



- Expand your HVAC knowledge.
- Earn PDH credits. ■ Learn from factory experts.



Achieve your potential.

Make plans to attend HVAC University at Greenheck.

Whether you're new to designing and specifying HVAC systems or a seasoned pro, you are sure to benefit from your attendance at Greenheck's HVAC University.

Developed specifically for HVAC design engineers, courses offer practical, relevant knowledge that will help you improve your understanding of the latest HVAC trends, applications, standards and codes.

- Earn PDH credits to help maintain PE registration or LEED accreditation.
- Interactive courses with experienced and knowledgeable factory engineers.
- Instructors who are involved with major industry associations developing standards that are evolving into codes.
- Choose from 25+ courses to meet your needs.
- Discuss applications for air movement, control and conditioning with an emphasis on sustainability.

There's a lot to learn and experience at HVAC University.

Here is just a sample of the 25+ courses we offer. For more information and a complete course list, visit www.greenheck.com/hvacu



Air-to-Air Energy Recovery



Hurricane Wind Forces



Electronically Commutated Motors and Controls



System Effect Demonstration

Registering is easy, and best of all your cost is sponsored by your local Greenheck rep!

If you would like to attend Greenheck's HVAC University, contact your local Greenheck representative for a list of courses and available dates. Your representative can help you make all the necessary arrangements, but hurry — classes fill up fast.

Contact your Greenheck rep to register today.



Understanding Sound



Selecting Efficient Fans and Fan Efficiency Grades



Seismic Applications



Selecting and Specifying Control Dampers for Energy Efficiency

What HVAC University graduates say...

“ The seminars were helpful in providing us with tools to engineer more energy efficient solutions to our projects that benefit our clients... a great benefit to our engineering team! ”

— Jason S., Engineer
Creative Environment Corp.

“ The classes were interesting and interactive. ”

— Brian M., Engineer
BR+A

“ I learned quite a bit and also took away information that should help us improve the quality of our selections, drawings and specifications for our clients. ”

— Bill G., LEED AP
Yeaton Associates

“ The Greenheck HVAC University was an excellent opportunity to expand my knowledge of current technologies as well as offering me an excellent opportunity to further advance my overall engineering skills and knowledge base. The product center was full of hands-on learning opportunities and displays, making the learning process truly enjoyable and educational. The University showed Greenheck's devotion to their products, clients and a desire to achieve energy efficiency in all engineering applications. ”

— Ben M., Engineer
Engineering Services of Vermont, LLC

“ The State-of-the-Art Engineering seminar provides an in-depth view of the most current HVAC technologies, design software and Greenheck's production capabilities. It was a great experience and lots of fun. I highly recommend the classes to all HVAC engineers. ”

— Bryan D., Engineer
BR+A



Achieve your potential.



715.359.6171 ■ greenheck.com



COURSE GUIDE



Achieve your potential.

GREENHECK EDUCATIONAL OPPORTUNITIES

Course Description

Professional Development Hours

COR-001 Applying State-of-the-Art Engineering Technology in Manufacturing

1

This course will introduce you to state-of-the-art engineering technology for designing and manufacturing world class HVAC equipment. You will observe and tour an AMCA Air chamber and rapid prototyping.

CAP-001 Increasing Design Efficiency Using Software

1

This course discusses how to be more efficient in the design process using Greenheck's software. It covers three major software; eCAPS®, CAPS, and Revit integration. Included is a demonstration on how to size, apply, specify, schedule and generate AutoCAD® or Revit® drawings for fans, energy recovery, packaged rooftop units, louvers, and dampers. Energy recovery payback analysis and other time-saving features are included.

FAN-002 Energy Codes and Their Impact on Fan Selection

1

This course will introduce fan energy efficiency metrics and how they are used for compliance with building and energy codes such as ASHRAE 90.1. Recent activities and future changes to efficiency metrics will be presented, providing up-to-date information needed for proper fan selection to minimize energy consumption.

FAN-009 System Effect Demonstration

.5

This course demonstration will identify the common causes that result in deficient fan performance. You will observe how "system effect" is caused by poor duct configurations on the fan inlet or outlet which affects catalogued performance. The four AMCA test methods to understand correct installation related to fan installation will also be discussed.

FAN-011 Laboratory Fume Exhaust

1

This course is aimed at familiarizing participants with the basics of laboratory ventilation and emphasizing the importance of codes and standards for laboratory design. AMCA's Induced Flow Ratings Seal will be explained along with a discussion on airflow measurement and controls. The differences between constant and variable volume systems will be discussed, energy recovery considerations for laboratories, and reducing fan energy in demand-based laboratory exhaust systems.

FAN-013 Understanding Air and Sound; Properly Specifying Fans to Meet Performance Requirements

1

Understanding and meeting air performance and acoustical criteria for HVAC applications are critical project requirements. This course reviews the fundamentals of air performance including nomenclature, reading fan curves and proper fan selections. Information regarding acoustical terminology will be presented along with the differences between sound power and sound pressure and how manufacturers acoustically test equipment.

FAN-014 HVLS Fan Design, Application, and Specification

1

This course covers the proper selection and specification of high volume, low speed (HVLS) fans for different applications. An overview of HVLS performance testing, performance data, safety and industry standards is included.

DPR-001 Life Safety Dampers

1

Developed to provide basic information on life safety dampers, this course discusses fire, fire smoke, smoke and ceiling radiation dampers and their UL testing requirements, application, and installation. Ease-of-use methods for installation as well as control options that can be supplied for life safety dampers will be presented.

LVR-001 Specifying Equipment for Surviving Hurricane Wind Forces

1

Equipment located in coastal applications are required to survive substantial wind loads, flying debris and/or wind-driven rain. This course will define equipment application criteria and review the current applicable standards and codes. Proper specification verbiage to meet Hurricane Prone Region applications will be presented, as well as a review of present and proposed future International Building Codes and the Florida Building Code.

Course Description

Professional Development Hours

TAP-001 Air-to-Air Energy Recovery

1

This course discusses the benefits of air-to-air energy recovery applied to ventilation systems and energy recovery technology (devices), pros and cons of available technology, psychometrics, payback analysis, and the latest energy standards and code mandates. An overview of typical energy recovery applications and design considerations such as frost protection, bypass, and controls is included.

TAP-002 Make-Up Air Ventilation

1

This course discusses make-up air systems used in commercial kitchens and industrial applications. Topics include heating and cooling technologies, energy reduction strategies, direct and indirect gas heating technology, controls, UL requirement for cooling in kitchens, demand-based ventilation for saving energy, processing make-up air, and building pressurization. Applications for 80/20 vs. 100% outdoor air, the benefits of direct-fired gas heat vs. other heating systems for warehouses, and codes and standards..

TAP-003 Conditioning High Percentages and 100% Outdoor Air

1

This course discusses common HVAC systems found in commercial and institutional applications and the methods used to condition high percentages of outdoor air with an overview and comparison of Single Zone Variable Air Volume (VAV), Multi-Zone Variable Air Volume (VAV) and Dedicated Outdoor Air Systems (DOAS). Significant reduction of energy use can be achieved by applying different equipment schemes. The benefits of applying total heat energy recovery, decoupling latent and sensible loads, different compressor technologies, economizer options modulating head pressure control, and high turndown furnaces are reviewed in detail. New codes and efficiency standards are also reviewed that apply to dedicated outdoors air systems.