

Agenda

Presented by Jay Egg

Applying the Laws of Thermodynamics to Geothermal Heat Pumps and Indoor Thermal Comfort

- Applying the laws of thermodynamics to HVAC systems
- Understanding the refrigeration cycle
- Calculating heating and cooling loads
- The effect of air flow and insulation
- How comfort is measured
- Understanding efficiency

Understanding Earth Loop Systems

- Architecture of closed loop systems
 - Horizontal ground loops
 - Vertical ground loops
- Applications for open loop (Class V Thermal Exchange) systems
 - Single well
 - Two-well systems
- Evaluating topography
- Measuring soil conductivity
- Environments for ground-loop systems: beneath yards, fields, parking lots, and buildings

Designing Geothermal Systems

- Determining loop type
- Making heat loss calculations
- Sizing the unit
- Sizing the loop

Choosing System Type

- Basic components of geothermal heat pump (GHP) systems:
 - Pumps, condenser water piping, heat pump, heat exchanger
- Forced air systems
- Hydronic systems
- Domestic hot water options

Evaluating the Benefits of Geothermal Systems

- Incentives to use geothermal
- Measuring performance
- Calculating savings and cost
- Environmental benefits
- Tax credits, incentives and rebates

Maintaining Geothermal Systems

- Performing routine maintenance
- Case studies

Geothermal Heating and Cooling: Technology and Applications

Live, Interactive Webinar - Tuesday, September 22, 2020



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

NON-PROFIT
U.S. POSTAGE PAID
EAU CLAIRE, WI
PERMIT NO. 2016

Learning Objectives

You'll be able to:

Understand the context and verbiage of the (geothermal) clean heating and cooling technology.

Identify the importance, adaptability, and benefits of the technology as vital to infrastructure and building construction.

Understand why the technology is important to health, human safety, and imperative industry goals.

Internalize our collective capability and responsibility to make these changes.

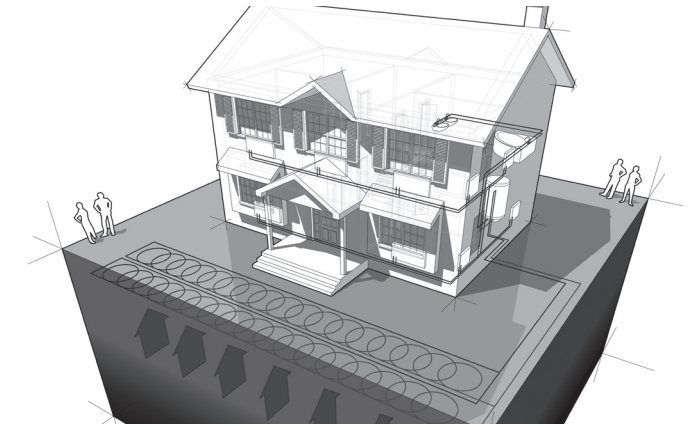
Leave with the intent to offer, specify, & apply the technology in every application going forward.



HalfMoon Education Online Learning

Geothermal Heating and Cooling: Technology and Applications

Live, Interactive Webinar - Tuesday, September 22, 2020



Understand earth loop systems
Identify the environmental and economic benefits of geothermal systems
Learn how to make heat loss calculations

Explore vertical and horizontal closed loop systems
Learn about designing forced air and hydronic systems
Discuss how to maintain geothermal systems

Continuing Education Credits

Professional Engineers
6.5 PDHs

AIA
6.5 LU|HSW

Architects
6.5 HSW CE Hours

International Code Council
.65 CEUs (Energy)



HalfMoon Education Inc.
WWW.HALFMOONSEMINARS.ORG

AIA
Continuing
Education
Provider

Faculty

Jay Egg *Founder and Consultant with Egg Geothermal*

After serving in the US Navy nuclear power field, Mr. Egg began a career in mechanical design engineering & contracting in 1990, and founded Egg Geothermal in Florida to provide HVAC solutions to the public. He currently focuses his professional efforts as a renewable energy expert on geothermal energy utility efforts, solar/geothermal exchange implementation, and aquifer related environmental issues, permitting, feasibility & variances or special permitting such as utility-scale geothermal exchange systems. Using down to earth learning patterns, Mr. Egg provides technical validation and insightful speaking and training engagements. Among his clients are international, federal, state and local governments, developers, associations, and private entities. Mr. Egg has written two books for McGraw-Hill Education.

EggGeothermal is a voting member on the IGHSPA Advocacy Committee, the Uniform Solar Energy & Hydronics Technical & the Uniform Mechanical Code Committee for the International Association of Plumbing and Mechanical Professionals (IAPMO); training and curriculum writer/facilitator for IGSHPA and for the U.S. Department of Energy (DOE) and past technical adviser to the New York State Energy Research and Development Authority (NYSERDA) & the Province of Ontario, Canada on renewable heating and cooling.

Seminar Information

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

Break
12:30 - 1:30 pm CDT

Morning Session
8:30 am - 12:30 pm CDT

Afternoon Session
1:30 - 4:30 pm CDT

Tuition

\$299 for individual registration
\$199 for three or more registrants from the same company at the same time.
Included with your registration: PDF seminar manual.

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

Webinars are presented via GoToWebinar. Instructions and login information will be provided in an email sent close to the date of the webinar. For more information, please visit our FAQ section of our website, or visit www.gotowebinar.com.

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

Additional Learning

Introduction to HEC-HMS Modeling

- Thurs., August 20, 2020 | 8:30 am – 5:00 pm CDT

Practical Use of the FMEA as a Design Tool

- Tues., August 25, 2020 | 11:00 am – 3:15 pm CDT
- Wed., August 26, 2020 | 11:00 am – 3:15 pm CDT

Drones in Construction

- Thurs., August 27, 2020 | 10:00 am – 4:50 pm CDT

Energy-Efficient, Sustainable Roofs

- Thurs., August 27, 2020 | 11:00 am – 2:30 pm CDT
- Fri., August 28, 2020 | 11:00 am – 2:30 pm CDT

Small Wind Energy Systems

- Thurs., August 27, 2020 | 11:00 am - 1:00 pm CDT
- Fri., August 28, 2020 | 11:00 am - 1:00 pm CDT

Special Inspections under the International Building Code Chapter 17

- Tues., Sept. 1, 2020 | 8:30 am - 4:20 pm CDT

Construction Cost Estimating

- Tues., Sept. 1, 2020 | 8:30 am - 3:50 pm CDT

Deep Foundation

Design and Construction

- Wed., Sept. 9, 2020 | 7:30 am - 3:30 pm CDT

Healthy HVAC Design Primer

for Residential Building Professionals

- Wed., Sept. 9, 2020 | 8:30 am - 4:20 pm CDT

International Existing Building Code

- Wed., Sept. 9, 2020 | 11:00 am - 2:30 pm CDT
- Thurs., Sept. 10, 2020 | 11:00 am - 2:30 pm CDT

Restoration of Natural Habitats: Including Prairies, Wetlands and Forests

- Thurs., Sept. 10, 2020 | 8:30 am - 3:50 pm CDT

Basics of Structural Steel

- Fri., Sept. 11, 2020 | 9:00 am - 5:00 pm CDT

2018 International Residential Code: Structural Design

- Fri., Sept. 11, 2020 | 11:00 am - 3:30 pm CDT

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

Continuing Education Credit Information

This webinar offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects in all states.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider No. 0004647), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), North Carolina (S-0130), and North Dakota. HalfMoon Education is deemed an approved continuing education sponsor for New York 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)). Other states do not preapprove continuing education providers or courses.

The American Institute of Architects Continuing Education System has approved this course for 6.5 LU|HSW (Sponsor No. J885). Only full participation is reportable to the AIA/CES.

The International Code Council has approved this event for .65 CEUs in the specialty area of Energy (Preferred Provider No. 1232).

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

Can't Attend? Order the Webinar as a Self-Study Package!

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.

Registration

Geothermal Heating and Cooling: *Technology and Applications*

Live, Interactive Webinar - Tuesday, September 22, 2020

How to Register	
Online: www.halfmoonseminars.org	
Phone: 715-835-5900	
Fax: 715-835-6066	Code:
Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278	
Complete the entire form. Attach duplicates if necessary.	
Registrant Information Name: _____ Company/Firm: _____ Address: _____ City: _____ State: _____ Zip: _____ Occupation: _____ Email: _____ Phone: _____ Additional Registrants: Name: _____ Occupation: _____ Email: _____ Phone: _____ Name: _____ Occupation: _____ Email: _____ Phone: _____ <small>Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.</small> () I need special accommodations. Please contact me.	

Tuition
() I will be attending the live webinar. Single Registrant - \$299.00 . Three or more registrants from the same company registering at the same time - \$199.00 each.
() I am not attending. Please send me the webinar recording: <input type="checkbox"/> Streamable MP4 Video/PDF Manual for \$279.00 . <input type="checkbox"/> USB Video/PDF Manual for \$279.00 .
Checks: Make payable to HalfMoon Education Inc.
Credit Card: <i>Mastercard, Visa, American Express, or Discover</i>
Credit Card Number: _____
Expiration Date: _____ CVV2 Code: _____
Cardholder Name: _____
Billing Address: _____
City: _____ State: _____ Zip: _____
Signature: _____
Email: _____