

Agenda

Presented by Michael Duclos

Understanding the Energy Efficiency of Conventional Construction

Facts and figures on residential energy use
History of energy-conserving residential construction
Energy language primer, and introduction to thermal bridging
Building code requirements, energy efficiency incentives

Passive House Standard: Purpose, Principles and Development

History of certifying agencies in US: PHI and PHIUS
Passive House Standard: energy, IAQ, comfort, durability
Energy calculations: how and when to perform them
Energy calculation tools: introduction and functionality
Passive House Certification process
Assembling and managing a project team
Design features of single and multifamily Passive Houses
Critical factors for floor-planning, windows and ventilation

Architectural Elements of Passive Houses

Siting, sizing, insolation, shading and orientation
Super-insulated envelope with minimized thermal bridging
Critical elements - windows, ventilation, dehumidification
Ultra-efficient lights, fixtures and appliances
Multifamily design considerations
Winter solar gain and heat retention strategies
Integrating renewable energy – single and multifamily

Mechanical Systems in Passive Houses

Optimizing heat gains
• Passive solar heating, with actual data from 3 buildings
• Indoor environmental heat gains
Heat & Energy Recovery ventilation systems
Supplemental heating systems
Energy-efficient appliances
Multifamily mechanical systems considerations

Evaluating Passive House Case Studies

Adapting Passive House for Massachusetts
Case studies: single and multifamily projects
Discussion

Passive House: Planning and Design
Natick, MA - Tuesday, March 3, 2020

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Learning Objectives

You'll be able to:

Identify Passive House certifying agencies in the US, and be able to describe Passive House standards for energy, indoor air quality, indoor comfort and durability.

Perform energy calculations during the Passive House certification process.

Describe design elements of Passive Houses, including sizing, shading and orientation.

Identify energy-conserving features common to Passive Houses, including super-insulated envelopes, doors and windows, and efficient ventilation systems.

Select mechanical systems for Passive Houses.

Consider building both single-family and multi-family projects to the Passive House Standard.



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Passive House: Planning and Design

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Understand the energy efficiency of conventional construction

Identify the purpose, principles, and development of Passive House

Examine the architectural elements of Passive Houses

Learn about mechanical and electrical systems in Passive houses

Explore Passive House case studies

Consider Passive House design for single and multifamily projects

Continuing Education Credits

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6.5 HSW Contact Hours
6.5 AIA LU|HSW

Professional Engineers

6.5 Contact Hours (PDHs)

PHIUS

Pending

Contractors

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Michael Duclos *Principal and Founder of THE DEAP Energy Group, LLC*
Mr. Duclos is a principal and founder of THE DEAP Energy Group, LLC, a consultancy providing a wide variety of deep energy retrofit, zero net energy and Passive House-related consulting services. He is a founder, on the board of directors, and director of education of Energy Raters of Massachusetts, Inc., a RESNET-certified HERS Provider specifically catering to independent HERS Raters in New England. Mr. Duclos also founded Energy Efficiency Associates, LLC, to provide conventional home HERS, energy audit, Stretch Code, tax certification and associated verification and consulting services.

Mr. Duclos was an energy consultant on the Transformations, Inc., Massachusetts Zero Energy Challenge entry, which was awarded the second prize of \$15K. He has worked on a variety of Zero Net Energy, DER and Passive House projects, including two National Grid DER projects which qualified for the ACI Thousand Homes Challenge, Option B, both of which have certified with a year of energy consumption data to use less energy than specified by THC Option B. Mr. Duclos conducted a feasibility study of a retrofit to the Passive House new home performance standard. He assisted with the design and preparation of the PHPP for the first EnerPHIT certified home in the US.

Mr. Duclos also worked on the design and certification of the first National Grid DER project to successfully qualify for the Zero Net Energy incentive, which completed a year of use with a surplus of 500 KWHR. He served on the NESEA Zero Energy Task force which analyzed utility bill data from applicants for the annual \$10K award for the best zero net energy home. Mr. Duclos is a founding member and was on the board of directors of Passive House New England, Inc.,

a non-profit promoting high performance building, including Passive House. He is a member of the Northeast HERS Alliance Technical Committee and was on the MassSave New Construction Program HERS Rater Panel.

Mr. Duclos monitors the delivered performance of his projects using a variety of real time electricity monitors, temperature, RH and CO2 loggers and correlates this data to the expected performance predicted by his energy models. The actual data, and the stories behind the data are made available to the public in speaking engagements in a variety of public venues, and in publications like *Home Energy Magazine*.

Mr. Duclos is an ITC-certified building science infrared thermographer, and he is the certified Passive House consultant responsible for the design and certification of the second Passive House in Massachusetts. He holds a B.S. degree in Electrical Engineering from UMass Lowell, and two patents. Mr. Duclos consulted on the first multifamily Passive House certified in New Hampshire, a 24-unit affordable senior housing facility near Laconia, New Hampshire.

Here’s what past attendees had to say about the program and presenter Michael Duclos:
“Mike was great—clear, personable & fully informed. Best seminar I’ve attended.” — *Architect*
“Mike’s excellent! Very knowledgeable & answered questions remarkably well.” — *Electric Power Engineer*
“Couldn’t ask for better. Clear, concise and well-delivered. Good balance of facts and real world perspective.” — *Architect*

Seminar Information

Courtyard by Marriott Natick
342 Speen Street
Natick, MA 01760
(508) 655-6100

Tuition
\$289 for individual registration
\$269 for three or more registrants from the same company at the same time.

Included with your registration: Complimentary continental breakfast and printed seminar manual.
Receive a reduced tuition rate of \$101 by registering to be our on-site coordinator for the day. For availability and job description, please visit www.halfmoonseminars.org.

How to Register
• Visit us online at www.halfmoonseminars.org
• Mail-in or fax the attached form to 715-835-6066
• Call customer service at 715-835-5900

Cancellations: Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the self-study package. You may also send another person to take your place.

Continuing Education Credit Information
This seminar is open to the public and offers 6.5 HSW contact hours to architects and 6.5 PDHs to engineers in all states. Educators and courses for Massachusetts architects are not subject to pre-approval.
The American Institute of Architects Continuing Education System has approved this course for 6.5 LU|HSW (Sponsor No. J885). Visit www.halfmoonseminars.org for complete AIA/CES course information under this seminar listing. Only full attendance is reportable to the AIA/CES.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), North Carolina, and North Dakota.

HalfMoon Education is deemed a New York-approved continuing education provider for engineers and architects via its registration with the American Institute of Architects Continuing Education System (Regulations of the Commissioner §68.14(i)(2) and §69.6(i)(2)).

HalfMoon Education has applied to the Passive House Institute US for course approval, which is pending. Visit www.halfmoonseminars.org for the approval status under this seminar listing.

This seminar offers a non-credit continuing education opportunity to construction contractors. It has not been approved by any state with a construction contractor continuing education requirement.

Attendance will be monitored and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

Additional Learning Webinar Series

- Foundations in Cold Regions**
- **Introduction to Foundations in Cold Regions**
Thurs., Feb. 20, 2020, 11:00 AM - 12:30 PM CST
 - **Shallow Foundation Design in Cold Regions**
Thurs., Feb. 20, 2020, 1:00 - 2:30 PM CST
 - **Deep Foundation Design in Cold Regions**
Fri., Feb. 21, 2020, 11:00 AM - 12:30 PM CST
 - **Foundation Construction in Cold Regions**
Fri., Feb. 21, 2020, 1:00 - 2:00 PM CST

For more information and other online learning opportunities visit:
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Registration

Passive House: *Planning and Design*

Natick, MA - Tuesday, March 3, 2020

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Tuition
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