

Agenda

Presented by Jeffrey A. Smith and Tom Marsik

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
- Hybrid heat pumps

System Sizing and Components

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

Mini-Split Systems

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

Commissioning, Maintenance, and Balancing to Maximize Performance

- System commissioning
- Maintenance requirements
- Duct balancing

Heat Pump Case Studies

- Air-source heat pumps in cold climates
 - Air-source vs. other types of heat pumps in cold climates
 - Backup heat source and other cold climate considerations
 - Case studies and field performance in cold climates
 - Latest research in cold climate heat pumps
 - System approach (heat pump + efficient building envelope)



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Air-Source Heat Pumps for Residential and Small Commercial Buildings

Live, Interactive Webinar - Tuesday, October 8, 2024

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Learning Objectives

You'll be able to:

Understand the components in, and operation of, air-source heat pump systems.

Study heat pump efficiency and economics.

Learn about operating heat pumps in subfreezing conditions, and integrate heat pumps with other HVAC systems.

Size and locate interior and exterior units.

Consider applications for mini-split systems.

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



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Your LIVE Education Leader Presents

Air-Source Heat Pumps for Residential and Small Commercial Buildings

Live, Interactive Webinar - Tuesday, October 8, 2024



Learn about air-source heat pump science and technology

Discuss heat pump operation in subfreezing conditions

Explore system sizing and components

Consider mini-split systems

Learn about commissioning, maintaining and balancing heat pump systems

Continuing Education Credits

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7.0 PDHs

International Code Council

.7 CEUs (Energy)

Architects

7.0 HSW CE Hours

7.0 AIA LU | HSW

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Webinar Information

Online - Tuesday, October 8, 2024

Log into Webinar

8:30 - 9:00 am CDT

Break

12:10 - 12:40 pm CDT

Morning Session

9:00 am - 12:10 pm CDT

Afternoon Session

12:40 - 4:50 pm CDT

Tuition

\$339 for individual registration.

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Faculty

Jeffrey Smith *J.A. Smith Heating & Air Conditioning Inc.*

Mr. Smith is the founder and owner of J.A. Smith Heating & Air Conditioning, Inc. of Warminster, Pennsylvania. J.A. Smith Heating & Air Conditioning, Inc. has been in business for over 39 years and specializes in the residential and light commercial HVAC market in southeastern Pennsylvania counties of Bucks, Montgomery and Philadelphia and adjacent counties in New Jersey. The company employs 50 people and serves the new construction, retrofit, and service/maintenance markets. Mr. Smith's experience in the renewable energy HVAC field dates from involvement in numerous air-source heat pump installations starting in the early 1970's to the company's current focus on closed-loop geothermal installations. He holds an advanced CMS certification with the Refrigeration Service Engineers Society (RSES) and holds a master HVAC contractor's license with the state of New Jersey. In addition to running J.A. Smith Heating & Air Conditioning Mr. Smith has also been active in teaching HVAC-related topics on a local and national level since 1981. The agencies that he has presented for include: Refrigeration Service Engineers Society (RSES), National Association of the Remodeling Industry (NARI), American Society of Home Inspectors (ASHI), National Association of Home Inspectors (NAHI), Home Builders Association (HBA), Pennsylvania Power and Light (PPL). He has also volunteered his time and served as president of the Electrical Association of Philadelphia (EAP), as the chairman of the Middle Bucks Institute of Technology's (MBIT) local advisory committee, and as secretary of the Business Referral Network of Delaware Valley (BRN).

Tom Marsik

Professor, Alaska Center for Energy and Power, University of Alaska Fairbanks
Professor Marsik is a professor of Sustainable Energy at the University of Alaska Fairbanks Bristol Bay Campus and Alaska Center for Energy and Power. Professor Marsik has a joint position with the National Renewable Energy Lab and the Cold Climate Housing Research Center in Fairbanks, Alaska. He is passionate about research and education in the areas of energy and sustainability and utilizes the synergies of his joint position to benefit people in Alaska and beyond. Professor Marsik's passion is reflected in honors, including Alaska's Top Forty Under 40 award and recognition from the World Record Academy for designing and constructing the world's most airtight residential building on record. He has an M.S. degree in Electrical Engineering from the Czech Technical University in Prague, and a Ph.D. degree in Engineering from the University of Alaska Fairbanks. Dr. Marsik has numerous publications and has served on high-profile committees, including Alaska Governor Bill Walker's Transition Team and its Consumer Energy subcommittee. He has a very precious daughter whose face keeps reminding him to work hard on helping develop a sustainable future.

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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Additional Learning

Project Management for Engineers

- Friday, September 13, 2024 | 9:00 am - 5:30 pm CDT

Pumping and Piping Systems

- Thursday, September 19, 2024 | 9:00 am - 12:15 pm CDT

- Friday, September 20, 2024 | 9:00 am - 12:15 pm CDT

Reinforced Concrete Building Design and Construction

- Thursday, September 19, 2024 | 8:30 am - 4:30 pm CDT

Using RSMean Data to Create Cost Estimates

- Thursday, September 19, 2024 | 9:00 am - 4:30 pm CDT

Distinguishing Between Construction Defects and Failures

- Wednesday, September 25, 2024 | 1:00 - 3:00 pm CDT

Aerial Mapping for Land Surveyors and Civil Engineers

- Monday, September 30, 2024 | 9:00 am - 4:00 pm CDT

Solar Photovoltaic Covered Parking Facilities

- Monday, September 30, 2024 | 10:00 am - 12:00 pm CDT

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