Agenda

Presented by Donald Steeby

Geothermal Heat Pumps and Indoor Thermal Comfort
- Understanding the refrigeration cycle
- System components
- 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 systems
  - Single well
  - Two-well systems
- Evaluating topography
- Measuring soil conductivity
- Environments for ground-loop systems:
  - Beneath yards
  - Fields
  - Parking lots
  - Buildings

Designing Geothermal Systems
- Obtaining design loads
- Sizing the equipment
- Equipment selection
- Sizing the loop
- Loop installation options

Choosing System Components
- Discuss pumping systems
- Interior piping layout
- Sizing and selecting the pump
- Heat pump configurations
- 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

Geothermal Case Studies

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Geothermal Heating and Cooling: Technology and Application
Live, Interactive Webinar - Monday, June 3, 2024

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

Learning Objectives

You'll be able to:

Identify and understand the operation of geothermal heat pump system components.

Explore the architecture of open and closed-loop systems.

Identify appropriate environments for ground loop systems, including beneath yards, parking lots, fields and buildings.

Select and size equipment.

Discuss options for domestic hot water systems.

Evaluate the benefits of geothermal systems, including tax incentives, increased energy efficiency and environmental benefits.

HalfMoon Education Inc.,
Your LIVE Education Leader Presents

Geothermal Heating and Cooling: Technology and Application

Live, Interactive Webinar - Monday, June 3, 2024

Understand the refrigeration cycle and the operation of geothermal heat pumps

Explore the architecture of open and closed-loop systems

Evaluate sites and soils to find appropriate locations for geothermal systems

Obtain design loads and size geothermal equipment

Choose system components

Explore geothermal incentives and calculate cost and savings

Continuing Education Credits

Professional Engineers
6.5 PDHs

Architects
6.5 HSW CE Hours
6.5 AIA LU|HSW

International Code Council
.65 CEUs (Sustainability)

AIA Continuing Education Provider

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Webinar Information

Online - Monday, June 3, 2024

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

Break
12:15 - 1:15 pm CDT

Morning Session
8:30 am - 12:15 pm CDT

Afternoon Session
1:15 - 4:30 pm CDT

Tuition

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Faculty

Don Steeby *Professor of Heating, Air Conditioning and Refrigeration at Grand Rapids Community College, Grand Rapids, MI*
Mr. Steeby has taught full time with GRCC since 2007. He has also taught as an adjunct professor for Ferris State University in Construction Management. He received his bachelor of science degree in HVAC/R Applied Technology from Ferris State University, and his master's degree in Career and Technical Education also from Ferris State University. Mr. Steeby has worked in the HVAC field since 1985. He has held positions in many areas of the industry including installation, service, sales, and project management. Mr. Steeby worked for a local manufacturer of HVAC equipment for over five years, and he was employed by Honeywell for 11 years. He holds a mechanical contractor's license with the State of Michigan, and he has several nationally-recognized certifications including installation and service of geothermal equipment with North American Technician Excellence (NATE). He is also a certified trainer and installer of geothermal heat pumps through the International Ground Source Heat Pump Association (IGSHPA). Mr. Steeby has been actively involved in the geothermal industry for many years including writing software to size loop links and working on several commercial geothermal installations. In 2011, he published his book *Alternative Energy – Sources and Systems* through Cengage Learning which includes chapters on geothermal systems.

Credit Information

This webinar is open to the public and is designed to qualify for 6.5 PDHs for professional engineers and 6.5HSW 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 6.5 HSW LUs(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 Sustainability (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

The preceding credit information only applies to the live presentation. This course in an on-demand format is not pre-approved by any licensing boards and may not qualify for the same credits; please consult your licensing board(s) to ensure that a structured, asynchronous learning format is appropriate. The following pre-approvals may be available for the on-demand format upon request:

6.5 HSW LUs (AIA)

Additional Learning

Handling Ethical Issues in Construction Contracting
- Wednesday, May 8, 2024 | 9:00 - 10:00 am CDT

Natural Ventilation Principles and Techniques
- Thursday, May 9, 2024 | 9:00 am - 4:00 pm CDT

2021 International Building Code Essentials
- Friday, May 10, 2024 | 8:30 am - 4:30 pm CDT

Building Electrical System Design Based on NEC 2023
- Monday, May 13, 2024 | 12:00 - 2:00 pm CDT

Adding Basements to Existing Buildings
- Wednesday, May 15, 2024 | 9:00 am - 4:00 pm CDT

Adding EV Charging Stations to Homes or Businesses
- Wednesday, May 15, 2024 | 1:00 - 3:00 pm CDT

Managing Engineering Liability and Risk
- Wednesday, May 15, 2024 | 8:30 am - 4:30 pm CDT

Building Power System Grounding and Bonding Based on NEC 2023
- Monday, May 20, 2024 | 12:00 - 2:00 pm CDT

Construction Contract Workshop
- Monday, May 20, 2024 | 8:30 am - 5:00 pm CDT

Determining Means of Egress Compliance Using the 2021 IBC
- Monday, May 20, 2024 | 8:30 am - 4:00 pm CDT

Managing Solar Gain
- Tuesday, May 21, 2024 | 9:00 am - 12:20 pm CDT

Developments in Fenestration
- Wednesday, May 22, 2024 | 9:00 am - 12:20 pm CDT

Deep Dive into Concrete and Rigid Pavements for Streets, Roads and Parking Areas
- Thursday, May 30, 2024 | 2:00 - 4:00 pm CDT

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