



**SUSTAINABLE
BUILDINGS
CANADA**

June 13, 2018

The Well, Bayview Yards Innovation Centre,
7 Bayview Rd Ottawa ON

1:00- 5:30 pm

THE ROAD TO NET ZERO CARBON AND ENERGY: DEFINITIONS, TOOLS, STRATEGIES, AND CASE STUDIES FOR EXISTING AND NEW BUILDINGS

Target audience – architects, engineers, building owners and managers,
civil service, energy specialists, consultants

Certificates for 3 hours of continuing education for architects and engineers will be issued- OAA, PEO, OAQ, OIQ

Session 1 – 1:00 – 2:30

Approaching Net Zero

What is net zero energy vs carbon and why is this important?

While the leap to net zero is necessary, simple, incremental measures can eliminate huge amounts of CO₂ in the meantime. This session will examine:

- The difference between net zero energy and net zero carbon
- Grid mechanics- barriers to innovation and complexity of calculating carbon in our grid
- Near net zero for existing buildings - what's feasible for achieving major reductions
- Advantages to taking control of both use and demand profiles, i.e. energy (kWh) as well as demand (kW).
- New and emerging options – turning challenges to opportunities: Smart technology and operations, utility programs, energy storage, etc

Scott Rouse, P. Eng., MBA, CEM, CSDP
Managing Partner, Energy@Work Inc.

Mike Williams P.Eng., MSc, LEED AP BD+C,
RWDI - Technical Director, Principal, Sustainability



DESIGNING FOR FUTURE WEATHER

56°C with the humidex. 400 km/hr tornados. Flooding. Blackouts. In southern Ontario

A 2012 City of Toronto study of future weather and climate drivers predicted increased frequency and duration of heat waves, significantly higher temperatures, more freeze-thaw cycles, more intense major rain events and increased intensity of major storms and tornados.

For modeling, selecting an appropriate weather file may be the most important input into any energy performance analysis. An RWDI study suggests that using historical weather data in the 2040s will result in 91 days each year of unmet thermal comfort requirements during the hottest part of the day.

Learn about more realistic weather data for your energy model, the many common sense passive design decisions that can enhance comfort and how to build-in resilience by anticipating future climate conditions.

Mike Williams P.Eng., MSc, LEED AP BD+C,
RWDI Technical Director, Principal, Sustainability

Michelle Xuereb B.E.S., B.Arch., OAA, LEED AP BD+C
Quadrangle Architects, Sustainability Strategist, Senior Associate

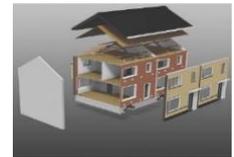
Break – 2:30 – 2:45

Session 2 – 2:45 – 4:15

Net Zero retrofits

A Dutch program has retrofit existing homes to net zero in a day. It's coming to Canada

The Energiesprong program is a revolutionary Dutch program to accelerate social housing net-zero retrofits using state-of-the-art technology, non-intrusive methods, and innovative financing. It is currently retrofitting more than 100,000 existing homes to net-zero energy performance, some in as little as a day. Energiesprong has expanded into the UK, France, Denmark, New York state. Find out how it works and how Sustainable Buildings Canada is bringing it here.



Michael Singleton, Executive Director, Sustainable Buildings Canada

Engineering the Ottawa Carbon Neutral District

Arborus Consulting recently delivered the Integrated Community Design Workshop for a carbon neutral district in Ottawa. The project demonstrates the holistic approach to energy strategies and technologies that delivers a net zero carbon emission outcome.

The Net Zero Energy Balance Tool was used to determine the building performance criteria, energy source mix, including thermal storage and calculate the required mix of electric storage and photovoltaic power for a net zero result. The solution is a fully integrated clean energy system including refrigeration system heat recovery, biogas production from organics waste, large scale sewer heat recovery, and geo-exchange. Containerized food production connects people with local food and delivers additional greenhouse gas savings.

Robin Hutcheson, P.Eng., LEED AP, CxA

Austin Selvig, BEng, MASC

Ottawa Salus Clementine Passive House – First Steps Towards Net-Zero

The first step towards achieving net-zero in buildings is to radically reduce energy consumption. The International Passive House Standard is one of the most rigorous standards for energy performance in buildings and is gaining wide acceptance Europe and North America. The Ontario Building Code is closing the gap with Passive House in each successive edition. The industry will need to transform itself over the next few years and Passive House offers much to understanding what needs to be done.



The Ottawa Salus Clementine apartment meets the Passive House Standard. Learn about the major Passive House elements of the design and related aspects that contribute to Net-Zero, and some interesting discoveries and lessons learned that should be of interest to architects, and owners.

Anthony Leaning, OAA, FRAIC, LEED® AP BD+C, GGP

Wrap-up and Networking 4:15 – 5:00

SPEAKER BIOS



SCOTT ROUSE, P. ENG., MBA, CEM, CSDP

Managing Partner, Energy@Work Inc.

Scott is a Professional Engineer, Certified Energy Manager / Sustainable Development Professional (CEM / CSDP) with the Association of Energy Engineers. He is also an advisor for the Industrial Energy Technology Conference as well as a member of the Institute of Electrical and Electronic Engineers (IEEE). As an IEEE “Distinguished Lecturer”, Scott has presented in South America, Singapore, Australia and South Africa.



MIKE WILLIAMS P.ENG., MSC, LEED AP BD+C.

RWDI - Technical Director, Principal, Sustainability

Mike Williams brings over a decade of sustainable design experience and expertise in green standards compliance and in the development of carbon reduction and energy efficiency strategies. Mike has been a key contributor to some of Canada’s greenest buildings, including the CANMET Materials and Testing Laboratory in Hamilton and the Elementary Teachers’ Federation Headquarters in Toronto, both of which earned LEED Platinum certification. Mike has a strong record of in-house innovation and thought leadership, including the creation of COMPASS, a groundbreaking energy data visualization platform



MICHELLE XUEREB B.E.S., B.ARCH., OAA, LEED AP BD+C

Sustainability Strategist, Senior Associate Quadrangle Architects

Michelle joined Quadrangle in 2006 as an architect and the firm’s Sustainability Strategist. Michelle heads up the studio’s Green Team, keeps current with the growing body of knowledge of environmental issues and to ensures that sustainability is embedded in key decisions. Michelle is active in the City of Toronto’s Green Standard and The Archetype Sustainable Condo Project.



MICHAEL SINGLETON

Executive Director, Sustainable Buildings Canada

As Executive Director of Sustainable Buildings Canada (SBC) Mike Singleton has more than 20 years of experience as an economist focused on energy policy and resource planning. Mike manages all aspects of the organization’s operations, and delivers the SBC mandate. He has been involved extensively with energy policy, program design, delivery, and evaluation. He is skilled in the delivery of integrated design process workshops, training, education, and research.



ROBIN HUTCHESON, P.Eng., LEED AP, CxA

Arborus Consulting

Robin is an electrical/energy engineer and president of Arborus Consulting, Ottawa. Robin has been working with Sustainable Buildings Canada since 2005 and is an active board member. He has led the Savings By Design program integrated design workshops for the past four years, and has taken a lead position in the emerging area of net-zero buildings. Robin has 30+ years of experience and has spent the last fifteen years working exclusively on energy efficiency, green building and renewable energy projects.



AUSTIN SELVIG, B.ENG, MASC

Arborus Consulting

Austin has a master’s degree in mechanical engineering; Sustainable Energy Systems, and is an energy simulation specialist with Arborus Consulting. Austin’s experience with optimization modeling led to the development of the Net Zero Energy Balance Tool, the first of its kind in the industry. He has analyzed the performance and sustainability of over 100 residential and commercial projects for a large developer.



ANTHONY LEANING PRINCIPAL | OAA, FRAIC, B.ARCH, LEED AP BD+C

CSV Architects

Anthony Leaning has led consultant teams on many different project types with particular experience in sustainable design, housing, community facilities, and adaptive re-use. He has more than three decades experience in green building and energy efficiency. He was one of the first architects in the Ottawa to obtain LEED accreditation, complete a LEED certified project, and a building designed to the Passive House Standard. Anthony understands building science and systems including energy performance and building envelope design.