

ASHRAE Hong Kong Chapter Seminar on
Introduction of ASHRAE Professional Certification Programs
23 Sep 2015 (Wed)



ASHRAE Certification Programs

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About ASHRAE

- **ASHRAE** = American Society of Heating, Refrigerating and Air-Conditioning Engineers
- Founded in 1894, a global society advancing human well-being through sustainable technology for the built environment
- Focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability





ASHRAE Certification

- ASHRAE certification programs:
 - Created to meet industry needs as identified through market research
 - Based on best practices
 - Developed by ASHRAE-identified practitioners, so ASHRAE Certifications are reliable, credible, unbiased
 - Computer-based examinations at local testing centers worldwide (or pencil-based examinations)
 - Benchmarking with ANSI standards



ASHRAE Certification

- What's the Value?
 - *“Stand out from the Crowd.”* Be identified with cutting edge building design and operation.
 - *“The Certification ASHRAE Stands Behind.”* Your earning a certification is ASHRAE's acknowledgement that you understand the relevant body of knowledge and meet educational and experience requirements.
 - *“Feel Qualified?”* Although ASHRAE identifies resources to prepare for its certifications, there is no requirement to purchase a book or attend a class. You simply must meet the eligibility criteria.



Certified

Energy Assessment ➤

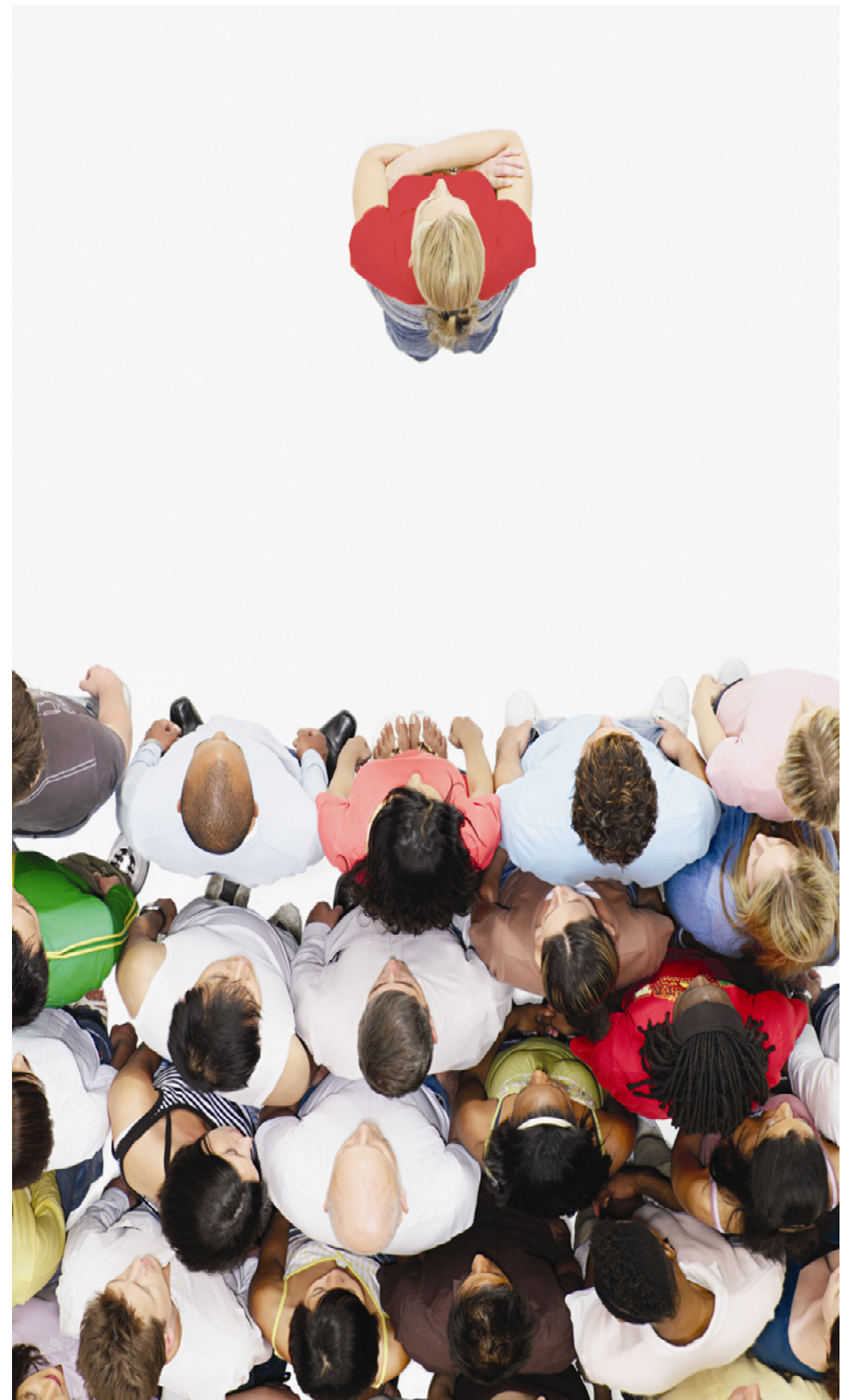
Energy Modeling ➤

Commissioning ➤

*Healthcare
Facility Design* ➤

*High-Performance
Building Design* ➤

Building Operations ➤





ASHRAE Certification

- Benefits to Certification Earners*
 - Enhance your credibility
 - Expand your industry knowledge
 - Demonstrate your commitment to improving yourself, your work product, and the industry
 - Improve your options for being hired or promoted and to generate new business

* Video: The Value of ASHRAE Certification (4:12)

<http://www.youtube.com/watch?t=5&v=8ZphnrHDrjo>



ASHRAE Certification

- Benefits to Employers
 - Demonstrate corporate commitment to excellence by employing qualified engineers
 - Improve morale by supporting professional advancement
 - Distinguish your firm from the competition by employing ASHRAE-certified engineers
 - Know whom to hire, promote and assign important projects



ASHRAE Certification

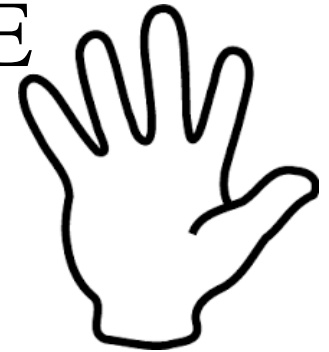
- ASHRAE currently offers 6 certification programs
 - Building Energy Assessment Professional ([BEAP](#))
 - Building Energy Modeling Professional ([BEMP](#))
 - Commissioning Process Management Professional ([CPMP](#))
 - Healthcare Facility Design Professional ([HFDP](#))
 - High-Performance Building Design Professional ([HBDP](#))
 - Operations & Performance Management Professional ([OPMP](#))

| Certification Program | Relevant Experience and Knowledge |
|---|--|
| Building Energy Assessment Professional (BEAP) | Building energy audit, building energy management, building services systems (design, installation, and/or management) |
| Building Energy Modeling Professional (BEMP) | Building energy simulation, energy modeling software, building energy analysis, building services systems (design and/or installation) |
| Commissioning Process Management Professional (CPMP) | Building testing and commissioning, facilities operations/management, construction, design, or consulting |
| Healthcare Facility Design Professional (HFDP) | Healthcare HVAC&R design, medical equipment & procedures, healthcare facilities operation & maintenance |
| High-Performance Building Design Professional (HBDP) | HVAC&R design, sustainability concepts, energy analysis, indoor environment, controls, energy and environmental performance, water conservation, commissioning, building operation & maintenance |
| Operations & Performance Management Professional (OPMP) | Facility operations/management, construction, design, or consulting, Facility life cycle, O&M program, building performance management, communications, environmental, health & safety |



ASHRAE Certification

- 5 Steps to Earn and Maintain an ASHRAE Certification



- Step 1: Read the Candidate Guidebook
 - It contains important information related to the examination, including eligibility criteria. Download the guidebook at www.ashrae.org/certification
- Step 2: Complete the Application
 - Complete the online application form at www.ashrae.org/certification or call customer service at 1-800-527-4724 (US and Canada) or 404-636-8400 (Worldwide)

BEAP Eligibility Requirements

Any individual who meets **one** of the following combinations of academic and work experience criteria will be eligible to take the BEAP examination.

- Government-issued or government-recognized license as a professional engineer, architect, or building contractor, and a minimum of two (2) years' building energy assessment experience

OR

- Minimum of Bachelor's degree in engineering or a related field (e.g., building science, architecture, physics, or mathematics) from an accredited institution of higher learning and a minimum of three (3) years' energy-related HVAC, architecture, lighting, envelope, or renewable energy experience, including a minimum of two (2) years' building energy assessment experience

OR

- Associate's degree or Technical degree or certificate in design, construction, or a related field from an accredited institution of higher learning and a minimum of five (5) years' energy-related HVAC, architecture, lighting, envelope, or renewable energy experience, including a minimum of two (2) years' building energy assessment experience

OR

- High School diploma or equivalent and a minimum of eight (8) years' energy-related HVAC, architecture, lighting, envelope, or renewable energy experience, including a minimum of two (2) years' building energy assessment experience.

BEMP Eligibility Requirements

Any individual who meets one of the following combinations of academic and work experience criteria will be eligible to take the BEMP examination.

- Government-issued or government-recognized license as a professional engineer or architect and a minimum of 2 years' building energy modeling experience

OR

- Minimum of Bachelor's degree in engineering or a related field from an accredited institution of higher learning and a minimum of 5 years' energy-related HVAC, architecture, lighting, or renewable energy experience, including a minimum of 2 years' building energy modeling experience; up to 2 years of graduate studies at an accredited institution of higher learning can be counted toward the 5 years' experience in this category

OR

- Associate's degree or Technical degree or certificate in design, construction, or a related field from an accredited institution of higher learning and a minimum of 7 years' energy-related HVAC, architecture, lighting, or renewable energy experience, including a minimum of 2 years' building energy modeling experience

OR

- High School diploma or equivalent and a minimum of 10 years' energy-related HVAC, architecture, lighting, or renewable energy experience, including a minimum of 2 years' building energy modeling experience.

ASHRAE Certification

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- 5 Steps to Earn and Maintain an ASHRAE Certification (cont'd)

- Step 3: Schedule an Examination

- The exam is available at testing centers around the globe. See a complete list of locations at

- www.ashrae.org/certification

- Schedule online or by telephone with Applied Measurement Professionals, Inc. (AMP) (www.goamp.com), ASHRAE's exam development and test delivery partner



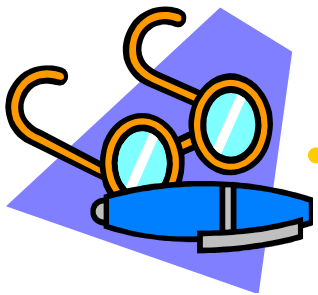
ASHRAE Certification

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- 5 Steps to Earn and Maintain an ASHRAE Certification (cont'd)

- Step 4: Review Available Resources

- The Candidate Guidebook and related web page identify available resources that may help candidates gain an understanding of the body of knowledge the examination tests
- Available resources include ASHRAE-owned and non-ASHRAE owned publications and courses.
- Some candidates pass the examination from their working knowledge and familiarity with industry standards, guidelines, and other publications.



Relevant Resources for HBDP Certification

ASHRAE Standards and Guidelines

ANSI/ASHRAE Standard 55-2004 – Thermal Environmental Conditions for Human Occupancy

ANSI/ASHRAE Standard 62.1-2007 – Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE/IESNA Standard 90.1-2004 – Energy Standard for Buildings Except Low-Rise Residential Buildings and 2007 update

ANSI/ASHRAE/IESNA Standard 90.1-2004 User Manual

ASHRAE Guideline 0-2005 – The Commissioning Process

ASHRAE Guideline 1-1996 – The HVAC Commissioning Process

ASHRAE Guideline 4-1993 – Preparation of Operating and Maintenance Documentation for Building Systems

ASHRAE Guideline 14-2002 – Measurement of Energy and Demand Savings

ASHRAE Design Guides

ASHRAE GreenGuide: The Design, Construction, and Operation of Sustainable Buildings, 2nd Edition (2006)

ASHRAE/AIA/IESNA/USGBC/USDOE Advanced Energy Design Guide for Small Office Buildings: Achieving 30% Energy Savings Toward a NetZero Energy Building (2004) (Print edition)

ASHRAE/AIA/IESNA/USGBC/USDOE Advanced Energy Design Guide for Small Office Buildings: Achieving 30% Energy Savings Toward a NetZero Energy Building (2006) (Print edition)

ASHRAE Courses

Fundamentals of ANSI/ASHRAE/IESNA Standard 90.1 – ASHRAE eLearning

Compliance with Standard 90.1

Exceeding the Requirements of Standard 90.1-2007

The Commissioning Process in New and Existing Buildings

Complying with Requirements of ASHRAE Standard 62.1-2007

Relevant Resources for OPMP Certification

ASHRAE Standards and Guidelines

ANSI/ASHRAE Standard 15-2007 – Safety Standard for Refrigeration Systems

ANSI/ASHRAE Standard 55-2004 – Thermal Environmental Conditions for Human Occupancy

ANSI/ASHRAE Standard 62.1-2004 – Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE/IESNA Standard 90.1-2004 – Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings

ANSI/ASHRAE/IESNA Standard 100-2006 – Energy Conservation in Existing Buildings

ANSI/ASHRAE/ACCA Standard 180-2008 – Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems

Guideline 0-2005 – The Commissioning Process

Guideline 4 – 2008 – Preparation of Operating and Maintenance Documentation for Building Systems

Guideline 12-2000R – Minimizing the Risk of Legionellosis Associated with Building Water Systems

ASHRAE Courses

The Commissioning Process & Guideline 0

Fundamentals of Standard 90.1

Fundamentals of Standard 62.1

ASHRAE Certification

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- 5 Steps to Earn and Maintain an ASHRAE Certification (cont'd)
 - Step 5: Renew Your Certification
 - Each certification holder must earn 45 ASHRAE Continuing Education units (ACEs) during the 3 year period following initial certification or the last renewal.
 - ACEs can be earned through attendance at or participation in ASHRAE-sponsored and non-ASHRAE-sponsored educational activities. The activities must be technical in nature and must be related to the topic of the certification.
 - Most activities that are acceptable for license renewal will also be acceptable for certification renewal.





ASHRAE Certification

- Recognition
 - Certification earner directory on the ASHRAE Website*
 - New certificants listed in Insights
 - News release prepared and sent from ASHRAE
 - Certification designation and ASHRAE-Certified logo on business cards, letterhead, email and websites, as well as in proposals/bids.

* Find an ASHRAE Certified Professional

<https://www.ashrae.org/certification/find-an-ashrae-certified-professional>



ASHRAE Certification

- Application Fees

- Examination:

- \$295 for ASHRAE members; \$415 for non-members

- Initial Retake: (after 90 days wait period)

- \$125 for ASHRAE members; \$175 for non-members

- Second Retake: (full price)

- \$295 for ASHRAE members; \$415 for non-members

- Renewal: (every 3 years)

- \$125 for ASHRAE members; \$195 for non-members

- Further information:

- <http://www.ashrae.org/certification>



ASHRAE Certification

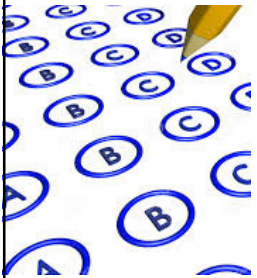
- Preparation for the exam
 - The best preparation is your work experience, as it is an exam on competence in critical job tasks, and their related knowledge, skills and abilities
 - Resources on the related web page:
 - Candidate Guidebook
 - Detailed Content Outline (DCO)
 - A list of exam study tips, three sample exam items and a list of key resources for possible study
 - A convenient, 30-question, online practice exam (\$39)



ASHRAE Certification

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- About the exam
 - Each exam is closed book/notes and has 115 multiple-choice items [A, B, C, or D] of which 100 will be scored (15 items for pre-test or trial)
 - Duration: 2 hours for HFDP, 2.5 hours for all other exams
 - The Candidate Guidebook will show
 - Major content areas (and number of items devoted to each area)
 - Number of items at each cognitive level in each area



ASHRAE Certification

- About the exam (cont'd)
 - The three cognitive levels are tested:
 - 1. Recall: The ability to remember or recognize specific information
 - 2. Application: The ability to comprehend, relate, or apply knowledge to new or changing situations
 - 3. Analysis: The ability to synthesize information – sometimes from a variety of sources, determine solutions, and/or evaluate the usefulness of a solution
 - Be sure to provide an answer for each question. There is no penalty for guessing.





ASHRAE Certification

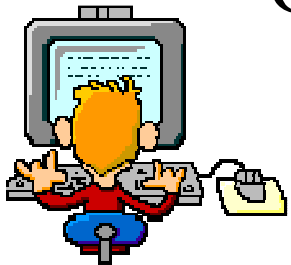
- After the exam
 - Candidates will receive a result of "pass" or "fail," as well as a numerical score, but ASHRAE does not publish the scores need to pass
 - The passing score can be different for different certification exams
- If one fails the exam, he/she must wait at least 90 days before retaking the exam

ASHRAE Certification

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- Two formats of the exam:

- Online (computer-based)



- Before the actual timed exam, a candidate will be given a practice session to try answering questions on the computer
 - An exam question may be left unanswered for return later, or it may also be bookmarked for later review

- Pencil-based



- Onsite exams during ASHRAE Winter and Annual Meetings, at some conferences, or arranged by some local ASHRAE chapters



ASHRAE Certification

- Certification for People
 - BEAP, BEMP, CPMP, HFDP, HBDP, OPMP



- Certification for Buildings
 - Building Energy Quotient (bEQ)
 - On building energy performance



Be Recognized as a *High Performer*



Be ASHRAE Certified

www.ashrae.org/certification