

Successfully completing the CHBA Net Zero Builder Training is a requirement for Builders, Renovators and Energy Advisors participating in the CHBA Net Zero Home Labelling Program.

Participants of this course are required to have a copy of the CHBA Builders' Manual to reference the Building Science details. This manual is usually obtained when attending a Building Science course delivered by one of the CHBA Qualified Net Zero Service Organizations.



For those who need to know how to build homes in one of the toughest climates on earth, the CHBA Builders' Manual is the most authoritative guide you will find for building superior energy-efficient housing.

Order this bestseller at [www.chba.ca/buildersmanual](http://www.chba.ca/buildersmanual).

## Overview & Learning Objectives

### Are you interested in offering your clients homes that are 'the ultimate in comfort and efficiency'?

The products/materials/equipment to achieve Net Zero/Ready are now more widely available across Canada, and more CHBA Qualified Net Zero Energy Advisors are ready and able to help builders design climate specific packages to address each projects' needs.

In this course participants learn the latest developments on approaches to Net Zero/Ready Homes focused on *optimizing performance and costs*. Attendees will gain insight on Net Zero/Ready design principles, equipment options, emerging technologies, and construction practices. This course reflects the advancements in technology and innovations in the Canadian housing industry. By the end of this course, participants will:

- Discover the history of energy efficiency and Net Zero Energy housing in Canada.
- Identify factors that are driving the Canadian housing market toward higher levels of energy performance.
- Know the various definitions of Net Zero including the CHBA's definition of Net Zero and Net Zero Ready Homes.
- Understand how to earn the CHBA Qualified Net Zero Builder designation.
- Learn how an integrated design process and other optimization and costing tools such as NRCan's HTAP (Housing Technology Assessment Platform) and CBAT (Cost Benefit Analysis Tool) together with HOT2000 energy modeling can help project teams reduce costs.
- Know how to design and build Net Zero/Ready Homes that meet the program Technical Requirements using cost effective, off-the-shelf technologies.
- Understand the key Building Science principles behind Net Zero best practices.
- Hear how occupant loads (the largest energy loads in a Net Zero/Ready Home) may or may not impact a builders' design and construction choices.
- Understand how Net Zero/Ready Homes are designed to deliver excellent indoor air quality, helping to keep occupants healthy – a great selling feature with occupants now spending more time at home.
- Learn the construction technology and techniques behind Net Zero and Net Zero Ready Homes, including:
  - Using modelling, find the balance between energy efficiency and renewable energy with cost effectiveness as a key factor.
  - Best practices for the building envelop, including comfortable basements, above grade walls and exposed floors, super-efficient windows and doors, effective roofing, and ceiling insulation.
  - Best practices for mechanical systems, including space heating and cooling, ventilation, and water heating.
  - Best practices for Solar PV design, sizing, orientation, integration, and installation.
- Reference Net Zero/Ready Home case studies for each Canadian climate zone.

An exam at the end of the course is designed to confirm that participants have learned the key Net Zero and Net Zero Ready Home components. A passing grade is 75%.

# Agenda

## DAY 1

### WHAT is Net Zero? Background and Context

#### WHY should I care?

#### ADMINISTRATIVE REQUIREMENTS

- Becoming a CHBA Qualified Net Zero Builder
- Getting a Net Zero or Net Zero Ready label for your home
- Attestations & Quality Assurance
- Marketing Toolkit & Sample Legal Language for Purchase Agreements

#### WHERE do I start?

- Discovery Home
- Integrated Design Process
- NRCan's HTAP and CBAT Optimization & Costing Tools

#### HOW to get to Net Zero - TECHNICAL REQUIREMENTS

- Energy modelling; Reference vs Proposed vs As-Built House
- Energy "budget", renewable energy generation, energy monitoring
- Occupant/base loads: lighting and appliances

## DAY 2

### HOW to get to Net Zero - TECHNICAL REQUIREMENTS

- Building Envelope
  - Airtightness
  - Windows and doors
  - Below grade walls/foundation
  - Above grade walls, framing, exposed floors
  - Ceilings/attics - rim joists, raised heel trusses
- Mechanical Systems
  - Space Heating & Cooling / Systems Providing both Space & Water Heating
  - Domestic Hot Water and Drain Water Heat Recovery
  - Ventilation and Air Distribution Systems
  - Solid Fuel Burning Appliances

### COURSE EVALUATION AND EXAM

# Audience

Successfully completing the CHBA Net Zero Builder Training is a requirement for Builders, Renovators and Energy Advisors participating in the CHBA Net Zero Home Labelling Program. For more information see the Program Requirements.

This course is also recommended for designers such as Architectural Technologists, Architects, Engineers, HVAC Designers, as well as Building Officials, and Trades.

Net Zero Qualified Builders and Renovators must have at least one trained person on staff. For Builders, the person must successfully complete the Net Zero Builder Training and the Building Science Training pre-requisite. For Renovators, the person must successfully complete the Net Zero Renovator Training as well as the Building Science Training and Net Zero Builder Training pre-requisites.

Any successfully completed Net Zero training is "tied to" the person who took the training, not the organization that they were employed with at the time of training. Should the trained person change employment and go to work for a different builder/renovator, they take their training "certificates of completion" with them and the builder/renovator must ensure they have another trained employee on staff.

For the Net Zero Qualified Builder/Renovator to maintain their designation, participation in on-going CHBA Net Zero Training is required (at minimum, at time of program change), and at least one Net Zero or Net Zero Ready Home must be labelled every 3 years.

CHBA Builder Members who successfully complete this training, have labelled their first home under the CHBA Net Zero Home Labelling Program, and have registered with the CHBA, can promote themselves as a **CHBA Qualified Net Zero Builder** and will be promoted to home buyers at [www.NetZeroHome.com](http://www.NetZeroHome.com)

## Pre-Requisites

Eligible pre-requisite Building Science courses must be delivered based on the concepts within the CHBA Builders' Manual and have an exam to confirm the students understanding of the course learning objectives. It is up to the discretion of the CHBA Qualified Net Zero Service Organization to determine if the pre-requisite is met upon a student's registration in the Net Zero Builder Training course.

The Net Zero Builder Training is an advanced level course. Understanding Building Science is a necessary foundation for participants to succeed in this course.

## When / Where / Cost

Only a CHBA Qualified Net Zero Service Organization (SO) can offer this course, delivered by a CHBA Qualified Net Zero Trainer.

Training dates/locations/costs and registration links are posted at [www.chba.ca/nze](http://www.chba.ca/nze).

## Continuing Professional Development (CPD) Points

This course is accredited for 12 CPD points through BC Housing.

## CHBA Qualified Net Zero Trainers



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## Questions?

Contact [Brett.Cass@chba.ca](mailto:Brett.Cass@chba.ca).

For more information on the Net Zero Home Labelling Program visit [www.chba.ca/nze](http://www.chba.ca/nze).

The consumer webpage is [www.NetZeroHome.com](http://www.NetZeroHome.com).

For more information on how the CHBA Net Zero Council is working to remove the barriers to voluntary adoption of Net Zero/Ready Homes visit [www.chba.ca/nzc](http://www.chba.ca/nzc).

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