



# ASHRAE NATIONAL NEWS

American Society of Heating, Refrigerating and Air-Conditioning Engineers

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## Purdue Professor Chosen for First ASHRAE D.C. Fellowship

ATLANTA – An associate professor from Purdue University has been selected for ASHRAE’s first Washington, D.C., Federal fellowship.

“I am eager to learn about how energy policies and research strategies are formulated at the federal level,” William “Bill” Hutzel, P.E., who works in Purdue’s College of Technology, Department of Mechanical Engineering Technology, said. “I hope to play a small role in advocating for sustainable design practices in buildings. I am proud to be representing ASHRAE because it is the professional society ideally suited for leadership on this important topic.”

The one-year fellowship allows participants to work in the federal government in a technical advisory role. This year’s Fellow will be placed on Capitol Hill, most likely in the Science Committee staff office.

At Purdue, Hutzel teaches undergraduate courses in thermodynamics, controls, fluid mechanics and HVAC. He has developed a modern laboratory to teaching graduate-level facilities engineering courses and conducting applied research. Recent projects have designed an air flow testing laboratory for heat recovery equipment, used Web-enabled building controls for remotely accessible laboratory experiments, and evaluated the performance of evacuated tube heat pipe solar collectors.

He serves as co-faculty advisor for the ASHRAE Purdue Student Branch.

The fellowship is designed to educate participants on the inner workings of federal policy-making, to provide scientific guidance and analysis to decision-makers, and to increase the visibility and involvement of scientists and engineers in the public policy arena. The fellowship runs from September through August and typically begins after a two-week orientation sponsored by the American Association for the Advancement of Science.

ASHRAE members interested in applying for the 2008 Fellowship can contact Doug Read, ASHRAE program director of government affairs, at e-mail [dread@ashrae.org](mailto:dread@ashrae.org).

ASHRAE, founded in 1894, is an international organization of 50,000 persons. ASHRAE fulfills its mission of advancing heating, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world through research, standards writing, publishing and continuing education.

Editors Note: A photo of Hutzel is available upon request.

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May 22, 2007

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## ASHRAE Publishes New Standard 62.1

ATLANTA – ASHRAE’s new 2007 ventilation standard contains key changes impacting ventilation system designers and their designs.

ANSI/ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality, sets minimum ventilation rates and other requirements for commercial and institutional buildings.

“Standard 62.1 has served the building industry and the public as the most prominent standard on ventilation for indoor air quality,” Dennis Stanke, committee chair, said. “Changes in the 2007 standard build on the improvements published in the 2004 version, providing additional guidance for designers of building ventilation systems.”

The new standard includes requirements for the separation of areas with environmental tobacco smoke (ETS) from areas without ETS in the same building. Although some local building and health codes prohibit smoking indoors in many buildings and locations, other codes allow smoking in designated areas. In buildings that allow smoking in designated areas, effective separation of ETS areas ensures “ETS-free” areas contain little or no ETS-related contaminants. The new separation requirements help designers ensure effective separation, according to Stanke.

Another change clarifies how designers must analyze mechanical cooling systems to help limit space relative humidity. Many buildings suffer from air quality problems related to dampness, including mold and other microbial growth. In the past, the standard required a design analysis at specified load conditions, in an effort to demonstrate that a given design approach in a given climate could successfully limit space RH to 65 percent or less.

“Those load conditions could be confusing and difficult to establish,” Stanke said. “The new requirements include a specific easy-to-establish load condition. Each system must be analyzed to check its dehumidification performance at this challenging condition to help designers make system configuration and control choices that reduce the likelihood of high-humidity problems in buildings.”

Other changes include:

- Additions to Table 6-1 of minimum outdoor air requirements for dwelling units in high-rise residential buildings. These requirements apply to residences in buildings over three stories. Low-rise residential buildings are covered by ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
- New or previously overlooked occupancy categories. In response to proposed changes from users of the standard, ASHRAE added several occupancy categories to Table 6-1 with associated minimum outdoor air rates. These include, for example, daycare sickrooms, university/college laboratories, break rooms and coffee stations, and laundry rooms.

The cost of ASHRAE Standard 62.1-2007 is \$65 (\$52 ASHRAE members). To order, contact ASHRAE Customer Service at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 404-321-5478, by mail at 1791 Tullie Circle NE, Atlanta, GA 30329, or visit the ASHRAE.org Bookstore at [www.ashrae.org](http://www.ashrae.org).

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## Sustainable Buildings Standard to Define Green Buildings

ATLANTA – A proposed new standard that will provide minimum guidelines for green building practices is nearing completion. Applicable to new commercial buildings and major renovation projects, it will address energy efficiency, a building’s impact on the atmosphere, sustainable sites, water use efficiency, materials and resources, and indoor environmental quality.

Proposed Standard 189, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings, is being developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) in conjunction with the Illuminating Engineering Society of North America (IESNA) and the U.S. Green Building Council (USGBC). This is the first such green building standard in the United States.

The proposed standard has been released for public review. Comments will be accepted through July 9, 2007.

“Standard 189P will become the benchmark for all sustainable green buildings in the United States because it is being developed for inclusion into building codes,” said committee chair John Hogan. “This means

that owners and designers will have a consensus-based document that will set the minimum criteria that a building must satisfy in order to be considered a green building. The real impact of Standard 189P is that ASHRAE, along with IESNA and USGBC, are taking advanced energy conservation guidance mainstream for the general public's benefit."

John Hogan, chair of the Standard 189 Project Committee, notes that the standard is not a building rating system but rather a compilation of criteria that must be met in order for local building code officials to provide a Certificate of Occupancy for a facility.

Energy efficiency will be a large part of the standard. The goal is to achieve a minimum of 30 percent reduction in energy cost (and carbon dioxide equivalent) over that in ANSI/ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings, which provides minimum energy efficiency design requirements for buildings except low-rise residential buildings and is the basis for building codes worldwide.

The standard shows leadership in renewable power generation on-site by having high-performance, green buildings avoid a total reliance on conventional energy sources. The committee that wrote the standard wants building projects to produce a minimum percentage of their peak electrical load through on-site generation such as by photovoltaic panels or equivalent solar water heating systems.

Another important part of the proposed standard will be water use efficiency. Hogan said the standard may require that interior water achieve a minimum of 25 percent reduction through improvements from the Energy Policy Act of 1992 for plumbing fixtures and strategies for reclaiming water in other areas. Exterior water systems would have more sophisticated controls and not use potable water, he said.

Hogan said one topic of interest to the committee is sustainable sites. Members are discussing requiring construction to take place appropriate sites where construction already exists or on a "greenfield" site that is close to high-density areas or has access to mass transit.

In the area of indoor environmental quality, the committee is considering requiring that supply outdoor air exceed the minimum requirements of ASHRAE 62.1-2007, Ventilation for Acceptable Indoor Air Quality. Also being discussed are the use of low-emitting materials and installation of CO2 sensors to monitor densely-occupied spaces.

The committee is also looking at requirements for a construction plan, a transportation management plan, and an indoor air quality (IAQ) management plan, according to Hogan, to reduce materials and energy consumption as well as to reduce carbon emissions.

Proposed Standard 189P will be available only during public review periods. To read the addenda or to comment, visit [www.ashrae.org/publicreviews](http://www.ashrae.org/publicreviews).

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## International Code Council Adopts 62.1 Ventilation Rate Procedure

ATLANTA – Approval of ASHRAE's Standard 62.1 ventilation rate calculation procedure for the International Mechanical Code (IMC) marks a milestone for the high-profile mandatory-language standard after years of development aimed at code adoption.

This week, the International Code Council approved an ASHRAE proposal to incorporate the prescriptive ventilation rate procedure from ANSI/ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality, in the IMC. The code establishes minimum regulations adopted and implemented by federal, state and local government agencies for mechanical systems in new buildings.

"With adoption of the new ventilation rates into building codes, we can expect to see reduced air intake flow in many previously over-ventilated buildings," Dennis Stanke, chair of the 62.1 committee. "With adoption of the new calculation procedures, we can expect to see improved indoor air quality in many previously under-ventilated multiple-zone systems. Ventilation systems with lower outdoor rates compared to the current code

reduce both first costs and energy costs, while system designs that account properly for air distribution within buildings result in better indoor air quality than designs based on over-simplified air distribution assumptions.”

The current ventilation criteria in the IMC are based on ASHRAE Standard 62-1989. Based on 20 years of IAQ research and experience with ventilation system design, ASHRAE introduced an improved version of the standard in 2004 to include the new rates and calculation procedures. This code change makes both the IMC and the 2006 Uniform Mechanical Code consistent with the ASHRAE standard.

“The new ventilation rate procedure requires designers to account for pollutant sources from both the building and its occupants, and to account for the efficiency of different ventilation systems when delivering outdoor air to the breathing zone,” Stanke said.

The new requirements will be included in the 2007 IMC Supplement.

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#### ASHRAE Publishes Refrigeration Safety Standard

ATLANTA – Expanded requirements for safety relief protection are contained in ASHRAE’s new 2007 refrigeration systems safety standard.

ANSI/ASHRAE Standard 15-2007, Safety Standard for Refrigeration Systems, establishes procedures for operating equipment and systems to assure the safety of building occupants and system technicians.

A significant change over the 2004 standard is expanded requirements for safety relief protection piped internally to systems.

“In the interest of keeping refrigerants contained within a refrigeration system, a growing number of designers sought to implement pressure relief protection that discharged overpressure refrigerants to a lower pressure portion of the system,” Douglas Reindl, committee chair, said. “This change is intended to guard safety in these applications by expanding requirements for the engineering of internal relief devices.”

Another change is the update of Appendix F, which outlines the principles of relief device selection for positive displacement compressors. The list of refrigerants with corresponding properties included in the appendix has been significantly expanded.

“This will help users enhance the safety of refrigeration systems by utilizing improved methods for pressure relief protection,” Reindl said.

Standard 15 was first published in 1919 as Tentative Code for the Regulation of Refrigerating Machines and Refrigerants in recognition of the need for cities and states to enact safety regulations.

The cost of Standard 15-2007 is \$39 (\$32, ASHRAE members).

To order, contact ASHRAE Customer Service at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), by mail at 1791 Tullie Circle NE, Atlanta, GA 30329, or visit the ASHRAE.org Bookstore at [www.ashrae.org](http://www.ashrae.org).

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## ASHRAE Publishes 2007 Residential Energy Standard

ATLANTA – ASHRAE’s new 2007 residential energy efficiency standard contains several improvements made based on public input.

ANSI/ASHRAE Standard 90.2-2007, Energy-Efficient Design of Low-Rise Residential Buildings, provides minimum requirements for the energy-efficient design of residential buildings.

“The standard features a simplified format and greater attention to the details of the document based on input received during public review periods,” Jonathan Humble, chair of the 90.2 committee, said.

Responses to public input allowed improvements to the following provisions of the standard:

- Further simplification of the envelope tables regarding the categories on walls, below grade insulation requirements, and the fenestration requirements by either combining near like categories into single categories or enhancing the energy values.
- Clearer definition of “conditioned space,” which will help in assessing when and how such spaces should be classified.
- Enhancement of the “mass walls” provisions to make clearer the recognition of this type of system and its benefits to energy conservation.
- Simplification of the cool roof provisions, by removing the equation and table and substituting with a simple table to determine compliance.
- Enhancement to the climate tables with the intent to make the document more acceptable and responsive to the needs of countries outside the United States and Canada. In this case, added were climate data for China, Taiwan, Malaysia and Mexico.

The cost of ANSI/ASHRAE Standard 90.2-2004 is \$95 (\$76, ASHRAE members).

To order, contact ASHRAE Customer Service at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), by mail at 1791 Tullie Circle NE, Atlanta, GA 30329, or visit the ASHRAE.org Bookstore.

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## ASHRAE Publishes New Handbook Volume

ATLANTA – New chapters on room air distribution, integrated building design, and chemical, biological, radiological and explosive incidents are contained in the new 2007 ASHRAE Handbook—HVAC Applications.

HVAC Applications also contains updated chapters on a broad range of applications, written to help heating, ventilating, and air-conditioning (HVAC) design engineers and others use the fundamentals, equipment and systems described in other ASHRAE Handbook volumes.

“The practical information on specific areas of HVAC design and operation provided by HVAC Applications makes it an invaluable resource for the practicing engineer,” says Brian Rock, chair of the subcommittee that supervised the 2007 revision of the volume.

New chapters include:

- Room Air Distribution, which contains information on air distribution strategies, tools and guidelines for applications and system design;
- Chemical, Biological, Radiological and Explosive Incidents, which describes such events and their effects on buildings, occupants and equipment;
- Integrated Building Design, which describes the process and activities that support collaboration among design participants and identifies major project milestones.

The volume covers diverse topics such as retail facilities, agriculture, aircraft, fire and smoke management, solar energy, and HVAC-related electrical issues.

The cost of the 2007 ASHRAE Handbook—HVAC Applications is \$195 for the print version, which includes a searchable CD, or \$155 for the CD only. The print version comes in inch-pound (I-P) or the International System of Units (SI). The CD contains both I-P and SI measurements. ASHRAE members receive the print version

and the single-volume CD as a member benefit. The 2007 HVAC Applications volume will also be included as part of the four-volume 2007 ASHRAE Handbook CD+.

To order, contact ASHRAE Customer Service at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), by mail at 1791 Tullie Circle NE, Atlanta, GA 30329, or visit the ASHRAE.org Bookstore.

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ASHRAE, United Nations Partner on Emission Reduction

ATLANTA – As the 20th anniversary of the signing of the Montreal Protocol approaches, two international organizations focused on the environment have joined forces to reduce emissions and encourage energy-efficient refrigeration and air conditioning systems and building designs.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the United Nations Environment Programme (UNEP), Division of Technology, Industry and Economics (DTIE) have formalized an agreement to cooperate in several technical issues, such as assessing and addressing remaining chlorofluorocarbon-based chillers. The two organizations also will promote sustainable activities in areas such as emissions reduction and energy efficient systems and building design.

In the mid-1980s, worldwide concern occurred over damage to the ozone layer from the use of ozone-depleting substances such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). These substances have important applications, including refrigerants, heat transfer fluids and blowing agents for insulating foams.

In 1987, the Montreal Protocol was adopted after a hole was discovered in the ozone layer over Antarctica. Under the Protocol, CFC use for new equipment has ceased in developed countries, and HCFC usage has been capped and is scheduled to be phased out. Developing countries have agreed to phaseout schedules for both CFCs and HCFCs and have made substantial progress in meeting this commitment. Many new technologies to replace CFCs and HCFCs have emerged with hydrofluorocarbons (HFCs), which have zero ozone depletion potential but positive global warming potential, as one of the most popular.

“ASHRAE and the heating, ventilating, air-conditioning and refrigerating (HVAC&R) industry are responding to growing global demand for new technologies that do not contribute to ozone depletion and are energy efficient,” Terry Townsend, ASHRAE president, said. “Energy efficiency is a key issue because the burning of fossil fuels to generate electric power is considered a major greenhouse gas emitter. By partnering with UNEP/DTIE, we can further our respective work by mutual exchange of technical guidance.”

“Thirty months from now, CFCs will only be found in history books with a remaining burden to deal with thousands of tones banked in existing systems,” Rajendra Shende of UNEP said. “An international debate has just also triggered about accelerated scenarios for phasing out HCFCs as well as the future of higher global warming HFCs refrigerants. It’s quite clear that HVAC&R industry has and will continue evolving rapidly to respond to such global concerns and movements. Joining hands with ASHRAE as a world pioneering association in HVAC&R will definitely have its positive impact in addressing many clients with latest technologies and updates.”

ASHRAE and UNEP previously collaborated on a smaller scale with the signing and implementation of a regional cooperation agreement between the UNEP regional office in West Asia and ASHRAE’s local chapters.

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UNEP, the United Nations Environment Agency, is an Implementing Agency under the Multilateral Fund for the implementation of the Montreal Protocol and the Global Environment Facility. Under these mandates,

UNEP/DTIE's OzonAction Branch assists developing countries and countries with economies in transition to comply with the control measures set by Montreal Protocol and its amendments.

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### Schumer Energy Plan Reinforces ASHRAE Guidance

ATLANTA – With the announcement of Sen. Charles Schumer's (D-NY) amendments to H.R. 6, the CLEAN Energy Act of 2007, the American Society of Heating, Refrigerating and Air-Conditioning Engineers' goal of moving toward net-zero energy use in buildings is reinforced. Sen. Schumer has included ASHRAE guidance in the amendments, specifically future versions of ANSI/ASHRAE/IESNA Standard 90.1, ASHRAE's flagship building energy standard.

A vote on the proposed legislation is expected within the next week in the Senate.

Sen. Schumer's plan calls for a 30 percent increase in energy efficiency in Standard 90.1 over the 2004 version by 2015 and 50 percent improvement by 2022. ASHRAE's current goal is to achieve 30 percent energy savings by 2010. Standard 90.1 is currently the basis for building codes across the United States.

While ASHRAE has no official stance on the plan and is not offering an endorsement, ASHRAE President Terry Townsend appreciates the attention being given to sustainable buildings and the importance of Standard 90.1. "ASHRAE has been involved in creating standards for more efficient buildings since the energy crisis of the 1970s," says Townsend. "We appreciate the recognition of the importance of Standard 90.1, and we will continue on our mission of moving toward achieving net-zero-energy buildings. We welcome this topic being discussed in the national spotlight."

ANSI/ASHRAE/IESNA Standard 90.1 was developed during the energy crisis to create a baseline for energy use in buildings. Now, more than 30 years later, the standard has been adopted into building codes worldwide.

ASHRAE offers substantial guidance on building energy reduction through its series of Advanced Energy Design Guide publications that give prescriptive guidance on achieving 30 percent energy savings. ASHRAE aims to follow up the 30 percent series with 50 percent reduction guidance, beginning early next year. The first and second guides were for small office and small retail buildings, respectively, and guides for K-12 schools and warehouses will be published in December 2007.

ASHRAE's energy efficiency related activities also include offering technical guidance to cities involved in the Clinton Climate Initiative, which recently announced its Energy Efficiency Building Retrofit Program, which will reduce energy use in existing buildings in 16 of the world's largest cities. "Buildings in the United States account for 40 percent of total energy use," says Townsend. "Making existing buildings more efficient is key to reducing energy and carbon emissions."

ASHRAE also continues work on proposed Standard 189, developed in conjunction with the U.S. Green Building Council and the Illuminating Engineering Society of North America. Out for public review until July 9, the standard will provide minimum guidelines for green building practices. Standard 189, applicable to new commercial buildings and major renovation projects, will address energy efficiency, a building's impact on the atmosphere, sustainable sites, water use efficiency, materials and resources, and indoor environmental quality. The organizations involved in its creation hope the standard is adopted into building codes upon completion.

For more information on ASHRAE and its technical guidance, visit [www.ashrae.org](http://www.ashrae.org).

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## ASHRAE Installs New Officers, Directors

LONG BEACH - The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) installed new officers and directors at its 2007 Annual Meeting held here June 23-27.

The new president is Kent W. Peterson, P.E., Fellow ASHRAE, vice president and chief engineer, P2S Engineering Inc., Long Beach, Calif. Through his theme, Greater Efficiency Today, Blue Skies Tomorrow, Peterson emphasizes innovation in the quest for sustainability in the built environment. He notes that "energy efficiency should always be the elegant alternative to fuel consumption." As such, he encourages ASHRAE members to become more radical in their ideas, more daring in their creativity, and dedicated to delivering innovative systems, methods and technology.

Other officers installed for a one-year term are:

- President-Elect: William A. Harrison, president, Trane Arkansas, Little Rock, Ark.
- Treasurer: Gordon V. R. Holness, P.E., Fellow ASHRAE, Life Member, chairman emeritus, Albert Kahn Associates Inc., Detroit, Michigan.
- Vice President: Lynn G. Bellenger, P.E., Fellow ASHRAE, partner, Pathfinder Engineers, Rochester, N.Y.
- Vice President: Maureen Grasso, Ph.D., dean, Graduate School, University of Georgia, Athens, Ga.
- Vice President: Andrew Persily, Ph.D., Fellow ASHRAE, group leader, National Institute of Standards and Technology, Gaithersburg, Md.

• Vice President: Vincent Tse, Fellow ASHRAE, managing director, Parsons Brinckerhoff (Asia), Hong Kong.

ASHRAE installed the following directors to serve a three-year term from 2007-2010:

- Region IV Director and Regional Chair: Ira Poston, northern region business relations manager, Duke Energy Carolinas, Burlington, N.C.
- Region V Director and Regional Chair: Fred Betz, P.E., manager, utility systems, PEDCo E&A Services, Cincinnati, Ohio.
- Region VI Director and Regional Chair: Robert Linder, P.E., mechanical engineer, Karges-Faulconbridge Inc., St. Paul, Minnesota.
- Region XII Director and Regional Chair: Ross Montgomery, P.E., owner, Quality Systems and Technology Inc., Palmetto, Fla.
- Region XIII Director and Regional Chair: Yie-Zu Robert Hu, Ph.D., Fellow ASHRAE, deputy general director, Energy and Environment Research Laboratories, Industrial Technology Research Institute, Chutung, Hsinchu, Taiwan.
- Director-at-Large: Constantinos A. Balaras, Ph.D., P.E., research director, Institute for Environmental Research and Sustainable Development, National Observatory of Athens, Greece.
- Director-at-Large: Richard Kelso, Ph.D., P.E., Fellow ASHRAE, retired president, Kelso-Regen Associates, Knoxville, Tenn., and professor, the College of Architecture and Design, the University of Tennessee.
- Director-at-Large: David Knebel, P.E., Fellow ASHRAE, vice president, sales and technology, AAON Inc., Tulsa, Okla.

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration (HVAC&R) to serve humanity and promote a sustainable world.

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