

# Agenda

Presented by Joseph Lawendowski, P.E.

## Understanding Cold Climate Effects on Structures

- Climate zones
- The science of heat, air and moisture migration in structures
- Effects of freeze/thaw cycle
- Energy efficiency goals
- Thermal comfort and indoor environmental quality

## Cold Climate Structural Design

- International Residential Code (IRC) structural provisions
- Other standards and guidelines
- Dead loads
- Live loads
- Combined loads
- Wind loads
- Ice and snow loads
- Flood loads

## Cold Climate Foundation Design

- Examining site soils and characteristics
- Choosing a foundation type: footings, piles, basements, slabs
- Designing and using frost-protected foundations
- Drainage and waterproofing

## Air, Vapor and Weather Barriers

- Air barriers and vapor retarders
- Exterior weather barriers
- Insulation
- Windows and doors

## HVAC Systems for Cold Climate Homes

- Heat pumps
- Conventional HVAC-systems
- Space heating and cooling
- Ventilation
- HVAC control systems



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# Residential Design Strategies for Cold Climates

Live, Interactive Webinar - Wednesday, September 25, 2024

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EAU CLAIRE, WI  
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HalfMoon Education Inc.  
PO Box 278  
Altoona, WI 54720-0278



## Learning Objectives

### You'll be able to:

**Recognize** the effects of the freeze-thaw cycle on residential structures

**Comply** with the International Residential Code (IRC) provisions and standards related to various load types including dead, live, wind, ice, snow, and flood loads.

**Review** cold climate design strategies, including utilizing appropriate drainage and waterproofing techniques

**Integrate** HVAC systems, including heat pumps, conventional systems, and ventilation strategies.

**Identify** effective foundation types, such as frost-protected foundations.



HalfMoon Education Inc.,  
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# Residential Design Strategies for Cold Climates

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**Consider** specific threats introduced by cold climates when designing residential structures

**Analyze** how heat, air and moisture migrate within structures and affect thermal comfort and indoor environment quality.

**Refer** to and comply with the International Residential Code (IRC) provisions and standards related to various load types.

**Identify** effective foundation types and design strategies for cold climates

**Understand** how to select and integrate HVAC systems suitable for cold climate homes

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6.0 AIA LU | HSW

**International Code Council**  
.6 CEUs (Building)

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# Webinar Information

Wednesday, September 25, 2024 | 9:00 am - 4:00 pm CDT

Log into Webinar: 8:30 - 9:00 am CDT

First Session: 9:00 - 11:00 am CDT

Break: 11:00 - 11:30 am CDT

Second Session: 11:30 am - 2:00 pm CDT

Break: 2:00 - 2:30 pm CDT

Third Session: 2:30 - 4:00 pm CDT

## Tuition

**\$339** for individual registration.

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# Faculty

**Joseph Lawendowski, P.E.**

*Civil Engineering, EIT, with Pannone Engineering Services LLC, in Anchorage, Alaska*

Mr. Lawendowski specializes in residential structural design and water/wastewater systems, and he is a residential building inspector. He is a longtime Alaskan who retired from the military after more than 23 years of service and has more than five years of engineering and construction experience. Mr. Lawendowski's background includes experience in design, construction, testing and monitoring of engineered projects. He has worked all over the state of Alaska, including extensive time in the arctic and remote regions. Mr. Lawendowski takes a practical and economical approach to design, taking into account who is going to be doing the construction and how it will be done. He has hands-on experience in the construction of water and wastewater systems, the construction and renovation of buildings and large earth works projects.

# Credit Information

This webinar is open to the public and is designed to qualify for 6.0 PDHs for professional engineers and 6.0 HSW continuing education hours for licensed architects in all states that allow this learning method. Please refer to specific state rules to determine eligibility.

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The American Institute of Architects Continuing Education System has approved this course for 6.0 HSW LUs (Sponsor No. J885). Only full participation is reportable to the AIA/CES.

The International Code Council has approved this event for .6 CEUs in the specialty area of Building (Preferred Provider No. 1232).

Attendance will be monitored, and attendance certificates will be available after the webinar for those who attend the entire course and score a minimum 80% on the quiz that follows the course (multiple attempts allowed).

## On-Demand Credits

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6.0 HSW LUs (AIA)

# Additional Learning

**Structural Engineering Calculations for Wood Construction**

- Tuesday, August 27, 2024 | 10:00 am - 1:15 pm CDT

**Residential and Small Commercial Roof Design and Construction**

- Friday, September 6, 2024 | 9:00 am - 4:30 pm CDT

**Engineered Lumber Design and Construction**

- Monday, September 9, 2024 | 9:00 am - 5:00 pm CDT

**2024 International Building Code:**

**Occupancy Classifications**

- Tuesday, September 10, 2024 | 12:00 - 4:30 pm CDT

**Ethical Issues in Structural Engineering**

- Tuesday, September 10, 2024 | 10:00 - 11:00 am CDT

**Plumbing Basics for Non-Plumbing Professionals**

- Tuesday, September 10, 2024 | 8:30 am - 3:30 pm CDT

**Complying With the International Existing Building Code**

- Thursday, September 12, 2024 | 9:00 am - 5:00 pm CDT

**Deep Dive into Green Infrastructure:**

**Planning Practices and Techniques**

- Thursday, September 12, 2024 | 8:00 am - 12:30 pm CDT

**Complying With the International Existing Building Code**

- Thursday, September 12, 2024 | 9:00 am - 5:00 pm CDT

**Designing and Constructing for Carbon Neutrality**

- Friday, September 13, 2024 | 9:00 am - 4:00 pm CDT

**Project Management for Engineers**

- Friday, September 13, 2024 | 9:00 am - 5:30 pm CDT

**Pumping and Piping Systems**

- Thursday, September 19, 2024 | 9:00 am - 12:15 pm CDT

- Friday, September 20, 2024 | 9:00 am - 12:15 pm CDT

**Reinforced Concrete Building Design and Construction**

- Thursday, September 19, 2024 | 8:30 am - 4:30 pm CDT

**Using RSMeans Data to Create Cost Estimates**

- Thursday, September 19, 2024 | 9:00 am - 4:30 pm CDT

**Distinguishing Between Construction Defects and Failures**

- Wednesday, September 25, 2024 | 1:00 - 3:00 pm CDT

**Aerial Mapping for Land Surveyors and Civil Engineers**

- Monday, September 30, 2024 | 9:00 am - 4:00 pm CDT

**Solar Photovoltaic Covered Parking Facilities**

- Monday, September 30, 2024 | 10:00 am - 12:00 pm CDT

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