

## TRAINING LEADERS



### **Donald Brandt, Member ASHRAE**

Donald Brandt has devoted his career to the HVAC industry. During his 39-year tenure with the Trane Company, he has held the positions of sales engineer, sales manager, trainer, facility manager and controls project manager. Don is the chair of the ASHRAE Professional Development Committee, and has been a committee member since 2011. He is also a member of the Standards Appeal Committee and the Energy Targets MTG.



### **Julian de Bullet, Life Member ASHRAE**

Julian de Bullet has over 40 years of HVAC industry experience in a career that has concentrated on the applications of chilled water and all-air systems. He is an ASHRAE Life member and served on the Board of Directors, including a term as Vice President (2001/2003). An ASHRAE Distinguished Lecturer, Julian has delivered over 300 seminars around the world on a variety of topics.



### **Julia Keen, Ph.D., P.E., Member ASHRAE, HBDP**

Julia Keen is an Associate Professor of Architectural Engineering and Construction Science at Kansas State University with a specialty in HVAC, energy codes and integrated building design. She has a Ph.D. in Curriculum and Instruction from Kansas State University where she also received Bachelor's and Master's degrees in Architectural Engineering. Julia is a licensed Professional Engineer and an ASHRAE-certified High-Performance Building Design Professional. She also has her own consulting engineering firm.



### **Joel Primeau, P.Eng., Member ASHRAE, HBDP, LEED® AP**

Joel Primeau leads teams of engineers and technicians in the design and construction of high-performance, sustainable facilities. He is currently working on an 18,500-seat multifunctional amphitheatre and two large eco-friendly neighborhoods complete with multi-residential, office and commercial facilities. Joel is a licensed Professional Engineer, ASHRAE-certified High-Performance Building Design Professional (HBDP), and a LEED® Accredited Professional.

### **Brittany S. (Project Manager) – Dallas, TX, USA**

"I'd recommend this class to any and every "green" engineer. This has by far been the best class I've taken being new to the industry. The notes that are provided are extremely useful to refer back to during my day-to-day work when addressing practical applications."

### **Hong D. (Mechanical Engineer) – Los Angeles, CA, USA**

"As an entry-level design engineer, new to the industry, I've gained an invaluable amount of knowledge from this course. The instructors were very knowledgeable and willing to share their experiences and industry insights. Just as valuable were my fellow attendees. From conversations with researchers to design engineers to owners and contractors, I have gained new perspectives of the industry, my role in it, as well as other players' roles in it."

### **Caroline M. (Sales Engineer) – Austin, TX, USA**

"This training has far exceeded my expectations. It provides a great overview of engineering concepts and fundamentals, systems design, commonly used HVAC equipment, control, codes, and much more. The content is provided in a very interactive manner where you have the opportunity to ask questions and discuss different industry practices. I highly recommend this training to anyone and everyone."

## Network Opportunities

Each HVAC Design Training provides numerous opportunities to network with fellow attendees and share your industry experiences.





# ASHRAE Complete Training in HVAC SYSTEM DESIGN

## HVAC Design: Level I – Essentials

Los Angeles, California, USA  
February 9–11, 2015

Atlanta, Georgia, USA  
March 16–18, 2015

Chicago, Illinois, USA  
May 18–20, 2015

Atlanta, Georgia, USA  
June 15–17, 2015

## HVAC Design: Level II – Applications

Los Angeles, California, USA  
February 12–13, 2015

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March 19–20, 2015

Chicago, Illinois, USA  
May 21–22, 2015

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## HVAC Design: Combined: Level I – II

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June 15–19, 2015

Register online today at: [www.ashrae.org/hvacdesign](http://www.ashrae.org/hvacdesign)

Call: 678-500-3917 Fax: 678-539-2152 Mail: ASHRAE, 1791 Tullie Circle N.E., Atlanta, GA 30329

☐ YES, I want to enroll in ASHRAE's HVAC Design Training

### Training

Training City \_\_\_\_\_ Training Date \_\_\_\_\_

### Who Will Be Attending

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

Method of Payment: ☐ Check ☐ Charge

Card #: \_\_\_\_\_ Cardholder's name: \_\_\_\_\_

Expiration date: \_\_\_\_\_ CID# \_\_\_\_\_

# ASHRAE Complete Training in HVAC SYSTEM DESIGN



## 2 Training Courses | 5 Days of **INTENSE** Instruction

Expand your knowledge and understanding in the fundamentals and technical aspects to design, install and maintain HVAC systems by incorporating the application of Standards 55, 62.1, 90.1 and 189.1.



The HVAC design training courses will prepare you to become a more effective, highly skilled engineering team member by:



- Gaining knowledge to make immediate contributions to design projects
- Participating in in-depth, practice-focused training
- Learning from industry leaders selected by ASHRAE
- Receiving free bonus reference resources valued at over \$200
- Earning continuing education credits

Keep your skills sharp in today's challenging HVAC industry.  
To maximize your learning experience, enroll today!

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# HVAC Design: Level I – Essentials

New graduates from technology or engineering schools enter the workforce often ill-equipped to deal with the challenges of their positions. They have limited skills or knowledge to design, install or maintain HVAC systems. ASHRAE's **HVAC Design: Level I – Essentials** training provides intensive, practical instruction that accelerates their transformation into effective members of a design, construction or facilities maintenance team.

Developed by industry-leading professionals selected by ASHRAE, the training provides attendees with the fundamentals and technical aspects of HVAC design. In addition to gaining in-depth knowledge and understanding to design, install and maintain HVAC systems, attendees will receive real-world examples of HVAC systems that can be put to immediate use. The training teaches a systematic approach to guide a design team to a solution that optimally meets the client's expectations. Engineered drawings of the ASHRAE Headquarters renovation will be incorporated to expose training participants to plan readings and graphics of system design.

## Who Should Attend

- Graduates who are new to the HVAC industry, consulting practices and engineering teams
- Facilities engineers with assigned HVAC responsibilities
- Experienced engineers who would benefit from a review of the basics and the new technology options to save energy
- Engineers, technicians and building operating personnel in career transition
- Architects who want to understand HVAC design

## How Your Firm Will Benefit

The training helps attendees understand:

- The need to improve overall building performance
- The technologies that lead to improved building performance
- The economics of sustainable buildings and the roles of the designer and facilities manager
- The basic skills needed to design high-performance buildings
- The skill sets required by designers of the future

## Course Outline (Actual outline may vary per training)

### DAY 1

- 8:00 Introductions
- 8:15 Fundamentals (Fan/Pump Laws, Refrigeration Cycle, U-Factor Calculations for Walls, Roofs and Windows)
- 9:15 Load Calculation (Manual Load Calculations and Heating and Cooling Loads)
- 10:00 Break
- 10:10 Load Calculation (continued)
- 11:30 Questions and Answers
- 11:45 Lunch
- 12:30 Psychrometrics
- 2:10 Break
- 2:20 Psychrometrics (continued)
- 3:10 Break
- 3:20 System Selection (Zoning, Over-/Under-Sizing, Life Cycle Cost, System Integration)
- 4:45 Questions and Answers
- 5:00 Wrap-up

### DAY 2

- 8:00 Design Process
- 9:00 Basic Design of Air Systems (Building Pressurization, Duct Design and Sizing, Pressure Drop Calculations, Diffuser Selection, Fan Selection)
- 10:00 Break
- 10:15 Basic Design of Air Systems (continued)
- 11:30 Questions and Answers
- 11:45 Lunch
- 12:30 Basic Design of Air Systems (continued)
- 1:00 Basic Design of Hydronic Systems (Pump Selection, Pipe Sizing, Pump Configurations/Arrangements, Piping Configurations/Arrangements, and Steam Design)

- 2:15 Break
- 2:25 HVAC Equipment (Air Moving Equipment, Cooling, Heating and Humidification)
- 3:30 Break
- 3:40 HVAC Equipment (continued)
- 4:45 Questions and Answers
- 5:00 Wrap-up

### DAY 3

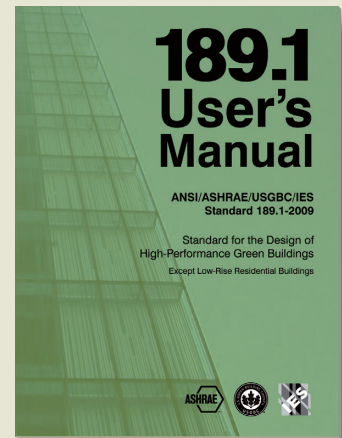
- 8:00 HVAC Systems
- 10:00 Break
- 10:15 HVAC Systems (continued)
- 11:00 Codes and Standards
- 11:30 Questions and Answers
- 11:45 Lunch
- 12:30 BAS Controls
- 1:30 Commissioning and Standard 180
- 2:15 Break
- 2:30 Introduction to Technical Sales
- 3:00 Project Management (Project Team, Project Scheduling, Documentation, Multi-disciplinary Team)
- 4:00 Q&A Session and Adjourn

### Chris B. (Mechanical Engineer) – Washington, DC, USA

“This has been a very informative and enlightening experience. This class certainly made the light bulbs go off. I will without a doubt take what I have learned back to the office and apply it to my everyday tasks, both troubleshooting and design. Great class and meaningful conversations and lecture material.”

### BONUS – FREE COPY of ASHRAE Green Standard and User’s Manual

Attendees each receive a free copy of ASHRAE Standard 189.1-2014 for the Design of High-Performance Green Buildings and the 189.1 User’s Manual – *a value of over \$200.*



### Melissa A. (Mechanical Engineer) – Greenville, SC, USA

“Great melting pot of knowledge and experiences from the presenters and attendees. The lessons I learned from the training can be directly applied to my everyday design work.”

### PDH and Continuing Education Units

ASHRAE is an approved Continuing Education (CE) Provider for AIA and partner for USGBC/GBCI. Continuing Education hours earned from ASHRAE courses may be applied toward renewal of state-licensed professions (Architects and Professional Engineers) and maintenance of LEED® credentials. Attendees of HVAC Design: Level I – Essentials can earn up to 18 Professional Development Hours.

# HVAC Design: Level II – Applications

ASHRAE's HVAC Design: Level II – Applications training provides participants with advanced instruction on HVAC system designs. The course is tailored for engineers with advanced experience in the HVAC design field, or those who completed **HVAC Design: Level I – Essentials**.

Developed by industry-leading professionals, the training provides advanced information that allows practicing engineers and designers an opportunity to expand their exposure to HVAC systems design procedures for a better understanding of system options to save energy.

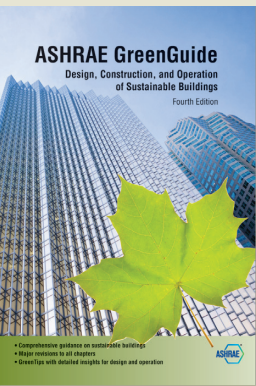
## Who Should Attend

- Engineers with HVAC design experience (3-10 years)
- Participants who attended the **HVAC Design: Level I – Essentials** training
- Facilities managers involved in new construction or major renovation projects
- Technicians who would like to gain thorough design knowledge
- Construction project managers involved with mechanical systems

## How Your Firm Will Benefit

The training helps attendees to:

- Refresh their skills
- Expand their exposure to systems and design procedures
- Acquire insights into the design process and common challenges
- Gain an advanced understanding of HVAC system options



## BONUS – FREE COPY of ASHRAE GreenGuide

Attendees receive a free copy of *ASHRAE GreenGuide: Design, Construction, and Operation of Sustainable Buildings*, 4th ed. – **a value of over \$100.**

## Course Outline (Actual outline may vary per training)

### DAY 1

- 8:00 Introductions
- 8:15 Sustainability/Green/LEED/HPB/NZEB
- 9:30 Standard 55
- 10:00 Break
- 10:10 Standard 55 (continued)
- 10:30 Standard 62.1
- 11:45 Lunch
- 12:30 Building Systems: Example 1 Education Facility (Chiller/Boiler, Air Handlers, VAV Terminals)
- 1:45 Break
- 2:00 Building Systems: Example 1 Education Facility (continued)
- 3:00 Break
- 3:15 Building Systems: Example 1 Education Facility (continued)
- 4:15 Questions and Answers
- 4:30 Wrap-up

### DAY 2

- 8:00 Building Systems: Example 1 Education Facility (continued)
- 10:00 Break
- 10:15 Building Systems: Example 2 Multi-story Office Building (Water-to-Water GSHP Option 1 Chilled Beam with DOAS)
- 11:45 Lunch
- 12:30 Building Systems: Example 2 Multi-story Office Building (continued)
- 1:15 Building Systems: Example 3 Multi-story Office Building (Water-to-Water GSHP Option 2 UFAD)
- 3:00 Questions and Answers/Adjourn

