Agenda

Presented by Bart Bales, PE MSME

Overview of Systems to be Covered
- Air-source heat pumps, mini-splits, and ducted units for space heating
- Heat pump water heaters and air-source heat pumps for domestic hot water

Understanding How Heat Pumps Work
- Heat pump process cycle, terminology, and measures of performance
- COP (coefficient of performance)
- Performance in cold climates
- Air-to-air and air-to-water systems

Utilizing Air-Source Heat Pumps for Space Heating
- Cold-climate air-source heat pumps
- Products and manufacturers
- Examples and case studies
- Air-source heat pumps in commercial and residential use
- Proposed improvements to rating metrics for air-source heat pumps
- New construction and retrofit case studies
- Lessons learned

Examining Heat Pump Water Heater Performance & Air-Source Heat Pumps for Domestic Hot Water
- High-performance equipment options and recent developments
- Heat pump water heaters
- Products and manufacturers
- Examples and case studies
- Heat pump water heaters in residential use
- New construction and retrofit case studies
- Lessons learned

Examining Air-to-Water Heat Pumps for Domestic Hot Water
- Products and manufacturers
- Examples and case studies
- Air-to-water heaters in residential use in new construction and retrofit case studies
- Lessons learned

Pairing Heat Pumps with Solar Electric Systems in Net Zero Energy Residences

Roundup and Review

Air-Source Heat Pumps, Mini-Splits, and Heat Pump Water Heaters
Ronkonkoma, NY - Friday, January 17, 2020

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

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

Learning Objectives

You'll be able to:

Explain the heat pump process cycle, discuss heat pump terminology and review measures of performance.

Learn how heat pumps reduce occupants and owners' carbon footprints, and learn how they can be paired with solar electric systems to achieve net-zero energy goals.

Examine heat pump water heater performance and explore air-source heat pumps for domestic hot water.

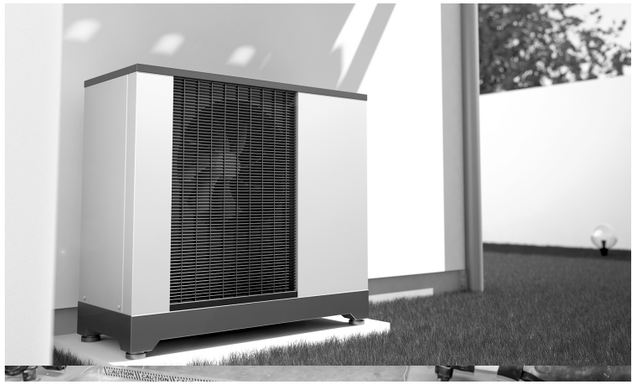
Explore air-to-water heat pumps for domestic hot water.

Review new construction and retrofit case studies.

Find us on Facebook

Air-Source Heat Pumps, Mini-Splits, and Heat Pump Water Heaters

Ronkonkoma, NY - Friday, January 17, 2020



Receive a thorough introduction to heat pumps: terminology, mechanics, and measures of performance

Evaluate air-source heat pumps for space heating

Explore heat pump water heater performance

Examine air-to-water heat pumps for domestic hot water

Discuss heat pumps paired with solar electric systems in net zero energy residences

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 LU|HSW

HalfMoon Education Inc.
WWW.HALFMOONSEMINARS.ORG

AIA Continuing Education Provider

Faculty

Bart Bales, PE MSME *Principal, Professional Consulting Engineer at Bales Energy Associates in Massachusetts*

Bales Energy Associates provides energy analysis, design, and implementation of high- performance, energy-efficient and renewable energy systems for buildings and facilities with an emphasis on a "whole-systems", building science-based approach. Mr. Bales' studies include detailed investigations and recommendations for temperature controls and building automation system optimization and improvement.

Bales Energy Associates provides study services for whole building energy analyses; high-performance mechanical design; and solar energy and wind energy systems analysis & design services. Mr. Bales is the principal of Bales Energy Associates and has effectively delivered energy engineering and HVAC design services for 30 years.

In recognition of the critical importance of heating systems in high-performance, energy-efficient, green buildings, Mr. Bales developed the following workshops:

High-Performance, Energy-Efficient 'Green Heating' Systems
Cold-Climate Heat Pumps, Pellet Boilers, & Other Renewable Thermal Heating Systems
Air-Source Heat Pumps, Mini-Splits and Heat Pump Water Heaters

Mr. Bales is a registered professional mechanical engineer in Massachusetts, Connecticut, New York, Rhode Island, and Vermont. His energy analysis experience and expertise includes comprehensive facility energy audits and feasibility studies for energy efficiency measures; combined heat and power (cogeneration) systems; and solar electric, solar thermal, and windpower systems.

Seminar Information

Courtyard by Marriott
Long Island MacArthur Airport
5000 Express Drive South
Ronkonkoma, NY 11779
(631) 612-5000

Registration
8:00 - 8:30 am
Morning Session
8:30 am - 12:00 pm
Lunch (on your own)
12:00 - 1:00 pm
Afternoon Session
1:00 - 4:30 pm

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/PDHs to professional engineers and 6.5 HSW continuing education hours to architects in all states.

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)).

This event is approved by the American Institute of Architects Continuing Education System for 6.5 LU|HSW (Sponsor No. J885). Visit *www.halfmoonseminars.org* to view complete AIA/CES information under this course 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.

This event offers a non-credit continuing education opportunity to construction contractors. It is not 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

National Electrical Code: Onsite Power Generation and Distribution

- **Part I**
  Wed., Dec. 4, 2019, 11:00 AM - 2:15 PM CST
- **Part II**
  Thurs., Dec. 5, 2019, 11:00 AM - 2:15 PM CST

Floodplain Mapping and Regulation

- **Floods, Floodplains and Introduction to Floodplain Management**
  Wed., Dec. 4, 2019, 11:00 AM - 12:30 PM CST
- **Flood Maps and Flood Zones**
  Wed., Dec. 4, 2019, 1:00 - 2:30 PM CST
- **Elevations in the National Flood Insurance Program (NFIP) and Floodplain Regulation**
  Thurs., Dec. 5, 2019, 11:00 AM - 12:30 PM CST
- **Practical Floodplain Management**
  Thurs., Dec. 5, 2019, 1:00 - 2:30 PM CST

Retaining Walls and Slope Stabilization

- **Retaining Wall Basics**
  Tues., Dec. 10, 2019, 11:00 AM - 12:00 PM CST
- **Geosynthetics and Retaining Walls**
  Tues., Dec. 10, 2019, 12:30 - 3:00 PM CST
- **Slope Stability and Geosynthetics**
  Wed., Dec. 11, 2019, 11:00 AM - 12:30 PM CST
- **Slope and Retaining Wall Failures, Fixes and Prevention**
  Wed., Dec. 11, 2019 , 1:00 - 3:00 PM CST

International Green Construction Code

- **Introduction to the International Green Construction Code (IgCC)**
  Wed., Dec. 11, 2019, 11:00 AM - 12:30 PM CST
- **IgCC Chapters 4-5: Site Development and Material Use**
  Wed., Dec. 11, 2019, 1:00 - 2:30 PM CST
- **IgCC Chapters 6-9: Energy, Water, Environmental Quality and Building Commissioning**
  Thurs., Dec. 12, 2019, 11:00 AM - 12:30 PM CST
- **IgCC Chapters 10-11: Existing Buildings**
  Thurs., Dec. 12, 2019, 1:00 - 2:30 PM CST

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

Registration

Air-Source Heat Pumps, Mini-Splits, and Heat Pump Water Heaters

Ronkonkoma, NY - Friday, January 17, 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: _____

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: *Mastercard, Visa, American Express, or Discover*

Credit Card Number: _____
Expiration Date: _____ CVV2 Code: _____
Cardholder Name: _____
Billing Address: _____
City: _____ State: _____ Zip: _____
Signature: _____
Email: _____

© 2019 HEI #20 NYASHPMS 1 17 RKKA TB