000 is an energy simulation and design tool for low-rise residential buildings. It supports Natural Resources Canada's EnerGuide Rating System, ENERGY STAR for New Homes and R-2000 energy efficiency residential programs. In 2015, updates to the rating system resulted in a new version of HOT2000 and new complementary report generation software. Anil's presentation will focus on modelling renewable energy in HOT2000 to determine the energy "budget" for a home.



## Our 2nd Presenter

### **Sal Ciarlo, P.Eng. - Technical Services & Codes and Standards Manager at Owens Corning Canada**

Sal is responsible for the design, certification and commercialization of complete building enclosure systems for the commercial, industrial and residential building construction markets. As a civil engineer with more than 25 years of building science experience, he specialises in high performance and net zero building envelope designs, acoustic and fire separation systems and solutions. Sal is very active on Provincial and National Code committees helping to develop energy codes and standards. He has presented educational seminars to architects, engineering professionals and builders across the country, focusing on next generation building envelope solutions and designs, net zero envelopes, air barrier systems, noise control and fire protection systems.



## Our 2<sup>nd</sup> Presenter

### **Sal Ciarlo, P.Eng. - Technical Services & Codes and Standards Manager at Owens Corning Canada**

The Owens Corning effective thermal resistance calculator uses the calculation methodology, material values and framing factors listed in appendix A-9.36.2.4.1 of the National Building Code of Canada. Wood structural members are of the spruce-pine-fir type with a thermal resistance of RSI 0.0085/mm of thickness. Steel stud members are available as an option for walls above grade assemblies only with a thermal resistance of RSI 0.0000161/mm. The user can view the individual material thermal resistance values used in the calculation for the design assembly chosen by clicking on the “Download Results” icon. Assembly details are grouped by Continuous and Non-Continuous layers.





## Our 3<sup>rd</sup> Presenter

### **Robert Jonkman, P.Eng. - Director Codes and Standards - Structural Engineering at Canadian Wood Council**

Rob joined the Canadian Wood Council's Codes and Standards division in 2005, progressing to "Director, Codes and Standards - Structural Engineering" in 2014. Concentrating on structural engineering, building science, and energy issues, Rob is responsible for the CWC's Publication and Software business centre, participates on the Technical Research Committee and the Net Zero Energy Housing council of the Canadian Home Builder's Association, participates on national building code committees (Structural and Energy) and is the Secretary/Associate for the Technical Committee on the "Engineering Design in Wood" (CSA O86) Standard.



## Our 3<sup>rd</sup> Presenter

### **Robert Jonkman, P.Eng. - Director Codes and Standards - Structural Engineering at Canadian Wood Council**

The Canadian Wood Council's interactive Wall Thermal Design (WTD) calculator is a free tool to help designers comply to the new energy requirements. The calculator enables designers to explore options, compare features, and determine a suitable wall assembly that can perform across a range of Canadian climates. This free online tool provides effective R-values for wall assemblies and includes a durability assessment that considers computer modeling and field experience.



## Our 4<sup>th</sup> Presenter

### **Patrick Roppel, P.Eng., M.A.Sc. - Principal, Building Science Specialist at Morrison Hershfield**

Patrick manages the Building Performance Analysis Department at Morrison Hershfield. Patrick is a Building Science Specialist with a technical focus on evaluating the performance of the building envelope through testing, monitoring, and numerical simulations. Patrick manages and provides technical oversight on new construction and retrofit projects, investigation and assessment of existing buildings, and building science research.



## Our 4<sup>th</sup> Presenter

**Patrick Roppel, P.Eng., M.A.Sc. - Principal, Building Science Specialist at Morrison Hershfield**

The Building Envelope Thermal Bridging Guide was prepared by Morrison Hershfield Ltd. In collaboration with many stakeholders and industry partners. This publication is provided to inform the practice of applying the Building Envelope Thermal Analysis (BETA) methodology for determining the effective thermal performance of building envelope assembly and interface details, as well as to guide BETA's application in overall building design.



## Contact Information

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