

Agenda

Presented by Michael Drerup, P.E., F.ASCE

High-Performance Building Envelopes: Designing for Energy Efficiency and Durability Day One

Wednesday, July 21, 2021 | 11:00 am - 2:45 pm CDT (including a 15-min. break)

Creating a Building Envelope as Part of a Whole Building Approach

- The weather outside and the weather inside
- Learning from legacy building envelopes and systems
- Contemporary systems and emergent trends
- Occupancy and use
- Energy modeling overview – prediction and measurement
 - Energy overview – generation, consumption, conservation
 - Embodied energy from construction, materials procurement
 - Operational energy
 - Life-cycle cost analysis

Regulatory Overview

- The shifting energy landscape – electricity, oil, cogeneration, solar, natural gas, steam
- Impact of energy efficiency upgrades on green designations
 - LEED
 - Energy Star
 - Green Globes and others

Layer by Layer - Four Critical Barriers and the Anatomy of Wall Systems

- Waterproofing and flow control
- Vapor retarders and moisture control
- Heat transfer principles and thermal performance
- Air barriers and air leakage
- Insulation and thermal bridging
- Additional considerations – sound, light, energy absorption, durability, aesthetics
- Evaluating exemplar wall systems (masonry, rain screen, EIFS, curtain wall)

High-Performance Building Envelopes: Designing for Energy Efficiency and Durability Day Two

Thursday, July 22, 2021 | 11:00 am - 2:45 pm CDT (including a 15-min. break)

“It looked good on paper” – Cautionary Tales of Building Envelope Failures

- Early service life failures
- Repair and retrofit failures

Foundations, Slabs, and Floors

- Four barriers below grade (air, thermal, water, vapor)
- Geotechnical considerations
- Earth as enclosure – below-grade buildings

Designing and Installing Efficient Fenestration Systems

- Fenestration characteristics and parameters affecting energy efficiency
- Selection of window systems for energy efficiency
- Coordinating window and door locations in the envelope
- Laboratory and field testing to predict and verify performance

Designing Energy-Efficient Roofing Systems

- Determining insulation level for roofs
- Working with low-slope roofs
- Metal-panel roofs and steep-slope roofs
- Vegetative roofs and “cool” roofs
- Transitions – integrating the roof with the building envelope

Strategies for Enhancing the Performance of Existing Building Envelopes

High-Performance Building Envelopes: Designing for Energy Efficiency and Durability

Online - Wednesday, July 21 and Thursday, July 22, 2021

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Learning Objectives

You'll be able to:

Design building envelopes as part of a whole building approach.

Use energy modeling tools and analyze costs over the building's lifecycle.

Understand the impact of energy-efficient upgrades on green designations such as LEED and Energy Star.

Discuss the four critical barriers and give additional consideration to sound, light, energy absorption, durability and aesthetics.

Explore fenestration characteristics which affect energy efficiency.

Examine options for energy-efficient roofing systems.



HalfMoon Education Online Learning

High-Performance Building Envelopes: Designing for Energy Efficiency and Durability

Live, Interactive Webinar Series

Wednesday, July 21 and Thursday, July 22, 2021



Explore the building envelope as part of a whole building approach

Consider LEED, Energy Star and other green designations

Examine the four critical barriers and discuss the anatomy of wall systems

Learn about the energy performance of foundations, slabs, floors and roofing systems

Consider strategies for enhancing the performance of existing buildings

Discuss building envelope failures with real-world examples

Continuing Education Credits

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7.0 PDHs

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AIA
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International Code Council
.7 CEUs (Building)

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Michael Drerup, P.E., F.ASCE, has 26 years of structural engineering and building technology experience, with an emphasis on the performance, maintenance, repair and retrofit of existing buildings and structures. He has planned and directed field and laboratory studies to evaluate the performance and durability of a variety of building systems, components, and materials, including structural systems, facades, and flooring. Mr. Drerup often works closely with specialists in other disciplines to assemble and manage teams tailored for larger and more complex assignments. He has also investigated numerous damage claims resulting from a variety of natural and man-made causes, including earthquakes, weather events, explosions, fire, impact, construction activities, and defective design or construction. Mr. Drerup has served as an expert witness in numerous cases, and has testified at deposition, trial, and mediation. He has served on ASCE's Forensic Engineering Division since 2001, and recently completed his term as Division Chair. During that time, he led the development of continuing education seminars for engineers and architects, chaired ASCE's Fifth Congress on Forensic Engineering in Washington, DC. Mr. Drerup has also represented ASCE internationally, including sponsored trips to forensic engineering conferences in India and Guatemala, and collaboration with the Institution of Forensic Engineers in the United Kingdom. He has served as a reviewer for ASCE's *Journal of Performance of Constructed Facilities* for more than 15 years, and he was guest editor for a special topic issue on non-destructive evaluation of existing buildings and infrastructure. Mr. Drerup regularly publishes and presents on a range of topics including technical issues, professional practice, and architectural and engineering history.

Webinar Information

Day One: Wednesday, July 21, 2021
11:00 am - 2:45 pm CDT (including a 15-min. break)

Day Two: Thursday, July 22, 2021
11:00 am - 2:45 pm CDT (including a 15-min. break)
(please log into the webinar 15 - 30 minutes before start time)

Tuition
\$289 for individual registration
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Additional Learning

International Residential Code 2021
- Wed, June 16, 2021 | 8:30 am - 4:30 pm CDT

Engineering Ethics: Handling Ethical Issues in Professional Engineering Practice
- Fri, June 18, 2021 | 11:00 am - 12:00 pm CDT

2021 International Residential Code: Residential Plumbing Systems
- Fri, June 18, 2021 | 11:00 am - 3:30 pm CDT

Foundation Design, Construction and Repair in Karst Terrain
- Tues, June 22, 2021 | 9:00 am - 4:30 pm CDT

International Existing Building Code 2021
- Tues, June 22, 2021 | 8:30 am - 5:00 pm CDT

International Building Code 2021
- Wed, June 23, 2021 | 9:00 am - 5:00 pm CDT

Revit Workshop: Basics of Building Information Modeling
- Wed, June 23, 2021 | 9:30 am - 4:30 pm CDT

Construction Cost Estimating
- Tues, June 29, 2021 | 8:30 am - 4:30 pm CDT

Turf Grass and Sustainable Alternative Ground Covers
- Tues, June 29, 2021 | 7:30 am - 3:00 pm CDT

Parking Structure Design, Construction and Maintenance
- Wed, June 30, 2021 | 9:00 am - 4:30 pm CDT

Sustainable Site Design
- Wed, June 30, 2021 | 8:30 am - 3:50 pm CDT

Vegetated Green Roof Technology: Design and Construction
- Wed, June 30, 2021 | 8:30 am - 4:00 pm CDT

Shallow Foundation Design, Construction and Repair
- Tues, July 6, 2021 | 8:30 am - 5:00 pm CDT

Estimating Plumbing and HVAC Costs
- Fri, July 9, 2021 | 8:30 am - 4:30 pm CDT

For more information and other online learning opportunities visit: www.halfmoonseminars.org

Continuing Education Credit Information
This webinar offers 7.0 PDHs to professional engineers and 7.0 HSW continuing education hours to architects licensed in all states.

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The American Institute of Architects Continuing Education System has approved this course for 7.0 LU | HSW (Sponsor No. J885). Only full participation is reportable to the AIA/CES.

The International Code Council has approved this event for .7 CEUs in the specialty area of Building (Preferred Provider No. 1232).

Completion certificates will be awarded to participants who complete this event, respond to all prompts, and earn a passing score (80%) on the quiz that follows the presentation (multiple attempts allowed).

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Recordings of this webinar are available for purchase. See registration panel for more information and please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit. Self-study packages do not qualify for AIA credit.

Registration

High-Performance Building Envelopes

Live, Interactive Webinar Series - Wednesday, July 21 and Thursday, July 22, 2021

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