

This is ASHRAE



- ASHRAE Overview
- Standards
- Research
- Publications
- Education/Certification
- Student Members/Associate Members/Young Engineers in ASHRAE
- ASHRAE Conferences



ASHRAE Overview

ASHRAE

Who We Are

- Founded in 1894
- 54,000+ volunteer members in over 130 countries
 - 5,000+ student members
 - 14 regions
 - 179 chapters
 - 312 student branches

Who We Are

- Industry Classification
 - Consulting engineers
 - Contractors
 - Manufacturers
 - Manufacturing representatives
 - Government, health and education
 - Design build
 - Architects
- U.S./Canada (43,000+)
- Global (10,000+)



What We Do

- Serve as pipeline for technical information to members, chapters and companies
- Create standards and technical guidelines to serve built environment
- Offer continuing education for industry professionals
- Serve as networking tool for industry professionals

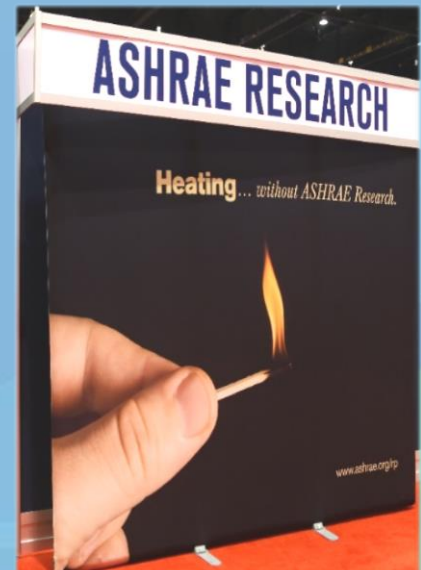
How We Do It

- 27 standing committees
- 130 standards and guidelines committees
- 100+ technical committees
- 300+ publications
- Six certification programs
- 100+ educational courses
- Research



What Makes Us Different

- A global membership
- Members create our built environment technologies
- Largest publishing program in field
- One of few HVAC&R organizations in world with its own research program

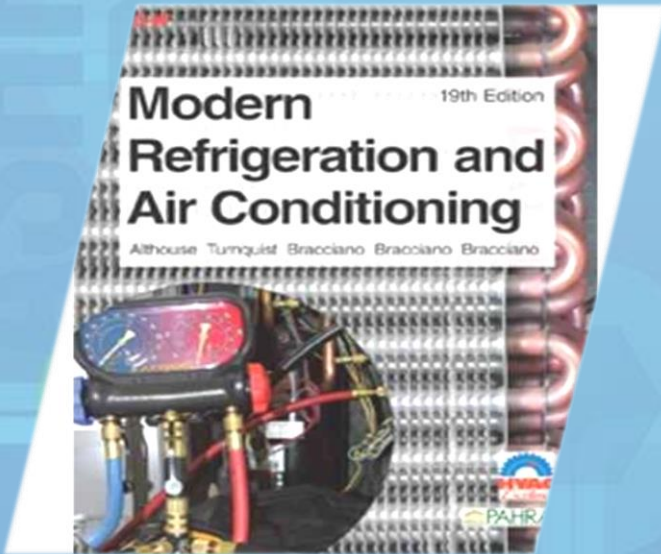


ASHRAE Mission

- To advance the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world.

ASHRAE Vision

- ASHRAE will be the global leader, the foremost source of technical and educational information, and the primary provider of opportunity for professional growth in the arts and sciences of heating, ventilating, air conditioning and refrigerating.



ASHRAE Core Values

- **Excellence**

ASHRAE education, technical information and all other activities and products will always reflect the best practices that lead our industry. We strive for continuous improvement and innovation in all our practices and products.

- **Commitment**

ASHRAE and its members are passionate about serving the built environment, creating value, and recognizing the accomplishments of others.

- **Integrity**

ASHRAE is committed to the highest ethical standards. We work transparently, observing essential requirements for due process and peer reviews to assure our members and stakeholders that we do the right things the right way.

ASHRAE Core Values

- **Collaboration**

ASHRAE seeks and embraces collaborative efforts with organizations, agencies, and individuals sharing our commitment to sustainable built environments.

- **Volunteerism**

Members lead ASHRAE at every level, serving ASHRAE and helping ASHRAE serve society.

ASHRAE Code of Ethics

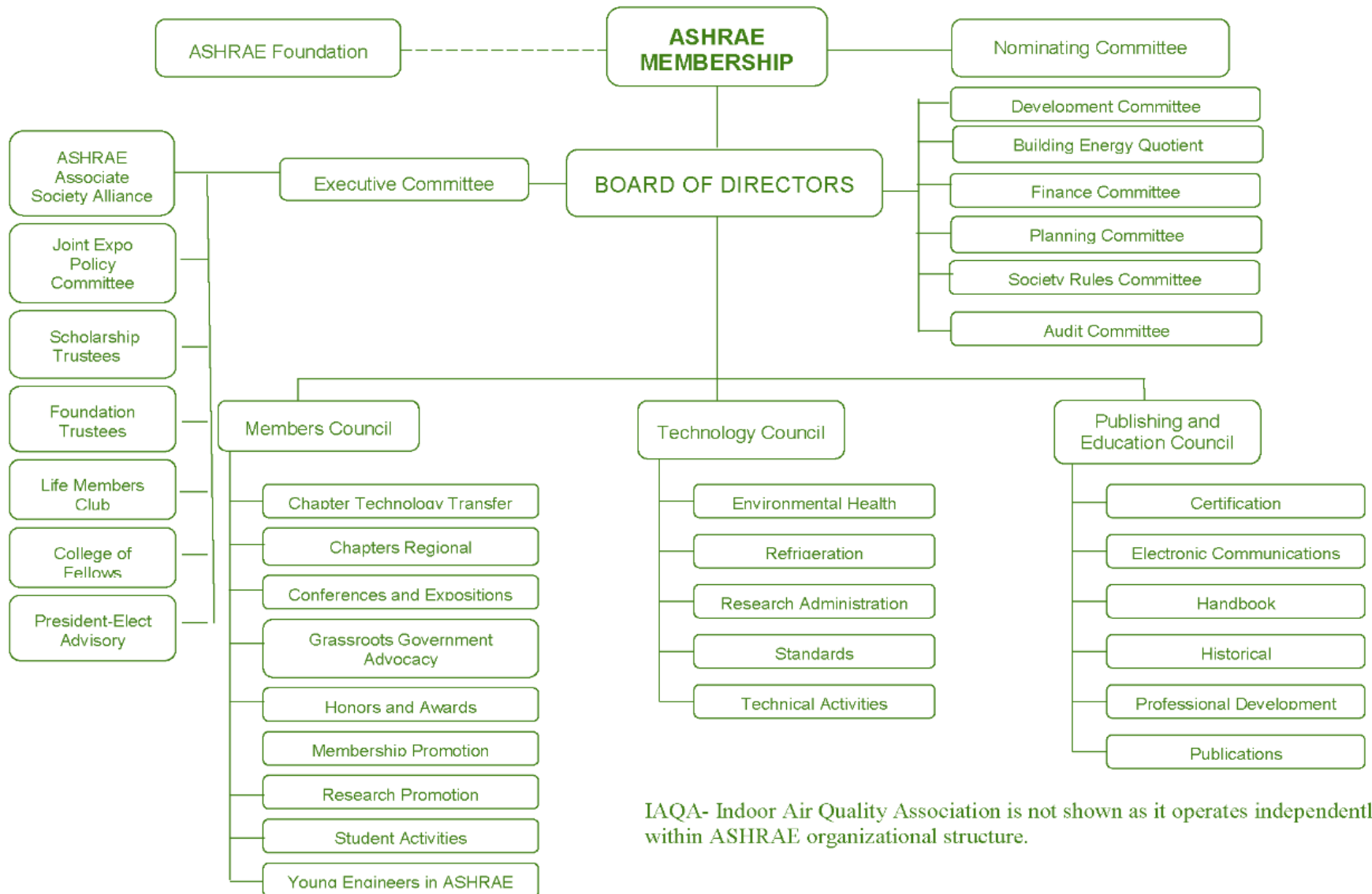
- As members of ASHRAE or participants in ASHRAE committees, we pledge to act with honesty, fairness, courtesy, competence, integrity and respect for others in our conduct.
- Efforts of the Society, its members, and its bodies shall be directed at all times to enhancing the public health, safety and welfare.
- Members and organized bodies of the Society shall be good stewards of the world's resources including energy, natural, human and financial resources.
- Our products and services shall be offered only in areas where our competence and expertise can satisfy the public need.
- We shall act with care and competence in all activities, using and developing up-to-date knowledge and skills.

ASHRAE Code of Ethics

- We shall avoid real or perceived conflicts of interest whenever possible, and disclose them to affected parties when they do exist.
- The confidentiality of business affairs, proprietary information, intellectual property, procedures, and restricted Society discussions and materials shall be respected.
- Each member is expected and encouraged to be committed to the code of ethics of his or her own professional or trade association in their nation and area of work.
- Activities crossing national and cultural boundaries shall respect the ethical codes of the seat of the principal activity.



ASHRAE STRUCTURE



Associate Society Alliance



- Created in 1962
- Encourages more effective and fruitful exchange of knowledge and ideas among engineers engaged in the arts and sciences of HVAC&R
- 61 members

Standards

ASHRAE

Standards

- Developing standards since 1922
- Some 130 active standard or guideline projects
- Standards are reviewed and republished to ensure they are up-to-date, e.g., existing code-intended standards are on a three year review cycle
- www.ashrae.org/standards

Standards Development

- One of six standards development organizations accredited by the American National Standards Institute (ANSI) as an Audited Designator
- Consensus process ensures standards are developed independent of special interests
- Volunteer committees bring together a balanced group of technical experts, professionals, government officials and business representatives

Most Well-Recognized Standards

- 15, Safety Standard for Refrigeration Systems
- 34, Designation and Safety Classification of Refrigerants
- 55, Thermal Comfort
- 62.1, Indoor Air Quality for Commercial Buildings
- 62.2, Indoor Air Quality for Residential Buildings
- 90.1, Energy Efficiency for Commercial/High-Rise Residential Buildings
- Standard 188, Legionellosis: Risk Management for Building Water Systems
- 189.1, Green, High Performing Commercial Buildings

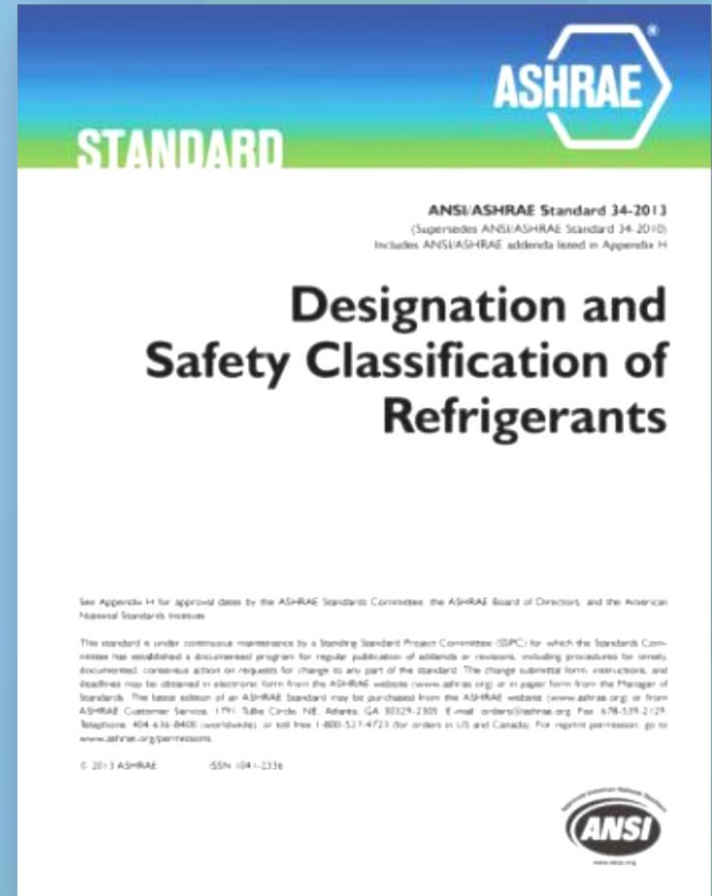
Refrigerant Safety – Standard 15



- Establishes rules for safe application in equipment and systems when using the refrigerant classification system

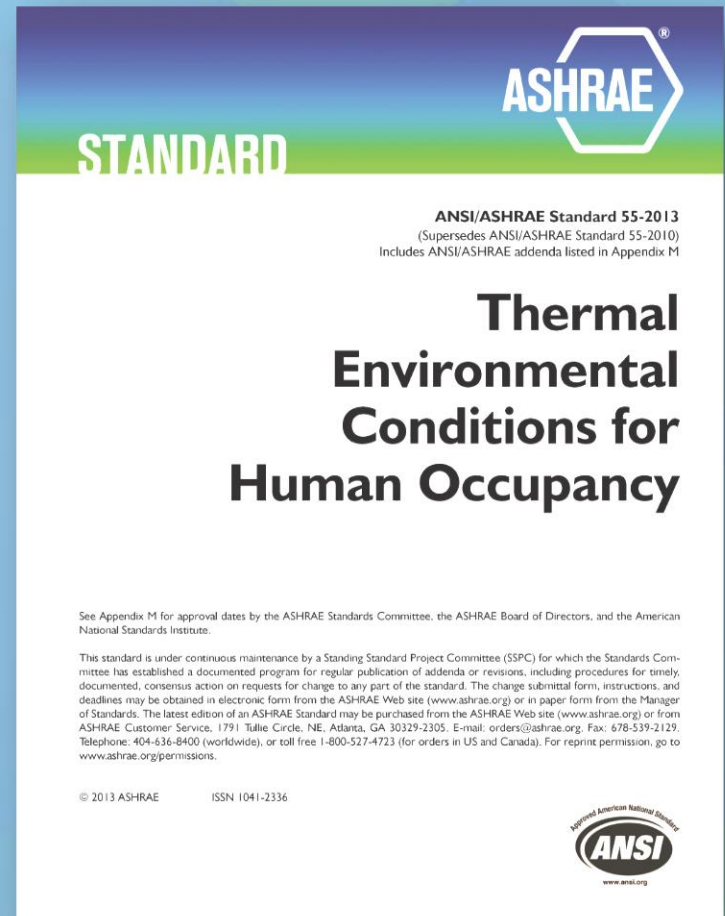
Refrigerant Safety – Standard 34

- Nomenclature of refrigerants and assigns safety classifications based on toxicity and flammability data



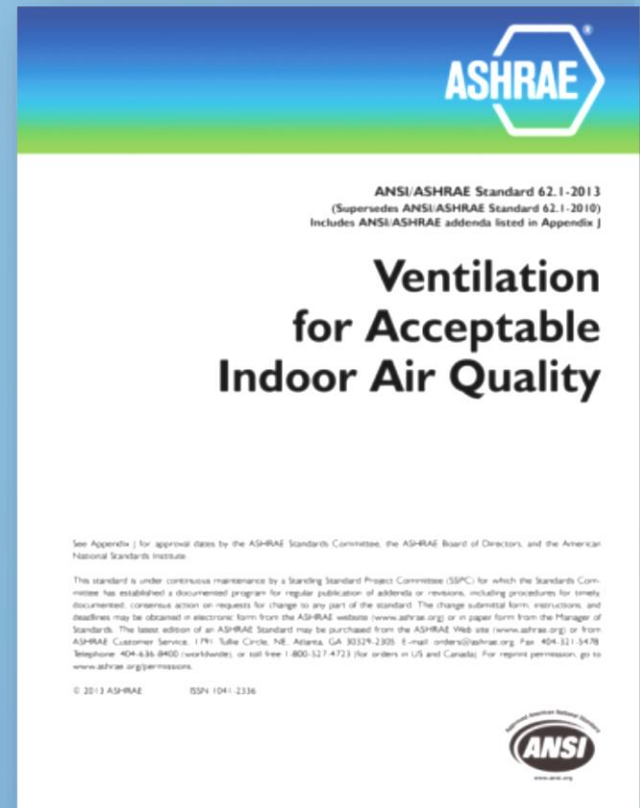
Thermal Comfort – Standard 55

- Sets the standard for what are considered “comfortable” indoor conditions for 80% or more of a building’s occupants
 - Settles the “too hot/too cold” debate at offices



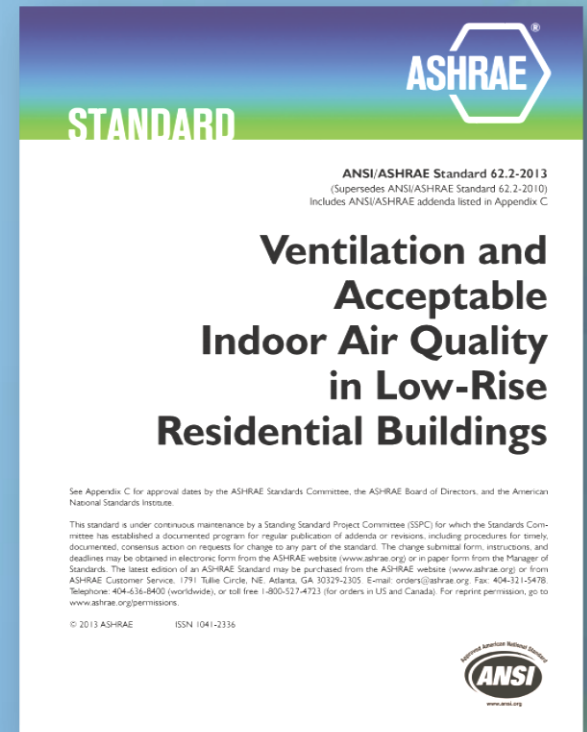
Ventilation and IAQ – Standard 62.1

- Specifies minimum ventilation rates and other measures intended to provide indoor air quality that is acceptable to human occupants and minimizes adverse health effects
- Applies to all indoor or enclosed spaces that people may occupy, except where other applicable standards and requirements dictate larger amounts of ventilation



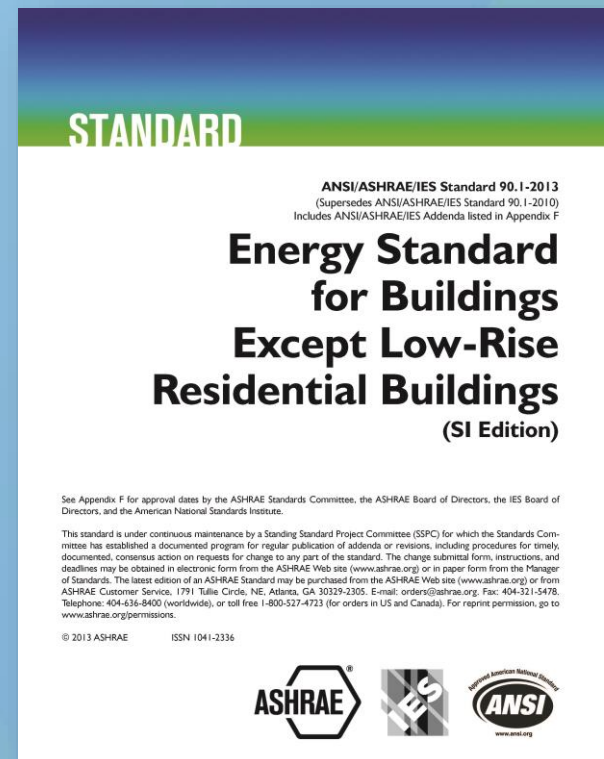
Residential Ventilation and IAQ – Standard 62.2

- Defines roles of and minimum requirements for mechanical and natural ventilation systems and building envelope intended to provide acceptable indoor air quality in low-rise residential buildings
- Limits sources of pollutants and requiring enough mechanical ventilation to provide dilution for unavoidable contaminants



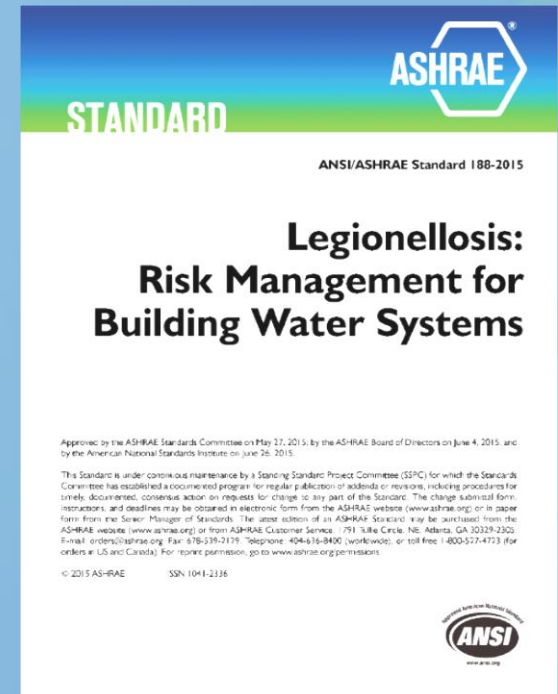
Energy Efficiency – Standard 90.1

- Sets design requirements for the efficient use of energy in buildings
- 2013 version preliminarily referenced in the U.S. Federal Energy Conservation and Production Act
- 39 states have adopted some version of 90.1 as their energy code



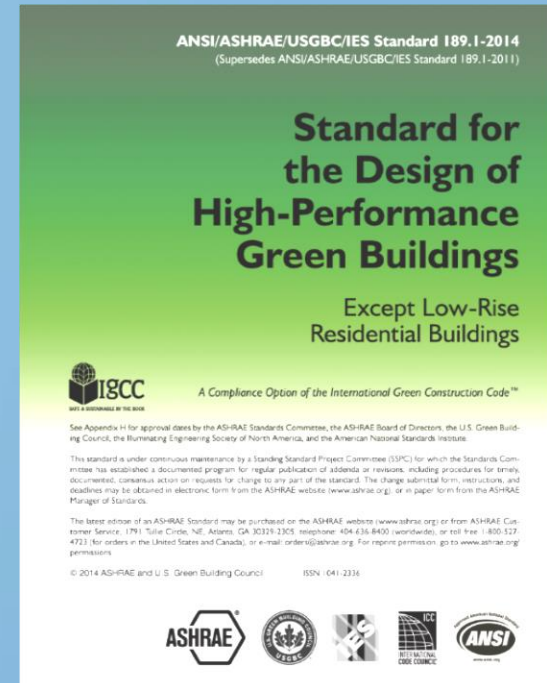
Legionella – Standard 188

- Establishes minimum legionellosis risk management requirements for building water systems
- Intended for use by owners and managers of human-occupied buildings and those involved in the design, construction, installation, commissioning, operation, maintenance and service of centralized building water systems and components



Green Building – Standard 189.1

- The “total building sustainability package”
- Compliance option of International Code Council’s International Green Construction Code
- Incorporated by U.S. Army, Navy and Air Force into Unified Facilities Criteria for Energy and Sustainability Building Requirements





Research

ASHRAE

ASHRAE Research



- Since 1919, research been at the core of ASHRAE's existence
- Largest program of fundamental and applied research supported by a technical society
 - Currently 60+ active research projects, 40+ projects approved for further development
 - 55 percent of research is conducted by universities; 45 percent is conducted by private research or engineering firms
 - More than 800 research projects valued at \$67.5 million conducted since 1960

ASHRAE Research

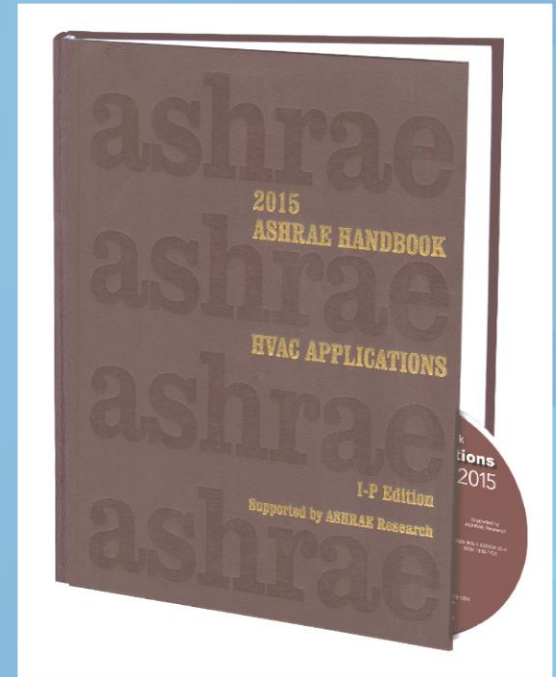
- Improves work and application of building systems
- Allows development of technical information to create standards and guidelines
- Projects include sound, duct design, the effect of oil in refrigerants, load calculations, thermal conductivity, simplified energy analysis procedures, weather data, refrigerant property data, fire and smoke control and solar design.
- www.ashrae.org/research



Publications

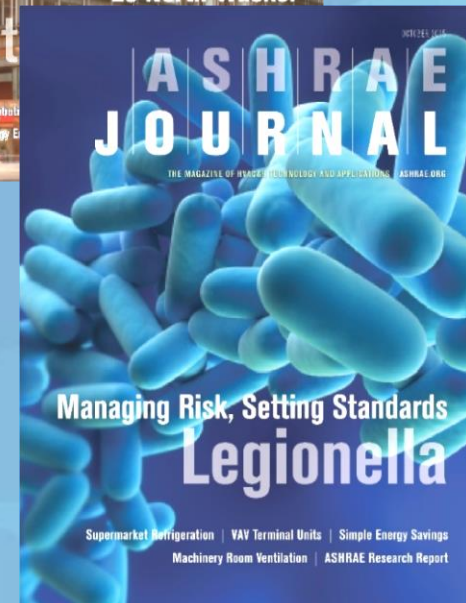
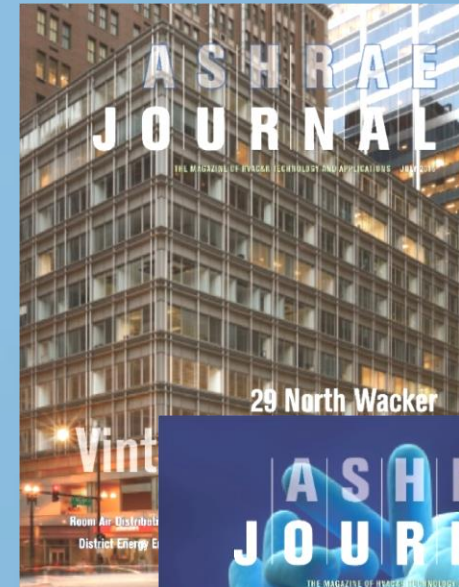
ASHRAE Handbook

- Continuously refined and updated, ASHRAE has published its Handbook series since 1920s
- Updated volume published each year with online updates as needed
- Volumes cover HVAC&R fundamentals, systems, equipment and a wide variety of applications
- Available in print, CD and online for member benefit selection options
- www.ashrae.org/Handbook



ASHRAE Journal

- Official monthly publication and member benefit
- Speaks to and for 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
- www.ashrae.org/ashraejournal



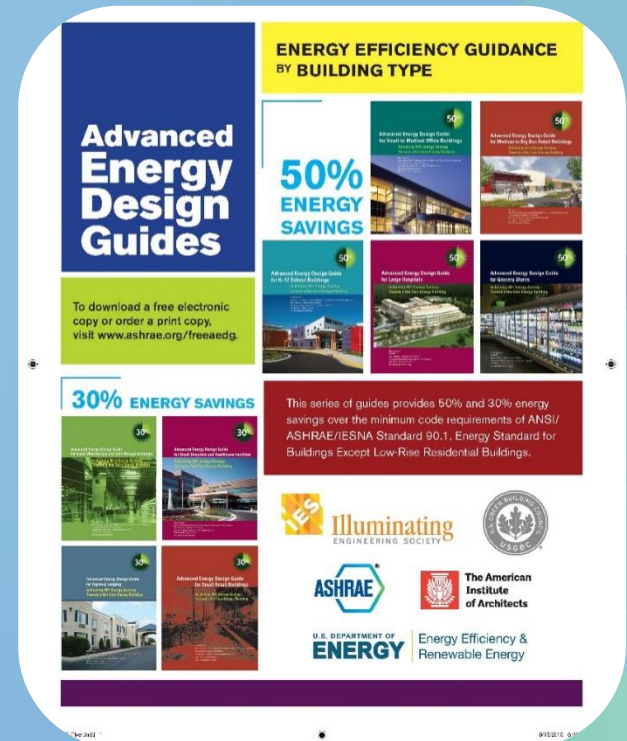
HPB Magazine

- Quarterly magazine is read by building owners, facility managers, architects and engineers
- Features case studies of the best performing buildings in the world
- Case studies provide at least one year's worth of operational data to show if building is performing at expected levels
- www.hpbmagazine.org



Advanced Energy Design Guides

- Prescriptive **pre-modeled solutions** to reach a given energy savings for a given building type
- 11 Guides available
- More than 500,000 in circulation
- www.ashrae.org/freeaedg



Free Resources

- www.ashrae.org/freeresources
 - Advanced Energy Design Guides
www.ashrae.org/freeaedg
 - Indoor Air Quality Guide
www.ashrae.org/FreeIAQGuidance
 - Procedures for Commercial Building Energy Audits
www.ashrae.org/pcbea
 - Refrigeration Commissioning Guide for Commercial and Industrial Systems
www.ashrae.org/freeRefCxGuidance
 - ASHRAE Terminology
www.ashrae.org/ASHRAETerms

ASHRAEjobs.com

- Single location to research career opportunities, including employer profiles and job postings
- Post into a resume database and promote yourself to employers
- Allows employers to search for ASHRAE membership and certifications





Education/Certification

ASHRAE Learning Institute (ALI)

- Wide range of professional development training
- Variety of lengths and modes of delivery
- Taught by engineers for engineers to provide real world experience
- Enables participants to make immediate impacts in their work
- www.ashrae.org/education



ASHRAE Learning Institute

- Instructor-Led Training
 - Professional Development Seminars
 - Short Courses
 - Spring and Fall Online Courses
 - Intensive HVAC Design Trainings
- Web-Based Training
 - eLearning
- Text-Based Training
 - Self-Directing Learning Texts
 - Group Learning



ASHRAE Learning Institute

- Various Course Categories
 - ASHRAE Standards and Guidelines
 - Commissioning
 - Energy Efficiency
 - Environmental Quality
 - HVAC Applications
 - HVAC Design



HVAC Design Training



- Intense, multi-day HVAC Design training
 - Level I – Essentials
 - Level II – Applications
- Excellent introduction to ASHRAE standards and concepts
- Provide intensive, practical education for designers, others involved in delivery of HVAC services
- Bridges gap between theory and practical application as engineering students transfer from classroom to workforce
- www.ashrae.org/hvacdesign

ASHRAE eLearning

- Web-based. Training anytime, anywhere, at your own pace from any computer with Internet access
- Created by leading professionals in HVAC&R and related fields, using ASHRAE's knowledge base
- No special software required, all material included
- Records automatically maintained
- 12 month subscriptions available
- New training is in dual units and fully narrated
- www.ashrae-elearning.org

Certification



- Validate critical knowledge, skills and abilities in 6 key, built environment jobs:
 - Building Energy Assessment (BEAP)
 - Building Energy Modeling (BEMP)
 - Commissioning Process Management (CPMP)
 - High-Performance Building Design (HBDP)
 - Healthcare Facility Design (HFDP)
 - Operations & Performance Management (OPMP)

Certification

- Recognized by 20+ national, state and local government bodies
- Over 2,000 certifications earned
- Member discounts. More information at www.ashrae.org/certification



Membership

ASHRAE

ASHRAE's Young Members



**Student Members
& Young Engineers
in ASHRAE**

Membership

- Student Member
 - In approved course of study in Society-related field
 - Must be a full-time student
- Associate Member
 - Members with less than 12 years experience in the industry
 - Typically just out of school, new to the field or only a few years into their careers

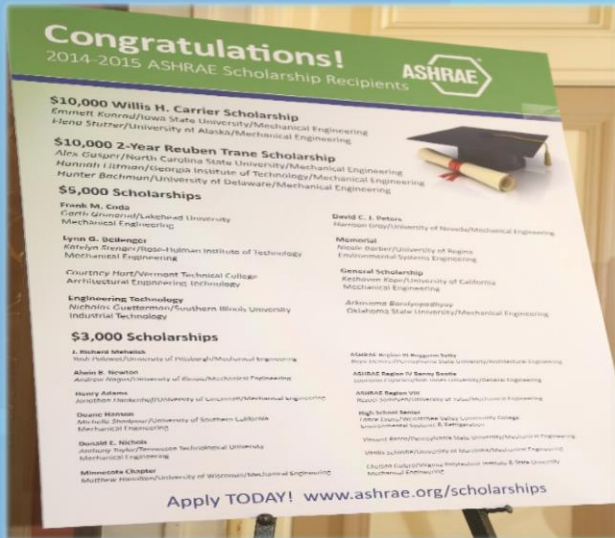
Young Engineers in ASHRAE

- Program to address the needs of members age 35 or younger
- Provides unique networking opportunities, workshops and other resources to help young members gain an advantage in their field



Resources for Student Members





Grants

Senior Undergraduate Project Grants provide grants to engineering, technical and architectural schools worldwide

- Potential \$5,000 maximum award per team
- Deadline is Dec. 15 annually



Grants

- Graduate Grant-in-Aid encourages students to continue their education
- Grants total \$210,000: \$10,000 per project
- Awarded to full-time graduate students of ASHRAE-related technologies



Design Competitions

- Student Design Competition
 - Opportunity to apply real-world design practices, work on teams, model buildings, etc.
 - Four categories in which to compete:
 - HVAC Design Calculations
 - HVAC System Selection
 - Integrated Sustainable Building Design
- Applied Engineering Challenge
 - Promotes technology that can be applied throughout the globe in applications that are simple, affordable and easy to use

New Faces of Engineering: College Edition

- Recognition program from National Engineers Week highlighting up-and-coming engineering students
 - Juniors, seniors or fifth year students are eligible
 - Nominees must be working toward a degree in engineering from a recognized U.S. college or university
- ASHRAE's top nominee receives a \$1000 scholarship
- Gain international recognition in your future field

SmartStart Program

Allows those who are student members to transition into associate membership at reduced membership fee

- First year out of college, annual membership is the same as the student rate
- Reduced rates the second and third year



Resources for Young Engineers in ASHRAE



YEA Leadership Weekends

- Leadership Weekends are open to all YEA members:
 - In the spring on the West Coast
 - In the fall on the East Coast
 - YEA Leadership International
- Opportunity for future leaders of ASHRAE to learn more about:
 - Society
 - Developing soft skills
 - Networking with other young professionals



YEA Leadership Weekends

- Includes segments on:
 - Understanding your own personality as well as other types
 - Leadership development for young professionals
 - Communication techniques
 - ASHRAE leadership opportunities
- Objectives are:
 - Leadership
 - Networking
 - Communication
 - Professional Development



Mentoring

- Allows YEA members to form a relationship with a fellow ASHRAE member
 - Mentors can give a more in-depth understanding of the profession and ASHRAE in general
 - YEA members can network and seek guidance from experienced members
- YEA members may also be interested in mentoring student members, either:
 - Senior grant teams
 - Student design teams
 - Local student branch

New Faces of Engineering

- Recognition program for National Engineers Week highlighting up-and-coming engineers from the world's top engineering societies
 - Engineers 30 years of age or younger as of Dec. 31 of the current year are eligible
 - Nominees must have a degree in engineering from a recognized U.S. college or university
- Gain international recognition in your field

ASHRAE Conferences

- Annual Conference in June
- Winter Conference in January (coincides with AHR Expo)
- Variety of specialty conferences on a variety of topics around the world
- www.ashrae.org/conferences



