Welcome to ASHRAE.

As an ASHRAE member, you are part of one of the strongest Societies leading the charge to a more sustainable future. The programs, publications, and benefits found in this guidebook exist because our members provided the support, and shared knowledge to make it all possible. We encourage you to learn more about the Society and what's available to you as a member.

Thank you for your support.
This is Your Society.

ASHRAE members around the world drive sustainability through the development of technical information and standards. By joining, you gain direct access to new technology and universally recognized technical information, and you influence the direction of HVAC&R technology.

Membership in ASHRAE encompasses students just starting their careers, Young Engineers in ASHRAE (YEA), professionals with several decades of service, and life members who have shaped the industry with their efforts and insight. Whether you fall into one of these categories or somewhere in between, there is a place for you in ASHRAE.

Membership provides:
- A one-year subscription to the ASHRAE Journal, and a digital subscription to the quarterly High Performing Buildings (HPB) magazine
- An annual revised copy from the four-volume ASHRAE Handbook series, as well as access to the ASHRAE Handbook Online, which provides access to all four Handbook volumes.
- Online Access to Science and Technology for the Built Environment
- Discounts on publications, courses, standards and conference registrations

www.ashrae.org/MyASHRAE
ASHRAE Community

ASHRAE Members span 130 countries across the globe. Over 180 Chapters, and 14 Regions offer members local networking, and learning opportunities. If you want to get the most out of your membership, get involved in your local ASHRAE Region and Chapter.

www.ashrae.org/MyCommunity
People Construct ASHRAE’s Sustainable Foundation

ASHRAE thrives on the input and experience of professionals in the building technology industry around the world, so we invite you to serve on our technical and standard project committees.

As a technical committee member, you help further ASHRAE’s efforts by assisting in planning programs for meetings, writing and reviewing Handbook chapters and assisting in developing research projects to improve equipment and system performance.

As a standard project committee member, you help write the Society’s standards and guidelines, which establish recommended design and operating practices embraced by the built environment community.

www.ashrae.org/MyParticipation
ASHRAE Conferences

ASHRAE conferences offer great opportunities to earn professional development hours (PDHs), keep up-to-date on the latest technologies, learn new skills, and network with colleagues.

ASHRAE’s Annual and Winter Conferences present the latest developments in the industry, and fundamental tried-and-true practices. These conferences feature peer-reviewed papers, presentations with hands-on information presented in a non-commercial format, and some 600 technical committee meetings on different technical areas of interest. The AHR Expo, the largest HVAC&R trade show in the world, is held in conjunction with the ASHRAE Winter Conference.

ASHRAE Specialty Conferences are organized around a specific topic, and are held around the world. These conferences also present peer-reviewed papers and non-commercial presentations. With an attendance of 200-300, these conferences provide excellent networking and in-depth coverage of technical topics.

Specialty Conferences include:
ASHRAE’s annual Building Performance Analysis Conference (previously Energy Modeling Conference) addresses the industry need for practical applications for modeling. The conference brings together practitioners, software developers and decision makers to advance the industry’s ability to better model buildings. This conference features the ASHRAE LowDown ShowDown energy modeling challenge.

Other ASHRAE Specialty Conferences include IAQ Conference series, High Performance Buildings, Cold Climates, Hot Climates, Developing Economies, K-12 Schools, and Ships.

www.ashrae.org/conferences

90.1 ECB Web Application – This web application automates the calculations needed to show a building project’s compliance with Standard 90.1-2010, using the Energy Cost Budget (ECB) method in the standard. The application allows users to input project parameters and then calculate the proposed design’s projected performance and compliance, with the results exportable in a workable spreadsheet for project use.

Standard 100 – ANSI/ASHRAE/IES Standard 100, *Energy Efficiency in Existing Buildings*, provides criteria for use in existing buildings and portions of the building to enable owners to increase the energy efficiency of systems and components and to improve the thermal performance of the building envelope.


189.1 User’s Manual – This Manual to the standard aids architects and engineers in applying the standard to design; general and specialty contractors in constructing buildings that are in compliance; and plan examiners and field inspectors in enforcing the standard where adopted into code. The Manual provides explanations of the standard’s requirements and examples of its application. It contains sample calculations, forms to demonstrate compliance and references to helpful resources and websites.

The Advanced Energy Design Guide Series – These guides offer contractors and designers a sensible and pre-modeled approach to easily achieve advanced levels of energy efficiency without having to resort to detailed calculations or analysis. The guides provide recommendations and how-to guidance using off-the-shelf technology for designing buildings using 30% and 50% less energy than buildings just meeting the minimum requirements. Visit www.ashrae.org/freeaedg for free, downloadable PDFs of 30% guides on small retail, small office buildings, K-12 school buildings,
warehouses and self-storage units, highway lodging and small healthcare facilities; and 50% guides on medium-to-big-box retail, small-medium office buildings, K-12 school buildings, grocery stores and large hospitals.

Procedures for Commercial Building Energy Audits, 2nd ed. – This publication defines best practices for energy assessment and analysis for energy consulting engineers, LEED® professionals, real estate professionals, building owners and building managers. It establishes guidelines for Levels 1, 2 and 3 of audit effort, and shows how to conduct effective energy audits that lead to actionable audit reports. This reference includes access to more than 25 guideline forms (also in spreadsheet format for easy customization).

ASHRAE GreenGuide – This is the essential reference and guide for HVAC&R systems and their role in sustainable building design. This book takes you step-by-step through the entire building life-cycle, from the early stages of a green building design project to construction, operation, maintenance and eventual demolition. Now available as an e-book.

ICC/ASHRAE 700 Standard – The 700 National Green Building Standard was developed by ASHRAE, the International Code Council and the National Association of Home Builders. The standard sets the bar for sustainable and high-performance residential construction and provides a pathway by which builders and developers may seek third-party certification of their new homes, developments and remodeling projects. Although voluntary, the NGBS serves as the basis for several federal, state and local green building programs.

ASHRAE Handbook – Continuously refined and updated, ASHRAE has published its Handbook series since the 1920s. The four volumes represent the accumulated wisdom and expertise of the Society’s worldwide membership and extensive research – all of it peer reviewed by hundreds of HVAC&R industry experts. The result: an unmatched depth and breadth in the latest and best application of HVAC&R technology – crucial to creating and maintaining sustainable buildings. Volumes cover HVAC applications, fundamentals, refrigeration, HVAC systems and equipment and a wide variety of applications. Digital and print editions available.

ASHRAE Journal – The Society’s official monthly publication and member benefit, the Journal speaks to and for the HVAC&R industry leaders in engineering. Articles are peer-reviewed and focus on technical issues, including green building, indoor air quality, energy management, thermal storage and alternative refrigerants. Special features cover topics such as sustainability, refrigeration application, controls and interoperability and legal issues.
ASHRAE Tools for LEED® v4 – The U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED®) v4 takes advantage of new technologies and advancements in building science to enhance energy efficiency and further reduce CO₂ emissions. The program has grown to cover more areas, and the standards are tighter. To stay up to speed, ASHRAE offers Tools for LEED® v4, which includes:

- Standard 90.1-2010, Energy Standard for Buildings Except Low-Rise Residential Buildings,
- 90.1-2010 User’s Manual
- Standard 62.1-2010, Ventilation for Acceptable Indoor Air Quality
- Standard 62.2-2010, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings
- Standard 55-2010, Thermal Environmental Conditions for Human Occupancy
- Procedures for Commercial Building Energy Audits, 2nd ed.
- Guideline 0-2005, Commissioning Process for Existing Building Systems and Assemblies
- Guideline 1.1-2007, HVAC&R Technical Requirements for the Commissioning Process

High Performing Buildings Magazine – This quarterly magazine is read by building owners, facility managers, architects and engineers who work on sustainable and efficient building projects. Each issue features case studies of the best performing buildings in the world. The authors, all of whom worked on the project, cover the benefits of the building’s innovative technologies and measured performance. What sets HPB apart is that its case studies provide at least one year’s worth of operational data to show if the building is performing at expected levels.

Free Print Subscription
Free print subscriptions of High Performing Buildings are mailed to qualified architects, facility managers and building owners residing in the U.S. and Canada. ASHRAE members receive a digital subscription to High Performing Buildings free of charge. Free digital subscriptions are offered to qualified professionals throughout the world.

Visit [www.hpbmagazine.org](http://www.hpbmagazine.org) to view current and past issues and additional sustainability resources and information.
Learn from ASHRAE Learning Institute

ASHRAE Learning Institute (ALI) offers a wide range of professional development training in a variety of lengths and modes of delivery. Courses are developed and taught by subject matter experts.

ASHRAE is an approved Continuing Education provider for the American Institute of Architects (AIA) and a USGBC Education Partner. Continuing Education hours earned from ASHRAE courses may be applied toward renewal of state-licensed professionals and maintenance of LEED® professional credentials.

Instructor-Led Training
Full-day (6-hour) Professional Development Seminars and half-day (3-hour) Short Courses pertaining to sustainable design include:

- Understanding Standard 189.1-2014 for High-Performance Green Buildings
- Commissioning Process and Standard 202
- Basic and Advanced High-Performance Building Design
- Exceeding Standard 90.1-2013 to Meet LEED Requirements
- Air-to-Air Energy Recovery Fundamentals and Applications
- Standard 62.1-2013: Multiple Spaces Equations & Spreadsheets
- Evaluation Methods for High-Performance Green Buildings
- Designing Toward Net Zero Energy Commercial Buildings
- Designing Tall, Supertall and Megatall Building Systems
- Integrated Building Design

www.ashrae.org/education
Online Course Series
Real-time instructor-led online courses presented by industry experts on popular HVAC&R topics.

Visit www.ashrae.org/onlinecourses for course scheduling.

HVAC Design Training
ASHRAE Learning Institute offers two intensive HVAC Design training sessions that fill the need to improve overall building performance.

HVAC Design Level I - Essentials provides intensive, practical training ideal for recent technical or engineering school graduates, engineers new to the HVAC field, those who need a refresher in new technologies, and facility managers, sales representatives and others who want to gain a better understanding of HVAC fundamentals, equipment and systems.

HVAC Design Level II – Applications provides instruction in HVAC system design for experienced HVAC engineers and those who have completed the HVAC Design: Level I – Essentials. The training covers the technical aspects of design and allows participants an opportunity to expand their exposure to HVAC systems applications to increase energy savings and improve indoor environmental quality.

Visit www.ashrae.org/hvactraining for the complete list of training dates and locations.

Improving Existing Building Operation describes how to maximize the energy efficiency and increase the performance of HVAC systems in existing buildings. The training also introduces different methods for evaluating potential improvement options to a building and its systems.
Self-Directed Learning
Text-based, fundamental courses available through the ASHRAE Bookstore. Visit www.ashrae.org/sdl for the list of courses, descriptions and prices.

eLearning
ASHRAE eLearning offers more than 80 courses, ranging in length from one to eight hours. Most courses are recognized by the American Institute of Architects, and courses on green building design and performance by the Green Building Certification Institute, so subscribers can select a course exactly fitting their professional training requirements. ASHRAE eLearning allows you to learn at your own pace and when convenient. Courses contain interactive exercises that enable you to engage, and retain what you have learned.

www.ashrae-elearning.org

Current Courses:
- Building Performance
- System Design
- Sustainability
- Loads and Modeling
- Fundamentals: HVAC Systems
- Components and Equipment
- System Essentials
- Air Systems
- Hydronic Systems
- Special Systems
- HVAC Control Systems – I-P
- HVAC Control Systems – SI
- DDC Controls – I-P
- DDC Controls – SI
- AC and Refrigeration Principles
- Electrical System Design
- Standard 62.1: Ventilation for Acceptable Indoor Air Quality
- Standard 90.1: Energy Standard for Buildings
- Standard 189.1-2011 – High Performing Green Buildings
- Data Center Design
ASHRAE Certification

Building owners want to know who they should hire to design critical building systems that will impact occupant comfort, safety, efficiency and – ultimately – profitability. Already recognized by over 30 national, state and local government bodies and with over 2,500 certifications earned, ASHRAE certifications increasingly have become the must-have credential for built-environment professionals. Developed by industry practitioners who understand the knowledge, skills and abilities critical to superior building design and system operation, earning an ASHRAE certification today can be a springboard to continued success tomorrow.
High-Performance Building Design Professional (HBDP) – The HBDP certification, an ANSI accredited certification program, validates competency to design and integrate sustainable HVAC&R systems into high performing buildings. The program was developed in collaboration with the Illuminating Engineering Society of North America (IES) and the Mechanical Contractors Association of America (MCAA) and with input from the U.S. Green Building Council (USGBC) and the Green Building Initiative (GBI). [www.ashrae.org/HBDP](http://www.ashrae.org/HBDP)

Building Energy Assessment Professional (BEAP) – The BEAP certification, an ANSI accredited certification program, validates competency to audit, assess and analyze residential, commercial and industrial building energy use and develop related recommendations. The program was developed in collaboration with representatives from ASHRAE's Building Energy Quotient (bEQ) program, IES, National Institute of Building Sciences (NIBS), Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) and Testing, Adjusting and Balancing Bureau (TABB). [www.ashrae.org/BEAP](http://www.ashrae.org/BEAP)

Building Energy Modeling Professional (BEMP) – The BEMP certification, an ANSI accredited certification program, validates competency to model new and existing buildings and systems, and as well evaluate, select, use, calibrate and interpret the results of energy modeling software when applied to building and systems energy performance and economics. The program was developed in collaboration with the U.S. affiliate of the International Building Performance Simulation Association (IBPSA-USA) and IES. [www.ashrae.org/BEMP](http://www.ashrae.org/BEMP)

Building Commissioning Professional (BCxP) – The BCxP certification validates competency to lead, plan, coordinate and manage a commissioning team to implement commissioning processes in new and existing buildings. This ASHRAE certification program validates competency against Better Buildings Workforce Guidelines requirements for the Building Commissioning Professional certification, with the goal of achieving by June, 2017 Department of Energy (DOE) recognition of services provided by BCxP certificants. [www.ashrae.org/BCxP](http://www.ashrae.org/BCxP)

Operations & Performance Management Professional (OPMP) – The OPMP certification validates competency to manage facility operations and maintenance to achieve building performance goals, including those related to indoor environmental quality, health and safety. The program was developed in collaboration with APPA and the U.S. General Services Administration (GSA). [www.ashrae.org/OPMP](http://www.ashrae.org/OPMP)

Healthcare Facility Design Professional (HFDP) – The HFDP certification validates competency to incorporate standards, guidelines and regulatory codes as well as unique healthcare facility requirements and design principles in HVAC system design. The program was developed in collaboration with the American Society for Healthcare Engineering (ASHE) of the American Hospital Association (AHA). [www.ashrae.org/HFDP](http://www.ashrae.org/HFDP)