

# ZEBx ANNUAL REPORT

APR 2021 / MAR 2022



ZERO EMISSIONS BUILDING EXCHANGE

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ZERO  
EMISSIONS  
INNOVATION  
CENTRE

ZEBx is part of the  
Metro Vancouver ZEIC



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# About Us

The City of Vancouver's 2016 Zero Emissions Building Plan plotted a path to make almost all new buildings in Vancouver zero-emissions buildings by 2030. Part of the plan included supporting the local building industry with a Centre of Excellence. The Zero Emissions Building Exchange (ZEBx) was launched in July 2018 and is Canada's first Centre of Excellence focused exclusively on decarbonizing the building sector. ZEBx is a founding member of a growing network of international Centres of Excellence for high-performance buildings that was established in 2018 by a regional commission of the United Nations, the UNECE, along with BE-Ex in New York City and the Waterford and Wexford Education and Training Board in Ireland.

ZEBx collaborates with governments and the building industry to facilitate knowledge exchange, disseminate information, showcase excellence and grow a community of practice with an aim to accelerate action for effective market transformation, specifically, decarbonization of the building sector.

What started as a Centre of Excellence for Vancouver focused on reducing operational emissions in new buildings has now become a Centre of Excellence for B.C. focused on reducing operational and embodied emissions in new and existing buildings. ZEBx operates in a rapidly evolving building sector with some of the country's most progressive municipal and provincial green building policies, regulations and climate emergency action plans.

It is well-positioned to support effective solutions that reduce emissions from the built environment, thereby mitigating climate change. No matter how advanced you are on your low-carbon journey, ZEBx's mission is to ensure that you do not get left behind.

ZEBx looks forward to continuing its mission to empower and enable the building industry and local governments. Together, we are making the B.C. building sector a shining example of low-carbon innovation and progress.

## About the Metro Vancouver Zero Emissions Innovation Centre (ZEIC)

In April 2022, ZEBx joined the Metro Vancouver Zero Emission Innovation Centre (ZEIC). Seeded by a \$21.7 million federal endowment, ZEIC is a purpose-built organization with a mandate to catalyze, accelerate and scale up market transformation across the region and make an important contribution to the zero-carbon economy across the province. ZEIC will advance urban climate solutions in the green building, transportation and renewable energy sectors through capacity-building, policy innovation, research, projects, impact investment, granting, partnerships and collaboration.

Working with diverse private, public and social sector players, Metro Vancouver ZEIC will advance strategic priorities that help meet the ambitious 2030 and 2050 emissions-reduction targets of local, regional, provincial and federal governments and work with Indigenous Nations to support climate action priorities and initiatives.

The Centre will focus on strategic agendas that align with the Province's CleanBC Roadmap to 2030, Metro Vancouver's Climate 2050 Roadmap for Buildings and the City of Vancouver's Climate Emergency Action Plan. Equity, affordability, community health and well-being, environmental protection and economic development will be integrated into climate action programming.

## TO INDUSTRY

The ZEBx team will continue to constantly engage with the leaders (and enthusiastic followers) of the zero-emissions building community. By participating in a growing number of building sector councils, working groups, committees, workshops and dialogues and collaborating with more industry associations, we will bring the zero-emissions perspective to more tables.

This growing engagement and participation gives ZEBx a connection to the building sector like no other organization and allows us to leverage expertise from across the sector to ensure our work is relevant and impactful.

# The Team



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"ZEBx is a pivotal organization at a pivotal time. Whenever we bump into new technologies or seemingly intractable problems associated with the rapid decarbonization of the building industry you are our first port of call. From your awards programs, to your detailed case studies, to your Decarb lunch series, the practical, targeted and positive role you play in response to the climate crisis can't be overstated."

**Matthew Woodruff**  
Principal, Architect  
AIBC, MRAIC  
Local Practice  
Architecture + Design

**Keep up to date and join our mailing lists:**

**ZEBx** [www.zebx.org](http://www.zebx.org)

**B2E** [www.b2electrification.org](http://www.b2electrification.org)

**CLF Vancouver** [www.clfvancouver.com](http://www.clfvancouver.com)



# NUMBERS OVERVIEW

## RESOURCES

# 48

## RESOURCES PRODUCED

Including:

6 Playbooks

5 Videos

5 Case studies

8 Podcasts

## TOP 3 RESOURCES

## ↓ ACCESSED

**Case Study: Decarbonization of a Commercial Domestic Hot Water System**

**Case Study: 825 Pacific Street**

**Playbook: Thermal Bridging in Net-Zero Energy-ready Building Design**

## EVENTS

Most Popular Decarb Lunches and Deep Emissions Retrofit Dialogues

### ATTENDEES

## 242

### Decarb Lunch

Apr 2021, Quantifying Embodied Carbon for Buildings of the Future

## 224

Jun 2021, The Builders have Spoken: The Cost of High-Performance Construction

## 220

Jul 2021, Developer/Builder Recipes for Low-Cost, All-Electric Step 4 Residential Construction

## 209

### Deep Emissions Retrofit Dialogue

Jan 2022, Caution! Blind Spots Ahead

## 208

Nov 2021, Are we Ready? Supply Chain and Labour Force Capacity

## 203

Oct 2021, Deep Emission Retrofits of Homes: How to Get it Right

← EXPAND →

HAVE WE ENABLED YOU TO  
**EXPAND YOUR NETWORK**  
IN THE HIGH-PERFORMANCE BUILDING  
INDUSTRY?

# 64%

of survey respondents said

# YES!

# 20

## EVENTS

# 2939

## ATTENDEES

# ✓ 99%

of survey respondents

## RECOMMEND

**ZEBx events to others in the industry!**

# 2021/22 Program Highlights

## DECARB LUNCH

What started as an in-person series in 2020 is now completely online. This monthly webinar series showcases leading, low-carbon projects, policies and emerging technologies with the intent to accelerate the building sector's advance towards cost-effective, zero-emissions buildings.

Drawing an audience from all of B.C. and beyond, this series has facilitated knowledge exchange between those at the leading edge of green building development, design, construction and regulations and the green building community-at-large. It is by far our most popular program having attracted over 2000 attendees this past year.

## DEEP EMISSIONS RETROFIT DIALOGUE

The ability to decarbonize existing buildings will be a critical part of decarbonizing the building sector.

Retrofits that prioritize massive reductions in operational emissions (typically achieved through electrification) are essential to address the climate crisis. To help our community build capacity for this challenging mission, ZEBx hosted a six-part dialogue series in collaboration with a variety of different associations and organizations.

Photo : Our first technology demonstration workshop featuring the Aegis DHW heat pump. >>

The Deep Emissions Retrofit Dialogues series provided valuable information focused on best practices for reducing emissions while keeping in mind key considerations like equity, energy efficiency and workforce capacity.

## TECHNOLOGY DEMONSTRATIONS

This past year, ZEBx launched its Tech Demo series in collaboration with BCIT. The first three events were in-person, informational and networking sessions held at the BCIT High Performance Building Lab.

The three events showcased three CO<sub>2</sub>-based domestic hot water (DHW) heat pumps. The motivation behind showcasing this particular technology is rooted in the fact that heat pumps will become more common as regulations increasingly target emissions reductions: however, not all DHW heat pumps are created equal. Some heat pumps use refrigerants with high global warming potential (GWP), while other heat pumps use refrigerants with ultra-low GWP like CO<sub>2</sub>.



## NUMBER FOCUS ↓ WHO IS OUR AUDIENCE?

### > TOP 3 ATTENDEE GROUPS

- 1 ARCHITECT / DESIGNERS
- 2 GOVERNMENT
- 3 ENGINEER CONSULTANTS

### > HOW IS OUR AUDIENCE CHANGING?

#### Builders

from 5.8% to 10%

#### Director / Executive roles

from 18.5% to 26%

#### Builders / Designers of Homes (part 9)

from 26.5% to 36%

## CLEANBC NET-ZERO ENERGY-READY CHALLENGE

This incentive program, managed by Integral Group, includes a knowledge dissemination component which is being delivered by ZEBx. The winning projects achieved (or are aiming for) the highest levels of the Energy Step Code or the more stringent Passive House standard. We have showcased several of the finalists through case studies, workshops and webinars. In addition, we have also produced six playbooks with accompanying videos to help guide our community of practice in the development, design and construction of net-zero energy-ready, near-zero emissions buildings.

Photo : NZER Challenge Playbook Series from [zebx.org/resources](http://zebx.org/resources). >>

## NEARZERO EMISSION BUILDING PROGRAM

This research program incentivized the construction of near-zero emission homes within Metro Vancouver with generous compensation in exchange for design, construction and occupancy information.

With this stockpile of valuable lessons learned from over 50 high-performance home projects, ZEBx has been disseminating this knowledge through the Decarb Lunch series and resources published on our website.



**“If you want to know where the future of sustainable building is going in BC then you need to be part of the ZEBx community of professionals leading the way.”**

**Rod Nadeau**  
Managing Partner,  
Vidorra Developments  
Ltd / Innovation Building  
Group



### The BC Green Building Calendar

In partnership with the Canada Green Building Council and funding from BC Hydro, ZEBx launched BC's foremost green building calendar in January 2022.

Similar to how ZEBx is a hub for building decarbonization, our goal is to make the BC Green Building Calendar the go-to calendar for all green building-related events and training throughout BC. Whether your focus is single-family homes or large commercial developments, construction or design, policy or inspections, this calendar offers a way for all in the building industry to grow their capacity for high-performance buildings

# NUMBER FOCUS

## BC GREEN BUILDING EVENT CALENDAR - THE FIRST 3 MONTHS

**41** events published

**45** organizations joined

**Over 2800** unique visitors

# 8215

views of event pages



# REAL ESTATE FINANCING PILOT PROJECT

Financial institutions play a critical role in the transition to a net-zero carbon economy. Lending and investment decisions are one of their key levers of influence. In the building sector, a lender's decision about what to finance shapes the types of projects that get built, and the environmental impact over the long term. Vancity, supported by Affine Climate Solutions, developed a Low-Carbon Construction Financing Pilot.

**"As a contractor, it's a delight working with B2E and ZEBx. They always collaborate with industry to gather their input and understand how they will be affected by changes. This wise approach allows for quicker solutions, fewer wasted resources, and greatly reduced frustrations. I feel that my voice as a contractor is being heard and is valued; changes can be made slowly to benefit us all. What could be better?"**



# WOMEN4CLIMATE

In collaboration with the City of Vancouver, ZEBx launched the fourth year of C40 Cities' Women4Climate Mentorship Program in Vancouver.

Matching industry experts with the next generation of climate leaders, this program empowers women to advance environmental initiatives across the building, energy, transportation, and packaging industries.

“  
**THE CLIMATE CRISIS IS UPON US. WE NEED BOLD LEADERSHIP THROUGHOUT SOCIETY TO AVOID CATASTROPHIC CLIMATE CHANGE. VANCOUVER HAS A PLAN TO CUT OUR EMISSIONS IN HALF BY 2030. RECOGNIZING WE CAN'T GET THERE ALONE, WE'RE PLEASED TO SUPPORT EMERGING CLIMATE LEADERS THROUGH THE WOMEN4CLIMATE MENTORSHIP PROGRAM**  
MAYOR KENNEDY STEWART, CITY OF VANCOUVER



**NUMBER**  
*FOCUS* ↓

**NEWSLETTER**  
ZEBx publishes a twice-monthly newsletter

**3850** subscribers  
**32%** average open (compared to 23% industry standard)  
**41%** of our total subscribers are regularly opening and clicking through

**LINKEDIN**  
LinkedIn is the favoured social media channel with our audiences

**53%** increase from 532 to **816** followers



Building electrification is the most effective strategy to decarbonize new and existing buildings in provinces with low-carbon electrical grids like BC. B2E's vision is that "by 2030, all new and most replacement space heating and domestic hot water systems in BC's buildings will be affordable, high-efficiency and low-carbon with electric systems being widely used across all market sectors."

With the launch of B2E in September 2021, ZEBx's pursuit to decarbonize the building sector has taken a major leap forward.

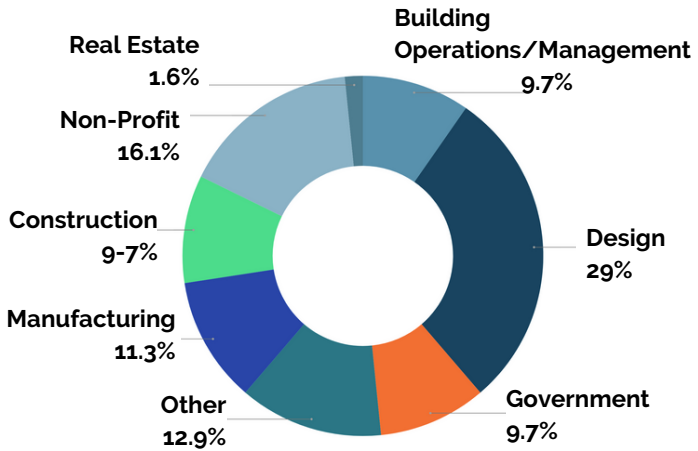
"Both the ZEBx and B2E communities have created a pathway to rapid HVAC product electrification in BC. The work of these groups has helped Olympic bring suitable products to the market, and helped us contribute to the fast moving electrification environment."



Photo: B2E's first in-person social event took place in Victoria and was a collaboration with the Vancouver Economic Commission >>

B2E is a member-driven coalition that works closely with its partners to reduce barriers to electrification and inform policy and regulation that support the corresponding market transformation. B2E's membership includes relevant building electrification stakeholders, including industry experts and professionals, manufacturers, vendors, various levels of government, and BC Hydro.

**B2E membership:**



B2E's Leadership Council (16 members) provides strategic oversight to the building electrification movement drawing from expertise within each member's sector. Three subcommittees have been formed to focus on priority areas:

- > Awareness Building & Communications
- > Expanding Industry Capacity
- > Technical



# NUMBER FOCUS

## B2E - THE FIRST 6 MONTHS

Launch event attracted **265 attendees** (ZEBx record)

**Top 3 resources:**

- 1 All-Electric: A Path to Home Decarbonization**
- 2 Residential Hot Water Electrification**
- 3 Decarbonization Through HVAC Retrofits**

**63** organizations welcomed to B2E membership



# Starting a New Year with a New Program



Carbon  
Leadership  
Forum  
**Vancouver**

Since its inception in 2019, CLF Vancouver has been a role model for other CLF regional hubs around the world. It has played a key role in the City of Vancouver's preparation to make massive reductions in embodied carbon for new buildings by 2030. CLF Vancouver's reach and impact has grown to extend well beyond the Metro Vancouver region.

To keep the momentum going and to supercharge its efforts to reduce material carbon emissions from both new construction and retrofits, ZEBx adopted CLF Vancouver as a program in May 2022.

In its first year as a program of ZEBx, CLF Vancouver will focus on building capacity, in both industry and government, to reduce embodied emissions in the building infrastructure. This will take the form of case studies and webinars (both of which will be posted on the CLF Vancouver website). CLF Vancouver will aim to converge and coordinate policies, regulations and research through a local government peer network and research coordination meetings.

CLF Vancouver will aim to normalize embodied emissions considerations in construction and retrofit projects through an awards contest, as well as through its initiatives related to capacity-building, policies and regulations. Finally, we hope to launch a low-carbon material sourcing guide to assist the BC design and construction sector in easily sourcing out low-carbon materials (available in BC) for their projects. We are grateful for the funding received from Forestry Innovation Investment and the City of Vancouver to launch this new program.

## EXPANDING RESOURCES

ZEBx is continuing to deliver the resources it creates in formats and on platforms available to wider audiences, not just in BC and Canada, but worldwide. Our growing podcast catalogue which had been featured solely on our website was launched onto Spotify, Apple Podcasts and Google Podcasts in June 2022.

The current list of podcast episodes of Decarb Lunch events since April 2021 continues to increase, as do B2E recordings and the future launch of the Deep Emissions Retrofit Dialogue events from 2021 / 22.







**The ZEBx Podcast is now on Spotify, Apple & Google**

**9** podcasts launched in  
2021 / 22

**"The fast-moving world of low-carbon buildings can be overwhelming to navigate but with ZEBx, the path is more approachable and clear. They and their offerings have greatly assisted the City of Nelson in our work to reduce embodied carbon."**

**Natalie Douglas**  
Climate Resilience  
Planner, Development  
Services & Climate and  
Energy, City of Nelson

## Partners and Funders

2021/22 Financial Support Provided by:



## Special Thanks

We wish to thank the team at Renewable Cities, SFU Morris J. Wosk Centre for Dialogue, Michaela Neuberger and Janani Gunasegaran Surrender for their contributions during 2021/22.

## Collaborators

We wish to thank those who have contributed as co-hosts, presenters and collaborators during the report period:

Mehran Ahmadi - SFU School of Sustainable Energy Engineering  
 Keith Anderson - BC Hydro  
 Nicky Arthur - Colliers Canada  
 Kim Barbero - MCABC  
 Panama Bartholomy - California's Building Decarb Coalition  
 George Bensen - VEC  
 Tom Berkhout - BC Hydro  
 Erik Blair - Metro Vancouver  
 Greg Bloom - HPSC  
 Coral Buitenhuis TSBC  
 Shay Bulmer - Northern Homecraft  
 Jovan Cheema - HPSC  
 Justin TK Chin - Integral Group  
 Maya Chorobik - Community Energy Association  
 Ben Clark - The Delphi Group  
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 Victoria Cross - HRAI  
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 Bhavin Degadwala - Integral Group  
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 Steve Fetterly - Impact Engineering  
 Jeremy Field - CLF Vancouver  
 Jeff Fisher - UDI Pacific Region  
 Jordan Fisher - FRESCo Building Efficiency  
 John Foster - FRESCo Building Efficiency  
 Joe Geluch - Naikoon  
 Graham Girard - Local Practice Architecture + Design

# Collaborators (continued)

Helen Goodland - Scius Advisory  
 Jamie Gray-Donald - QuadReal Property Group  
 Einar Halbig - E3 Eco Group Inc  
 Gary Hamer - BC Hydro  
 Meredith Hamstead - thinkBright Homes Ltd  
 Dylan Heerema - Ecotrust Canada  
 Vanessa Joehl - Canadian Home Builders' Association of BC  
 Michel Labrie - Local Practice Architecture + Design  
 Kenric Lee - Golden Properties Ltd  
 Diana Lopez - Campus as a Living Lab, UBC Sust. Initiative  
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 Daniele Magditsch - QuadReal Property Group  
 Chris Magwood - Endeavour Centre  
 Sofia Marmolejo - FRESCo Building Efficiency  
 Morgan McDonald - Ledcor Renew and LFV Solutions  
 Gavin McLeod - Averka Developments  
 Wendy McNeil - HAVAN  
 Will Monforton - Highstreet Ventures Inc  
 Rod Nadeau - Innovation Building Group Inc  
 Anthony Pak - CLF Vancouver  
 Sean Pander - City of Vancouver  
 Bradford Parker - BlocPower  
 Monte Paulsen - RDH  
 Kira Pederson - BC Housing  
 Rob Pope - Ecolighten Energy Solutions  
 Conor Reynolds - Metro Vancouver  
 Leigh Rollins - Metro Vancouver Housing  
 Albert Rooks - Small Planet Supply  
 Akua Schatz - CaGBC  
 Glenn Schatz - BlocPower  
 Rocky Sethi - Adera Developments  
 Bill Sherrit - Vancity Credit Union  
 Valerie Schoates - BlocPower  
 Jacqueline Spray - BC Hydro  
 Damian Stathonikos - BOMA BC

Vanessa Sun - VEC  
 Peter Sundberg - City Green Solutions  
 Zahra Teshnizi - CLF Vancouver  
 Alex Tu - BC Hydro  
 Tara Van Voorst Vader - Peak Construction Group  
 Oriana Vanderfleet - UBC Sustainability Scholar's Program  
 Robyn Wark - BC Hydro  
 Lisa Westerhoff - Integral Group  
 Stephanie Willis - Dunskey  
 Matthew Woodruff - Local Practice Architecture + Design

And teams from the following organizations:

BTY Group  
 Evoke  
 Morrison Hershfield  
 AME Group  
 BCIT

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