COURSE OUTLINE

Building for the Future:

Wildfire Resilience, Structural Safety and Zero-Carbon Compliance

Residential Builder Training Program — 16 Hours

Course Title: Building for the Future: Wildfire Resilience, Structural Safety and Zero-Carbon Compliance

Target Audience: Residential builders, general contractors, construction supervisors, building product representatives and construction professionals.

Duration: 16 hours over two days

Location: Vernon British Columbia, Canada

1. Course Description

This 16-hour training program provides residential builders with practical knowledge of building code requirements, lateral bracing calculations, energy efficiency, wildfire-resistant construction, mechanical systems, insurance rebuilds and customer communication.

The course combines technical instruction, plan-reading exercises, computer-based calculations, real-world case studies and customer role-play activities.

2. Course Objectives

Upon completion, participants will be able to:

- Understand the BC Energy Step Code and Zero Carbon Step Code.
- Interpret residential construction plans for lateral bracing calculations.
- Enter project information into a lateral bracing calculation program and review the results.
- Identify construction practices that improve wildfire resilience.
- Understand key considerations when managing wildfire insurance rebuilds.
- Recognize local climate risks and adapt building practices accordingly.
- Explain dual-fuel heat pump systems and their implications for energy and carbon performance.
- Identify factors affecting makeup air requirements in airtight homes.
- Present building products effectively to customers with different needs and personalities.

2. Course Content

Day 1 — Building Code, Energy Efficiency and Structural Design

Focus on energy code compliance, lateral bracing calculations, plan interpretation, and computer-based calculation tools and practical exercises.

Day 2 — Wildfire Resilience, Mechanical Systems and Customer Solutions

Focus on wildfire rebuilds, changing climate conditions, dual-fuel heat pumps, ventilation and makeup air requirements, and selling solutions to different customer personalities.

Learning outcomes

By the end of the training, participants should be able to:

- Explain the relationship between the BC Energy Step Code, Zero Carbon Step Code and residential building systems.
- Interpret a set of house plans and complete a supervised lateral bracing calculation exercise using the selected software.
- Identify practical wildfire-resilient construction details and understand the insurance rebuild process.
- Recognize how airtightness, exhaust appliances, makeup air and heat pump selection affect building performance.
- Communicate the value of building products effectively to customers with different priorities.

3. Instruction Methods

- Classroom instruction and guided discussion.
- Residential construction plan interpretation.
- Practical lateral bracing calculation exercises.
- Computer-based demonstrations.
- Building product and mechanical system case studies.
- Customer communication exercises and role-play.
- Knowledge checks and final review.

Completion Criteria

Participants should attend the scheduled training sessions and complete the practical exercises and final assessment. A certificate of completion may be issued by the training provider.

Note: This course is intended for professional development.

It does not replace required professional design, code approval, trade qualifications or municipality-specific permitting requirements.

Schedule

Day 1 — Building Code, Energy Efficiency and Structural Design

Module	Topic	Duration
1	BC Energy Step Code and Zero Carbon Step Code	1 hour
2	Lateral bracing calculations	1 hour
3	Reading construction plans for lateral bracing	1.5 hours
4	Computer entry and lateral bracing calculation software	2 hours
5	Dual-fuel heat pumps and BC Step Code considerations	2 hours
6	Review and knowledge assessment	0.5 hour
	Total instructional time	**8 hours**

Day 2 — Climate Resilience, Mechanical Systems and Customer Relations

Module	Topic	Duration
7	Wildfire-resilient home construction	1.5 hours
8	Managing wildfire insurance rebuilds	1.5 hours
9	Local climate change and adapting building practices	0.75 hour
10	Low-ACH homes and makeup air requirements	2 hours
11	Selling building products to different customer personalities	1.5 hours
12	Integrated case study and final review	0.75 hour
	Total instructional time	**8 hours**

Total course instruction: 16 hours.

Two hours are allocated to lunch and scheduled breaks across the two days, for a total attendance time of 16 hours.

Day 1 — detailed schedule

8 instructional hours, plus breaks and lunch

Topic and learning outcomes

1. Zero Carbon Step Code and BC Energy Step Code — 1 hour

- Understand energy performance versus operational carbon emissions.
- Review emission levels, energy efficiency, airtightness, insulation, windows and mechanical systems.
- Identify applicable provincial code requirements and local government bylaws.
- Understand the builder's role in coordinating with an energy advisor.

2. Lateral bracing calculations — 1 hour

- Explain wind and earthquake loads and their effects on wood-frame houses.
- Understand braced wall bands, bracing lengths and adjustment factors.
- Identify when prescriptive calculation methods may be used and when professional design may be necessary.

Morning break — 15 minutes

3. **Working with building plans for lateral bracing** — 1.5 hours

- Read floor plans, elevations, dimensions and structural details.
- Identify exterior walls, openings, braced wall bands and applicable building characteristics.
- Extract the information needed for wind and seismic calculations.
- Complete a guided exercise using a sample house plan.

Lunch — 30 minutes

4. Computer entry for lateral bracing calculations — 2 hours

- Enter project dimensions and building information into the selected calculation program.
- Review inputs, bracing requirements and calculation outputs.
- Identify common entry errors and discrepancies between plans and software results.
- Save and document calculation reports for project records.

Afternoon break — 15 minutes

5. Dual-fuel heat pumps and the BC Step Code — 2 hours

- Compare all-electric heat pumps with dual-fuel systems using a heat pump and fossil-fuel backup.
- Discuss cold-weather performance, backup heating, energy use and carbon emissions.
- Understand how equipment selection affects energy modelling and applicable Zero Carbon Step Code compliance.
- Evaluate system options for different house designs and climate zones.

Day 1 review and knowledge check — 30 minutes

- Review the key concepts.
- Discuss practical problems and questions from participants.

Day 2 — detailed schedule

8 instructional hours, plus breaks and lunch

Topic and learning outcomes

6. Wildfire-resilient home construction — 1.5 hours

- Understand wildfire exposure and the home ignition zone.
- Review fire-resistant roofing, exterior cladding, vents, eaves, windows and deck details.
- Discuss vegetation management, combustible materials and defensible space.
- Develop a practical checklist for wildfire-conscious construction and retrofits.

Morning break — 15 minutes

7. Managing wildfire insurance rebuilds — 1.5 hours

- Understand the rebuilding process following wildfire damage.
- Coordinate with homeowners, insurance adjusters, restoration contractors and design professionals.
- Review scope of work, estimates, documentation, change orders and supplementary costs.
- Address code upgrades, permit requirements, timelines and communication challenges.
- Discuss how to manage client expectations and project risks.

8. Local climate change and changing builder practices — 45 minutes

- Discuss regional risks such as extreme heat, heavy rainfall, drought, flooding and wildfire.
- Evaluate durability, overheating, moisture management and climate-appropriate materials.
- Identify construction practices that improve resilience and long-term building performance.

Lunch — 30 minutes

9. Low-ACH homes and makeup air requirements — 2 hours

- Understand air changes per hour (ACH) and blower-door airtightness testing.
- Distinguish whole-house ventilation from combustion or exhaust makeup air.
- Examine kitchen range hoods, bathroom exhaust, dryers, fireplaces and other exhaust appliances.
- Identify when depressurization, combustion safety or applicable code provisions may trigger a need for makeup air.
- Discuss coordination between ventilation design, airtightness and mechanical commissioning.

Afternoon break — 15 minutes

10. Selling products to different customer personalities — 1.5 hours

- Identify customers motivated by price, performance, comfort, safety, sustainability or convenience.
- Match product benefits to the customer's priorities.
- Explain technical building products in simple, customer-focused language.
- Handle objections about price, payback, maintenance and unfamiliar technologies.
- Practical product presentations and role-play realistic builder–customer conversations.

11. Integrated case study and final review — 45 minutes

- Review a sample residential project.
- Identify energy, structural, wildfire and mechanical considerations.
- Present a recommended solution to a simulated customer.
- Complete a short knowledge review and course feedback.