



CHBA Net Zero Leadership Summit Summary Report

Date:

March 31, 2020

Prepared by:

Sonja Winkelmann, Director, Net Zero Energy Housing, CHBA

Prepared for:

François Dubrous, Chief, Office of Energy Efficiency, Natural Resources Canada

This Report was made possible through a funding contribution from Natural Resources Canada.

OBJECTIVE OF THE SUMMIT

Supporting industry innovation and leadership, the CHBA established the Net Zero Energy Housing Council in 2014 to guide CHBA's efforts in high-performance housing. 60+ volunteer members sit on the Council from various industry organizations across Canada, including NRCan, NRC and CMHC. The mandate of this self-funding Council is to deliver services that will support members' voluntary adoption of Net Zero Homes. Supporting the CHBA Strategic Priority to advance innovation in our industry, the goal is to create a market advantage for CHBA members.

CHBA has taken this leadership role in helping early adopters of Net Zero Energy Homes to overcome barriers and voluntarily build to higher levels of energy performance. Through this Net Zero Leadership Summit we reached out to a broader audience to ensure our network included key stakeholders that influence and impact the residential construction industry such as utilities, renewable energy solution providers, infrastructure design and development, financing, education and capacity building, research and technologies.

This event is not a typical conference where participants come and listen for two days then leave with some good information and a few new contacts. This is a Leadership Summit - where all participants were part of the dialogue - interacting and providing input during each session via an online polling app to work through the opportunities and challenges.

Participants gained insight into what the industry needs, what actions must be taken, and who will be part of developing and delivering these actions. Over the two days they had opportunities to engage leaders and key stakeholders, leaving with a stronger network upon which to build their Net Zero business opportunities.

The result is a nation-wide strategic action plan where priorities and stakeholders will be identified to ensure a holistic approach is being implemented, supporting the industry with solutions and tools to voluntarily adopt Net Zero at all scales (i.e. neighbourhoods) and applications (i.e. renovations).

191 leaders in the Canadian Net Zero community assembled in Harrison Hot Springs, BC from February 24-26, 2020 for the inaugural CHBA Net Zero Leadership Summit.

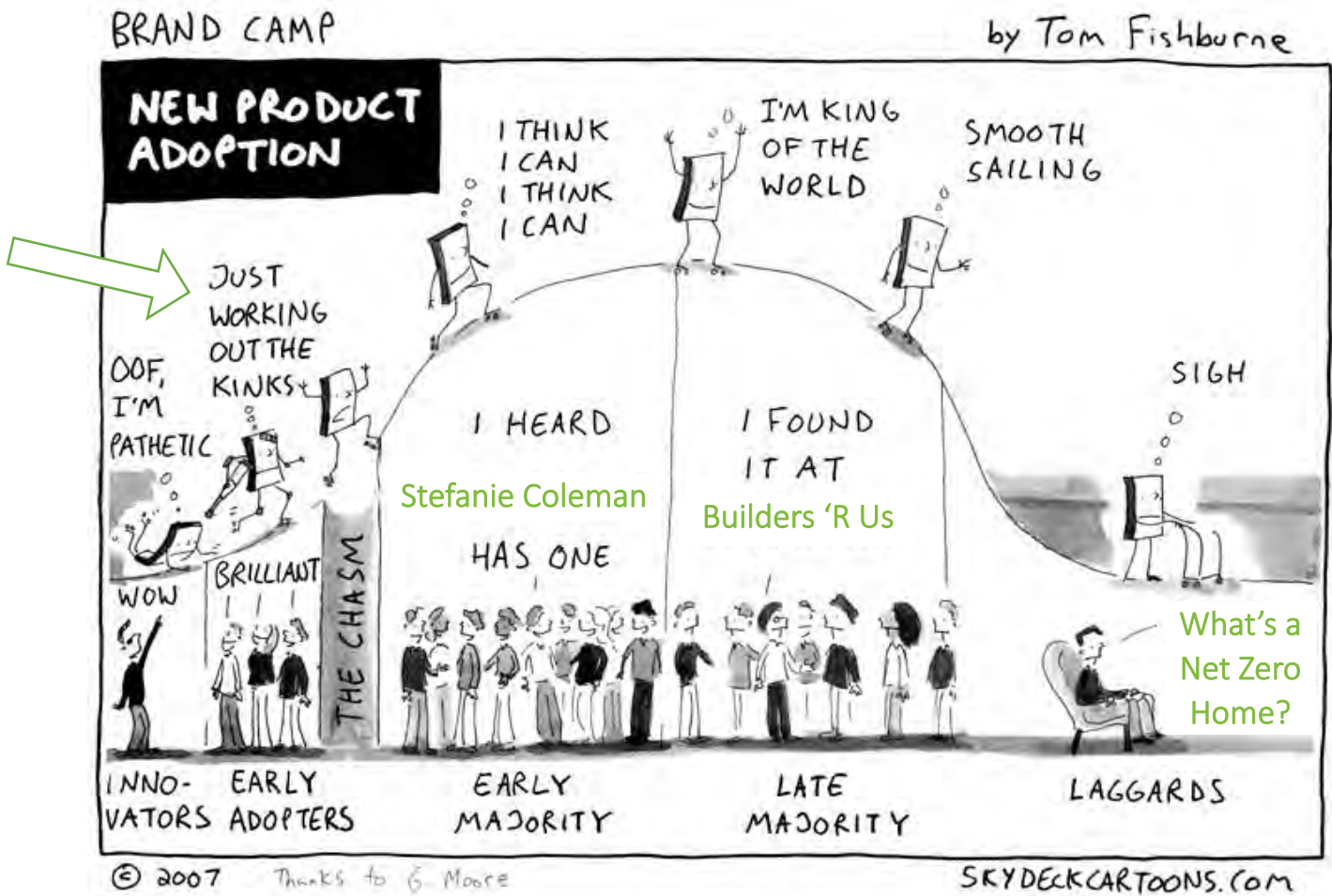
Keynote Speaker Tony Seba, world renowned author, thought leader, educator and entrepreneur, provided inspiring, industry disrupting information that set the tone for the event.

Panellists spoke to a cross section of challenges and opportunities, addressing topics such as scaling up to Net Zero communities, strategies for gaining consumer uptake, and building industry capacity through education and engagement.

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THE DIFFUSION OF INNOVATIONS



INNOVATORS (2.5%) are willing to take a risk on a good idea – they have the resources and desire to try new things even if they fail.

EARLY ADOPTERS (13.5%) are selective about which technologies they start using - they are considered the “one to check in with” for new info & reduce others’ uncertainty about new technology by adopting it.

EARLY MAJORITY (34%) needs solid evidence – willing to embrace a new technology as long as they understand how it fits with their lives.

LATE MAJORITY (34%) adopt in reaction to peer pressure, emerging norms, or economic necessity – most of the uncertainty around an idea must be resolved before they adopt.

LAGGARDS (16%) want solid proof that something works – are often economically unable to take risks on new ideas.

THE PREDICAMENT OF KNOWLEDGE

The diffusion of innovations highlights the predicament that the innovators and early adopters are the holders of the most current knowledge. To be able to **cross the chasm** we must disseminate this knowledge, shortening the learning curve and paving the way for the early majority. **The challenge is to effectively apply what we already know and what we continue to learn, en masse.**

Events such as the Summit are intended to assist the innovators and early adopters to arrive at a common understanding of the evolving best practices - **“working out the kinks”** - and, in practice, proving their efficacy - and also very importantly, finding a way to make it affordable. Only then will the early majority be able to adopt these changes.

SPONSORS, EDUCATION PARTNER, EXHIBITORS & EVENT PRODUCTION

A special thanks to all of the CHBA Net Zero Council Sponsor Members, our Summit Education Partner, the Exhibitors, and our Event Production Company - without whom this event could not have been possible!

NZC Gold Sponsor Member

Opportunity Available!

NZC Silver Sponsor Members



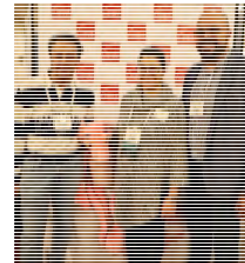
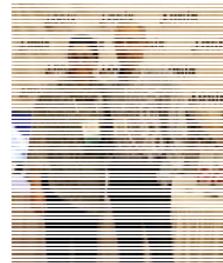
NZC Bronze Sponsor Members



Summit Education Partner



Exhibitors



Event Production / Sponsor

THE REALLY FABULOUS EVENT CO.

PARTICIPANTS

NOTE: Co-Chair, Moderator and Panellist names are in *blue*.

CHBA President

1. **Stefanie Coleman** Pretty Smart Homes

CHBA Net Zero Council (NZC) Management Committee (MC) Members

2. **Jennifer Weatherston** Timberworx Custom Homes *Chair*
3. **Chris Williams** Avalon Master Builder *Vice-Chair*
4. Errol Fisher North Ridge Development *2nd Vice-Chair*
5. Bob Deeks RDC Fine Homes Inc. *Past Chair*
6. **Andy Oding** Building Knowledge Canada Inc. *1st Chair*
7. Arthur Lo Insightful Healthy Homes Inc.
8. Haitao Yu Landmark Homes Canada Inc.
9. **Josef Geluch** Naikoon Contracting Ltd.
10. **Peter Amerongen** Butterwick Construction & Carpentry Ltd.
11. **Roya Khaleeli** **Minto Communities** **Open Mic**

Sponsors, Education Partner, Exhibitors & Event Production

12. Salvatore Ciarlo Owens Corning Canada Silver Sponsor / Exhibitor
13. Luis Faria Owens Corning Canada Silver Sponsor / Exhibitor
14. Hugo Beauregard BASF Canada Inc. Bronze Sponsor / Exhibitor
15. Stephan Des Rochers BASF Canada Inc. Bronze Sponsor / Exhibitor
16. Andrew B. Cole CUFCA Exhibitor
17. Lyle Hamilton LOGIX (Beaver Plastics) Exhibitor
18. Susan Cudahy Union Gas Limited (Enbridge) Bronze Sponsor
19. Matthew Cable Union Gas Limited (Enbridge) Bronze Sponsor
20. **Mandy Assi** FortisBC Bronze Sponsor
21. Pete Koepfgen FortisBC Bronze Sponsor
22. Tanya Rumak FortisBC Bronze Sponsor
23. Jeff Pigeon JELD-WEN of Canada Ltd. Bronze Sponsor
24. **Gary Hamer** **BC Hydro** Education Partner / **Open Mic**
25. Bertine Stelzer BC Hydro Education Partner
26. **Jorge Marques** BC Hydro Education Partner
27. Diane Julien The Really Fabulous Event Co. Event Production / Sponsor
28. Andrew Burke-Hall The Really Fabulous Event Co. Event Production / Sponsor

CHBA Net Zero Council (NZC) Members

29. Mehmet Ferdiner Building Knowledge Canada Inc.
30. Toby Smith Building Knowledge Canada Inc.
31. Dave Butterwick Butterwick Construction & Carpentry Ltd.
32. Neil Hawkins Avalon Master Builder
33. Tyler Martin RDC Fine Homes
34. Jake Nichols RDC Fine Homes
35. Michael Wang RDC Fine Homes
36. Shawn Marsh Timberworx Custom Homes
37. Brian Cooke AeroBarrier Canada
38. **Wil Beardmore** Bluewater Energy Inc.
39. **Rob Jonkman** Canadian Wood Council
40. Peter Moonen Canadian Wood Council
41. Timothy Prevost Energy Savings Products Ltd.
42. **Shannon Bertuzzi** EnerQuality Corporation
43. Steven Cornelius Mitsubishi Electric Sales Canada Inc.

44.	Nick Gazo	NAIMA Canada	
45.	Larry Clay	Clay Construction Inc.	
46.	John Corvinelli	Corvinelli Homes	
47.	Koen de Waal	De Waal Developments	
48.	Suzie Dennis	Doug Tarry Ltd.	
49.	Jason Small	Doug Tarry Ltd.	
50.	Shane Tarry	Doug Tarry Ltd.	
51.	Rick Young	Habitat Studio & Workshop Ltd.	
52.	Bob Leier	Pacesetter New Homes Ltd. (A Qualico Company)	
53.	Brad Vanderveen	Sterling Homes 'Edmonton' Ltd. (A Qualico Company)	
54.	Clayton Thomas	NuVista Homes Ltd. (A Qualico Company)	
55.	Dale Verville	Qualico Communities	
56.	Darren Chambers	Qualico Communities	
57.	David Eggerman	Qualico Communities	
58.	Derrick Hiltz	Qualico	
59.	Don Janzen	Montana Homes Ltd. (A Qualico Company)	
60.	Don O'Dwyer	StreetSide Developments (A Qualico Company)	
61.	Grant Miller	Qualico Developments (Van) Inc.	
62.	John Daniels	Qualico Developments	
63.	Jon Turton	Broadview Homes (A Qualico Company)	
64.	Jonathan Meads	StreetSide Developments (A Qualico Company)	
65.	Jonathan Osachuk	StreetSide Developments (A Qualico Company)	
66.	Keith M. Kocian	Kensington Homes (A Qualico Company)	
67.	Mike Cole	Sterling Homes Ltd. (A Qualico Company)	
68.	Shawn Kosowan	StreetSide Developments (A Qualico Company)	
69.	Vince Zumbo	Pacesetter Homes Ltd. (A Qualico Company)	
70.	Derek Satnik	S2e Technologies	
71.	Seungyeon Hong	S2e Technologies	
72.	Derek R. Seaman	Seaman & Sons Builders	
73.	Peter Darlington	Solar Homes Inc.	Open Mic
74.	Stephen Snider	Steve Snider Construction Inc.	
75.	Melanie Ross	Southern Alberta Institute of Technology, School of Construction	
76.	Christopher McLellan	Natural Resources Canada (NRCan)	
77.	James Glouchkow	Natural Resources Canada (NRCan)	
78.	Patric Langevin	Natural Resources Canada (NRCan)	
79.	Sarah Gibb	National Research Council Canada (NRC)	
80.	Heather Knudsen	National Research Council Canada (NRC)	
81.	Jason Takerer	Canada Mortgage & Housing Corporation (CMHC)	
82.	Rick Weste	Triple M Housing Ltd.	

Other Panellists/Moderators

83.	Alex Chapman	Our Energy Guelph
84.	Cindy Gareau	Canadian Association of Consulting Energy Advisors
85.	Einar Halbig	E3 Eco Group Inc.
86.	Tyler Hermanson	4 Elements Design
87.	Chris Higgins	City of Vancouver
88.	Vanessa Joehl	CHBA British Columbia
89.	Chris Magwood	Endeavour Centre
90.	Rob McMillan	Prestige Homes Inc.
91.	Craig Mitchell	Triple M Modular Ltd. / Metric Modular
92.	Mark Rosen	Building Energy Inc.
93.	Francisco Villarroel	Acqbuilt

CHBA Staff

94.	Sonja Winkelmann	CHBA National
95.	Brett Cass	CHBA National
96.	Marie Hanchet	CHBA National
97.	Katherine Solomon	CHBA National
98.	Liz Wynder	CHBA National

Other Participants

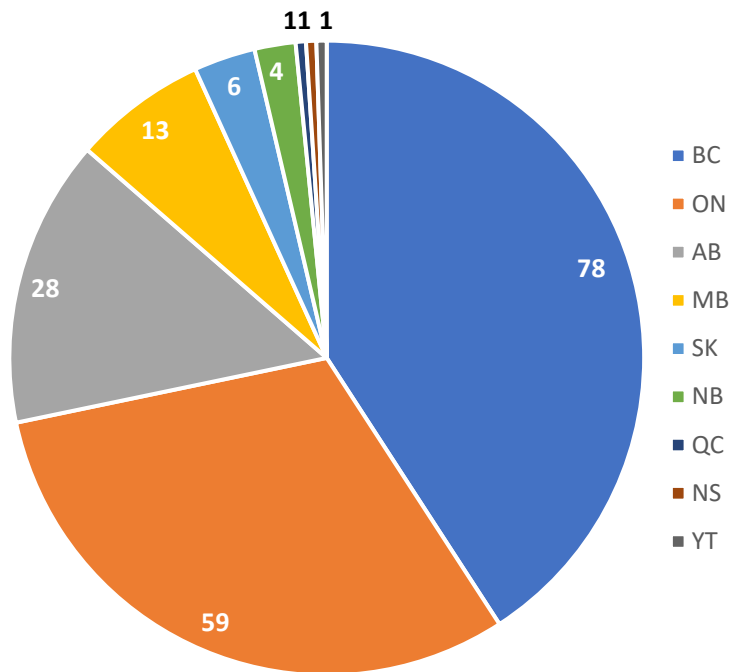
99.	Warren Abar	Isolara Solar Power	
100.	Terry Adamson	Westeck Windows Mfg. Inc.	
101.	Landon Aldridge	SkyFire Energy Inc.	
102.	Stephan Ams	All Elements Design - Manage - Build	
103.	Niels Anthonson	Enerlytics Building Performance Ltd.	
104.	Carl Banninga	Qwest Homes Inc	
105.	Elisabeth Baudinaud	Capital Home Energy Inc.	
106.	Calvin Benson	Triple M Modular Ltd. / Britco Commercial	
107.	Richard Bice	Capital Home Energy Inc. - Vancouver, BC	
108.	Christie Bokor	Triple M Modular Ltd. / Metric Modular	
109.	Scott Brown	Qwest Homes Inc	
110.	Michael Brum	Altare Group Inc.	
111.	Tommy Byun	Capital Home Energy Inc.	
112.	Darcy Bzdel	Sun Ridge Residential	
113.	Mike Cairns	Innotech Windows & Doors Inc.	
114.	Vanessa Campbell	Pheasant Hill Homes	
115.	Amelie Caron	ecosynergy	
116.	Nic Cavaliere	Sifton Properties Ltd.	
117.	Russ Collins	Zebra Group	
118.	Emma Conway	E3 Eco Group Inc.	
119.	Ryan Da Silva	Dettson Industries	
120.	James Dean	Naikoon Contracting Ltd.	Open Mic
121.	Gerald deVeer	3rd Generation Homes	
122.	Luke Dolan	Capital Home Energy Inc.	
123.	Scott Fleenor	Terratek Energy	
124.	Chris Frye	Natural Resources Canada	
125.	Alex Gray	Diamond Head Development	
126.	Tessa Hall	Ecolibrium energy solutions Inc	
127.	Joe Hart	Icon Homes Ltd.	Open Mic
128.	Wendy Hart	Icon Homes Ltd.	
129.	Greg Hasler	Hasler Homes Ltd.	
130.	Trevor Hedstrom	Winton Homes Ltd.	
131.	Shawna Henderson	Blue House Energy	
132.	Ryan Hill	Ouellet Canada	
133.	Conrad Hoepfner	AMC Foam Technologies	
134.	Jeremy Howley	Prestige Homes Inc.	
135.	Ryan Hoyt	Ryan Hoyt Designs Inc	
136.	Mark John Jackson	Enviromatics Group	
137.	Warren w. Jones		
138.	Richard Kadulski	Richard Kadulski Architect	
139.	Steve Kemp	Kemp Construction Management Ltd.	
140.	Erik Lacey	Lacey Developments Ltd.	
141.	Steve Lapp	Feris Build Tech	
142.	Kim Larson	All Elements Design - Manage - Build	
143.	Mika Laspa	Innotech Windows & Doors Inc.	
144.	Gilles Lesage	Total Home Solutions	
145.	Tony Leung	Balanced Home Energy (Northwood Homes)	

146.	Lauren Lipka	Energie N.B. Power
147.	Dave MacKenzie	Falcon Heights Contracting Ltd.
148.	Reid Madiuk	Coast Essential Construction
149.	Nathan Manion	Feris Build Tech
150.	Josh Marchand	Marchand Construction
151.	Tara Marchand	Marchand Construction
152.	Robert Marshall	CertainTeed
153.	Scott McCready	Feris Build Tech
154.	Geoff McMurdo	Activa
155.	Sean McStay	SIGA Cover Inc.
156.	Ben Miller	Big Block Construction
157.	Phil Morley	Morley Mountain Homes Inc.
158.	Ian Murdoch	Feris Build Tech
159.	Dan Murphy	Reliance Home Comfort
160.	Dev Mylrajan	McKeough Supply
161.	Matheus Olmedo	Capital Home Energy Inc.
162.	Inderjit Parmar	Bright Star Holding Inc.
163.	Roberto Pecora	Zero Emissions Building Exchange
164.	Dave Penner	Quiniscoe Homes 20/20 Ltd
165.	Larry Perko	Bio Composites Group
166.	Rob Pope	Ecolighten Energy Solutions Ltd.
167.	Gary Proskiw	Proskiw Engineering Ltd.
168.	Nigel Protter	Exergetics Development Co.
169.	Cherisse Marie Raynor	Quiniscoe Homes 20/20 Ltd
170.	Albert Rooks	Small Planet Supply
171.	Chiranole (Nole) Saysana	Activa
172.	Les Shuert	Shuert Construction Consulting
173.	Scott Silverthorn	Capture Energy
174.	Claudia Simmonds	CHBA-New Brunswick
175.	Shaun St-Amour	475 High Performance Building Supply
176.	Philippe St-Jean	Natural Resources Canada
177.	Sandro Stefanucci	Abstract Homes & Renovations Inc.
178.	Dave Stephens	Lida Homes Inc.
179.	Brad Sveinson	Character Homes Ltd.
180.	Trevor Tatarczuk	Winton Homes Ltd.
181.	Graham Taylor	Public Services and Procurement Canada
182.	Derek Thompson	Saskatoon Land
183.	Andrew Tidman	Tidman Construction Ltd.
184.	Neal Turner	Westeck Windows Manufacturing Inc.
185.	Pam Warkentin	CARST
186.	James Wigmore	Government of Yukon
187.	Darren Witt	Bercum Builders Inc.
188.	Carmen Zerkee	Sonbuilt Custom Homes Ltd.
189.	Jonathan Zerkee	Sonbuilt Custom Homes Ltd.
190.	Sam Zirnhelt	Zirnhelt Timber Frames Ltd.
191.	Jim Zsiros	J. Zsiros Contracting Ltd.

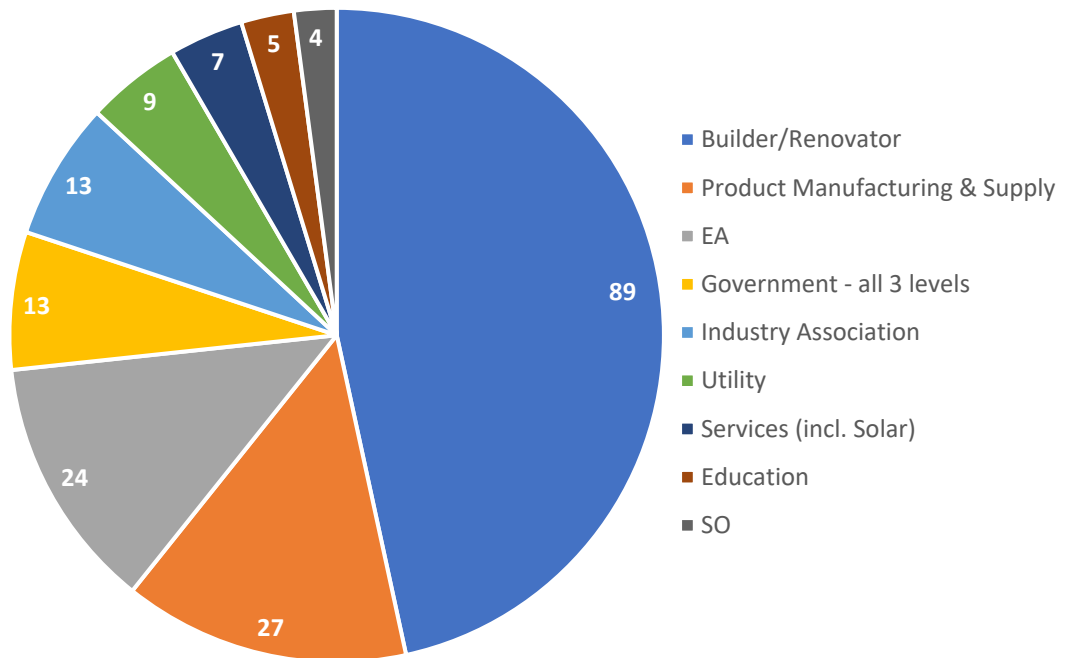
Open Mic

ATTENDANCE STATISTICS

Summit Attendance by Province



Summit Attendance by Stakeholder Group



AGENDA

Monday, February 24, 2020

6:00-9:00	Networking Regi-ception – EXPO HALL
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Tuesday, February 25, 2020

7:00-8:30	Networking Breakfast
8:30-8:45	Welcome & Opening of Day 1
8:45-9:00	What have we achieved so far?
9:00-10:00	KEYNOTE - Clean Disruption: Opportunities for the Residential Construction Industry
10:00-10:30	Networking Break – EXPO HALL
10:30-12:00	Scaling up: Getting from one Net Zero Home to an entire Net Zero Neighbourhood
12:00-1:00	Networking Lunch
1:00-1:30	Getting Part 9 MURBs to Net Zero
1:30-2:30	Factory Building: A business opportunity for site builders
2:30-3:00	Networking Break – EXPO HALL
3:00-4:00	Net Zero Renos: The final frontier
4:00-5:00	Education: the key to building industry capacity
5:00-5:15	Summary of Day 1
6:30-7:30	Networking Dinner
7:30-8:00	Networking Dessert – EXPO HALL
8:00-9:00	Open Mic

Wednesday, February 26, 2020

7:00-8:30	Networking Breakfast
8:30-8:45	Opening of Day 2
8:45-10:00	Utilizing Energy Advisors to increase builder uptake
10:00-10:30	Networking Break – EXPO HALL
10:30-11:15	What are the technical hurdles and what's needed to help industry move this forward?
11:15-12:00	Can we design and build our homes to store carbon?
12:00-1:00	Networking Lunch
1:00-2:00	Gaining consumer uptake: What are the most effective tools?
2:00-2:30	Summary of Day 2

Slide decks are available for download at www.chba.ca/NZLeadershipSummit.

SESSIONS

Networking Regi-ception

A key objective of this event was to provide opportunities for participants to network and develop valuable business relationships in the Net Zero space. The Networking Regi-ception and all breaks were held in the expo hall to provide the exhibitors with the opportunity to connect with the participants.

Attendees were encouraged to kick off the event with some spirit by donning their most Canadian-themed garb. The event production company provided a photo-op back-drop of a Net Zero ice fishing hut with fun speech bubbles and props. Additionally, the overall event dress code was "business casual" to encourage a relaxed atmosphere as well as to accommodate the need to walk between buildings in the Canadian February weather.



Welcome & Opening of Day 1

Moderated by Stefanie Coleman, CHBA President & Jennifer Weatherston, Chair NZC

The Summit agenda and objectives were reviewed: What are we here to do? This event will provide us with an authentic and honest dialogue where all participants will provide input using an online polling tool and work together to develop an action plan to move forward. Some questions we want to tackle:

- How do we achieve voluntary mass market adoption leveraging disruptive technology, construction and business innovation?
- How do we drive down costs to make mass market adoption feasible?
- How do we effectively apply what we already know to help the industry voluntarily achieve affordable Net Zero Ready Homes?

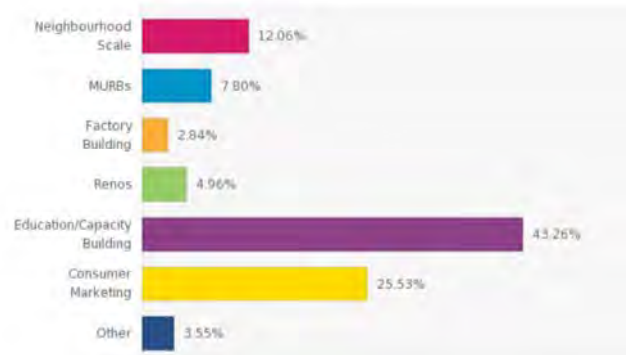
The CHBA’s position on Net Zero was also reviewed:

- CHBA has always supported innovation, choice, voluntary higher levels of performance, and the pursuit of new approaches that can help members build better homes.
- CHBA’s leadership work in Net Zero is showing the way for CHBA members who want to lead, to gain market advantage and establish the technology for the industry for the future.
- However, nothing should go into code that reduces affordability. Given the excellent performance of today’s new houses, the focus of government and industry should be on innovating, so the next levels of improvement do not cost home buyers more.

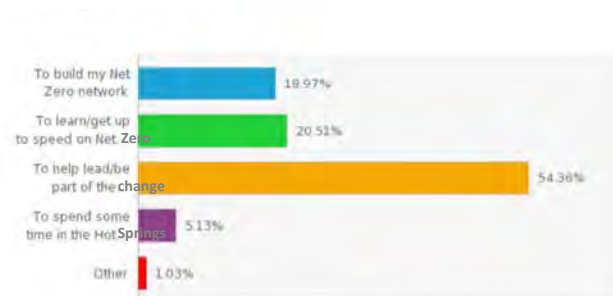


Then Sonja Winkelmann walked attendees through the event app to practice using the polling tool with these questions:

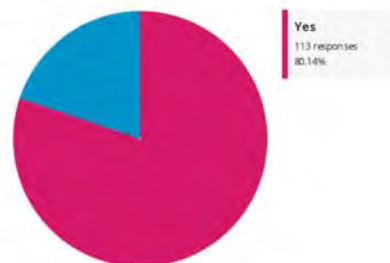
Q. What's the #1 priority we should focus on to move voluntary NZ Homes forward?



Q. Why are you here/what are you hoping to achieve? Choose any/all the apply:



Q. Did you make a valuable new connection at the reception last night?



What have we achieved so far?

Presented by Sonja Winkelmann, Director, Net Zero Energy Housing, CHBA

This brief presentation reviewed the barriers to adoption and highlighted the efforts of the CHBA Net Zero Council to remove these barriers. It also highlighted the Council’s key priorities and what services/tools already exist or are under development. Some slides shown below. *Slide decks are available for download at www.chba.ca/NZLeadershipSummit.*

Supporting Industry Innovation & Leadership

- The **Net Zero Energy Housing Council (NZC)** was established in 2014 to guide CHBA's efforts in high-performance housing.
- 60+ **volunteer members** sit on the Council from various industry organizations across Canada, including NRCan, NRC and CMHC.
- The mandate of this self-funding Council is to **deliver services that will support members' voluntary adoption** of Net Zero Homes.
- Supporting the CHBA Strategic Priority to advance innovation in our industry, the goal is to **create a market advantage** for CHBA members.



Barriers to Market Adoption

Marketing and Promotion

- Poor branding, understanding, awareness, and demand
- Difficult to articulate value proposition (sales & marketing)

Competency & Capacity

- Limited education/accreditation and training/skills development

Technical Standards, QA & Tools

- Lack of standards and support tools

Cost

- High cost to build or retrofit (capital & labour)

Financing & Real Estate

- Lack of appropriate financing mechanisms and/or incentives

Policy

- Limited enabling policy (e.g. net metering, codes and regulations)



Council Key Priorities (Tools & Solutions!)

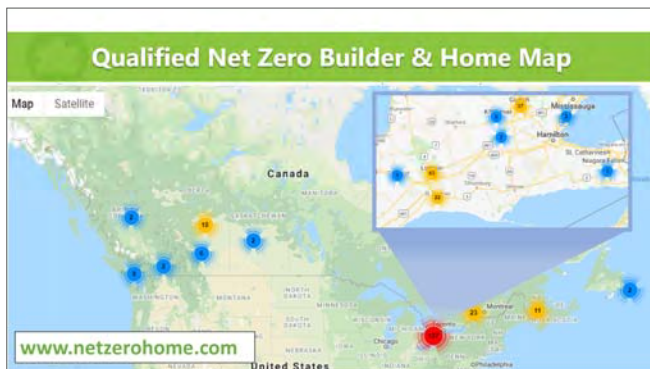
- A **Labelling Program** to distinguish and recognize Net Zero and Net Zero Ready Homes and the builders/renovators.
- Educational initiatives** to bridge the knowledge gap and accelerate the industry's capacity to capitalize on Net Zero.
- Marketing & Communications initiatives** to develop the Net Zero brand, build awareness and understanding of the value of Net Zero homes, and stimulate market demand.
- Financing initiatives** to address the initial cost of Net Zero Homes and implement innovative and effective financing mechanisms.




Number of Homes

Label	Pilot	2017	2018	2019	Total
Net Zero	26	9	8	79	122
Net Zero Ready	2	10	10	110	132
Total	28	19	18	189	254

Province	Labels
Alberta	16
British Columbia	8
New Brunswick	6
Newfoundland & Labrador	1
Nova Scotia	4
Ontario	212
Quebec	6
Saskatchewan	1



More Information

www.chba.ca/nzc



www.chba.ca/nze



www.NetZeroHome.com






Contact


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Clean Disruption: Opportunities for the Residential Construction Industry

Presented by Tony Seba, Author 'Clean Disruption' & Co-Founder RethinkX

“The 2020’s will be the most disruptive decade in human history.”

Tony Seba is a world-renowned author, thought leader, educator, speaker and entrepreneur. He is the author of the #1 Amazon best-selling book “Clean Disruption of Energy and Transportation - How Silicon Valley Will Make Oil, Nuclear, Natural Gas, Coal, Electric Utilities and Conventional Cars Obsolete by 2030”, which has changed the global conversation about the future of energy, transportation and climate change.

Seba’s work focuses on technology-based disruptions: the convergence of technologies, business model and product innovations that are disrupting the world’s major industries including energy, transportation, infrastructure, food, agriculture, real estate, healthcare, finance, and services. He has taught thousands of entrepreneurs and corporate leaders at Stanford University’s Continuing Studies. Seba is also the cofounder of RethinkX, an independent think-tank that analyzes and forecasts the speed and scale of technology-driven disruption and its implications across society.



L2R: Stephen Snider, John Corvinelli, Tony Seba, Shawn Marsh, Wil Beardmore

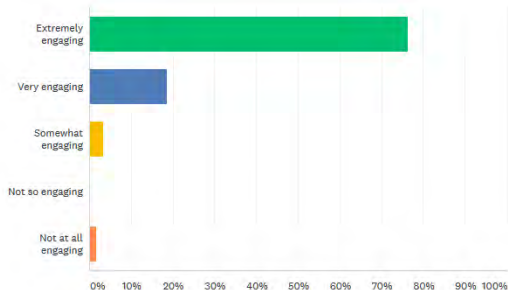
A serial Silicon Valley entrepreneur and angel investor, Seba was an early employee at disruptive Internet companies Cisco Systems and RSA Data Security.

Seba has been featured in leading global media, including the Wall Street Journal, BBC, New York Times, Forbes, Financial Times, the Guardian, CNN, Fox News, Bloomberg, CNBC, ARD, and TVChosun. Seba has been a keynote speaker at hundreds of global events including Google, CLSA, J.P. Morgan, Nomura, Davos, COP21 World Climate Summit, Intersolar and Global Leaders Forum. His speaking engagements have included investors with more than \$30 trillion in Assets Under Management.

Seba has a Stanford MBA and a B.S. in Computer Science and Engineering from Massachusetts Institute of Technology.

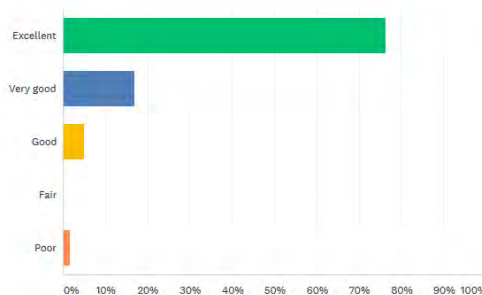
How engaging was the keynote speaker, Tony Seba?

Answered: 59 Skipped: 0



How would you rate the quality of the keynote speaker, Tony Seba?

Answered: 59 Skipped: 0



Scaling up: Getting from one Net Zero Home to an entire Net Zero Neighbourhood

Moderated by Andy Oding, Vice President, Building Knowledge Canada

In this session we looked at where the tech is at (our keynote also gave us insight on this), provided some case studies/examples, and addressed some important questions around the opportunities and challenges.

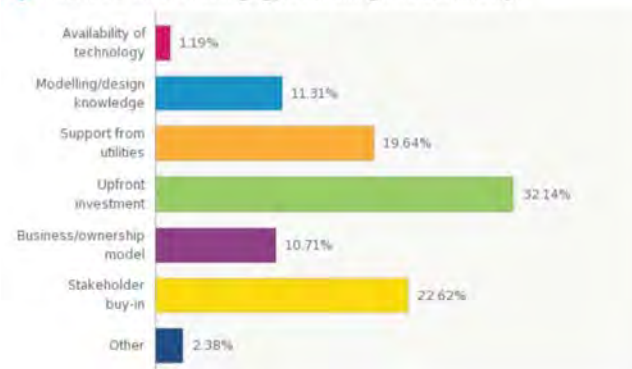
Panellists:

- Wil Beardmore, President, Bluewater Energy
- Jorge Marques, Manager, Advanced DSM Strategies, Conservation and Energy Management, BC Hydro
- Mandy Assi, Manager, Commercial Accounts, Fortis BC
- Derek Satnik, Vice President of Technology, Smart Communities, s2e Technologies

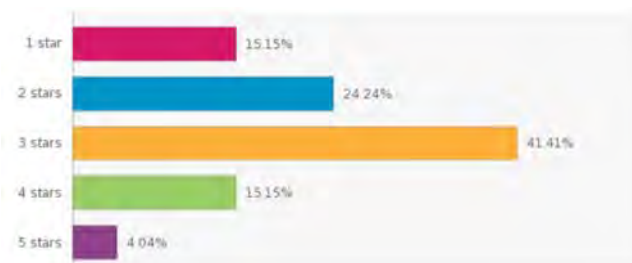


L2R: Andy Oding, Wil Beardmore, Jorge Marques, Mandy Assi, Derek Satnik

Q. What is the most challenging part of doing a NZ Community?



Q. Rate the support you've received from utilities on community scale NZ efforts.



Q. Is the market in your area pulling for NZ communities or are you pushing?



Additional key points from the panellists:

- Business ownership model needs to be worked out.
- Need to take the risk out of the process for all parties to manage costs.
- Not upfront investment.
- Utility wants grid to be the back-up, not batteries - but the advantage with batteries is for grid outages.
- Roof orientation is not always ideal.

- The system is so regulated, therefore creates barriers.
- Recognize the need to be agile.
- If there is a will/culture to work together then it can work.
- Carbon emission reductions - increased push from municipalities.
- Feed-in-tariffs for over supply is an issue.
- Utilities Commission Act restricts resale of energy.

- Builders should look at psychographics instead of demographics – it's based on common values.
- Clients buy from the options they have.

Getting Part 9 MURBs to Net Zero

Presented by Andy Oding, Vice President, Building Knowledge Canada

In this session Andy provided an update on the CHBA 4-year initiative “Affordable, Replicable and Marketable Net Zero Ready MURBs” with highlights on what the 7 builders have learned so far. The objective of this Project is to validate the use of 1) panelized/modular (factory built) construction and 2) integrated mechanical system technologies, design and practices on Net Zero/Ready Part 9 MURBs to 1) optimize energy performance, 2) reduce costs, 3) increase construction productivity and 4) reduce construction schedules.



See some of Andy’s slides below. The complete deck is available for download at www.chba.ca/NZLeadershipSummit.

Project Objective

To validate the use of **panelized/modular construction** and **integrated mechanical system** technologies, design and construction practices on **Net Zero or Net Zero Ready MURBs** to optimize energy efficient performance, reduce costs, increase construction productivity and reduce construction schedules.

Build Team Goals:

1. More prefabrication
2. Higher performance - Net Zero / Net Zero Ready
3. Multi-Unit Residential Buildings

“while keeping homes beautiful, affordable and systems simple”

NZ MURB Build Projects

Builder	Province	Build Location	Climate Zone	Residential Units	Rent / Own
Metric Modular	BC	TED	8	100-200	Own
Concord Timber Frames	BC	Williams Lake	8	4	Rent
Landmark	AB	Edmonton	7A	7	Both
Aurion MasterBuilder	AB	Calgary	7A	16	Own
Integration Residential	CA	Montreal	7A	12	Rent
Green Tanya Homes	ON	St Thomas	7c	18-20	Rent
Seah Homes	ON	Barron	8	22	Own

What does the building spec look like?... Climate zone 4 to 7a

Component	Proposed Specifications
Roof	R60 –R70
Above Grade Walls	Main/Upper: Effective R23 to R27 : 2x6 R22 + R5ci...R7.5ci...R10ci
Basement	Effective R20 to R24 Kneewall: Effective R20 to R24
Slab on Grade	R10 with slab edge R10 thermal break- 100% Coverage
Windows	1.2U to 0.89U / .32 to .20 > SHGC
Airtightness	1.5 ACH to 0.6 and lower....>

Project-specific points of interest...

Occupant loads /Baseloads are the biggest concern
 Average unit sq ft : 600sqft to 1700 sqft
 Average TEU total energy use per suite: 22 to 32 GJ
 Average occupant / baseload per suite : 19 - 22 GJ
Baseloads =55 to 75%+ of total energy load

Category	Energy Use (MJ)
A Primary Space Heating	31%
B Secondary Space Heating	8%
C Primary DHW Heating	23%
D Secondary DHW Heating	0%
E Lights & Appliances	4%
F HRV and Fans	2%
G Air Conditioner	3%

Project-specific points of interest...

More emphasis on renewables and storage than ever before.

- Total BUILDING energy use is averaging 200GJ to 350GJ. (dependent of # of suites per block)
- Consistent feedback from teams/participants: **PV isn't as complicated as we thought.**
- EMS Energy Management systems solve MANY ISSUES:** Enable EV charging and other load challenges without breaking the bank by requiring large panels, and up scaled line transformers.

Challenges:

- Utility constraints are a road block. Traditional business models need to change...
- VPP “Virtual Power Plants”** – May be the only way to move forward given the local utilities inability to manage site production. Hybrid approach using MCHP with Nat Gas + PV + Storage. *Pilot opportunities being explored with utilities.*
- Resilience is a concern(grid goes down, the PV shuts off). Thus consideration for MCHP, batteries or other options
- Utilities protocol to deal with self generating homes/sites varies significantly across Canada.

Project-specific points of interest...The Fuel switching dynamic and the homeowner/building owner

NZ and Operational Cost:

- The Fuel switching conundrum...Times may be changing:
- Example: Edmonton Zone 7a: Lowest operational cost =all electric

	Annual Consumption			Utility Costs (\$)		
	NG (GJ)	Elec (kWh)	Total (GJ)	NG	Elec	Total
All Electric	0	79,780	287	\$0	\$10,040	\$10,040
All Gas	181	32,510	298	\$4,610	\$4,840	\$9,450
All Gas w/ASHP	106	41,680	256	\$4,110	\$5,840	\$9,950
All Elec w/ASHP	0	69,450	250	\$0	\$8,900	\$8,900

NG: \$3.0/GJ + Distribution + Admin + Carbon Tax (Fixed costs: \$485/yr/unit)
 Electricity: \$0.07/kWh +Admin and T&D

Factory Building: A business opportunity for site builders

Moderated by Craig Mitchell, Director, Innovative Solutions, Metric Modular

Given the current/coming labour shortages and significant benefits of factory building (from panels to full modules), why aren't more site builders accessing prefabrication suppliers to build their homes? In this session we'll highlight the benefits of factory building, showcase examples of site builders who source their components from factory builders, and discuss the opportunities and challenges of making this transition as a business solution.

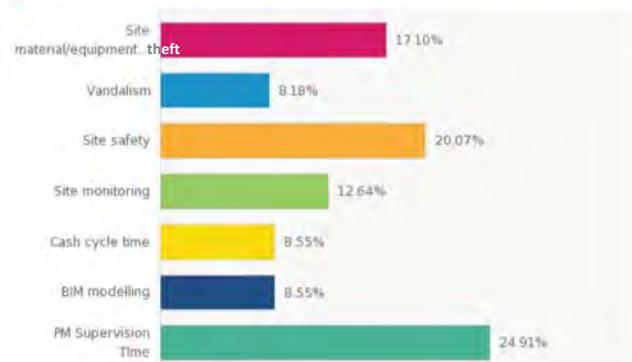
Panellists:

- Rob McMillan, Product Manager, Prestige Homes
- Rick Weste, CEO, Triple M Group of Companies
- Francisco Villarroel, Project Manager, ACQBUILT
- Rick Young, Partner & Project Supervisor, Habitat Studio

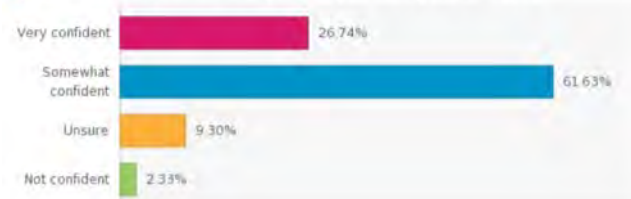


L2R: Craig Mitchell, Francisco Villarroel, Rick Young, Rick Weste, Rob McMillan

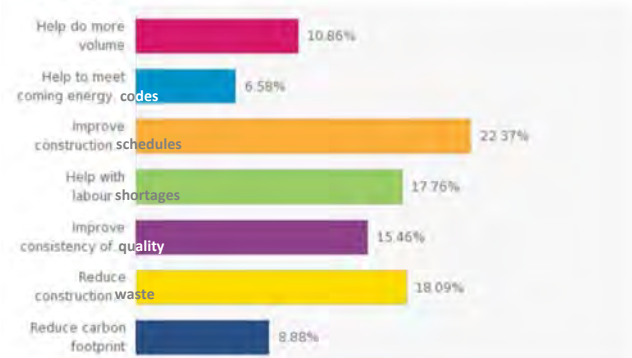
Q. Builders: What do you include in your total cost?



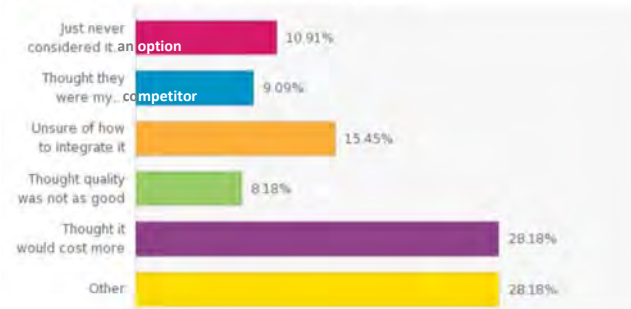
Q. Builders: How confident are you that you know your total cost?



Q. Builders: What do you see as the big opportunity to work with factory builders?



Q. Why have you not worked with a factory builder?



Other (Above): Already working with a factory builder, location/proximity from facility, made in-house already.

Additional key points from the panellists/audience:

- It's a different skill set between manufacturing and trades – need special training i.e. safe rigging.
- While custom can be done, the big focus is on production/scale/multi-family. (BC has mostly custom.)
- Schedule with lock-up date helps with financing.
- Costs are a net wash – earlier closing/timeline.

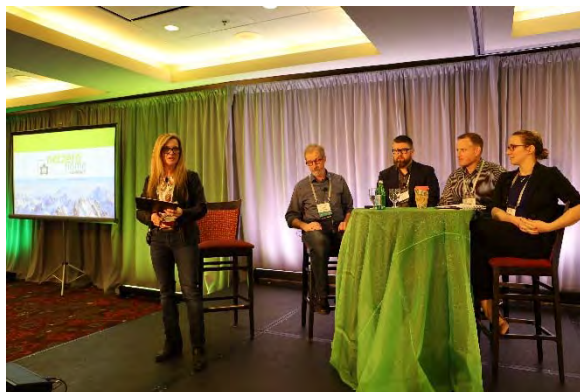
Net Zero Renos: The final frontier

Moderated by Stefanie Coleman, Owner, Pretty Smart Homes and CHBA President

It's widely recognized that the greatest opportunity for carbon reduction lies within the existing housing stock. While there are some excellent projects underway to figure out how we tackle this, there are still many questions about how we can achieve this en masse. In this session we'll explore some of the existing work, review the opportunities and challenges, and identify what could be the best ways forward.

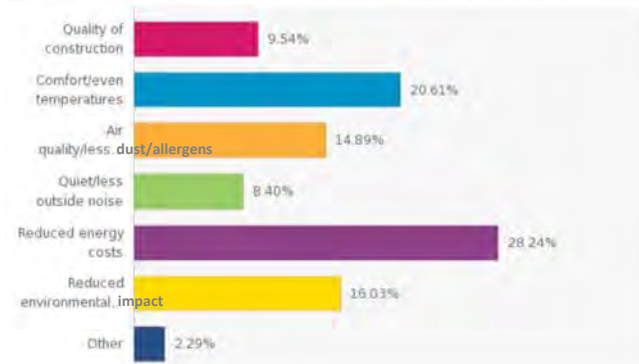
Panellists:

- Peter Amerongen, Managing Partner, Butterwick Construction
- Joe Geluch, President, Naikoon Contracting Ltd.
- Chris Higgins, Green Building Planner, Planning, Urban Design and Sustainability, City of Vancouver
- Marie Hanchet, Project Manager (Net Zero Renos), CHBA

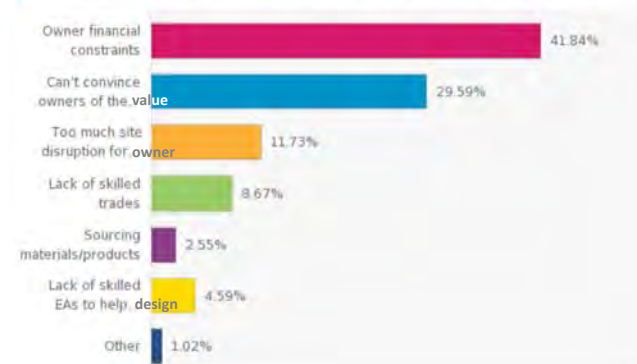


L2R: Stefanie Coleman, Peter Amerongen, Chris Higgins, Joe Geluch, Marie Hanchet

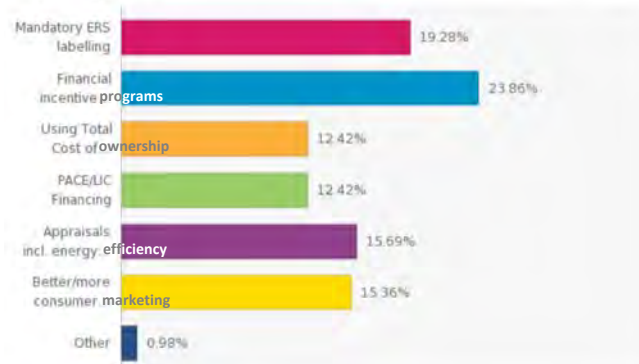
Q. What has worked to bring consumers on board for a deep energy retrofits?



Q. What are the obstacles/challenges with doing deep energy retrofits?



Q. Which tools do we need to help get more deep energy retrofits? - choose your top THREE



Additional key points from the panellists/audience:

- Understanding the clients' needs is key.
- Cities need to remove barriers. i.e. In Vancouver, if the home was torn down it would need to be rebuilt with a smaller square footage.
- Access to the upfront money is a challenge – deep entry in Vancouver.
- Hard to sell the health benefits.
- Emotional decision (left vs right brain) on comfort, IAQ, health.
- Need education on PACE/LIC opportunities.
- More effort on consumer awareness.
- Should the label consider waste going to landfill, material contamination?
- Reclaim/reuse materials vs. cost to crush concrete (to-date it has been very expensive).
- PACE/LIC Financing should have scored higher as a potential tool – it would be one of the most useful ways to tackle the financing!

Education: the key to building industry capacity

Moderated by Andy Oding, Vice President, Building Knowledge Canada

Over the last few years, we've learned key lessons through a variety of initiatives such as EQUilibrium, the Owens Corning Net Zero for Production Builders project, and the CHBA Net Zero Home Labelling Program. To-date only a small percentage of the industry has participated in training to gain this important insight - and we continue to learn more each year. In this session we'll discuss methods of making this training available to the entire industry, and potential approaches to ensure they continue to get the latest information on high-performance homes.

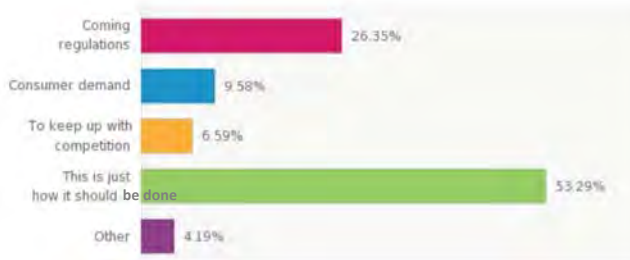


L2R: Andy Oding, Vanessa Joehl, Shannon Bertuzzi

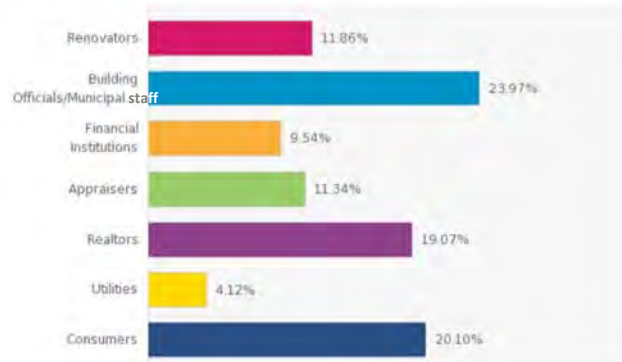
Panellists:

- Vanessa Joehl, Director, Energy Programs & Service Organization Manager, CHBA BC
- Shannon Bertuzzi, Vice President, Market Development, EnerQuality

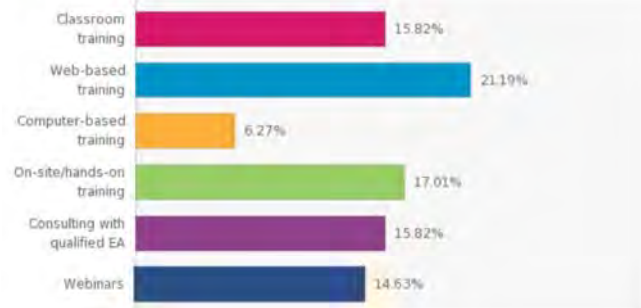
Q. What are your motivations to build net zero/ready homes?



Q. Besides builders, who would most benefit from training on NZ/r homes? - choose TOP 3



Q. How can we best help you/industry develop more competency on NZ/r home building?



Additional key points from the panellists/audience:

- Last question should also include designers (architects, engineers, EAs) and those in trade schools – new/future builders. (Building Science should be included in courses/schools!)
- Flexibility of training options – not one size fits all.
- Shortage of EAs – especially with mandatory blower door/performance testing. (How can we mentor the new ones?)
- There should be a list of all the free training available.
- Need to provide training to areas outside of major centres – to rural areas.
- We need more people with practical hands-on experience.
- Builders need to take the lead and engage suppliers and trades - prioritize the time to take training.

Open Mic

Moderated by Stefanie Coleman, CHBA President & Jennifer Weatherston, Chair NZC

We invited the Summit registrants to submit applications for the opportunity to present at the “Open Mic” on the Tuesday evening. We asked them to speak to their Net Zero success stories, solutions or challenges that they would want to share. For example: where you think the industry can do better, what your involvement in the Canadian homebuilder's industry with a Net Zero focus has been like so far, what you've learned along the way, and where you have seen great success! Their experience and expertise are important to the advancement of Net Zero in Canada and we wanted them to have an opportunity to bring this to the group. These are the six that were selected:



James Dean, NZ Homeowner / Naikoon Contracting Inc.

James is a clean technology entrepreneur and green building enthusiast who shared the highlights and lessons learned from building his own Net Zero Energy and Passive House Certified home in West Vancouver.



Joe Hart, President, Icon Homes Ltd.

Joe shared the challenges and successes that he has seen over the past 2.5 years as a Qualified Net Zero Builder, building Net Zero and Net Zero Ready homes in a small community of Northern BC.



Roya Khaleeli, Manager, Sustainability, Minto Communities

In collaboration with Bluewater Energy Inc. and Building Knowledge Canada, Roya recently refined the roof designs of Minto's traditional detached homes to optimize for PV. Roya shared her lessons learned with the hope that other large production builders will push towards Net Zero design.



Nathan Manion, Consultant, Feris Buildtech Inc.

Nathan specializes in the performance monitoring of sustainability projects with a focus on using Life Cycle Assessment (LCA). Referencing a recent case study, Nathan identified challenges and potential solutions to gaps identified in the green building industry.



Gary Hamer, Residential Specialist Engineer, BC Hydro

Gary's presentation supports the need for using “house as a system” principals to optimize all the systems that can go into a home. Key attributes were described that can benefit not only the owner or occupants but also builders, utilities and society.



Peter Darlington, President, Solar Homes Inc.

Peter is a current member of the Net Zero Renovations Working Group and has several years of experience renovating projects towards Net Zero. Peter will share his lessons learned from analyzing thermal images of three building envelope renovations.

Slide decks are available for download at www.chba.ca/NZLeadershipSummit.

Utilizing Energy Advisors to increase builder uptake

Moderated by Andy Oding, Vice President, Building Knowledge Canada

Energy Advisors (EAs) have been key in helping builders achieve higher levels of energy performance in their homes. By investing in EA competency development (what they know and what they can do) and building capacity (getting more of them trained to do this), we can exponentially increase their impact. In this session we'll explore how to achieve this, the value they bring to the table, the importance of changing the perception of their role, and what tools EAs should be leveraging.

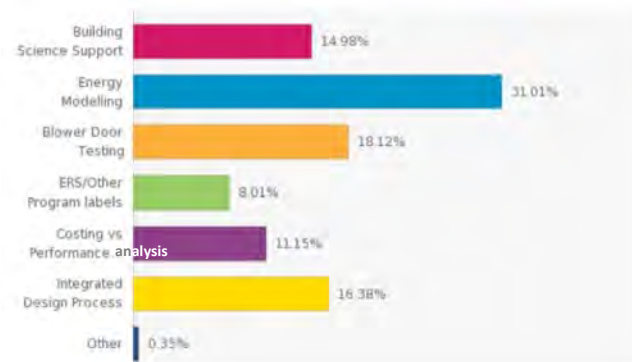


L2R: Einar Halbig, Cindy Gareau, Chris Higgins, Mark Rosen, Tyler Hermanson, Andy Oding

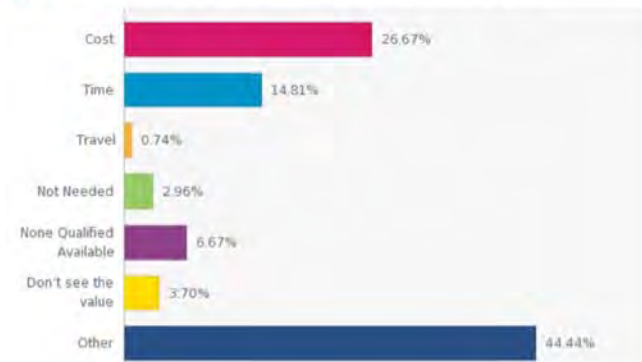
Panellists:

- Cindy Gareau, Executive Director, CACEA
- Einar Halbig, Managing Partner, E3 Eco Group Inc.
- Mark Rosen, Architect, Energy Advisor, Building Energy Inc.
- Tyler Hermanson, Director/Senior Consultant, 4 Elements Design
- Chris Higgins, Green Building Planner, Planning, Urban Design and Sustainability, City of Vancouver

Q. In your experience, what's the most valuable aspect of working with an EA?



Q. Is there a reason why you would NOT want to work with an EA?



What services should EAs provide (but currently aren't) to better work with you?

- Forensic investigations.
- Water management/inspections.
- EAs should have a mechanical engineer on staff / work with a mechanical design company.
- Retrofits! What are the qualifications? Need knowledge/experience.
- IDP – Integrated Design Process (benchmark, initial load calc, mechanicals, PV). Can the EAs handle this? BC Housing IDP Guidance document?
- Sizing/balancing + knowing installation/commissioning requirements (when required by codes) to ensure intentions are met. Conversation with consumer RE: operations?
- Mid-construction review/report card – remind whole builder team of things to do.
- ASHRAE 55? <https://www.ashrae.org/technical-resources/bookstore/standard-55-thermal-environmental-conditions-for-human-occupancy>

Additional key points from the panellists/audience:

- “Participate in LEEP or you will be left behind!” (More info at: <https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-homes/local-energy-efficiency-partnerships-leep/17338>) Need more info on LEEP Technology Adoption Pilot (TAP) and Cost Benefit Analysis Tool (CBAT).
- How to identify a qualified EA so that there's no unintentional consequences from unqualified EA providing specifications/direction!
- EAs need more training.
- Availability of EAs in rural areas is still a challenge. It's still a chicken/egg situation – no EAs will come unless there's enough work.

What are the technical hurdles & what's needed to help industry move this forward?

Moderated by Andy Oding, Vice President, Building Knowledge Canada

CHBA's Technical Research Committee has identified key technical challenges that need solutions before mass market uptake of net zero homes can become a reality. We need research on moisture control, water ingress, and indoor air quality, for example, along with supporting tools, techniques, equipment, products and information. In this session we'll review technical challenges, what is being done about them and how we can accelerate solutions.

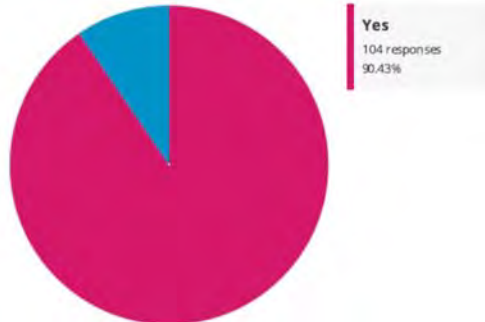
Panellists:

- Rick Weste, CEO, Triple M Group of Companies
- Joe Geluch, President, Naikoon Contracting Ltd.
- Chris McLellan, Senior Technical Advisor, Office of Energy Efficiency, Natural Resources Canada

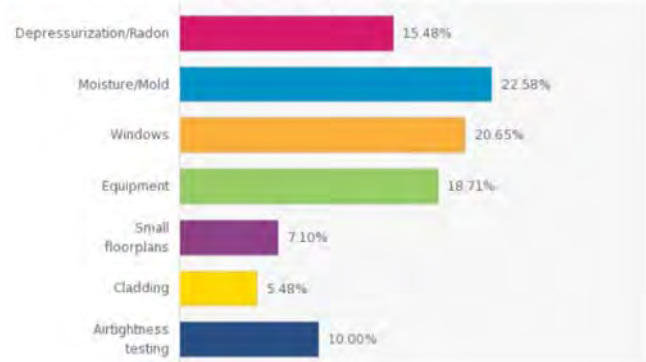


L2R: Andy Oding, Chris McLellan, Joe Geluch, Rick Weste

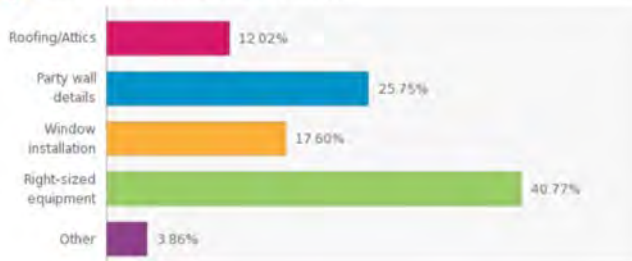
Q. Have you seen problems related to increased airtightness?



Q. Have you seen challenges with any of the following?



Q. Where do we need technical research?



Additional key points from the panellists/audience:

- Joint effort to resolve mechanical issues: CHBA/LEEP/HRAI.
- Need manufacturers to help resolve the sizing challenges + lack of congruence for heating and cooling loads.
- Need more management and collection of data. Can we use the energy management systems in the NZ/r Homes to do this? Need to include an agreement in the purchase/sales contracts to allow for data collection. When homeowners change their Wi-Fi passwords you can't access the data anymore – need to find another way to do this. The MURB project will have data from 7 builders.

Can we design and build our homes to store carbon?

Moderated by Andy Oding, Vice President, Building Knowledge Canada

It's known and recognized that some materials used to construct homes have a higher carbon footprint than others. So how do we effectively reduce the carbon footprint of the materials/products, not just the operational emissions? Would it be possible for the residential construction industry to be leaders in the use of materials that store carbon? What do we already know, what tools are available, and how would the mass market go about implementing this?

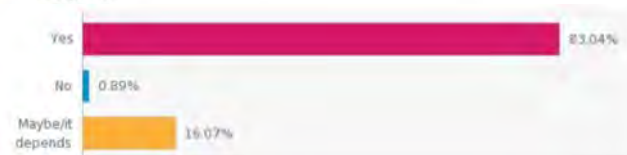


L2R: Andy Oding, Chris Magwood, Rob Jonkman

Panellists:

- Chris Magwood, Executive Director, The Endeavour Centre Sustainable Building School
- Robert Jonkman, Director Codes and Standards - Structural Engineering, Canadian Wood Council

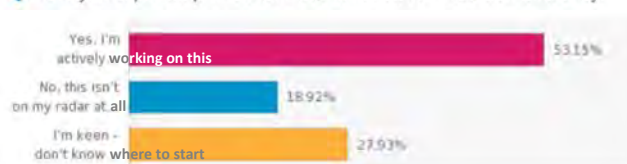
Q. Would you try using low-carbon materials to reduce your homes' carbon footprint



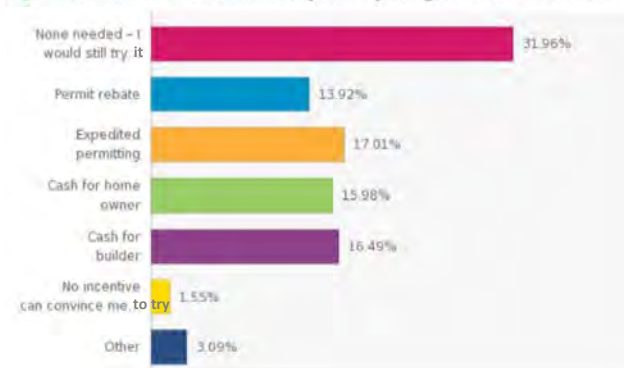
Q. Would you be willing to train your team on low-carbon building?



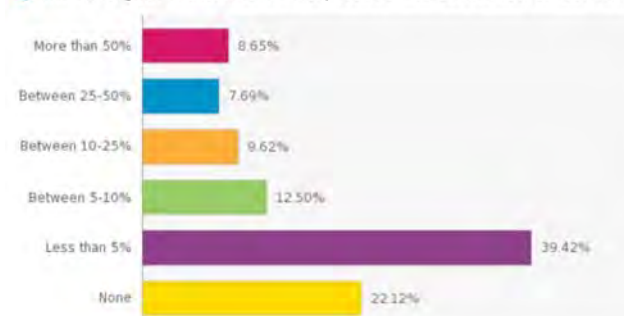
Q. Have you explored pre-fab for material/labour/time/carbon efficiency?



Q. What incentives would it take for you to try using low-carbon materials?



Q. What % of your customers have expressed interest in a low-carbon home?



Additional key points from the panellists/audience:

- The price of materials is seen as a challenge.
- Builders will want help/info on making substitutions with materials to achieve a lower embodied carbon footprint.
- It isn't too complicated to find substitutions – we're over-complicating this.
- EPD is a mandatory product declaration (like a nutrition/ingredient label on food) – request from manufacturer. There are now many tools & resources to do the calculations.
- Check out Chris Magwood's white paper at www.buildersforclimateaction.org.
- Check out the Canadian Wood Council's tools at www.cwc.ca/design-tools.
- Energy Advisors could go back to being CEAs (Carbon & Energy Advisors) if they opted to also provide this service.

Gaining consumer uptake: What are the most effective tools?

Moderated by Stefanie Coleman, Owner, Pretty Smart Homes and CHBA President

As regulations move forward with targets for Net Zero Ready levels of performance, there are major affordability issues still to be addressed. Not only do we need better, less expensive technologies to help drive down costs, but we also need better valuation of energy efficient homes, and financing mechanisms that can help accelerate the consumers' ability to pay. While the industry continues to work on decreasing the initial cost of Net Zero/Ready Homes, how do we capture the attention of consumers to voluntarily buy into the Net Zero Ready Homes we're already putting on the market today? The CHBA annual consumer preference survey shows that homeowners expect new homes to be energy efficient, but there's not a significant willingness to pay for it. Since we don't have millions of dollars for an effective consumer marketing campaign, what's the answer? There's a new mindful consumer who would be a perfect fit for these homes - how do we connect the dots? In this session we'll explore marketing and communications efforts and take a look at the opportunities that widespread EnerGuide labelling, energy performance in appraisals, and financing tools such as PACE presents.

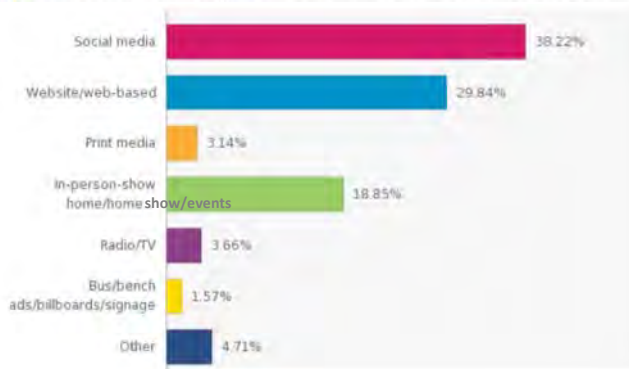


L2R: Stefanie Coleman, Jennifer Weatherston, Chris Williams, Derek Satnik, Alex Chapman, Sonja Winkelmann

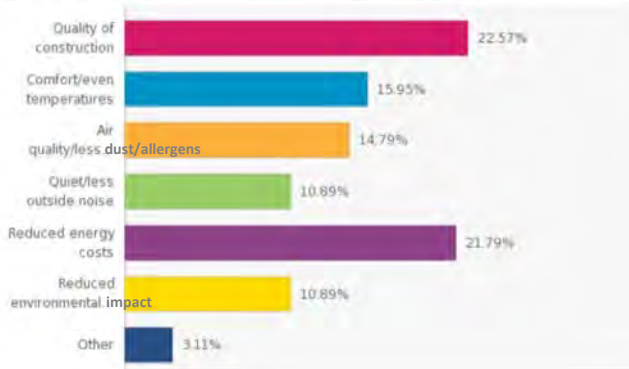
Panellists:

- Jennifer Weatherston, Director of Sustainability, Timberworx Custom Homes
- Chris Williams, Vice President, Avalon Master Builder
- Sonja Winkelmann, Director, Net Zero Energy Housing, CHBA
- Alex Chapman, Executive Director, Our Energy Guelph
- Derek Satnik, Vice President of Technology, Smart Communities, s2e Technologies

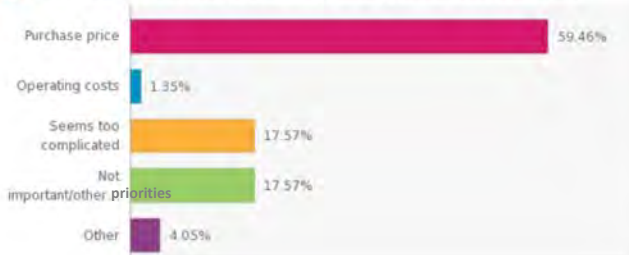
Q. What sales or marketing efforts have been most successful for builders?



Q. What messages have resonated most with home buyers?



Q. When builders sell energy efficiency, what gets the most push-back?



Additional key points from the panellists/audience:

- Send a questionnaire ahead of meeting with potential client & ask about existing home – what they like, what they don't like. Temperature in different areas such as basement, by windows/doors, drafts, dust/allergies, smells/mold?

Summary of Day 2

Moderated by Stefanie Coleman, CHBA President & Jennifer Weatherston, Chair NZC

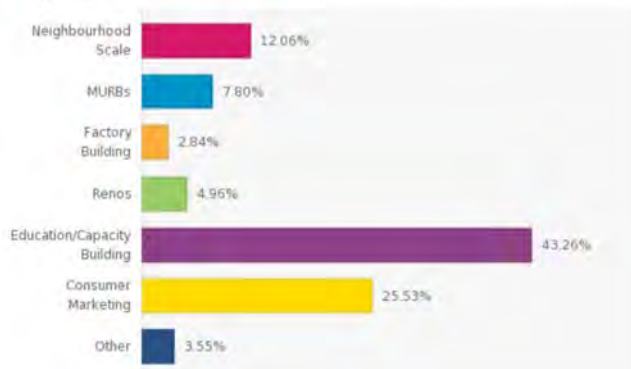
As a group we identified the priorities in each session using the polling tool and the catch box (foam mic) during the audience question & answer portion of each session. At the end of Day 2 we took some additional time to see if anyone from the audience had anything more to add. Below are some of the additional comments - others were included in the appropriate sections above.

- The water/energy nexus – water needs to be addressed.
- Safety and security as additional selling features – speak to passive & active survivability. This is different than the typical “resilience” efforts which is mostly land use planning and not building code items.

As a check-in from where we started on Day 1 we asked the same question to see if, over the course of the event, people changed their minds on the key priorities. The top two are still Education/Capacity Building and Consumer Marketing – but interestingly they swapped positions. Renos saw a minor increase, as did MURBs and Factory Building. Neighbourhood Scale saw a decrease.

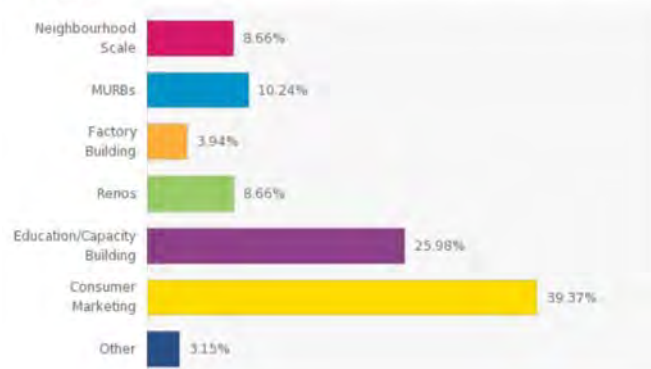
Start of Day 1:

Q. What's the #1 priority we should focus on to move voluntary NZ Homes forward?



End of Day 2:

Q. What's the #1 priority we should focus on to move voluntary NZ Homes forward?



NATION-WIDE STRATEGIC ACTION PLAN & NEXT STEPS/MOVING FORWARD

CHBA has taken a leadership role in helping early adopters of Net Zero/Ready Homes to overcome barriers and voluntarily build to higher levels of energy performance. The chart below reflects the Net Zero efforts being led by the CHBA, providing a summary of actions currently underway as well as efforts on our radar for the near term. The objective is to continue to add more Net Zero work to this chart that our key stakeholders are engaged in, aligning efforts and resources as well as to reduce duplication of efforts. The overall goal is to ensure a holistic approach is being implemented, supporting the industry with solutions and tools to voluntarily adopt Net Zero at all scales (i.e. neighbourhoods) and applications (i.e. renovations).

Based on feedback from Summit participants (poll results on previous page), Education/Capacity Building and Consumer Marketing were identified as the top two priorities. Additionally, as the moderators and panellists were preparing for their sessions, it was identified that costing permeated every single topic; the need to reduce costs overall but also to find a way to overcome the initial cost so more consumers could buy a Net Zero/Ready Home. (For example, accurately calculated monthly “Total Cost of Ownership”, PACE/LIC financing, and the accurate valuation of these homes.) And, under the category “Technical Requirements, Quality Assurance & Tools” substantial momentum is already underway with our current programming as well as programming under development for MURBs, Renos and Neighbourhoods.

	Competency & Capacity Building	Marketing & Communications	Technical Requirements, Quality Assurance & Tools	Financing, Real Estate & Appraisals	Costing
Immediate Activities (2020)	<p>Complete the roll-out of the following Net Zero courses including web-delivery options for accessibility and cost-effectiveness:</p> <p>UPDATED</p> <ul style="list-style-type: none"> Builder Training Energy Advisor Training <p>NEW</p> <ul style="list-style-type: none"> Sales Training Renovator Training Trades Training Building Official Training <p>Develop a National Net Zero Competency & Capacity Plan with key stakeholders to optimize the use and delivery of programming such as LEEP/TAP and IDP.</p> <p>Continue to deliver content timely webinars for widespread access to current knowledge/updates.</p>	<p>The Marketing Working Group will be re-engaged to provide guidance in the development and delivery of a National Net Zero Marketing & Communications Plan (for both industry and consumers) with the objective of articulating the value proposition to build understanding, awareness, and demand. (Test safety & security messages with consumers as additional selling features: passive & active survivability.)</p> <p>More Marketing & Communications tools (i.e. video testimonials) will be developed for use by key stakeholders, especially builders/renovators.</p>	<p>Net Zero Home Labelling Program v1.1 eff. Feb/20.</p> <p>NZ Reno PILOT.</p> <p>NZ MURB (Part 9) PILOT trialed with 7 MURB builders.</p> <p>NZ Neighbourhood Program. <i>(Reliant upon staff capacity.)</i></p> <p>Explore the development of a Carbon Working Group.</p>	<p>Through the NZ Reno Project PACE/LIC financing is being explored with the goal of developing a PILOT.</p> <p>Through the NZ Reno Project the “Green & Energy Efficient Addendum” is being Canadianized and PILOTED.</p> <p>The Finance Working Group will be re-engaged to provide guidance in the development of appropriate National financing mechanisms and/or incentives as well as CBAT utilization. <i>(“Net-Zero Energy for Net-Zero monthly cost?”)</i></p>	<p>Explore efforts with key stakeholders to reduce costs of building/renovating (capital & labour) to Net Zero levels of performance.</p>
	<p>Develop training to coincide with the roll-out of v2 and MURBs.</p> <p>Work with key stakeholders to have Net Zero courses/content delivered in Post-Secondary and Secondary Schools.</p>	<p>Net Zero Sales Training!</p> <p>Develop and provide information and tools related to the operation and maintenance of NZ/r Homes for homeowners.</p> <p>Continued delivery of the National Net Zero Marketing & Communications Plan (for both industry and consumers).</p>	<p>Net Zero Home Labelling Program v2 utilizing ENERGY STAR® as the baseline.</p> <p>NZ Reno Label v1.</p> <p>NZ MURB (Part 9) Label v1.</p> <p>Results of the NZ MURB project will provide insights and data on the actual performance <i>(do we need more actual performance data?)</i> of the MURBs as well as on the use of factory building to achieve Net Zero performance. <i>(Does this drive more effort to utilize factory building?)</i></p> <p>Explore the water/energy nexus & “Wellness” program.</p>	<p>Results of the NZ Reno project will provide insights on the use of PACE/LIC financing as well as a Canadian version of the “Green & Energy Efficient Addendum”.</p>	

STAKEHOLDERS

Through this Net Zero Leadership Summit we reached out to a broader audience to ensure our network included key stakeholders that influence and impact the residential construction industry such as utilities, renewable energy solution providers, infrastructure design and development, financing, education and capacity building, research and technologies.

Within each topic/category key stakeholders have been identified to help move the industry forward:

Education/Capacity Building	<ul style="list-style-type: none"> ▪ Net Zero Service Organizations and Trainers ▪ NRCan LEEP ▪ BC Housing ▪ CACEA (<i>need more qualified EAs so we can quickly build more builder capacity!</i>) ▪ Post Secondary & Secondary Schools (Skills Canada?)
Gaining consumer uptake	<ul style="list-style-type: none"> ▪ CHBA Local and Provincial HBAs ▪ Net Zero Service Organizations and Energy Advisors ▪ Participating builders/renovators (and their happy homeowners!) ▪ Utilities and municipalities with aligned voluntary programming/incentives
Financing, Real Estate & Appraisals	<ul style="list-style-type: none"> ▪ Credit Unions ▪ Canadian Appraisal Institute ▪ CREA
Costing	<ul style="list-style-type: none"> ▪ NRCan LEEP (CBAT) ▪ Net Zero Energy Advisors ▪ Builders ▪ Utilities ▪ Product manufacturers/suppliers
Net Zero Neighbourhoods	<ul style="list-style-type: none"> ▪ Utilities and municipalities with aligned voluntary programming/incentives ▪ Developers and Builders ▪ Renewable energy technology manufacturers/suppliers (incl. smart electrical panels)
Net Zero MURBs	<ul style="list-style-type: none"> ▪ NRCan OEE & CanmetENERGY ▪ Builders ▪ Net Zero Energy Advisors ▪ Product manufacturers
Net Zero Renos	<ul style="list-style-type: none"> ▪ NRCan OEE & CanmetENERGY ▪ Renovators & Factory Builders (panelization) ▪ Net Zero Energy Advisors ▪ Product manufacturers ▪ Utilities and municipalities with aligned voluntary programming/incentives
Factory Building	<ul style="list-style-type: none"> ▪ CHBA Modular Construction Council ▪ Factory Builders
Technical Hurdles	<ul style="list-style-type: none"> ▪ CHBA Technical Research Council ▪ NRCan LEEP, OEE & CanmetENERGY (<i>data collection?</i>) ▪ NRC incl. CCHT ▪ BC Housing ▪ Product manufacturers ▪ Builders/Renovators ▪ Factory Builders ▪ Net Zero Energy Advisors ▪ Building Science experts

NEXT STEPS/MOVING FORWARD

In addition to all of the excellent feedback we had already received from participants at the event and via email/phone calls when we got back to the office, we sent a post-Summit survey to participants to get additional feedback.

95% of survey respondents rated the Summit very good or excellent, 88% are either very or extremely likely to attend another one in the future, and 78% said that the Summit was either better or much better than expected. So it looks like we'll do one again! Although we won't be able to schedule anything until we have a better sense for how the economy is recovering post-Pandemic.

That being said, we also have some excellent feedback on how we could improve the Summit next time around. Even though 91.5% of the survey respondents felt the content was either very or extremely helpful, 40% of survey respondents would like to dig into the content more deeply than we did at this inaugural one. (This was the top suggestion for improving future Summits.) We know what topics you want us to focus on (Renos, Education and Consumer Marketing were rated the top three with NZ Technologies and Carbon coming in at 4th and 5th place), and 27.5% of survey respondents recommended making the sessions more interactive. (This was the 2nd top suggestion for improving future Summits.) A workshop style format will hopefully also make it so that more people feel comfortable asking questions during the sessions since only 52.5% of survey respondents felt very or extremely comfortable asking questions.

We'll also make the lunch breaks longer so that we're not rushing you through the networking time, since 80% of survey respondents found the networking to be either very or extremely valuable. Ideally the venue will be a bit more modern – and if we're lucky maybe we can even find one that has a good energy rating too! Although the location will be pretty hard to beat if we stick to doing this in February!

We would like to thank all the participants for their contribution which has been included in this Summit Summary Report. It is so important to have this input and to include your insights in the development of this National Net Zero Action Plan.

The Action Plan includes what we need to do to address the challenges and seize the opportunities, as well as the priority actions for how we move forward - who should be leading these priorities and what the next steps are.

Our collective call to action is to share our knowledge and determine the best way to apply it to move the industry forward. Let's continue to "conspire" together!

A heartfelt thank-you from all of the staff who worked hard to make this event come together!

Until the next Summit you can rest assured that the Net Zero staff at the CHBA will continue our work on this action plan, and we will reach out with "virtual/remote" ways to engage all of the identified stakeholders as we move forward.

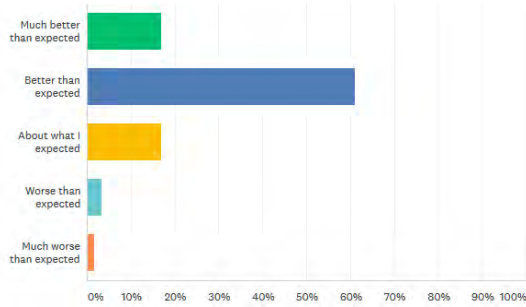


EVENT FEEDBACK/SURVEY RESULTS

32% of attendees provided us with feedback via our post-event feedback survey. See the results below.

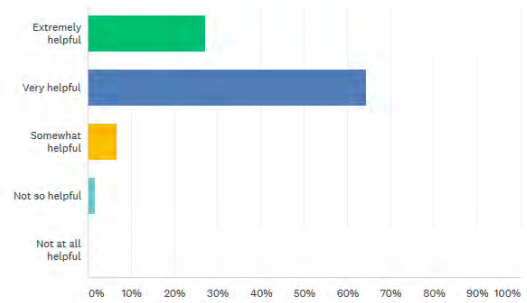
How well did the Summit meet your expectations?

Answered: 59 Skipped: 0



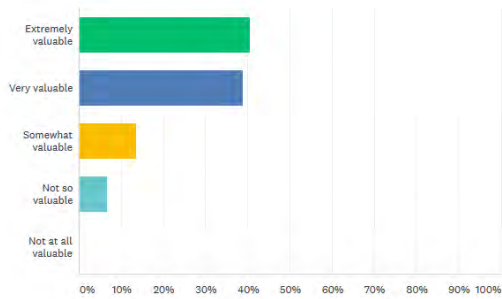
How helpful was the content presented at the Summit?

Answered: 59 Skipped: 0



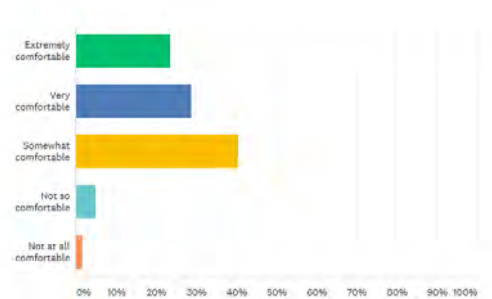
How valuable were the networking opportunities at the Summit?

Answered: 59 Skipped: 0



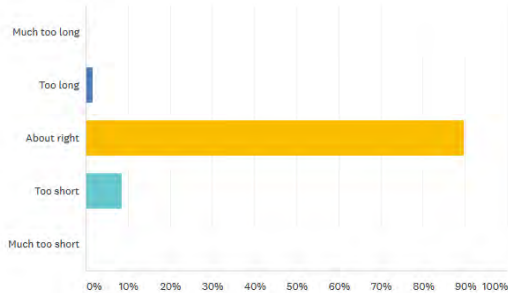
How comfortable did you feel asking questions during the sessions?

Answered: 59 Skipped: 0



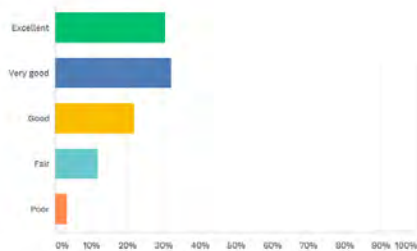
Do you think the Summit was too long, too short, or about right?

Answered: 59 Skipped: 0



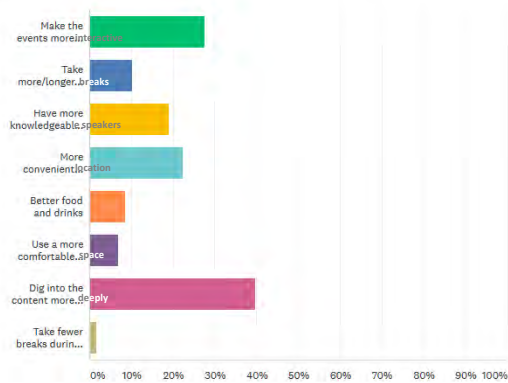
How would you rate the quality of the facilities where the Summit was held?

Answered: 59 Skipped: 0



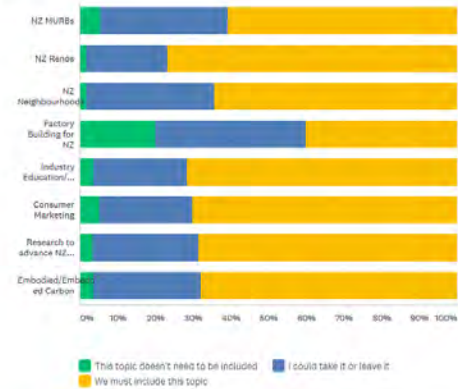
How could future events be improved? Select all that apply.

Answered: 58 Skipped: 1



On a scale from 1 to 3, what content should we focus on at the next Summit?

Answered: 58 Skipped: 0



OTHER:

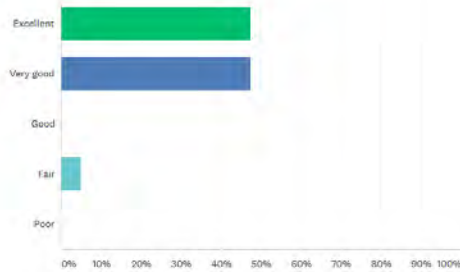
- This year was a great start. Set the bar high! Now work to keep it there!
- A couple of the presentations didn't seem pertain to Net Zero building.
- I have no suggestions. I liked the secluded location and that it was a "resort" area. Keeps folks together.
- Have more of a trade fair that we could ask questions of suppliers
- Excellent event that met my expectations.
- carbon guy dialog
- 7am - 9pm is a very long day
- Food was good. The walk outside to a room that was cooler was difficult for some.
- More of a focus on commercial netzero construction and communities, not just single family dwellings.
- A break sometime during the day that allows for a good walk, or time to check out the features of the location
- It was great!
- Spend less on a keynote but have a few more open mic speakers
- Another networking night instead of the open mic, or a less structured format for it.
- really, not much to improve on, except for more of a focus on emissions rather than energy
- it was great as is
- I like that the focus was from ten thousand feet, but as a young builder I would love to see more in depth case studies showing size, r value, mechanical system selection and cost to building a specific home, and what, if anything the builder/homeowner/architect would do different
- A bit more time to network and enjoy the site.
- None very well done. Next Summit continue to build on what we have learned.
- none - just right - access maybe a bit tough but not bad
- Hotel room was in poor condition
- try to encourage more cross disciplinary conversations
- no recap of the polls at the end, that was repetitive and not necessary to go over again

OTHER:

- Building Science related to wall and ceiling types
- More Alberta Residential Single Family Home Builders Forums to
- Need the carbon dialog
- Building science
- costing studies
- Case studies, case studies, case studies!! Ha ha more specifics (at least for some sessions)

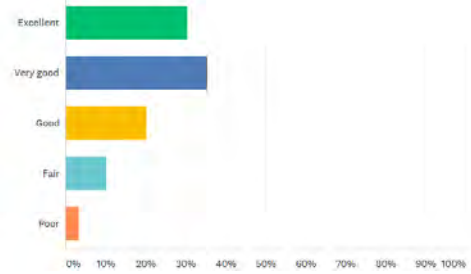
Overall, how would you rate the Summit?

Answered: 59 Skipped: 0



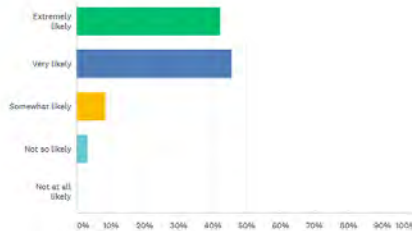
How would you rate the value for the money of the Summit?

Answered: 59 Skipped: 0



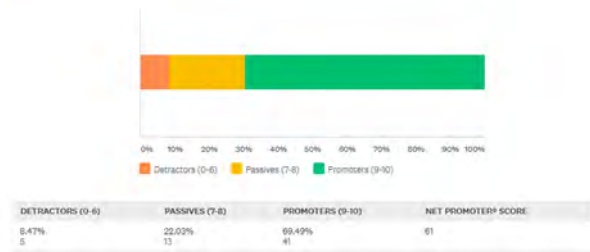
How likely are you to attend another Net Zero Leadership Summit again in the future?

Answered: 59 Skipped: 0



How likely is it that you would recommend the Summit to a colleague or business contact?

Answered: 59 Skipped: 0



Who would you like to see as a keynote speaker at the next Summit?

- not sure. would like to see more representation and topics for Alberta
- Amory Lovins
- Dan Levitin
- Tony was a great surprise that I would not have been able to identify
- Somebody that can project the future trends of residential construction/renovation
- Carbon, how much carbon is in our materials
- David Suzuki, Elizabeth May, Steven Guilbeault, Green Builder?
- Chris Magwood
- Mark Laliberte
- Not sure. Tony seba was amazing. Someone like him.
- Someone who can deliver and engage like Tony Seba. A person who has an interesting and unbiased knowledge of energy production and storage.
- Joseph Istiburek
- Ellen MacArthur
- Simon Sinek
- I would welcome a builder. Peter Amerongen could be good.
- HVAC and Mech Technologists
- maybe someone who's presentation is more focused on buildings
- Matt Risinger?
- Not sure! Tony Seba was fantastic and hard to top his presentation. Mark Jewell - selling energy, would be fantastic for a more practical approach on selling NZ. <https://www.sellingenergy.com/mark-jewell/>
- Joe Isteburec, guys from RDH, Gord cook, Andy was great, Robert bean.... Matt Risinger!
- Donald Trump explaining how climate change does not matter or exist.
- Elon Musk or the millennial guy simon senek
- Someone much less expensive. While the keynote speaker was fun, that is not what will keep me coming
- Tony again

What was the single most valuable thing you learned at the Summit?

1. Connecting with like-minded builders/suppliers/trades
2. there is too much to mention. I especially appreciated networking with the CHBA representatives and engaging with others to learn more. Our Qualico Sustainability committee was in full attendance with all 15 of us.
3. convergence of technologies and extreme (10X) efficiencies required to drive disruption.
4. PV systems and monitors
5. How to sell net zero
6. Everything I learned was valuable. The Summit was excellent. It has me so motivated.
7. lot of results have been achieved but still lot of works need to be done
8. embodied carbons
9. The embodied carbon in net zero homes can be made negative by selecting the right materials. Mind blown.
10. That we may be further ahead of the curve, in regards to efficient buildings than I originally expected.
11. How many builders are working on low energy solutions for their builds as of right now.
12. I was reminded how passionate the NZE community is! Very well done!
13. materials that sequester carbon are excellent
14. That the challenges my company and I face on a daily basis are shared by other builders around the country and that everyone is just trying to figure out how to make building net zero homes more realistic.
15. Vancouver policies and requirements
16. The industry is moving in the right direction but there are still a lot of unknowns
17. Seems like everything is in flux
18. That we have the knowledge and the will to effect change.
19. As my first summit with CHBA - it was a crash course into understanding the industry, key players and direction
20. How electric power will be mainstream before we know it.
21. Disruption trends and embodied carbon storage.
22. Discussions with colleagues on topics presented.
23. Tony Seba, the carbon guy. Very Very good.
24. Embodied carbon can be more than operational carbon.
25. The need for ongoing education on high performance homes
26. shared information during lunch and dinner. as well as socials
27. having worked on multiple NZE homes already, not much. But a good refresher.
28. That embedded carbon is the more important part we need to be working on.
29. Our world is changing quickly. Get on board. EPD was new.
30. Networking
31. The expected change in the transportation industry and how that will affect buildings and communities.
32. We are on the right track.
33. More builders seem to be committed to delivering higher performance homes, manufacturers seem to be bringing more viable and higher performing products to market, making it more realistic to consider NetZero.
34. We all have a responsibility to protect our environment. Net Zero can be achieved but with care and attention.
35. Will not be able to get net zero certification if I use a zender 5500 but I could be passive house certified
36. The effect of disruptions.
37. Carbon sequestration is important
38. We are on the right path but addressing carbon in bulidings is not there yet.
39. That unintended consequences are a serious concern and we are actively watching for it.
40. General knowledge of some of the challenges to getting wider adoption. I think that we can focus on these and make some progress.
41. Carbon positive retrofit and new build potential.
42. Carbon sequestration
43. I gained a better understanding of embodied energy and that we should be avoiding XPS and sprayfoam.
44. Overall the evolution of the building science and the direction it is headed
45. how the NZE/R standard is evolving and the overlap with other standards etc.
46. Carbon storage in houses
47. Integrated Design Process Approach for builders - starting from a visioning session to execute the project and then carefully selecting a group of stakeholders to execute.
48. The future is near. Cannot hide or ignore. But in that lies opportunity for those who understand.
49. The excitement for our industry moving forward
50. Energy advisers is money well spent.
51. That the future is coming and there are many companies already making changes in how they operate and moving towards Net Zero.
52. A lot - not one item - continuously lead into thoughts and inspiration. enjoyed Tony most, EA talk was interesting
53. I found the presentation on carbon very valuable
54. Embodied carbon implications and many great conversations with lots of smart people doing cools stuff.
55. Market disruptions, net zero certification issues, lack of acknowledgment of the carbon footprint, sick building syndrome awareness, integrated design process.
56. about embodied carbon and that these high performance homes can actually have higher carbon than less efficient homes but that the products my company is using for our homes result in a negative carbon effect so was please to know that

Do you have any other comments, questions, or concerns?

- It would be great to dig into the question of NZE renovations at an industrial scale. I see this as a huge business opportunity for many builders in the room, but we haven't done enough to define the why, what, how.
- I think it would be great to expand the product show area to focus on other items such as mechanical systems, domestic hot water solutions, solar panel manufactures, and other technology based solutions to high performance housing.
- I was surprised (and inspired) by how many attendees there were.
- Very well done, CHBA
- Good first summit
- Thank you to all who worked so hard to organize this event. It was one of the best sessions I have attended in a very long time.
- I am with a Builder and I was looking to discuss technology with mechanical suppliers, window manufacturers, insulation companies and possible alternate energy sources
- Please choose a clean and modern hotel close to an airport or we will not attend.
- Great event. Food we really good and I like that everyone stayed together.
- Impressed by CHBA/NZ committee on approaching the topic in the correct fashion
- no, was good. Possibly have more time to process information between sessions.
- Would like to get copies of the presentations much sooner after the event.
- If there were more of a focus on commercial construction or netzero communities, myself or another representative of Sifton would be happy to speak about our West 5 development, and share our lessons learned with the rest of our colleagues.
- Well done! I think there is an opportunity to make the regiception night even better by having at least one person at the table where the name tags are. Basically a greeter and person to direct and answer questions for attendees. Not essential, but a little "nice to have" that would take the first impression to a higher level. Otherwise, this event seemed to run very smoothly.
- We must educate are children if we wish to see this change, a voluntary program will never succeed if houses are sold based on location
- Good job!
- It was a fantastic event, helped me get from a basic level of understanding of net zero to a reasonable competence level. It will help me drive initiatives that support net zero homes at my company.
- Save a bit on the keynote and have the event break even or better. I am assuming the event costs more to put off then it earns, though I don't know for sure.
- Great job organizing this. CHBA staff are always pleasant and efficient!
- the bar shut down way too quickly on the second night!!
- I really enjoyed the sessions and speakers and feel that it best represented the information that needed to be heard by the people attending without being too overwhelming in terms of information overload. I feel that we could have dove deeper into certain practical topics like the integrated design process and other topics (embodied carbon, pre-fab NZ) a little less. My one recommendation is that next years event be more interactive. If we are calling this a leadership summit, it's not enough to just expect people to provide their opinion - for some it's more natural and for others it can be intimidating. I liked the opportunities to network and feel that we would all value a more interactive style. For example, I think if we want more involvement from the group, we should create a case study section where we break off into smaller groups and actually do a 1st hand integrated design process or work on a design challenge from the learnings from the previous day. This is very interactive and allows for more collaboration while also connecting more people together. This was what I was more so expecting from a leadership summit when it was communicated that we were going to be expected to provide our thoughts and opinions.
- It was my first CHBA event. The only reason I attended was because of a conversation with Sonja. I didn't know what to expect. I have been to dozens of conferences in other industries, but I went home from this one full of ideas, newfound knowledge and a few new contacts to boot. Very impressed.
- I felt that each session was crammed for time and speakers. Often there were four people testing to give a presentation in 50 minutes. Which was great for moving things along, but often hindered them from going in depth
- It was really great. It felt a bit rushed but fine. No time wasted at all.
- Very well done, very few understand how much hard work goes into putting on conferences like this.
- awesome job - very well planned - excellent summit
- the event was great, very well done for a first event and feel like this is just the beginning of a great annual event. we very much appreciate the efforts that went into it



Co-Chairs, Moderators, and Panellists

Harrison Hot Springs Resort, BC
February 24-26, 2020

Welcome to the first ever CHBA Net Zero Home Leadership Summit – a uniquely Canadian experience!

Over our three days together, we will learn not only how to make your igloo Net Zero, but also how to protect it (and your 2-4) from climate change. We also have a special session dedicated to operating your dog sled on battery back-up when the dogs get tired with a special solar array clothing line.

We encourage you to immerse yourself in the many chances to connect with friends and colleagues, but also hopefully the stranger sitting next to you – not to worry, we thoroughly vetted all participants – at worst we have a few in trouble with the law out of Alberta, Saskatchewan and Manitoba for cow tipping, some on the East Coast for riding moose recklessly, the West Coast folks – well pot is legal now so they're just chill, and lastly we can only warn you not to leave with someone from Toronto (unless you are late for the airport), but we found nothing too major otherwise.

Joking aside, this Summit is about engagement, networking, learning and contributing, to create business opportunities, solutions to increase affordability and adoption of the Net Zero voluntary label. While it is not all business – please have fun, take your toques off and kick up your moccasins - we are expecting change here. We love everyone, but pull your weight, participate and be part of the dialogue - or you'll be centred out and forced to participate in a polar bear swim!

You have arrived at the most outstanding table in the Canadian Net Zero community. Let's make it great, eh?

Summit Co-Chairs,

Stefanie Coleman and Jennifer Weatherston

SUMMIT KEYNOTE - TONY SEBA

Author 'Clean Disruption' & Co-Founder Rethinkx

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Twitter: [@Tonyseba](https://twitter.com/Tonyseba) | Facebook: [@Tonyseba](https://www.facebook.com/Tonyseba) | LinkedIn: [Tonyseba](https://www.linkedin.com/company/tonyseba)

Tony Seba is a world-renowned author, thought leader, educator, speaker and entrepreneur. He is the author of the #1 Amazon best-selling book "Clean Disruption of Energy and Transportation - How Silicon Valley Will Make Oil, Nuclear, Natural Gas, Coal, Electric Utilities and Conventional Cars Obsolete by 2030", which has changed the global conversation about the future of energy, transportation and climate change.

Seba's work focuses on technology-based disruptions: the convergence of technologies, business model and product innovations that are disrupting the world's major industries including energy, transportation, infrastructure, food, agriculture, real estate, healthcare, finance, and services. He has taught thousands of entrepreneurs and corporate leaders at Stanford University's Continuing Studies. Seba is also the cofounder of RethinkX, an independent think-tank that analyzes and forecasts the speed and scale of technology-driven disruption and its implications across society.

A serial Silicon Valley entrepreneur and angel investor, Seba was an early employee at disruptive Internet companies Cisco Systems and RSA Data Security.

Seba has been featured in leading global media, including the Wall Street Journal, BBC, New York Times, Forbes, Financial Times, the Guardian, CNN, Fox News, Bloomberg, CNBC, ARD, and TVChosun. Seba has been a keynote speaker at hundreds of global events including Google, CLSA, J.P. Morgan, Nomura, Davos, COP21 World Climate Summit, Intersolar and Global Leaders Forum. His speaking engagements have included investors with more than \$30 trillion in Assets Under Management.

Seba has a Stanford MBA and a B.S. in Computer Science and Engineering from Massachusetts Institute of Technology.



www.chba.ca/NZLeadershipSummit | [#NZLeadershipSummit](https://twitter.com/NZLeadershipSummit)



Summit Co-Chair & Moderator- Stefanie Coleman

CHBA President

Owner, Pretty Smart Homes & Senior Project Manager, Building Knowledge Canada

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Twitter: [@PrettySmartHom](https://twitter.com/PrettySmartHom) | [LinkedIn](#)

Stefanie Coleman is the owner of Pretty Smart Homes, a renovation and design business in St. Thomas, Ontario. She is also a Senior Project Manager at Building Knowledge, a company dedicated to improving the energy efficiency in homes across Canada.

In her 15-year career in the construction industry, Stefanie has completed numerous building science training courses to become a better renovation contractor. She earned the Certified Energy Advisor designation for EcoEnergy, EnerGuide and Energy Star for New Homes as well as the HRAI Residential Air Systems Design Technician certification. She has completed the Certified Thermographer designation, carries the BCIN certification for the Ontario Building Code and completed the Certified Radon Measurer and Mitigator training program.

In its first year of business, her renovation company joined the St Thomas & Elgin Home Builders Association (STEHBA). Stefanie became active within the association, joining the board and serving as sub-trade director until working her way through the Presidential track with her Presidency during the 2011/2012 year.

Over the years Stefanie has chaired numerous committees, including awards and special events committees and the STEHBA Strategic Planning Committee. She served as one of the founding members of the Net Zero Council's Management Committee as the Renovation representative. She has also served on the Technical Committee for OHBA, LHBA and STEHBA, on the Renovator Council for LHBA, OHBA and CHBA (Reciprocal Member) and on the CHBA Home Modification Council (Reciprocal Member).

Stefanie currently sits on the CHBA Executive Committee as the President of CHBA.



Summit Co-Chair & Panellist - Jennifer Weatherston

CHBA Net Zero Council Management Committee Chair

Director of Sustainability, Timberworx Custom Homes

claxtonmarsh.com | jennifer@timberworx.ca | 226-780-0234 x107 | [LinkedIn](#)

With a background in residential construction, Jennifer brings insight into production as well as custom high-performance home building. Addressing associated costs & practices into an environment that is highly sensitive towards the budget and schedule; Jennifer understands the trade offs and opportunities with advancing to Net Zero Ready while limiting the impact on the budget, enhancing the buildings up front as well as long term payback.

Jennifer has led builder(s) to win awards in the Net Zero/High Performance space on multiple occasions while also being recognized herself as the EnerQuality Leader for the Year 2016.

Having built over 20 Net Zero Ready homes, 5 full Net Zero homes, Jennifer excels in delivering her passionate voice to buyers and builders in a language that can be understood but also engaged.

As an advocate for a voluntary movement to Net Zero Ready homes, Jennifer willingly shares the lessons learned so all can benefit and take the next step towards a more affordable, comfortable, durable built environment.



Summit Moderator - Andy Oding, REA, LEED AP, BSSO

CHBA Net Zero Council Management Committee Member
 Vice President, Director of Building Science, Building Knowledge Canada Inc.
buildingknowledge.ca | andy@buildingknowledge.ca | 1-800-267-6830 | [LinkedIn](#)

With an extensive background as a builder for 20+ years Andrew brings a real-life practicality to building science principles and their in-field applications. As a recognized building science trainer by the government of Canada-Office of Energy Efficiency, Building Science Specialist (University of Toronto), and HVAC designer, Andrew is working closely with the development of the new National Building Code of Canada: Standing Committee on Energy Efficiency in Housing and Building, the re-development of ASHRAE 90.2 SSPC Energy efficiency standard for low-rise residential buildings. 90.2 and many advanced building programs (i.e. ENERGY STAR®, Net Zero, LEED for Homes™, etc.) across North America.

- National Building Code Canada Standing Committee Energy Efficiency in Buildings and Homes, SCEE committee- member 2018-present
- CSA 424 Building Energy Systems –Residential Working Group –Executive Committee 2019-current
- ASHRAE 90.2 Residential Energy Efficiency Standard committee member 2016-2019
- Chair of the Canadian Homebuilders Association Technical Research & Code Committee (TRC). 2017-2019
- Chair of the Canadian Homebuilders Association Zero Housing Council). 2014-2018
- Past-Chair of the CaGBC LEED for Homes Technical Committee 2008-2011
- Past-Chair of Ontario Home Builders Association Technical Committee
- Past Chair of Canadian Green Building Council LEED for Homes 2007-2011
- Energy Star for New Homes Technical Standing Committee member and past-Chair 2008-2010



Summit Organizer - Sonja Winkelmann, EP

Director, Net Zero Energy Housing, CHBA
chba.ca/NZC | sonja.winkelmann@chba.ca | 613-230-3060 x235
 Twitter: [@NZEhomes](#) | [LinkedIn](#)

Sonja has been working in the field of energy efficient homes for over 15 years. She joined the CHBA in May 2014 as the first Director of Net Zero Energy Housing and has led the development of the Net Zero Home Labelling Program as well as the associated training courses and marketing efforts.

Prior to the CHBA she was the Executive Director of the Net-Zero Energy Home Coalition for 4 years. Previously, Sonja was a Program Consultant for Climate Change Central (C3), working on projects such as the Alberta New Home Rebate Program and the Calgary Real Estate Board "Go Green Challenge". Sonja's career in this industry started at EnerVision; a Service Organization in Alberta that delivered new home rating and certification programs such as EnerGuide, Built Green™, R-2000, and LEED for Homes, as well as NRCan's Building Canada initiative.

Her formal education is in Business Administration and Environmental Management, and she has received the Environmental Professional (EP) designation from ECO Canada. She is also the proud winner of EnerQuality's 2015 Leader of the Year award!



Moderator - Craig Mitchell

Director, Innovative Solutions, Metric Modular
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Craig is currently Director, Innovative Solutions with Metric Modular, an innovative award-winning wood modular builder. A graduate of both UBC and BCIT, Craig has been in the building industry for over 25 years with the past 22 years devoted to the modular construction industry. He is currently on the Board of Directors for the Modular Building Institute (MBI) and is also a board member of the Vancouver Regional Construction Association (VRCA). In his spare time, he enjoys traveling, spending time outdoors with his family and over the past few years has taken to running ultramarathons.



Panellist - Peter Amerongen

CHBA Net Zero Council Management Committee Member
 Partner, Butterwick Construction & Carpentry
www.butterwick.ca | pamerongen@butterwick.ca | 780-271-2633

Peter Amerongen has been designing and building energy efficient houses in and around Edmonton, Alberta since the 1970's. Since 2007, he has designed and built 11 net zero energy houses (including several that are generating significant surplus energy) in Edmonton. Under his leadership at Habitat Studio, his team has built more than 50 houses with EnerGuide Ratings of 86 or better (under Canada's ERS rating system). Peter also designed and built Canada's first net zero energy affordable multi-family project and Canada's first net zero energy church in the Edmonton neighbourhood of North Glenora.

Net zero energy buildings and retrofits demand careful attention to saving energy in any way possible. This micro focus has left Peter with a profound appreciation for the monumental challenge of preparing all of our buildings for a low carbon future – especially our existing buildings - hopefully in time to avoid catastrophic climate change.

As a partner in Butterwick Projects Ltd, Peter is working on a deep energy retrofit of the 59-unit Sundance Housing Co-op in Edmonton. The panelized rejuvenation of this 1970's townhouse complex is the first built example of the Dutch Energiesprong approach in North America.

Peter is an original member of Edmonton City Council's Energy Transition Advisory Committee and of the CHBA Net Zero Council Management Committee. He is also a Certified Passive House Consultant (PHIUS and PHI) and consults on near zero emissions solutions for other projects.



Panellist – Mandy Assi

Manager, Public Sector, Institutional and Commercial Accounts, FortisBC
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[FortisBC Facebook](#) | [FortisBC Twitter](#) | [FortisBC Instagram](#) | [FortisBC LinkedIn](#)

Mandy Assi is the Manager of Public Sector, Institutional and Commercial Accounts at FortisBC. A key focus of her team is to foster customer satisfaction by working collaboratively with customers to provide energy solutions that supports their goals and objectives. She is responsible for a team of key accounts and energy solutions managers that deliver natural gas, renewable natural gas, electricity and conservation & energy management solutions. Mandy has been with Fortis for 11 years and brings over 20 years of experience in customer relationship management and sales & marketing. Mandy holds Bachelor of Commerce degree.



Panellist - Wil Beardmore

CHBA Net Zero Council General Member
 Founder & President, Bluewater Energy Inc.
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 Twitter: [@bluewatereng](https://twitter.com/bluewatereng) | Facebook: [Wil Beardmore](https://www.facebook.com/WilBeardmore) | Instagram: [@bluewaterenergy](https://www.instagram.com/bluewaterenergy) | [LinkedIn](https://www.linkedin.com/in/wilbeardmore)

Wil Beardmore is Founder and President of Bluewater Energy, a custom renewable energy design and build firm located in Guelph, ON. He brings 12 years of experience designing, integrating, and operating renewable energy systems that include solar energy, energy storage, load management, and generator solutions. Bluewater Energy has designed, constructed, and commissioned over 20MW of grid-connected solar, in both the commercial and residential sectors, as well as over 1MW of off-grid and grid-hybrid renewable systems.

Wil has a B.Sc. Environmental Engineering from the University of Guelph, and is a veteran of the Canadian Armed Forces, having served as an infantry officer for twenty years, with operational command experience both domestically and internationally. Upon retiring from the Canadian Forces, Wil went to work in corporate Canada, and after five years as a General Manager at Cintas Canada, he transitioned to entrepreneurial endeavours, starting Bluewater Energy as a means to contribute to building a sustainable future.



Panellist - Shannon Bertuzzi

CHBA Net Zero Council General Member
 Vice President, Market Development, EnerQuality
enerquality.ca | Shannon@enerquality.ca | [Twitter](https://twitter.com/enerquality) | 416-447-0077 | [LinkedIn](https://www.linkedin.com/in/shannonbertuzzi)

EnerQuality, Canada's #1 certifier of energy efficient homes, is co-owned by the Ontario Home Builders' Association (OHBA) and is BILD's training partner on building science and energy efficiency. EnerQuality delivers ENERGY STAR® and other certification programs. Shannon is responsible for strategic initiatives, business development and participant engagement.

Bringing more than 20 years of marketing and sales experience to her role, this wealth of knowledge and understanding was instrumental on several key successful residential and new commercial programs developed throughout her career. Shannon has spoken at many municipal events and received letters from leaders for her enthusiasm and efforts at promoting a sustainable community.

Shannon sits on the Durham Home Builder Board of Directors, past MOECC Lake Simcoe Steering Committee, past Board Director of four years for BILD, and in 2015 prior to joining the EnerQuality team she won EnerQuality's Industry Leader of the Year award in recognition of extraordinary advocacy and leadership driving the growth of energy efficiency and green building in Ontario.

Shannon lives in Markham with her children and is a huge believer of "even if everyone did a little bit to improve – it would collectively make a huge difference." "Making a positive difference" is Shannon's credo.



Panellist - Alex Chapman

Executive Director, Our Energy Guelph
ourenergyguelph.ca | alex@ourenergyguelph.ca | 226-979-2417

Alex holds a Bachelor of Applied Science in Civil Engineering from the University of Toronto, a Master of Business Administration from McGill University, and is a Certified Energy Manager, a Certified Energy Auditor, and a certified Renewable Energy Professional.

In his diverse career he has done project engineering in the pulp and paper industry, academic research for the Technical University of Delft in the Netherlands, sub-sea pipeline installation in Europe for the oil and gas sector, business analysis and IT project management for one of the world's largest professional services firms, sales and marketing for a solar energy installation contractor, and managed the Climate Change Office of the City of Guelph.

He serves on the Energy Task Force of the Association of Municipalities of Ontario and the advisory board of Electric Autonomy Canada and is a member of the Clean Air Partnership and the Association of Energy Engineers. More information can be found in his profile on LinkedIn.

Alex lives with his family in Guelph, Ontario.



Panellist - Cindy Gareau

Executive Director, Canadian Association of Consulting Energy Advisors (CACEA)
cacea.ca | manager@cacea.ca | 1-888-315-2774

Cindy brings over 20 years of experience as an accomplished executive director and association professional – with particular expertise in membership services, governance and stakeholder relations. Cindy's skills complement the focus of the board and association. Her expertise and leadership will further CACEA's ongoing commitment to providing quality member services and support while strengthening relations with industry stakeholders – promoting the importance and impact of Energy Advisors across Canada.



Panellist - Joe Geluch

CHBA Net Zero Council Management Committee Member
President, Naikoon Contracting Ltd
www.naikooncontracting.com | joe@naikoon.ca | 778-340-1566 | [LinkedIn](#)

A leading high-performance home Builder with a number of Net Zero and Passive House projects completed throughout British Columbia. As President of Naikoon he has led his team to over 30 Industry awards, locally, provincially and nationally.

He is a Red Seal Carpenter, a Gold Seal Project Manager, and a Certified Housing Professional who has spent over 19 years in the industry. He is a founding member of Canada's Net Zero Energy Housing Council and current Chair of the CHBA-BC Technical Research Committee.



Panellist - Einar Halbig, B.A.Sc., Energy Advisor

Managing Partner E3 ECO GROUP INC
enar@e3ecogroup.com | 604-874-3715

Einar Halbig has over 20 years of education and experience in residential construction. He specializes in practical solutions that make a house more efficient, safe and comfortable. Originally trained as a civil engineer, he became an Energy Advisor in 2002. He has evaluated over 2000 existing homes across the Lower Mainland as well as hundreds of new homes across BC. He brings an engineering background, technical sales expertise, and hands-on experience to the field of energy-efficiency and sustainable consulting. Einar provides Building Science for New Homes training and Certified Energy Advisor training through CHBA BC, is a Director of the Canadian Association of Consulting Energy Advisors, and he served as the Chair of the CHBA BC Technical Advisory Committee from 2014-2018.



Panellist - Marie Hanchet

Project Manager, Net Zero Energy Housing, CHBA
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A collaborative sustainability professional, Marie Hanchet has specialised in energy, water, and GHG management in buildings for a decade. Her ability to understand investor needs, property management concerns, and tenant preferences has influenced successful business cases for energy and water efficiency improvements in large portfolios of high-rise and low-rise rental MURBs. She was instrumental in a TD Economics report on quantifying the increased market value of green condos.



Panellist - Tyler Hermanson, LEED Green Rater/QAD, CEA, Arch. Tech.

Director/Sr. Consultant, 4 Elements Integrated Design Ltd.
4elements.eco | tyler@4elements.eco | 403-250-5514
 LinkedIn, Facebook, Twitter & Instagram: @4EGreenhomes

I've been crawling around job sites since I was a child, touring my father's designs under construction. Early on, I became fascinated with the "how" of building: how they are designed, built and operated. Early curiosity has not left, and I continue to understand building as a science and an art, pursuing the "how" of designing and building the best homes possible.

We have grown a company tailored to helping industry, builders and their clients understand how they build and support them to build better homes across Western Canada. Through our visionary clients, building some of the best homes in Canada, we are on our way.



Panellist - Chris Higgins, CPHC, LEED AP Homes

Green Building Planner, City of Vancouver

Vancouver.ca | Chris.Higgins@vancouver.ca | 604-871-6288 | [Twitter](#) | [LinkedIn](#)

Chris is an accomplished project manager who has developed a number of successful programs that overcome market barriers and result in lower energy buildings that address the climate crisis. He possesses a well-developed knowledge of energy use in residential buildings and has the experience to know the policy triggers to encourage action.

As a Green Building Planner at the City of Vancouver, Chris develops and implements building bylaw, policy, and programs to achieve 100% renewable new buildings while at the same time helping to reduce greenhouse gases from existing homes. He works to remove barriers for Passive House projects and possesses an understanding of regulatory and incentive options a city has at its disposal. Chris is a spokesperson at national conferences and to various media outlets.

Chris worked for the Canada Green Building Council from 2008-2014, developed the LEED Canada for Homes program for single along with multifamily homes and supported its delivery in all provinces and two territories. Chris has served on the board of directors for Passive House Canada. Prior to that Chris found his love of better buildings while working as Mountain Equipment Coop's store planner. Chris is a Newfoundlander but has made British Columbia his home for the last two decades.



Panellist - Vanessa Joehl

Director, Energy Programs & Service Organization Manager, CHBA BC

chbabc.org | vanessa@chbabc.org | 604-432-7112 ext. 314 | [Facebook](#) | [Twitter](#) | [Instagram](#)

Her role is to facilitate the promotion and delivery of the EnerGuide Rating System, ENERGY STAR, R-2000 and Net Zero programs within BC.

Vanessa works closely with Natural Resources Canada and the CHBA BC Energy Advisor Network who have all been trained and licensed through the Canadian Home Builders' Association to deliver and promote voluntary labeling programs.

Additionally, Vanessa provides training opportunities for builders seeking an Energy Star or Net Zero label for their newly constructed homes.



Panellist - Robert Jonkman, P.Eng.

CHBA Net Zero Council General Member
 Director Codes and Standards - Structural Engineering, Canadian Wood Council
cwc.ca | rjonkman@cwc.ca | 613-747-5544 ext. 252 | [LinkedIn](#) | [Twitter](#)

Completing a Bachelor of Civil Engineering and Management degree at McMaster University in 1994, Robert worked for one year at a structural engineering consulting firm and over nine years as "Design and Engineering Supervisor" at a Canadian timberframe manufacturer.

Robert joined the Canadian Wood Council in 2005, progressing to "Director, Codes and Standards - Structural Engineering" in 2014.

Concentrating on structural engineering, building science, and energy issues, Robert is responsible for CWC's Publication and Software business centre. Robert is active in the Codes and Standards development and with the Canadian Home Builders, including:

- Member - National Building Code Standing Committee on Structural Design (Part 4);
- Member - National Building Code Standing Committee on Housing and Small Buildings (Part 9);
- Member - Canadian Home Builders' Association Technical Research Committee;
- Member - Canadian Home Builders' Association Net Zero Energy Housing Council;
- Secretary for the Technical Committee responsible for CSA O86 "Engineering Design in Wood" Standard; and
- Vice chair of Section 9 (Wood structures) of the CSA S6 "Canadian Highway Bridge Design Code".



Panellist - Chris Magwood

Executive Director, The Endeavour Centre & Builders for Climate Action
endeavourcentre.org | buildersforclimateaction.org
[Facebook, The Endeavour Centre](#) | [Facebook, Builders for Climate Action](#)

Chris Magwood is obsessed with making the best, most energy efficient, carbon sequestering, healthy, beautiful and inspiring buildings.

Chris is currently the executive director of The Endeavour Centre, a not-for-profit sustainable building school in Peterborough, Ontario. The school runs two full-time, certificate programs: Sustainable New Construction and Sustainable Renovations and hosts dozens of hand-on workshops annually. In 2019, he helped to establish Builders for Climate Action, which will be rolling out a set of tools to help designers and builders reverse climate change with their buildings.

Chris has authored seven books on sustainable building, including Essential Sustainable Home Design (2017). He is co-editor of the Sustainable Building Essentials series from New Society Publishers, and recently, he contributed a chapter to the book The New Carbon Architecture. In 1998 he co-founded Camel's Back Construction, and over eight years helped to design and/or build more than 30 homes and commercial buildings, mostly with straw bales and often with renewable energy systems.

Chris has completed an MA at Trent University. His thesis, Opportunities for Carbon Removal and Storage in Building Materials which was published in the fall of 2019.

Chris is an active speaker and workshop instructor in Canada and internationally.



Panellist - Jorge Marques

CHBA Net Zero Council General Member | LEADERSHIP SUMMIT EDUCATIONAL PARTNER
 Manager, Innovation & Sustainability, BC Hydro
bchydro.com | Jorge.marques@bchydro.com | 604-623-3797
 Twitter: [@Jorge_Marques13](https://twitter.com/Jorge_Marques13) | [LinkedIn](https://www.linkedin.com/in/jorge-marques)

Jorge Marques has over 25 years' experience in energy efficiency, sustainability, and innovation. He received an Engineering degree from UBC in 1992 and an MBA from Royal Roads in 2008. Jorge spent 10 years as the Energy Manager with UBC's Campus Sustainability Office, where he led upgrades of building systems and energy infrastructure across campus, including Canada's largest comprehensive energy and water retrofit project.

He joined BC Hydro in 2007 and currently manages the Advanced DSM Strategies team, which works at the local, provincial and federal levels to develop and adopt new energy efficiency policies, building codes, and product & equipment standards, as well as investigating innovative ways that customers and buildings can be more responsive to the needs of the grid.



Panellist - Chris McLellan, P.Eng

CHBA Net Zero Council Ex-Officio Member
 Senior Technical Advisor, Natural Resource Canada, Office of Energy Efficiency, Housing Division
nrcan.ca | Christopher.mclellan@canada.ca

Chris holds a Bachelor of Engineering and a Masters of Applied Science, with specialization in systems engineering. He also holds a Certificate of Apprenticeship and a Certificate of Qualification as a General Carpenter (Ontario).

Chris started his career in Toronto as a carpenter and then as a builder, focussing on renovations, custom homes and timber framing. His interest in using technology to improve construction processes led him to study engineering, focussing on controls, system simulation, and signal processing. Since then, he has worked in the technology sector, for the Canadian Home Builders' Association, and has been with Natural Resources Canada, Office of Energy Efficiency for the last ten years. At NRCan, Chris managed the modernization of HOT2000, represented NRCan in the development of NBC 9.36, and made significant contributions to the development the EnerGuide Rating System, and the ENERGY STAR for New Homes program. Chris currently represents the Housing Division in the development of codes and standards and is responsible for the strategic direction of NRCan's housing programs, tools and services.



Panellist - Rob McMillan

Product Manager, Prestige Homes
www.prestigehomes.ca | rmmcmillan@prestigehomes.ca | [LinkedIn](https://www.linkedin.com/in/rob-mcmillan) | 506-433-9131ext. 201

Rob is an Engineering Technologist with over 20 years' experience in the construction industry. As the senior technical lead for Prestige Homes, Rob supervises the Design & Engineering team providing his experience in code analysis, construction details and factory-built homes.

In addition to his construction expertise Rob has also been involved in managing factory and site operations, quality control and process improvement utilizing tools such as Six Sigma and Lean Manufacturing. Rob currently sits on the CSA Technical Committee on Prefabricated Buildings, Modules and Panels, and served on the Standing Committee for Energy Efficiency and Buildings.



Panellist - Geoff McMurdo

Vice President, Sales, Marketing & CE, Activa
activa.ca | Geoff.McMurdo@activa.ca | [LinkedIn](#)

A career sales, marketing, and customer focused professional, Geoff McMurdo enjoys over 25 years of involvement in the business development field. After graduating from Western University with a degree in economics and a masters degree in business administration, Geoff commenced a technology focused career that has included global giants Sony, BlackBerry, and LG. Geoff also ran a boutique marketing agency with 2 partners, successfully building the brands of multiple clients. Today Geoff leads all customer facing teams at Activa, Waterloo Region's largest and most successful land developer and builder.



Panellist - Mark Rosen, Energy Advisor, licensed architect (OAA)

President, Building Energy Inc.
www.beinc.ca | mark@beinc.ca | 613-262-1400

Mark is a recognized industry expert in the fields of building science and air tightness. Mark has been involved in the field of residential sustainability for over 10 years, and has consulted on, tested, and certified thousands of new homes in the Ottawa area under a variety of green labelling programs (Energy Star for New Homes, R-2000, LEED, PassivHaus, EnerGuide, Net Zero).

Mark has served on the Energy Star for New Homes technical committee for 7 years (chair in 2013). He is a founding member and one of the directors of the Canadian Association of Consulting Energy Advisors (CACEA) — a newly formed national association that promotes energy efficiency for homes while helping to develop the capacity of the industry to meet ever-changing codes and regulations.



Panellist - Derek Satnik

CHBA Net Zero Council Builder Member and Net Zero Technical Committee Vice-Chair
 Vice President of Technology, Smart Communities, s2e Technologies Inc.
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Mr. Satnik is a recognized expert in green building and renewable energy, and particularly in net-zero energy construction. Mr. Satnik has been awarded some 18 times for leadership in this industry, municipally through internationally, and is one of the key authors/contributors behind all of Canada's green building programs including LEED, Built Green, Solar Ready, updates to ENERGY STAR for New Homes, Ontario's Building Code, Ontario's Green Energy and Green Economy Act, and CHBA's emerging efforts related to net-zero energy housing.

Mr. Satnik has supervised energy related projects on over 45,000,000 sq.ft. of various building types, has been involved with over 1,500 LEED buildings, supported three of the first net-zero energy homes in Canada under CMHC's Equilibrium competition, is now offering leadership in several of CHBA's Committees supporting their Net Zero Home Labelling programs.

In his role at s2e Technologies, Mr. Satnik is leading net-zero energy community projects across Canada and abroad.



Panellist - Francisco Villarroel

Project Manager, ACQBUILT

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Francisco's experience in ACQBUILT's Off-site construction methodology ensures clients receive the best constructed structure available, and project management skills allows him to work closely with a dynamic group of construction partners.

His leadership skills along with the ACQBUILT's team that are proven in the industry to maintain constant project progression with quality and Insite. Solving construction issues with a collective team is key to any project success and ACQBUILT's foresight in this process work well with all levels of the construction process. "ACQBUILT a better way to build" is more than a phrase because we present sustainability, quality in all aspects and reliability to project success.



Panellist - Rick Weste

CHBA Net Zero Council Ex-Officio Reciprocal Member & CHBA Technical Research Committee Chair
 President & CEO, Triple M Modular Ltd

triplemhousing.com | metricmodular.com | [LinkedIn](#)

Rick Weste has been with Triple M Group of Companies since 1996 in many roles including costing, purchasing, production management and sales and marketing, and has been the President and CEO since 2013. Their Lethbridge, Alberta factory specializes in single family homes and has distribution throughout the western provinces. Their Metric Modular factory is in Agassiz, BC specializes in Permanent Modular Construction, distributing product throughout western Canada and the US Pacific Northwest.

Rick is the Chair of CHBA's National Technical Research Council (TRC) and is the former Chair of CHBA's National Modular Construction Council. He was also the former President of a Canadian Manufactured Housing Institute.



Panellist - Chris Williams

CHBA Net Zero Council Management Committee Vice-Chair

Vice President, Avalon Master Builder

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Chris Williams started with Avalon Master Builder, a leading builder in the NetZero Energy industry, as a partner in 2008. He works on Net Zero related committees to push the industry, and further Avalon's Vision and Passion for building all Homes Net Zero, and lives in one of Avalon's Net Zero Energy demonstration homes.

In addition to being on the Management Committee for CHBA Net Zero Counsel, Chris works closely with the Canada Green Building Council as a member of the Technical Advisory Sub Committee. Chris graduated from the Business program at SAIT alongside Avalon CEO Ryan Scott, a pioneer in Energy Efficient Building Construction, and has since completed a B.S. Business Administration Degree from City University of Seattle and completed the Ivey Executive Program at Richard Ivey School of Business, Ontario.



Panellist - Rick Young

CHBA Net Zero Council Builder Member
 Managing Partner/Project Manager, Habitat Studio
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Rick's first introduction to building science was in a series of physics classes in University. Although the science piqued his interest, he realized academia was not his calling. Instead, he chose to follow his passion for building and working with his hands and began his apprenticeship as a carpenter. Soon after, an opportunity came his way to combine both interests in science and construction with Habitat Studio; an opportunity to build beautiful, high efficiency homes.

Rick went on to receive his red seal carpenter's ticket in 2001 and continued to work his way into new roles within the company eventually becoming a managing partner and project manager. In this roll he has a perfect balance between being on site and in the office, working with the Habitat design and construction teams, trades, and clients, to create the one-of-a-kind energy efficient homes that Habitat Studio has become well known for.

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Net Zero Council Bronze Sponsor Members



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