

# Agenda

*Presented by Blair Richardson, P.E.*

## Reviewing Heating and Cooling Principles

- Purposes of HVAC systems
- Examining sensible and latent heat
- Principles of heat transfer
- Reviewing heat transfer equations for liquids and gases

## Ventilation and Air Infiltration Basics

- Establishing and maintaining thermal barriers
- Controlling moisture
- Natural ventilation and air infiltration
- Improving interior air quality

## Conventional and Green Building Codes

- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) standards and guidelines
- State and local residential and commercial codes
- LEED and other “green” rating systems

## Protection from COVID-19, Other Infections Aerosols, Allergens and Pollutants

- ASHRAE guidance
- Air circulation and filtration as methods of controlling spread of contaminants

## HVAC System Design Considerations

- Building occupancy
- Location and construction
- Making HVAC load calculations
- Unconditioned and conditioned spaces
- Single and multiple zone systems
- Sizing systems and using variable capacity systems

## Evaluating HVAC Systems and Equipment

- Heat pumps: air source and ground source
- Chilled water
- Variable refrigerant flow systems
- Forced air systems
- Radiant heat systems
- Constant volume and variable air volume systems
- Distribution systems: piping and ductwork

## HVAC System Controls

- Control system goals: maintain thermal comfort, reduce energy use, monitor performance
- Control system options

## Healthy HVAC Design Primer for Building Professionals

Live, Interactive Webinar - Friday, April 16, 2021

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## Learning Objectives

### You'll be able to:

**Identify** principles of heat transfer.

**Establish** thermal barriers, control moisture and improve interior air quality.

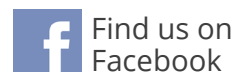
**Comply** with ASHRAE standards and conventional building codes.

**Explore** LEED and other green rating systems.

**Comply** with ASHRAE guidance for protection from infectious aerosols, allergens and pollutants.

**Evaluate** HVAC systems and equipment, including heat pumps, chilled water, forced air, radiant heat and variable air volume systems.

**Explore** air distribution systems as well as control system options.



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## Healthy HVAC Design Primer for Building Professionals

*Live, Interactive Webinar - Friday, April 16, 2021*



**Review** principles of heat transfer and moisture control

**Get tips on** sizing HVAC systems

**Discuss** ventilation requirements in conventional building codes and green rating systems

**Evaluate** HVAC systems, including heat pumps, forced air systems, and radiant heat systems

**Explore** ASHRAE guidance on control of COVID-19 and other infectious aerosols

**Examine** air distribution systems and control system options

### Continuing Education Credits

**Professional Engineers**  
7.0 PDHs

**AIA**  
7.0 LU | HSW

**Architects**  
7.0 HSW CE Hours

**International Code Council**  
.7 CEUs (Building)



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# Faculty

**Blair Richardson, P.E.** *BL Companies*

With close to ten years’ experience in the construction industry and a strong background in mechanical engineering, Mr. Richardson has gained a wealth of knowledge in energy efficiency, building science, and project management. Recently Mr. Richardson’s focus has been on energy efficiency and energy reduction in commercial and industrial buildings. In addition to saving energy through strategic and targeted energy conservation measures, he has been actively involved with energy-based financing, federal tax credits, utility rate negotiation, and state/local utility incentives. Mr. Richardson is a licensed professional engineer, and a board member of the Connecticut Chapter of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), and he is certified as a GeoExchange Designer through the Association of Energy Engineers. He earned his B.S. degree in Mechanical Engineering Technology from the University of Maine.

# Webinar Information

|                                           |                                         |
|-------------------------------------------|-----------------------------------------|
| Log into Webinar<br>8:00 - 8:30 am CDT    | Break<br>12:15 - 1:15 pm CDT            |
| Morning Session<br>8:30 am - 12:15 pm CDT | Afternoon Session<br>1:15 - 5:00 pm CDT |

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- Visit us online at [www.halfmoonseminars.org](http://www.halfmoonseminars.org)
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# Additional Learning

- How to Build a Sustainable Future**  
- Thurs, Mar 11, 2021 | 11:00 am - 2:15 pm CST

**Engineered Lumber Design and Construction**  
- Wed, Mar 17, 2021 | 8:30 am - 5:00 pm CDT

**Introduction to Green Infrastructure**  
- Wed, Mar 17, 2021 | 11:00 am - 2:30 pm CDT  
- Thurs, Mar 18, 2021 | 11:00 am - 2:30 pm CDT

**Residential Provisions of the International Energy Conservation Code (IECC)**  
- Wed, Mar 17, 2021 | 8:30 am - 5:00 pm CDT

**Drones in Construction**  
- Mon, Mar 22, 2021 | 10:00 am - 4:50 pm CDT

**Preventing and Addressing Construction Defects and Failures**  
- Tues, Mar 23, 2021 | 11:00 am - 2:15 pm CDT  
- Wed, Mar 24, 2021 | 11:00 am - 3:15 pm CDT

**Passive House: Planning and Design**  
- Tues, Mar 23, 2021 | 8:30 am - 4:30 pm CDT
- Designing for Climate Resilience**  
- Thurs, Mar 25, 2021 | 11:00 am - 2:45 pm CDT  
- Fri, Mar 26, 2021 | 11:00 am - 2:45 pm CDT

**Composite Steel, Concrete and Mass Timber Buildings**  
- Fri, Mar 26, 2021 | 9:00 am - 4:25 pm CDT

**Handling Ethical Issues in Construction Contracting**  
- Fri, Mar 26, 2021 | 10:00 - 11:00 am CDT

**Complying with Fair Housing Act Accessibility Requirements**  
- Tues, Mar 30, 2021 | 8:30 am - 4:45 pm CDT

**Fire-Resistant Landscapes and Construction**  
- Tues, Mar 30, 2021 | 10:00 am - 5:00 pm CDT

**Special Inspections under the International Building Code Chapter 17**  
- Tues, Mar 30, 2021 | 9:00 am - 4:00 pm CDT

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This webinar offers 7.0 PDHs to professional engineers and 7.0 HSW continuing education hours to architects licensed in all states.

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The International Code Council has approved this event for .7 CEUs in the specialty area of Building (Preferred Provider No. 1232).

Completion certificates will be awarded to participants who complete this event, respond to prompts and earn a passing score (80%) on the quiz that follows the presentation (multiple attempts allowed).

# Registration

**Healthy HVAC Design Primer for Building Professionals**  
Live, Interactive Webinar - Friday, April 16, 2021

| How to Register                                                                   |  | Registrant Information                                                                                                                                              |
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( ) **I will be attending the live webinar.** Single Registrant - **\$289.00**. Three or more registrants from the same company registering at the same time - **\$199.00** each.

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