

Agenda

Presented by Jon Harrod, Ph.D.

Air-Source Heat Pump Science and Technology

- Indoor thermal comfort
- Principles of heat transfer
- The refrigeration cycle
- Components and operation of heat pumps: air-source, water-source and ground-source

Air-Source Heat Pump Efficiency, Economics and Operations

- Efficiency and energy savings
- Cooling, heating, and operation in subfreezing conditions
- Treatment under building and mechanical codes
- Integrating with other HVAC systems

System Sizing and Components

- Sizing and locating exterior units
- Sizing and locating interior units
- Duct systems
- Refrigerant lines
- Wiring and controls

Mini-Split Systems

- Applications for mini-split systems
- Sizing and locating exterior and interior units

Heat Pump Calculations and Balancing to Maximize Performance

- Commissioning
- Maintenance checks
- Duct balancing

Heat Pump Case Studies

- New construction
- Existing buildings

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Air-Source Heat Pumps for Residential and Small Commercial Buildings

Live, Interactive Webinar - Thursday, April 11, 2024

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Learning Objectives

You'll be able to:

Examine the principles of heat transfer.

Explore the components and operation of heat pumps: air-source, water-source, and ground-source.

Analyze air-source heat pump efficiency, economics, and operations.

Learn how to handle cooling, heating, and operation in subfreezing conditions.

Understand the sizing and locating exterior units and interior units.

Gain an understanding of the applications for mini-split systems.

Invest in commissioning, maintenance, and balancing to maximize performance.

Explore actual case studies using air-source heat pumps in cold climates.



HalfMoon Education Live Webinars

Air-Source Heat Pumps for Residential and Small Commercial Buildings

Live, Interactive Webinar - Thursday, April 11, 2024



Discuss the principles of heat transfer for air-source heat pumps

Review the efficiency, economics and operations for air-source heat pumps

Size and locate components for exterior and interior units

Explore applications for mini-split systems

Discuss how to maximize heat pump performance

Continuing Education Credits

Professional Engineers

7.0 PDHs

Architects

7.0 HSW CE Hours

7.0 AIA LU | HSW

International Code Council

.7 CEUs (Energy)

AIA
Continuing
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Provider



Webinar Information

Log into Webinar

8:30 - 9:00 am CDT

Break

12:15 - 12:45 pm CDT

Morning Session

9:00 am - 12:15 pm CDT

Afternoon Session

12:45 - 5:00 pm CDT

Tuition

\$319 for individual registration.

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Faculty

Jon Harrod, Ph.D

Snug Planet, Ithaca, NY

Dr. Harrod is a contractor, author and electrification advocate. In 2006 he founded Snug Planet, an award-winning home performance company based in Ithaca, New York. From its initial focus on energy audits and envelope improvements, Snug Planet has grown to offer whole-home solutions, including moisture management and HVAC upgrades. Snug Planet is an active participant in New York State residential programs serving low-income and market-rate customers. In early 2022, Snug Planet merged with Halco Energy, one of the largest home performance contractors in New York. Dr. Harrod is certified by the Building Performance Institute as a Building Analyst, Envelope Professional, Heating Professional, and AC/Heat Pump Professional. Dr. Harrod's articles have appeared in *Home Energy Magazine*, *Journal of Extension*, *Building Performance Journal*; and *ASHRAE Journal*. He is a regular contributor to *Green Building Advisor*.

Credit Information

This webinar is open to the public and is designed to qualify for 7.0 PDHs for professional engineers and 7.0 HSW 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 7.0 HSW LUs (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 Energy (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).

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7.0 HSW LUs (AIA)

Additional Learning

Wayfinding for Designers and Building Professionals

- Wednesday, March 13, 2024 | 9:00 am - 12:00 pm CDT
- Thursday, March 14, 2024 | 9:00 am - 12:00 pm CDT

Current Issues in New Urbanism

- Thursday, March 14, 2024 | 9:00 am - 4:00 pm CDT

Using RSMMeans Data to Create Cost Estimates

- Friday, March 15, 2024 | 9:00 am - 4:30 pm CDT

2021 International Residential Code: Plumbing Systems

- Tuesday, March 19, 2024 | 12:00 - 4:30 pm CDT

Cold Climate Residential Design

- Wednesday, March 20, 2024 | 9:00 am - 4:00 pm CDT

Sustainable Site Design

- Wednesday, March 20, 2024 | 8:30 am - 4:00 pm CDT

Public Water Systems

- Thursday, March 21, 2024 | 9:00 am - 4:30 pm CDT

Forensic Engineering Concepts & Case Studies

- Friday, March 22, 2024 | 7:30 am - 4:00 pm CDT

Foundation and Retaining Wall Damage and Repair: Science, Materials, and Techniques

- Friday, March 22, 2024 | 9:00 am - 4:30 pm CDT

Electrical Basics for Building Professionals: Understanding and Calculating Electrical Loads

- Tuesday, March 26, 2024 | 9:00 am - 12:15 pm CDT

Electrical Basics for Building Professionals: Residential Electrical Circuit Design

- Tuesday, March 26, 2024 | 1:00 - 4:15 pm CDT

Current Issues in Interior Design

- Tuesday, March 26, 2024 | 8:00 am - 4:30 pm CDT

Complying with the Uniform Plumbing Code 2021

- Tuesday, March 26, 2024 | 9:00 am - 4:30 pm CDT

Residential and Small Commercial Roof Design and Construction

- Thursday, March 28, 2024 | 9:00 am - 4:30 pm CDT

2021 International Residential Code: Electrical Systems

- Tuesday, April 2, 2024 | 12:00 - 4:30 pm CDT

Commercial and High-End Residential Deck Design and Construction

- Wednesday, April 3, 2024 | 9:00 am - 4:00 pm CDT

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