



Continuing Education Course Catalog

Version 3

ABOUT US

RDH's Education Committment

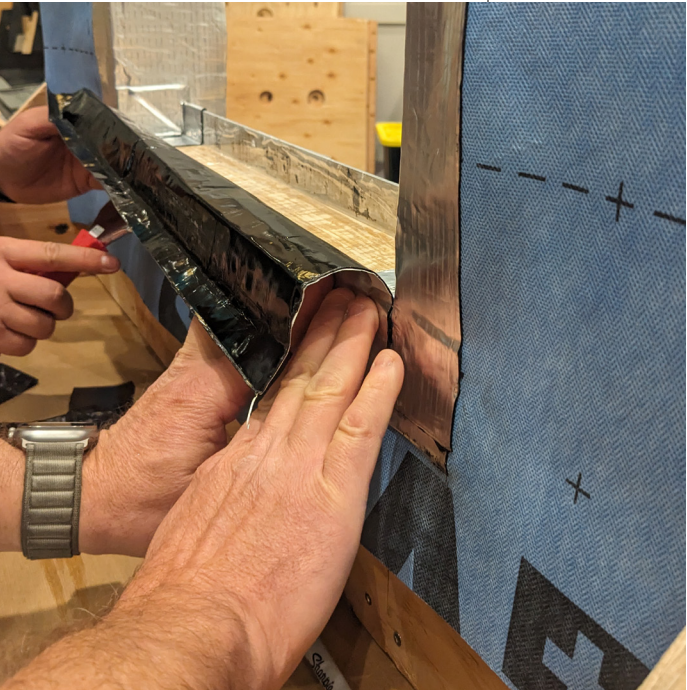
Always Learning

At RDH Building Science, we have a core value to Always Learn and we extend that opportunity to you. RDH offers continuing education courses to help industry professionals advance their careers, build problem-solving skills, and gain knowledge across broad and diverse subject matters. With over 25 years of experience leading the building science industry, our building science professionals bring practical, visually intriguing, and helpful guidance to industry professionals. Whether we are delivering a standalone 1-hour course or a custom multi-session series, we aim to help your team achieve its learning and development needs.

RDH brings an integrated approach to durable, resilient, and safe building design and construction.

Firm History

Since our beginnings in 1997, RDH has grown through our commitment to excellence in the building industry. From a single office in Vancouver, we've become a truly national and international firm, but our core values have never changed. In 2015, we officially added "Building Science" to our name to become RDH Building Science Inc. For us, building science underpins everything that we do: we see it as an area of professional practice that integrates building physics with the art of design and the practical challenges of construction. As we move into the future, we will continue to develop, rely on, and share the science of buildings.



This catalog captures only a fraction of the building science topics our team can deliver to you. Contact our team to find the right course for you or to discuss a custom course series that meets the depth or breadth of your learning goals.

ABOUT OUR COURSES

Curated Content + Professional Growth

RDH offers timely, diverse, and curated learning opportunities to industry professionals and students alike. Our courses are designed to be immediately relevant to architects and designers, builders, contractors, tradespeople, and building owners/managers, helping them to learn and grow in their profession as well as earn continuing education (CE) credits. Our courses are delivered by experienced building science specialists and knowledgeable staff with relevant firm-wide experience.

Our depth of content and resources provide access to technically sound, industry-best building science knowledge—anything from fundamental concepts to cutting-edge approaches in design and construction. This knowledge is grounded in the real world through industry examples, case studies, and illuminating photographs and illustrations.

Customization

One of the ways our building science technical leaders can provide educational value to your team is through customization. We can curate any of our course offerings and turn them into custom-built courses designed specifically for the needs of your team. We can modify the content to hone in on the particular skills or knowledge your team needs, or curate an entire learning path to help your team progress their knowledge on a specific topic.

This course catalog includes some of our most popular/requested courses. We can take these baseline courses and customize the learning experience, the examples, and the applications for your needs, focusing on the building type, design, or client most applicable to your organization.

Format Options

Our presenters are equipped to engage audiences through multiple delivery methods. We deliver our courses live with options for in-person, virtual, or hybrid delivery. Our specialists are happy to join you in your office so your staff can engage them during Q&A discussions, offering a valuable networking opportunity. We also offer virtual and hybrid options to accommodate today's varied work arrangements.

Each course is offered at either the introductory or intermediate level as indicated with its catalog description. Each session is 1 to 1.5 hours, offering between 1 and 1.5 CE credits per session when preapproved by CE providing organizations.

Continuing Education Program

RDH is a registered CES provider with The American Institute of Architects (AIA), a Recognized Educational Provider (REP) with the Architectural Institute of British Columbia (AIBC), and an Approved Provider with Phius. For course attendees who meet the course attendance requirements of a preapproved RDH course, RDH will report attendance to the approving organization(s) and provide attendees with a Certificate of Attendance that can be used to self-report learning hours.

RDH can also provide support to seek approval of your educational engagement from Green Business Certification Inc. (GBCI). GBCI provides independent oversight of the LEED credentialing system for the US Green Building Council (USGBC) and administers the CE approval process.

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Edith Green Wendall Wyatt Building
Portland, OR

COURSE OFFERINGS

Regional Codes and Standards

Building codes and standards are frequently updated in response to local climate risks, urban development patterns, and regulatory priorities. By staying current with the ever-changing mosaic of code updates and new standards, you can align your work with the unique legal and safety requirements of each jurisdiction where you operate—and potentially avoid costly errors and project delays and risks.

We offer a range of jurisdiction-specific courses to help you navigate the latest requirements, changes, and evolving industry needs. By staying informed, you will reinforce your professional credibility and competence in delivering code-compliant, high-performing structures tailored to your community and clientele.

REGIONAL CODES AND STANDARDS
COURSE LIST:

- Understanding Building Performance Standards within Washington State
- Washington State Energy Code: Past, Present, and Future
- Pushing the Envelope – 2025 OEESC Thermal Bridging and Airtightness Requirements
- The Shifting Energy Code Landscape in Massachusetts and its Impact on Building Enclosure Design
- Feasibility of Net-Zero Energy and Carbon Building Design: Northern Canada and Alaska

REGIONAL CODES AND STANDARDS

Understanding Building Performance Standards within Washington State

DETAILS	
	ROLE + Architect/Designer + Contractor/Builder + Product/System Manufacturer
	LEVEL + Introductory
	DURATION + 1 hour

The impacts of climate change have prompted new laws to be enacted in Washington State that affect building performance standards. This session will explain how these climate change-driven laws will affect building occupants and decision-making for multifamily and commercial building projects, reserve studies, and project budgets. You will explore the provisions of the state’s Early Adopter Incentive Program, which provides financial incentives for building owners who demonstrate early compliance with the Clean Buildings Standard. You will also learn the compliance deadlines, financial penalties for noncompliance, and required third-party vendors.

WHAT YOU’LL LEARN

1. Understand the new laws in Washington State, including the Clean Buildings Standard, that impact building performance requirements.
2. Identify the first steps that must be taken to comply with new building performance laws in Washington State.
3. Recognize the difference between energy use intensity (EUI) and greenhouse gas (GHG) emission measures.
4. Understand the provisions of the Early Adopter Incentive Program in Washington State.

Washington State Energy Code: Past, Present, and Future

DETAILS	
	ROLE + Architect/Designer + Contractor/Builder + Product/System Manufacturer
	LEVEL + Introductory
	DURATION + 1 hour

The Washington State Energy Code (WSEC) is updated every three years, with significant changes made over the past decade to meet the legislated requirement of a 70% reduction in new construction energy consumption by 2030. This session will review the key changes to the WSEC over the past decade, including the upcoming implementation of changes in the 2024 WSEC, to help you gain a broad perspective on how these code changes have impacted building construction in Washington. You will discover why it is essential to account for the energy code in early design decisions and project planning, including the structural, mechanical, and building enclosure interactions that affect compliance. With this clear understanding of the new energy code requirements, you will be equipped to make crucial decisions for selecting a code compliance pathway and implementing effective enclosure and HVAC strategies

WHAT YOU’LL LEARN

1. Summarize WSEC-Commercial changes to the thermal enclosure since 2015.
2. Identify key mechanical system improvements required by the WSEC-Commercial.
3. Recognize how WSEC updates that require accounting for and documenting thermal bridging will affect the design process.
4. Explain WSEC-Residential changes to energy credit requirements and clarify exterior wall insulation requirements.

Pushing the Envelope – 2025 OEESC Thermal Bridging and Airtightness Requirements

DETAILS	
	ROLE + Architect/Designer + Contractor/Builder + Product/System Manufacturer
	LEVEL + Introductory
	DURATION + 1 hour

The 2025 Oregon Energy Efficiency Specialty Code (OEESC) brings a major shift in how building enclosures are designed and evaluated. With the OEESC’s adoption of ASHRAE 90.1-2022’s thermal bridging requirements, design teams must now account for linear and point thermal bridging. This session unpacks what these changes mean for your projects. You’ll explore the practical impacts of the new energy code requirements, discover strategies for meeting compliance, and identify tools that can help you stay ahead in a rapidly changing energy code landscape. This session will help you gain a clear understanding of the steps needed to quantify linear and point thermal bridges and incorporate the results in your COMcheck compliance calculations. By examining the updated air leakage testing requirements codified in the 2025 OEESC, you’ll be able to determine whether whole-building air leakage is mandatory or if the air barrier design and verification approach will apply to your project.

WHAT YOU’LL LEARN

1. Identify the latest building enclosure changes in the 2025 Oregon Energy Efficiency Specialty Code.
2. Explain heat flow mechanisms through building enclosures.
3. Describe how to quantify linear and point thermal bridges and include them in overall COMcheck compliance calculations.
4. Summarize new whole-building air leakage testing requirements.

The Shifting Energy Code Landscape in Massachusetts and its Impact on Building Enclosure Design

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

Recent changes to the Massachusetts Energy Code aimed at addressing the Massachusetts operational carbon reduction mandate have created significant new compliance requirements for the building enclosure design process. This session will explain the impacts of the recent updates to the Stretch Energy Code as well as the addition of a second, more advanced tier of the Stretch Energy Code known as the Specialized Opt-In Stretch Code. You will learn about the new requirements—which include whole-building airtightness testing for all buildings, an updated enclosure backstop calculation, and thermal bridging accounting and R-value derating—as well as the new, more specific building enclosure definitions. The new requirements explicitly link the performance of the enclosure and mechanical systems, making them the primary elements to achieve energy efficiency targets and improve building performance for owners and occupants.

WHAT YOU’LL LEARN

1. Examine how the energy modeling required under each compliance path in the updated Massachusetts Stretch Code and Specialized Opt-In Stretch Code will drive and define building enclosure requirements, even beyond what is required by the updated backstop calculation and what has been done in response to past code update cycles.
2. Identify the impacts that building enclosure airtightness requirements in the updated Massachusetts Stretch Code and Specialized Opt-In Stretch Code will have on building enclosure detailing and construction phase testing.
3. Recognize how updates to the Massachusetts Energy Code that require accounting for and documenting thermal bridging will affect the design process.
4. Understand how the new Massachusetts Energy Code compliance pathways, including Passive House design and certification, influence project permitting and substantial completion timelines, and how the “traditional” design process may need to be modified.

Feasibility of Net-Zero Energy and Carbon Building Design: Northern Canada and Alaska

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

The challenges presented by climate change are unprecedented and have propelled governments to introduce new legislation aimed at greatly reducing energy and carbon usage in the building sector. In an effort to mitigate the effects of climate change, the Government of Canada has committed to net-zero emissions by 2050. But what does this actually mean, and how do you design buildings for it? This session will provide definitions and design considerations to help you unpack key terminology such as net-zero energy, net-zero carbon, net-zero emissions, and net-zero operational carbon. Using the most recent research and energy modeling, you’ll delve into the feasibility and practical limitations of net-zero building design in Northern Canada and Alaska (north of 60° latitude). You’ll take away a deeper understanding of the magnified challenges of extremely cold climates and remote locations, especially after learning from residential and commercial buildings case studies.

WHAT YOU’LL LEARN

1. Define key net-zero building design terminology.
2. Distinguish various net-zero building design standards.
3. Identify challenges and opportunities for net-zero design in various locations within northern climates.
4. Describe net-zero design approaches for new building projects.



Mohawk College Joyce Centre for Partnership & Innovation
Hamilton, ON

COURSE OFFERINGS

High-Performance Building Enclosures

High-performance buildings have one key thing in common: the building enclosure is intentionally designed to manage the environmental loads that the building is exposed to in the climate where it is located. The enclosure is a system of materials, components, and assemblies that forms the outer “skin” of the building. This outer skin separates the exterior and interior environments and serves to control water, air, water vapor, and thermal conductivity in the building. We offer multiple courses focusing on fundamental building science and high-performance design concepts to help you create enclosures that will reduce the risk of water intrusion and air leakage, mitigate moisture-related issues, and improve thermal performance in your building projects.

HIGH-PERFORMANCE BUILDING ENCLOSURES COURSE LIST:

- Introduction to High-Performance Building Enclosures
- Building Enclosure Fundamentals: Control Layers
- Striving for Continuity: A Building Enclosure Control Layers Workshop
- A Penny-Foolish, Pound-Wise Approach to Avoiding Thermal Bridging Pitfalls
- Best Practice Building Enclosure Detailing Workshops
- Seeing Clearly: Untangling Architectural Glass Selection
- High-Performance Enclosures: Exterior Shade Design

HIGH-PERFORMANCE BUILDING ENCLOSURES

Introduction to High-Performance Building Enclosures

DETAILS	
	ROLE
	+ Architect/Designer
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

To achieve a high-performance building that will ensure the safety and well-being of the occupants, you need to design a building enclosure that keeps the outside out and the inside in. This session will demonstrate how the building enclosure acts as an environmental separator between the inside and outside of a building. You'll discover why newer building designs and materials have an increased risk of moisture penetration that requires new approaches to enclosure design. By discussing the enclosure's basic functions of support, control, and finish, you'll learn how you can apply fundamental concepts of building science to design high-performance building enclosures with enhanced building comfort. You'll also explore the changing expectations of building performance as well as key trends that impact design and construction decisions.

- WHAT YOU'LL LEARN**
1. Recognize how the building enclosure acts as an environmental separator between the inside and outside of a building.
 2. Identify three basic functions of the building enclosure that serve to ensure the safety and well-being of building occupants.
 3. Explain how fundamental building science concepts can be applied to high-performance enclosure design.
 4. Describe recent changes to building performance expectations and key trends that impact building design and construction, particularly to address challenges presented by the climate crisis.

Building Enclosure Fundamentals: Control Layers

DETAILS	
	ROLE
	+ Architect/Designer
	+ Contractor/Builder
	+ Product/System Manufacturer
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

How can a functional approach to building enclosure design help you make a better building? In this session, you'll learn how to apply the concept of identifying control layers to help you solve design problems, improve building performance, and reduce long-term building enclosure durability risks. You'll explore each enclosure control layer type, its function, and common materials used to achieve each layer. Using rules of thumb from the "perfect wall" approach, you'll learn how to create continuity between building enclosure control layers, identify thermal bridges and mitigate their effects, and generally apply the concept of control layers on architectural assemblies and details.

WHAT YOU'LL LEARN

1. Explain the key functions of the building enclosure in improving building comfort and performance.
2. Describe the "perfect wall" approach to improve building performance.
3. Recognize how to create continuity between building enclosure control layers.
4. Describe how to identify thermal bridges in the building enclosure and mitigate their effects to improve building comfort and performance.

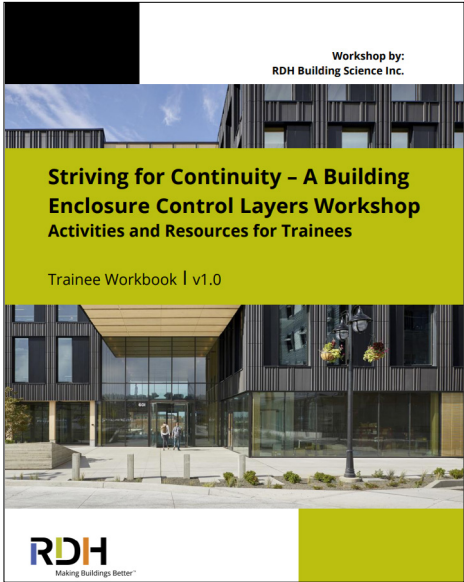
Striving for Continuity: A Building Enclosure Control Layers Workshop

DETAILS	
	ROLE
	+ Architect/Designer
	+ Contractor/Builder
	+ Product/System Manufacturer
	LEVEL
	+ Introductory
	DURATION
	+ 1.5 hours
	RECOMMENDED PREREQUISITE
	+ Building Enclosure Fundamentals: Control Layers

Applying the building enclosure control layers concept helps you to solve design problems, improve building performance, and reduce long-term building enclosure durability risks. Once you're familiar with each enclosure control layer type, its function, and common materials, it's time to put that knowledge into practice! During this workshop, RDH will lead you through an evaluation of a series of building enclosure hand sketches that represent a variety of building typologies. Using an accompanying workbook that was custom designed to align with the workshop delivery, you'll follow along with the instructor to complete activities and practice the methodologies discussed during the workshop. You'll have the opportunity to put pen to paper to identify and trace control layers, consider how real-world design or constructability needs may change your decisions, and receive feedback on your control layer approach.

WHAT YOU'LL LEARN

1. Define the four primary building enclosure control layers: water, air, thermal, and water vapor.
2. Relate common building products and materials to each control layer.
3. Demonstrate continuity of control layers on common building enclosure details.
4. Compare and contrast control layer solutions to refine your understanding of the building enclosure.
5. Anticipate design and constructability conflicts and their impact on how the building enclosure manages enclosure loads.
6. Explain design/detail improvements that better support control layer continuity and related enclosure performance.



A Penny-Foolish, Pound-Wise Approach to Avoiding Thermal Bridging Pitfalls

DETAILS	
	ROLE + Architect/Designer + Contractor/Builder + Product/System Manufacturer
	LEVEL + Introductory
	DURATION + 1 hour

Thermal bridging negatively affects the thermal performance of every building enclosure, and if not adequately planned for, can result in costly changes during procurement and construction. Avoiding these pitfalls requires establishing a realistic early-stage allowance or budget for thermal bridging. In this session, you'll explore thermal bridging fundamentals, including how to calculate R-values that include thermal bridging, how to perform quantify take-offs, and how to determine psi- and chi-values using thermal simulation and industry-recognized catalogs. The session will highlight specific code provisions that govern which thermal bridges need to be accounted for—and which ones do not. You'll discover strategies for mitigating thermal bridges through examples and case studies.

WHAT YOU'LL LEARN

1. Describe how to calculate effective R-values that include thermal bridges.
2. Identify thermal bridges that must be accounted for by code.
3. Identify effective strategies for mitigating thermal bridges.
4. Explain how to create a thermal bridging budget.

Best Practice Building Enclosure Detailing Workshops

DETAILS	
	ROLE + Architect/Designer + Product/System Manufacturer
	LEVEL + Introductory
	DURATION + 1 to 1.5 hours each
	RECOMMENDED PREREQUISITE + Building Enclosure Fundamentals: Control Layers

Having the skill to identify building enclosure control layers helps you to assist any design and construction team with reducing performance risks and potentially improving project costs. In this workshop, you will explore how the concept of building enclosure control layers and their continuity is applied to building details and how building science specialists identify and evaluate the water, air, thermal, and vapor control layers in various applications and climates. In each best practice detailing workshop, you are provided the opportunity to pre-submit details to our building science specialist team and receive review and feedback during a live workshop discussion. Throughout the discussion, control layer identification and continuity, thermal bridges, best practice design concepts, constructability considerations, and more will be shared with your team. Delving into these essential concepts will enhance your understanding of building enclosure design and improve your ability to create more energy-efficient, comfortable, and durable buildings for the occupants.

WHAT YOU'LL LEARN

1. Identify building enclosure control layers on common assemblies and details.
2. Explain the importance of establishing continuity of control layers (where required) to improve building enclosure design and long-term performance.
3. Describe the potential challenges and complexities associated with maintaining the continuity of control layers at building enclosure details.
4. Describe best practice design approaches for the specific assemblies and details reviewed.

TOPICS OFTEN REQUESTED FOR THESE SESSIONS INCLUDE:

- **Below-Grade Systems:** Emphasizing approaches to reduce common moisture management risks in difficult-to-repair building areas such as below-grade wall and slab assemblies.
- **Above-Grade Wall Systems:** Addressing assembly improvements that promote long-term durability while simplifying installation.
- **Low-Slope Roof Systems:** Evaluating how factors such as type of structure, proper drainage and slope, effective insulation strategies, overburden, and management of air and water vapor contribute to overall roof assembly performance.
- **Fenestration Systems:** Addressing various fenestration systems and details at fenestration-to-opaque assembly interfaces that improve airtightness and thermal performance without compromising moisture durability.

Seeing Clearly: Untangling Architectural Glass Selection

DETAILS	
	ROLE
	+ Architect/Designer
	+ Contractor/Builder
	+ Product/System Manufacturer
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

From solar and optical properties to thermal performance, from structural and safety to acoustic performance, glass selection is one of the most important decisions you will make to ensure the building façade will meet expectations. But with a large variety of coatings, substrates, glass treatment options, cavity fills, and spacer options to choose from, where do you begin? And how do you protect your design intent through tender and procurement? Using case studies and decision tools, this session will present a framework for glazing selection and procurement that you can apply to any glass selection project. You'll learn how to identify key performance requirements and standards for glass selection, which components of insulated glass units affect their performance, and how these components interact.

WHAT YOU'LL LEARN

1. Describe the design process and when critical decisions must be made around glass and glazing.
2. Identify key performance requirements and standards for glass selection.
3. Recognize which components of insulated glass units affect their performance and how these components interact.
4. Identify the elements of a framework to compare options for insulated glass units across multiple requirements.

High-Performance Enclosures: Exterior Shade Design

DETAILS	
	ROLE
	+ Architect/Designer
	+ Contractor/Builder
	+ Product/System Manufacturer
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

Exterior shading is essential for reducing solar heat gain and glare in buildings, especially as energy code updates demand better performance and climate change causes temperatures to rise. Effective shading promotes energy efficiency and occupant comfort and safety. In this session, you will learn essential exterior shading fundamentals and be introduced to a design tool for assessing shading efficiency. Through recent project examples, you'll discover effective shading in energy-efficient design and gain practical insights into shading's role in sustainable design.

WHAT YOU'LL LEARN

1. Describe the fundamental design principles of exterior shading for different building elevations.
2. Identify the structural and thermal impact of exterior shading elements on the building enclosure system and overall building performance.
3. Describe the importance of effective exterior shading in mitigating solar heat gain and glare, and its role in promoting occupant comfort and reducing energy demand.
4. Differentiate exterior shading design approaches when weighing design strategies to optimize performance for different building facades.



Catalyst Building
Spokane, WA

COURSE OFFERINGS

Mass Timber Design

As the design and construction industry continues to search for more sustainable and cost-efficient methods of construction, mass timber has presented itself as both a viable and desirable option. Our mass timber design courses explore and discuss several topics relevant to the design and construction of mass timber enclosures in the US and Canada, focusing on opportunities to manage risk and increase the long-term durability of the mass timber enclosure.

These courses pair with RDH’s mass timber enclosure design guides:

- [Mass Timber Building Enclosure Best Practice Design Guide](#)
- [Moisture Risk Management Strategies for Mass Timber Buildings](#)

**MASS TIMBER DESIGN
COURSE LIST:**

- Mass Timber Enclosure Design Fundamentals
- Managing Construction-Phase Moisture for Mass Timber Buildings

MASS TIMBER DESIGN

Mass Timber Enclosure Design Fundamentals			
Architects and developers are attracted to mass timber for many reasons, including the construction speed of mass timber projects, the potential for carbon sequestration, and the aesthetic appeal inherent in mass timber design. However, the use of mass timber introduces certain challenges not encountered by more traditional building systems and enclosure products. As you embark on a mass timber project, these unique challenges will require your careful attention and additional foresight. This session will outline best practice enclosure design principles for mass timber, including roofs, walls, balconies, and floor/soffit conditions. You'll learn about the thoughtful design of building enclosure control layers to address the environmental loads on a mass timber structure as well as detailing specific to mass timber enclosures. You'll also discover typical wall and roof assembly designs that are appropriate for mass timber enclosures in various climate zones.		WHAT YOU'LL LEARN 1. Explain why the thoughtful design of a mass timber building enclosure requires consideration of all environmental loads imposed on the enclosure over its expected service life. 2. Describe the concept of enclosure control layers when detailing mass timber enclosure assemblies. 3. Identify typical wall and roof assembly designs appropriate for mass timber enclosures in various climate zones. 4. Explain why higher-performing mass timber enclosure systems often rely on the use of varying levels of prefabrication.	
 + Architect/Designer + Contractor/Builder + Product/System Manufacturer	 + Introductory	 + 1 hour	 + None

Managing Construction-Phase Moisture for Mass Timber Buildings			
Interest in mass timber and its advantages has surged, yet with any innovation comes challenges—and one particular challenge for mass timber is moisture protection during construction. Cases in which exposed floor and roof panels resulted in elevated wood moisture content have highlighted the significance of addressing drying limitations in mass timber projects. This session will help you understand the risks and impacts associated with moisture exposure of mass timber during the design and construction phases and provide evaluation insights and recommendations for risk reduction. You'll discover a three-step process for moisture management that emphasizes assembly selection, exposure risk assessment, and material determination for on-site and factory-installed protection. A real-world case study will reinforce these strategies to help you better understand and manage the practical moisture challenges in mass timber construction.		WHAT YOU'LL LEARN 1. Explain why mass timber floors and roofs are at special risk of moisture exposure during the design and construction phases. 2. Recognize the effects of elevated moisture content on the durability of mass timber floor and roof assemblies. 3. Identify potential solutions to mitigate the risk of exposing mass timber to moisture during the design and construction phases. 4. Identify the best strategy for moisture management during a mass timber project's design phase based on project-specific conditions. 5. Outline a three-step approach to moisture management that emphasizes on-site and factory-installed protection. 6. Recognize whether moisture management strategies have been implemented during the construction phases of a mass timber project.	
 + Architect/Designer + Contractor/Builder + Product/System Manufacturer	 + Introductory	 + 1.5 hours	 + Mass Timber Design: Enclosure Fundamentals

COURSE OFFERINGS

Sustainability and Climate

Climate change has created multiple new challenges for the building industry, from overheated buildings and poor indoor air quality to stringent new building code requirements that have designers scrambling to keep up. Our sustainability and climate change courses can help you navigate these challenges for all types of buildings and climate conditions. Our courses will illuminate the science of climate change and its impact on the building industry as well as the industry terminology used to describe low-energy building projects. You'll discover how to incorporate net-zero and high-performance goals into your own design process so you can adapt buildings for a rapidly changing climate.

SUSTAINABILITY AND CLIMATE
COURSE LIST:

- Three Things Every Architect Needs to Know About Climate Change
- Net-Zero Ready: General High-Performance Construction
- The Performance Gap: The Difference Between Modeled and Measured
- Building Climate Resilience: Introduction to Risk Assessment and Adaptation Strategies for New and Existing Buildings
- Integrating Wildfire Resilience with Sustainable Building Practices
- Achieving Low Carbon in Atypical Building Types

SUSTAINABILITY AND CLIMATE

Three Things Every Architect Needs to Know About Climate Change

DETAILS	
	ROLE + Architect/Designer
	LEVEL + Introductory
	DURATION + 1 hour

Architects are facing multiple new challenges as a consequence of climate change, from occupant complaints about overheated buildings and poor indoor air quality to continually changing code requirements. This session will outline these new challenges and summarize the science of climate change. An array of eye-opening visual materials and real-world examples will demonstrate how these impacts are already affecting people in different parts of North America today. You'll learn three key things that architects need to know about the impact of climate change on building design and see a vision of what the world could look like in the 2040s if we don't pursue an immediate course correction in our current design practices. You'll discover multiple design approaches that you can adopt now to adapt buildings for a rapidly changing climate and to mitigate the impacts of climate change on building occupants—not only as a principled response to the climate crisis, but as a necessary means of addressing business risk.

- WHAT YOU'LL LEARN
1. Describe new building design challenges that architects face due to the impacts of climate change.
 2. Identify three key things that architects need to know about the impact of climate change on building design.
 3. Explain why the outside temperature is not the sole cause of overheated buildings.
 4. Describe multiple ways in which architects can design buildings to adapt and mitigate the effects of climate disruption and change.

Net-Zero Ready: General High-Performance Construction

DETAILS	
	ROLE + Architect/Designer
	LEVEL + Introductory
	DURATION + 1 hour

The number of low-energy buildings is growing rapidly across North America, with numerous exciting Passive House and Net-Zero Energy buildings now completed and even more in construction. In this session, you will learn the different industry terminology used to describe these low-energy projects and how to incorporate net-zero and high-performance goals into your own design process. You will be presented with several case studies that showcase innovative and practical solutions to achieve a low-energy building. The lessons learned from these examples will provide you with a roadmap for your future building projects.

WHAT YOU’LL LEARN

1. Define the terminology used to describe low-energy buildings such as net-zero energy, net-zero carbon, and net-zero ready.
2. Explain how to incorporate net-zero and high-performance goals into the design process to achieve a low-energy building.
3. Identify innovative and practical design strategies for the building enclosure and mechanical system to achieve a low-energy building.
4. Recognize the value in applying lessons learned from current low-energy buildings to the design process of future projects.

The Performance Gap: The Difference Between Modeled and Measured

DETAILS	
	ROLE + Architect/Designer
	LEVEL + Introductory
	DURATION + 1 hour

Modeling is a critical tool for reducing energy use and greenhouse gas emissions in the building industry. But energy models can also be a source of frustration when the results they promise don’t match the measured reality post-occupancy. In this session, you will examine the potential reasons for the performance gap between modeled and measured results. Using case examples of buildings that achieved their design energy performance, you’ll learn how to identify why buildings are able to achieve this performance level and discuss what design assumptions or approaches need to be re-evaluated in the shift to low-energy building construction.

WHAT YOU’LL LEARN

1. Describe the difference between absolute and relative performance targets.
2. Identify reasons why some buildings are able to achieve their design energy performance and others are not.
3. Explain how to verify building energy performance.
4. Outline design process strategies to achieve measured energy performance.

Building Climate Resilience: Introduction to Risk Assessment and Adaptation Strategies for New and Existing Buildings

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

Current building codes and design standards are not adequately prepared to address the potential risks and challenges posed by climate change. With the effects of climate change expected to intensify over the next 30 years, it is crucial that the building industry integrate climate risk considerations into design decisions, from location selection to material choices and construction methods. In this session, you'll gain actionable tools to assess and manage climate-related risks for both current and future conditions. You will learn how to evaluate key hazards, including flooding, extreme heat, high winds, and wildfire at project sites, whether you're working on new construction or managing existing buildings. You'll also discover how to identify and prioritize effective adaptation strategies tailored to the type of project. For new construction, you can integrate these strategies from the outset during project design. For existing buildings, you can incorporate these strategies into building renewal efforts and long-term asset management plans. A real-world case study will demonstrate how these approaches are applied in practice, equipping you with practical insights to support climate-resilient decision-making.

WHAT YOU'LL LEARN

1. Describe the basic elements of climate models and introduce the concept of climate-projected design values.
2. Explain what constitutes climate risk for a building and how to evaluate it.
3. Determine whether adaptation strategies are necessary for a building project.
4. Identify resources to support climate risk assessments and adaptation planning.

Integrating Wildfire Resilience with Sustainable Building Practices

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

Living and working in wildland-urban interface (WUI) zones increases our exposure to wildfire risks. The International Wildland-Urban Interface Code (IWUIC) provides a set of clear, enforceable requirements aimed at minimizing wildfire risks in WUI areas that are adaptable to allow communities to implement measures based on regional needs. By aligning fire safety with sustainable building practices, the building industry can create safer, more resilient communities that contribute to environmental stewardship. In this session, you will discover how to adapt typical building practices to align with WUI requirements and promote sustainability and environmental responsibility. You'll explore solutions and construction details that use commercially available materials to enhance the wildfire resilience of buildings and meet WUI requirements while simultaneously considering the holistic environmental impact of the materials.

WHAT YOU'LL LEARN

1. Summarize building requirements related to building in WUI zones, specifically the International Wildland-Urban Interface Code (IWUIC).
2. Explain how wildfire resilience can be integrated with sustainable building practices and green building standards to create environmentally responsible and safe buildings.
3. Describe the benefits of various materials to enhance wildfire resilience and sustainability.
4. Identify practical strategies for designing and implementing wildfire-resilient, high-performance building assemblies that meet industry standards and green building certification requirements.

Achieving Low Carbon in Atypical Building Types

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

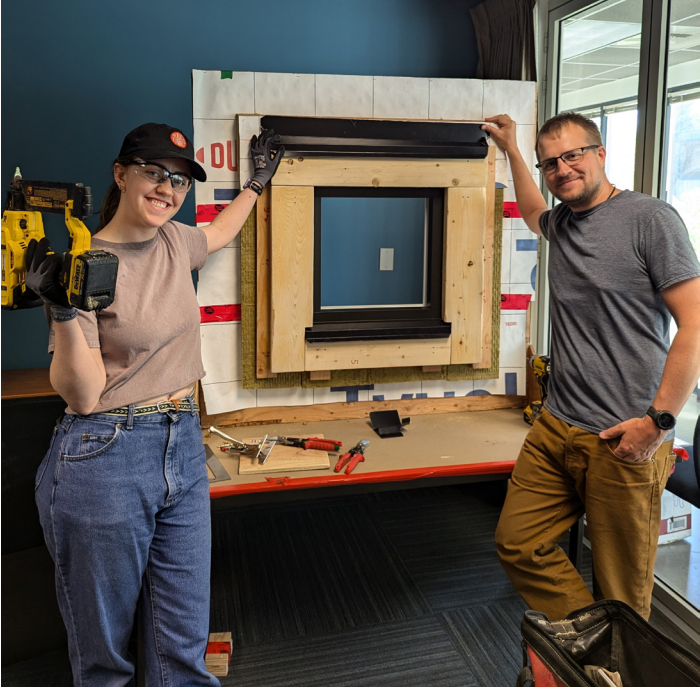
Low-carbon and high-performance sustainability objectives are increasingly a priority for commercial and institutional building owners. High-performance strategies may be well understood for standard building types, but specialized expertise is required to achieve the same performance goals in buildings with unique needs. In this session, you'll explore low-carbon energy performance goals and sustainable strategies for commercial and institutional buildings with custom needs. Case studies on commercial kitchens, swimming pools, wet labs, and other custom building uses will be discussed, including the importance of evaluating these projects holistically from multi-discipline perspectives to optimize their design.

WHAT YOU'LL LEARN

- 1. Describe low-carbon energy performance goals for commercial and institutional buildings.
- 2. Identify sustainable design strategies for custom building uses.
- 3. Recognize the importance of evaluating a project holistically from multi-discipline perspectives to optimize the design.
- 4. Identify systems that contribute to low-carbon building design and retrofits.

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COURSE OFFERINGS

Carbon Emissions in Buildings

As the urgency to combat climate change intensifies, reducing carbon emissions in the built environment has become a top priority for governments at all levels. Strategic carbon emissions reduction in buildings is increasingly critical for meeting federal, provincial, and municipal climate goals. A building’s carbon emissions consist of both operational and embodied carbon. This two-part series will introduce you to both types of carbon emissions—where they come from, how they are measured and assessed, and how you can reduce both types of emissions in your efforts to decarbonize your building projects.

CARBON EMISSIONS IN BUILDINGS
COURSE LIST:

- Introduction to Carbon Emissions in Buildings—Part 1: Operational Carbon
- Introduction to Carbon Emissions in Buildings—Part 2: Embodied Carbon



+ Architect/Designer
+ Building Owner/
Manager
+ Contractor/Builder
+ Product/System
Manufacturer



+ Introductory



+ 1 hour each



+ Part 1: None
+ Part 2: Part 1

CARBON EMISSIONS IN BUILDINGS

Introduction to Carbon Emissions in Buildings—Part 1: Operational Carbon

A key measurement category for understanding and mitigating a building’s environmental impact is operational carbon—emissions generated from the energy used to heat, cool, light, and power buildings during their use phase. This session will explore the current state of the building industry’s journey to decarbonize buildings by reducing operational carbon. You’ll learn what operational carbon emissions are and how they are linked to load reduction and heating energy sources. This information will help you navigate regulations and incentives that target operational carbon emissions and identify strategies that will allow you to reduce operational carbon emissions and meet decarbonization goals.

WHAT YOU’LL LEARN

1. Identify the sources of operational carbon emissions in your buildings.
2. Understand the impact of electrical grid carbon emission in your region, both now and in the future as the electrical grid decarbonizes.
3. Identify strategies for reducing operational carbon emissions to support whole-building life cycle decarbonization.
4. Understand how reducing operational carbon will help you comply with current and future federal, provincial, and municipal climate goals and regulations.

Introduction to Carbon Emissions in Buildings—Part 2: Embodied Carbon

While operational emissions have long been a focus, embodied carbon—the emissions generated throughout the life cycle of building materials, from extraction and manufacturing to transportation, installation, maintenance, and end-of-life—represents a significant and often overlooked part of a building’s environmental footprint. This session offers a comprehensive introduction to embodied carbon. You’ll explore how embodied carbon dominates life cycle emissions as energy efficiency in buildings increases and energy sources decarbonize. This understanding will help you make design decisions related to massing and material choices that will help you reduce the embodied carbon in your building projects and support compliance with jurisdictional regulations.

WHAT YOU’LL LEARN

1. Understand embodied carbon, its role in the overall carbon footprint of buildings across their life cycles, and how your design decisions impact the amount of embodied carbon in your design.
2. Identify key life cycle stages—including material extraction, manufacturing, construction, use, and end-of-life—where embodied carbon emissions occur.
3. Identify strategies to reduce embodied carbon in building projects.
4. Understand how reducing embodied carbon will help you comply with current and future federal, provincial, and municipal climate goals and regulations.

COURSE OFFERINGS

Meeting the Retrofit Challenge

Building investors are demanding action on environmental, social, and governance matters, and governments are tightening energy and emissions regulations for existing buildings toward net-zero carbon goals. Meanwhile, many of our older buildings are being stressed by increasingly extreme weather events, and many are no longer meeting occupant needs.

How can building owners manage their portfolios and prioritize planned renewal work to best respond to these complex, intersecting forces in a cost-effective manner? How can deep carbon and deep energy retrofits align with and support other business goals?

Every building needs a plan! These courses help you define the challenge, develop a plan, and prepare for a successful implementation.

MEETING THE RETROFIT CHALLENGE
COURSE LIST:

- Defining the Retrofit Challenge
- Constructing a Retrofit Plan
- Lessons in Successful Retrofit Implementation

MEETING THE RETROFIT CHALLENGE

Defining the Retrofit Challenge

DETAILS

	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

Energy retrofits present a confusing array of issues, including changing code requirements and new terminology, occupant concerns about overheating and poor indoor air quality, and challenging disruptions caused by more frequent climate-related disasters. In this session, you'll gain insight into the changing climate in which our existing buildings are now required to function and how these changes will continue to impact our buildings and their occupants in the decades to come. You'll see what climate disruption looks like and how buildings contribute to that disruption, discover how buildings can adapt to perform in a more hostile climate and even mitigate greenhouse gas emissions, and learn why new government requirements will drive mitigation efforts. These realities will be contextualized within a policy and investment landscape that is rapidly shifting toward zero carbon emissions.

WHAT YOU'LL LEARN

1. Understand the changing climate and how these changes impact our buildings and their occupants.
2. Differentiate between buzzwords like zero emissions, net zero, deep retrofit, and climate resilience.
3. Understand the role that deep-energy retrofits have in responding to the current climate crisis and the urgency to reduce emissions by 2030.
4. Develop a high-level understanding of the policy and investment pressures that owners and managers of existing build stock will experience.

Constructing a Retrofit Plan

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour

When it comes to energy retrofits, every building needs a good plan. A “like-for-like” approach may not accommodate climate adaptation needs and frequently changing building code requirements. In this session, you’ll identify the steps needed to develop a custom retrofit roadmap at both the building-specific and portfolio level. You’ll learn how to define goals that meet your internal objectives and each project’s external requirements, such as greenhouse gas and carbon reduction, thermal and indoor air quality improvements, and fire/smoke and flood mitigation. You’ll discover how to establish a clear picture of your project’s starting point and identify the specific initiatives that will meet your project goals. By examining case studies and using visual tools designed for multiple building types, you’ll come away with a solid understanding of the retrofit roadmap development process.

WHAT YOU’LL LEARN

1. Understand how to set goals that align with both internal objectives and external retrofit project requirements.
2. Identify the starting point for your building retrofit projects and how to prioritize your projects at the portfolio level.
3. Recognize how a “like-for-like” approach may no longer be valid and how you can customize your capital planning measures to accommodate climate adaptation and upcoming code changes.
4. Visualize the outcomes of your retrofit roadmap planning process and chart a path toward your project goals.

Lessons in Successful Retrofit Implementation

DETAILS	
	ROLE
	+ Architect/Designer
	+ Building Owner/Manager
	+ Contractor/Builder
	LEVEL
	+ Introductory
	DURATION
	+ 1 hour
	RECOMMENDED PREREQUISITE
	+ Constructing an Energy Retrofit Plan

Once you’ve laid the groundwork to create a building retrofit plan, what’s next? How do you implement the plan? Discover the answers from the real-world examples and lessons learned presented in this session. You’ll hear stories from the trenches that illustrate some of the critical considerations and solutions for the successful implementation of existing building renewals work, particularly the unique challenges presented by occupied buildings. These stories will demonstrate the unique implementation challenges you’ll face when renewing an existing building. You’ll gain a high-level understanding of the critical steps for implementing your energy or emissions retrofit plan as well as practical solutions to minimize occupant disruption and ensure your retrofit project will meet its expected performance.

WHAT YOU’LL LEARN

1. Recognize the implementation challenges you’ll face when renewing an existing building.
2. Explain practical solutions for implementing your energy or emissions retrofit plan through real-world examples.
3. Gain a high-level understanding of the critical steps for implementing your retrofit plan to ensure successful implementation.
4. Identify key considerations for implementing a retrofit plan on your occupied building.

COURSE OFFERINGS

Passive House 101

This three-part series of continuing education courses is offered for architects and other building industry professionals to learn about Passive House concepts and standards.

The Passive House standard aims to reduce energy consumption for heating and cooling while maintaining a high level of indoor comfort and air quality for the occupants. The successful implementation of a Passive House project depends on input from professionals who have the training and experience to apply effective design strategies to the project. In this three-part series, you will explore the fundamental concepts of the Passive House standard, the certification process, and enclosure design strategies.

Delving into these essential concepts will enhance your understanding of building enclosure design and improve your ability to create more energy-efficient, comfortable, and durable buildings for occupants. Depending on your knowledge and experience level with the Passive House standard, you can choose to participate in all three courses or just one.

PASSIVE HOUSE 101 COURSE LIST:

- Passive House 101—Part 1: Fundamental Concepts and Essential Principles
- Passive House 101—Part 2: The Certification Process
- Passive House 101—Part 3: Enclosure Design Strategies

DETAILS



ROLE

- + Architect/Designer
- + Contractor/Builder
- + Product/System Manufacturer



LEVEL

- + Introductory



DURATION

- + 1 hour each



RECOMMENDED PREREQUISITES

- + Part 1: None
- + Part 2: Part 1
- + Part 3: Part 1 & Part 2

PASSIVE HOUSE 101

Passive House 101—Part 1: Fundamental Concepts and Essential Principles

The Passive House standard offers a transformative approach to sustainable building design by optimizing a building's design and components to improve energy efficiency and enhance occupant comfort. This session will uncover the history, fundamental concepts, and essential principles of the Passive House standard and its certification criteria. You'll discover the new absolute performance metrics embraced by Passive House and other climate change regulations, and you'll identify how the Passive House framework aligns with provincial and national climate change policies and objectives. The session will also reveal the benefits that Passive House buildings offer building occupants beyond energy efficiency, from improved indoor air quality to an enhanced acoustic environment.

WHAT YOU'LL LEARN

1. Explain the history, concept, and key principles of the Passive House standard.
2. Describe the new absolute performance metrics used by Passive House and other climate change codes and regulations.
3. Identify the role of the Passive House framework in meeting provincial and national climate change policies and objectives.
4. Outline the benefits beyond reduced energy consumption that Passive House buildings offer for occupants.

Passive House 101—Part 2: The Certification Process

The Passive House building certification process involves rigorous standards for energy efficiency and occupant comfort, producing structures with exceptionally low energy consumption and reduced carbon emissions. Passive House design requires a shift toward an integrated design process that has energy budget management at its core. In this session, you will learn the different roles and the process associated with Passive House building certification. You'll discover why integrated building enclosure and HVAC design strategies are the key levers to achieve low Thermal Energy Demand Intensity (TEDI) requirements. This session will also reveal why enhanced quality control/quality assurance measures are needed to maintain building performance throughout the Passive House construction process.

WHAT YOU'LL LEARN

1. Describe the different roles and the process associated with Passive House building certification.
2. Identify the shift in design process required to deliver Passive House buildings using an integrated design process that has energy budget management at its core.
3. Describe the interdependence of building enclosure and HVAC design strategies to achieve low TEDI (Thermal Energy Demand Intensity) requirements.
4. Explain why enhanced quality control/quality assurance measures are needed to maintain performance throughout Passive House construction.

Passive House 101—Part 3: Enclosure Design Strategies

Effective building enclosure design strategies are essential for meeting the Passive House standard. This session will share practical experiences from Passive House projects of various types and scales to demonstrate how a building enclosure can attain the high levels of energy efficiency, thermal comfort, and indoor air quality needed to achieve the Passive House standard. You'll learn the definition of the clear-field R-value, commonly called the "effective" R-value, and what design elements impact a window U-value/R-value. You'll also explore the impact of thermal bridges in Passive House design and the typical locations of thermal bridges to consider in Passive House design. By exploring real-world Passive House projects, you'll see how a well-designed building enclosure can ensure that the building will perform optimally with minimal energy input, benefiting both the occupants and the environment.

WHAT YOU'LL LEARN

1. List the design elements to be included in a clear-field R-value calculation.
2. Identify the key building interfaces and elements that typically lead to thermal bridging through the building enclosure.
3. Explain why the impact of a thermal bridge is dictated by the combination of its quantity and thermal performance.
4. Describe the design elements that impact a window U-value/R-value.

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Ask
Questions

—
Stay
Curious

—
Keep
Learning

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