Decarb Lunch Series

ZCO_X

A Deep Retrofit in West Vancouver -A 1929 Home Leaps Ahead to 2032

Wed Sep 25, 2024 from 12 - 1pm PDT Free Webinar I zebx.org













ZERO EMISSIONS INNOVATION CENTRE

ZCIC 'S **BUILDING** DECARBONIZATION TEAM





BC Retrofit **ACCELERATOR**



Leadership Forum **British** Columbia





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NearZero: Reaching the **Top Step**

How are homeowners, builders and designers already reaching the highest step of emission reduction requirements? We found some of them from ZEBx's NearZero program, listen to them here.





Is BC Ready for Electrification? B2E w BC Hydro, Sep 2023

B2E, a program alongside ZEBx and part of the ZEIC family, collaborated with BC Hydro in Sep 2023 to help answer the question 'Is BC Ready for Electrification?'







Life Cycle Assessment Process to Estimate Embodied Carbon in Buildings

From ZEBx's Net-Zero Energy-Ready Playbook Series













Barb Silverthorn

Energy Advisor Integrated Design Facilitator, and Embodied Carbon Specialist providing Life Cycle Assessments for Part 9 projects

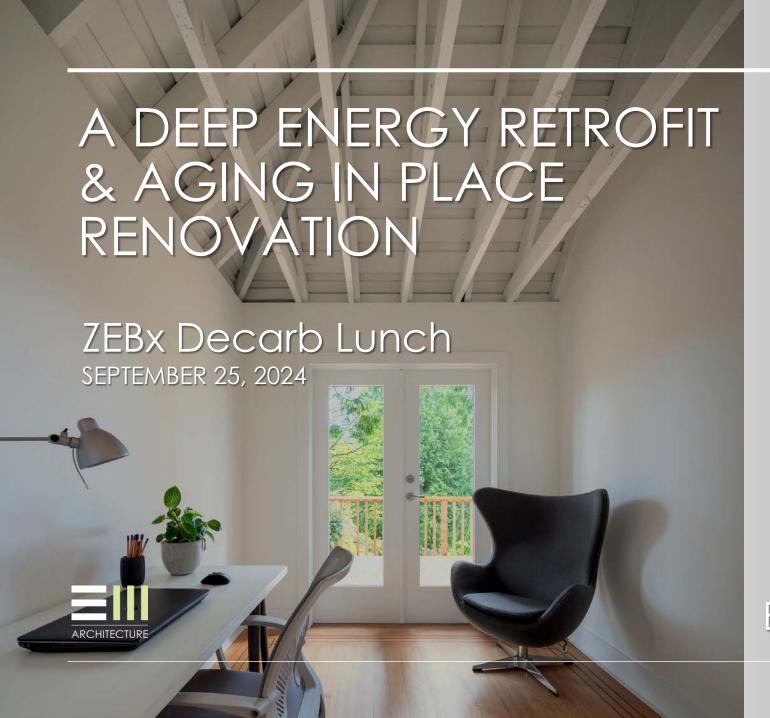
Started in 2011, Capture Energy is an award winning High Performance Energy Advising Firm in the lower mainland

- BC Energy Step Code
- City Of Vancouver Retrofit Specialists
- Embodied Carbon Calculations and LCAs
- Integrated Design Facilitation
- Mechanical and Ventilation specialists
- CHBA Housing Award for Net Zero Retrofit Project
- 40+ Projects enrolled in the Net Zero Path for Energy Efficiency
- Projects enrolled in Near Zero Stream 2 Embodied Emissions Study

Executive Members of:

HAVAN Education and Women's Councils Home Performance Stakeholders Council - Energy Advisors Committee **Member**

Canadian Association of Consulting Energy Advisors





PRESENTED BY: Erica Wolowidnyk | Owner & Principal EW ARCHITECTURE INC.

A VISION TO BUILD BETTER FOR OUR PLANET

BRINGING A 1929 HERITAGE HOUSE



INTO THE FUTURE













OVERVIEW

- WHY RETROFITS
- RENOVATIONS...TRANSFORMATIONS

AN APPROACH TO DEEP ENERGY RETROFITS

- REDUCE ENERGY DEMAND FIRST
- USE RENEWABLE ENERGY SOURCES

- AGING IN PLACE
- o OPPORTUNITIES & OUTCOMES



WHY RETROFITS



MINIMIZE CARBON FOOTPRINT



REDUCE LANDFILL WASTE



CAPITALIZE ON EMBODIED CARBON ALREADY SPENT



REDUCE DEMAND FOR NEW RAW MATERIALS



CONSIDER A FULL LIFE CYCLE ASSESSMENT



RENOVATIONS... TRANSFORMATIONS















REDUCE ENERGY DEMAND FIRST

- EXTERIOR INSULATION REDUCE THERMAL BRIDGING
- o IMPORTANCE OF AIR TIGHTNESS FROM 14 ACH TO 1 ACH
- CRITICAL BARRIERS & DEW POINT WHERE IS THE WARM SIDE
- WOOD HEALTH
- INSULATION TYPES COST & R-VALUE









R4.7/in R5/in







USE RENEWABLE ENERGY SOURCES

- ELIMINATED FOSSIL FUELS
- O ALL ELECTRIC HEAT, HOT WATER, APPLIANCES
- HEAT PUMP DRYER NO VENT REQUIRED
- VENTILATION MECHANICAL & NATURAL
- ROUGHED IN FOR FUTURE SOLAR

















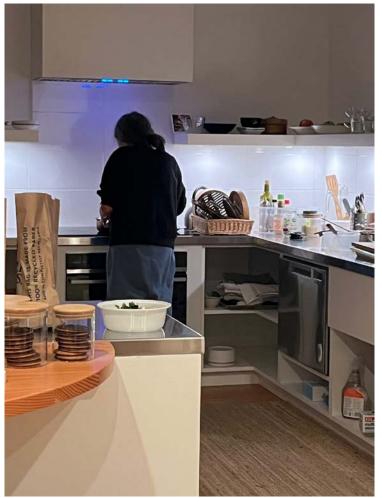


AGING IN PLACE

OCCUPANT NEEDS & HEALTH CONSIDERATIONS

- SITE & BUILDING ACCESS
- SPACE ACCESS SIZE & REACH
- LOW MAINTENANCE MATERIALS







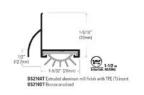


SITE & BUILDING ACCESS

- SITE GRADING FROM CARPORT TO KITCHEN DOOR WITH LEVEL PATH
- ALL EXTERIOR DOORS WITH FLUSH THRESHOLDS
- NEGOTIATED NON-NAFS THRESHOLDS WITH INSPECTOR



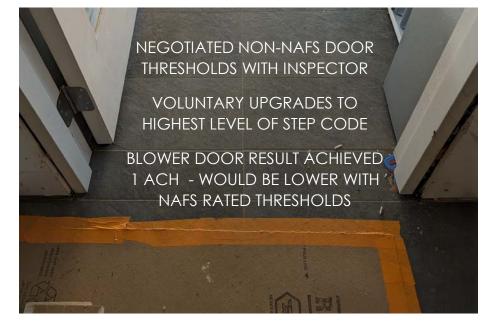












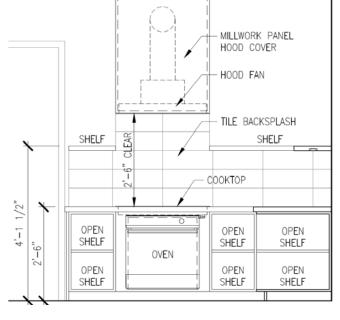


SPACE ACCESS - SIZE & REACH

- LOWER COUNTER & SHELF HEIGHT
- SELECTED APPLIANCES TO FIT NON-STANDARD COUNTER HEIGHTS
- OPEN SHELVES FOR EASY ACCESS IN A WHEELCHAIR



NO MORE STEP STOOLS



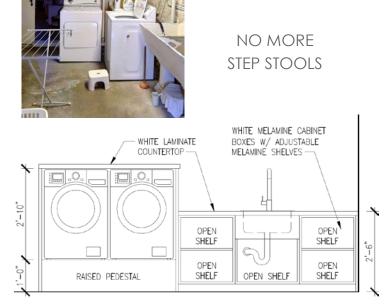




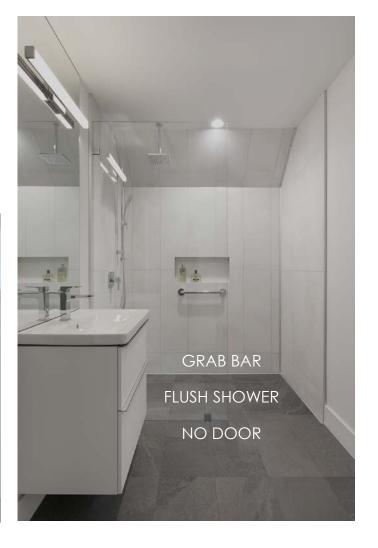


SPACE ACCESS - SIZE & REACH

- LOWER COUNTER HEIGHT & OPEN SHELVES FOR EASY ACCESS IN A WHEELCHAIR
- LAUNDRY MACHINES ON RAISED PEDESTAL FOR EASY REACH
- FLUSH SHOWER WITH NO DOOR & LOWER VANITY COUNTER HEIGHT









LOW MAINTENANCE MATERIALS

- METAL CLADDING
- STAINLESS STEEL COUNTER WITH INTEGRAL SINK
- TILE BATHROOMS WITH COVED CORNERS
- WILDFLOWERS & NATURAL LANDSCAPE













OPPORTUNITIES & OUTCOMES

- DESIGN OPPORTUNITIES
- THERMAL COMFORT & AIR QUALITY
- ACOUSTIC BENEFITS
- COST SAVINGS OVER NEW CONSTRUCTION











THANK YOU!

WE WOULD LIKED TO THANK:

- O ZEBX & ZEIC FOR THE OPPORTUNITY TO SHARE THIS PROJECT
- OUR CLIENTS FOR THEIR VISION & PASSION FOR THE ENVIRONMENT

OUR TEAM:

- Alchemy Construction Ltd. (Contractor)
- o Capture Energy (Energy Advisor)
- o C.A. Boom (Structural)
- o Creus Engineering (Civil)

PHOTO CREDITS:

- o 360hometours.ca
- EW Architecture Inc.
- o Alchemy Construction Ltd.

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A DEEP ENERGY RETROFIT & AGING IN PLACE RENOVATION



Overview

- Site Issues and Hazmat Removal
- Cost Driving Aspects of the Job Roof Shape
- Cost Savings Plumbing & Outside Walls & Insulation





Deep Energy Retro Fit

Presented By: Bradley Jones | Project Manager Alchemy Construction Ltd.





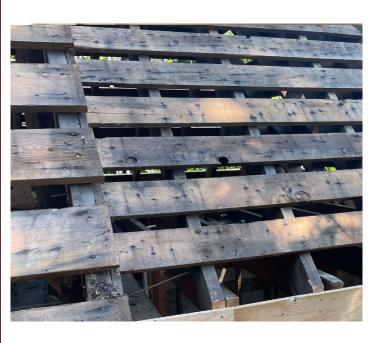
- Lead Paint
- Asbestos in Pipes and Drywall
- Shingles Asbestos and 3 layers





- o Hazmat Removal Partial or Full
- o Partial Demo or Full Demo
- Abatement Discovery phase
 - Assessed critical areas decision to take project down to the studs for safety of Workers, Inspectors, Homeowners and future work would not be an issue

Deep Energy Retro Fit







Demo

- o Removed all hazardous material for safety of workers and end client
- o Taking structure to studs allowed for us to address structural components
- Starting at framing stage allowed us to get best energy efficiency and air tightness



Deep Energy Retro Fit









Bathrooms 3 piece

No Insulation

Exterior Wall for Services







How Demand Response Can Support Electrification

Thu Oct 3, 2024, 12 - 1pm PST





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Marpole Community Centre

Achieving 40% Embodied Carbon Reduction on Passive House Design

Thu Oct 10, 2024 from 12 - 1pm PDT Free Webinar zebx.org

Strata Energy Advisor



Better buildings start here

Powered by **ZCIC**

strataenergyadvisorbc.ca

Thu Oct 10, 2024 12 - 1pm PDT **Online Webinar** Free





WED OCT 16, 2024 FROM 5PM Ventura Room, 695 Cambie St, Vancouver clfbritishcolumbia.com





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Working to rapidly accelerate the knowledge, capacity and passion for zero-emissions buildings in Vancouver and British Columbia

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