

Agenda

Presented by Howard Alderson, P.E.

The Geothermal Heat Pump Concept and the Refrigeration Cycle

Examining system components
Understanding the vapor compression cycle
Typical pressures and temperatures
Other definitions and information

Understanding Earth Loop Systems

Architecture of closed loop systems

- Horizontal
- Directional
- Hybrid systems
- Vertical
- Pond

Open loop systems

- Well systems
- Pond/lake

Standing column wells

Designing Geothermal Systems

Siting the system Making heat loss calculations
Sizing the unit Sizing the loop

Case Study #1

Choosing System Components

Water-to-air systems
Water-to-water systems
Domestic hot water options
Pumps, heat exchangers, expansion tanks, etc.

Evaluating the Benefits of Geothermal Systems

Measuring performance
Calculating efficiency, savings and cost
Environmental benefits
Tax credits, incentives and rebates

Maintaining Geothermal Systems

Performing routine maintenance
Troubleshooting problems

Case Studies of Existing Residential, Commercial and Institutional Systems

Geothermal Heating and Cooling: Technology and Applications

Syracuse, NY - Wednesday, June 19, 2019



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:

Learn about the vapor compression cycle of geothermal systems, and examine system components.

Discuss the economics and environmental benefits of geothermal heating and cooling.

Explore horizontal and vertical closed loop systems.

Learn how to choose and size components when designing a geothermal system.

Get tips on maintaining systems and troubleshooting problems.

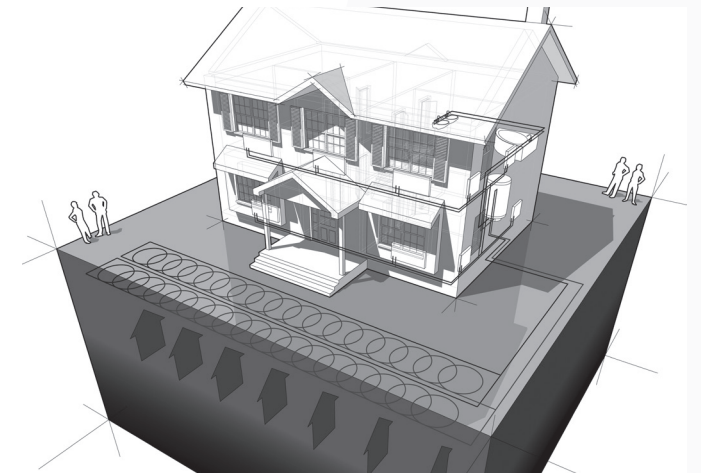
Review case studies of installed geothermal systems.



Geothermal Heating and Cooling: Technology and Applications

Syracuse, NY - Wednesday, June 19, 2019

This seminar is also being offered in White Plains, NY on Thursday, July 18, 2019.



Examine the benefits of geothermal heating and cooling systems

Learn about closed loop and open loop systems

Analyze components for water-to-air and water-to-water systems

Learn about maintaining geothermal systems

Explore case studies of residential, commercial and institutional systems

Continuing Education Credits

Professional Engineers

6.5 Continuing Ed. Hours

Contractors

Non-Credit Continuing Ed.

Architects

6.5 HSW Continuing Ed. Hours

6.5 AIA HSW Learning Units



HalfMoon Education Inc.
WWW.HALFMOONSEMINARS.ORG



Faculty

Howard Alderson, P.E. *President of Alderson Engineering, Inc. – Southampton, PA*

Mr. Alderson is the owner, chief mechanical engineer, and certified geoexchange designer of his company. He has owned and worked for mechanical contracting firms prior to becoming a consulting engineer, giving him insight and experience in the actual construction of mechanical systems. Prior to forming Alderson Engineering, Inc., in 1990, he worked at a Philadelphia-based consulting engineering firm for 10 years. He is frequently a guest speaker at various conferences, with expertise in the area of ground source heat pump systems. He served as the national director of the Consulting Engineering Council (CEC) of Pennsylvania after having served as president of the organization.

Mr. Alderson’s projects range from geothermal projects for health care facilities, office buildings, industrial projects, retail projects, government facilities, university campus facilities, hotels and motels to residential projects. He has been responsible for the design of mechanical, plumbing, and electrical building systems on projects worth hundreds of millions of dollars.

Mr. Alderson received his B.S.M.E degree from Drexel University, with a specialty in thermodynamics and fluid mechanics. He is a member of the Consulting Engineers Council (CEC) Philadelphia Chapter (past chapter president), the Consulting Engineers Council of Pennsylvania (CEC/PA) (board of directors, past president, national director); the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE); the American Society of Plumbing Engineers (ASPE); the International Ground Source Heat Pump Association (IGSHPA); the International Code Council (ICC); and the National Fire Protection Association (NFPA).

Seminar Information

Sheraton Syracuse University Hotel
801 University Avenue
Syracuse, NY 13210
(315) 475-3000

Tuition
\$289 for individual registration
\$269 for three or more registrations.

Included with your registration: Complimentary continental breakfast and printed 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

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. You may also send another person to take your place.

Continuing Education Credit Information

This seminar is open to the public and offers up to 6.5 continuing education hours to professional engineers and 6.5 HSW continuing education hours to architects in all states.

This event is approved by the American Institute of Architects for 6.5 HSW Learning Units (Sponsor No. J885). Courses approved by the AIA qualify for New Jersey architects. Only full attendance can be reported to the AIA/CES.

The New York State Education Department considers courses as approved for New York State mandatory continuing education for professional engineers if the sponsor’s courses are approved by the American Institute of Architects Continuing Education System and/or the Landscape Architecture Continuing Education System **and** are in approved subject areas.

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

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

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

- Passive House: Planning and Design**
- **Energy Efficiency of Conventional Construction**
Thurs., May 9, 2019, 11:00 AM - 12:00 PM CDT
 - **Passive House Standard: Purpose, Principles and Development**
Thurs., May 9, 2019, 12:30 - 2:00 PM CDT
 - **Architectural Elements of Passive Houses**
Fri., May 10, 2019, 11:00 AM - 12:30 PM CDT
 - **Mechanical Systems in Passive Houses**
Fri., May 10, 2019, 1:00 - 2:30 PM CDT

- Erosion and Sediment Control**
- **Soils and Causes of Erosion**
Thurs., May 16, 2019, 11:00 AM - 12:00 PM CDT
 - **Goals for Selection of Erosion and Sediment Control Practices**
Thurs., May 16, 2019, 12:30 - 1:30 PM CDT
 - **Calculations for Determining Soil Loss and Channel Stabilization**
Fri., May 17, 2019, 11:00 AM - 12:00 PM CDT
 - **Non-Structural Erosion and Sediment Control Best Practices**
Fri., May 17, 2019, 12:30 - 1:30 PM CDT

- Septic Systems Series**
- **Onsite Wastewater Treatment Technologies, Regulations and Contaminant Removal**
Tues., May 21, 2019, 11:00 AM - 12:30 PM CDT
 - **Evaluating Sites, Setting Treatment Goals and System Design**
Tues., May 21, 2019, 1:00 - 2:30 PM CDT
 - **Alternative and Sustainable Treatment Technologies**
Thurs., May 23, 2019, 11:00 AM - 12:30 PM CDT
 - **Management Programs for Onsite Wastewater Treatment Systems**
Thurs., May 23, 2019, 1:00 - 2:30 PM CDT

- Construction Cost Estimating**
- **Introduction to Cost Estimating**
Thurs., May 23, 2019, 11:00 AM - 12:30 PM CDT
 - **Cost Components – A Closer Look at the Estimates**
Thurs., May 23, 2019, 1:00 - 3:00 PM CDT
 - **Cost Estimate Organization and Examples**
Fri., May 24, 2019, 11:00 AM - 1:00 PM CDT
 - **Cost Estimating Topics**
Fri., May 24, 2019, 1:30 - 3:00 PM CDT

For more information visit:
www.halfmoonseminars.org/webinars/

Registration

Geothermal Heating and Cooling: *Technology and Applications*
Syracuse, NY - Wednesday, June 19, 2019

How to Register		Registrant Information	
Online: www.halfmoonseminars.org		Name: _____	
		Company/Firm: _____	
		Address: _____	
		City:_____State: _____ Zip_____	
		Occupation: _____	
		Email: _____	
		Phone: _____	
		Additional Registrants:	
		Name: _____	
		Occupation: _____	
		Email: _____	
		Phone: _____	
		Name: _____	
		Occupation: _____	
		Email: _____	
		Phone: _____	
		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.	
		() I need special accommodations. Please contact me.	

Tuition	
() I will be attending the live seminar. Single Registrant - \$289.00 . Three or more registrants from the same company registering at the same time - \$269.00 each.	
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: _____	