

Agenda

Presented by John Ciovacco

Why Heat Pumps? Why Now?

- Buildings' green house gas contribution
- New York clean heating and cooling goals and policies
- Benefits and challenges to regulated utilities
 - Electric utilities
 - Natural gas utilities
- Important trends from recent utility rate cases

Introduction to Heat Pumps

- A brief history of heat pumps (not a new technology)
- Evolution of refrigerants used in heat pumps
- Major types of heat pumps
 - Air source, ground source and water source
- How a heat pump works
- Design principles for heat pump systems
- Operating and environmental comparisons with conventional systems

Heat Pump Conversions of Existing Buildings

- Selecting the best type of heat pump
- Potential changes to HVAC distribution systems
- Electrical requirements
- Do I need building envelope upgrades?

Heat Pumps in New Construction

- Approaches for single family, multi family and commercial developments
- Understanding installation and operating costs
- Design for low temperature heating distribution system
- How to achieve a net zero development

Innovative Applications of Heat Pumps

- Ground loop utility model
 - Single family and townhouse developments
 - Large commercial developments
- Simultaneous heating and cooling with VRF systems
- Campus heat recovery potential study
- Airport lake plate heat exchanger
- Large apartment complex with domestic wastewater energy recovery
- Sewage water cooled hockey rink chiller

Finding Heat Pump Resources for Your Project

- State and utility incentive and financing programs for heat pumps
- Identifying design and installation partners
- Heat pump manufacturers as sources of information
- Training and workforce development opportunities

Heat Pumps: The Centerpiece of Clean Heating & Cooling in Buildings

Albany, NY - Thursday, October 24, 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:

Distinguish the three main types of heat pumps and how they work to provide indoor comfort, reduce carbon-based energy usage, and provide financial savings for the owner/occupants.

Discuss the selection criteria for converting existing homes from traditional HVAC systems to heat pump systems in order to achieve owner/occupant goals of renewable heating and cooling and indoor comfort.

Use heat pump technology in different applications, including new single-family homes, townhouses, and large commercial developments.

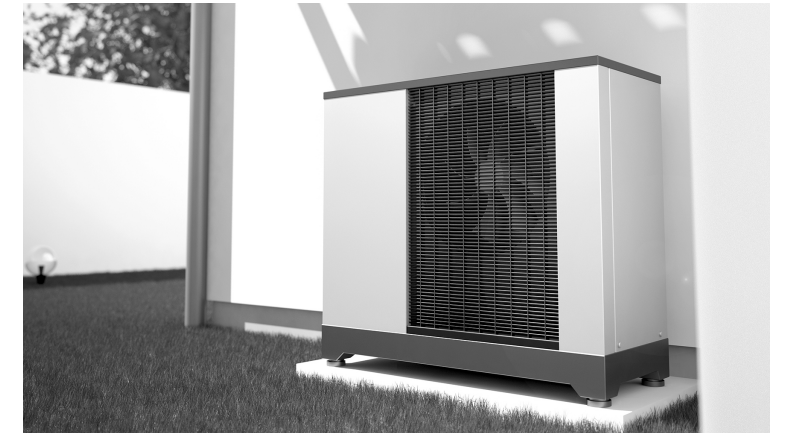
Compare the operating and environmental costs of conventional heating and cooling systems and heat pump systems with project owners so they can make informed decisions on selecting systems that benefit themselves or the occupants of the building.



Find us on
Facebook

Heat Pumps: The Centerpiece of Clean Heating & Cooling in Buildings

Albany, NY - Thursday, October 24, 2019



Review the history of, and design principles for, heat pumps

Consider how to install heat pumps in existing buildings

Explore the major types of heat pumps: air source, ground source and water source

Discuss innovative applications of heat pumps

Learn installation techniques and approaches for new single family, multi-family and commercial developments

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**

