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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

Demand-Controlled Ventilation Requirements Proposed for ASHRAE 62.1

ATLANTA – Requirements for systems that use optional demand-controlled ventilation strategies are being proposed for ASHRAE's ventilation standard.

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

Seven proposed addenda to the standard currently are open for public comment.

Currently, the dynamic reset section of the standard allows designers to use optional controls to reset outdoor air intake flow and/or zone minimum airflow as conditions within the system change. For instance, it would allow a ventilation-system control approach that alters outdoor air intake flow based on time-of-day, if variations in zone population follow a predictable schedule, according to Dennis Stanke, committee chair.

Proposed addendum 62g provides more specific requirements for such optional system controls, especially those historically called "demand controlled ventilation" (DCV) and based on the use of CO₂ levels, as they relate to outdoor airflow rates.

For example, the addendum would require that optional DCV controls provide no less than the "area outdoor air rate" listed in Table 6-1, and that such controls maintain the minimum outdoor air intake flow no lower than the exhaust airflow rate required by Section 6.2.8, Stanke said.

"After public review and approval, this change should clarify DCV requirements," he said.

Also open for public comment is proposed addendum 62.1c, which would add performance-based air cleaning requirements to section 6 of the standard. This would allow designers in jurisdictions outside of the United States to more readily determine when air cleaning is required. If approved, this addendum also would add air cleaning requirements for systems in non-attainment areas for particulate matter with diameter 2.5 microns (PM_{2.5}) and smaller. Such systems would need to use intake air filters with minimum efficiency reporting value (MERV) 11.

"Through better filtration, this would improve indoor air quality in many metropolitan areas of the United States," Stanke said.

Also open for public comment is addendum 62.1i, which replaces mandatory language requiring that outdoor air rates for environmental tobacco smoke (ETS) areas be determined using engineered methods with language indicating that increased outdoor air rates address odor and comfort for ETS areas, but not health. It also expands and clarifies a note to inform designers that increased outdoor airflow has not been shown to reduce health effects associated with ETS.

Proposed addenda open for public comment from Sept. 14-Oct. 14, 2007, are:

- Addendum f clarifies the meaning of "pool deck area" and associated outdoor airflow rate requirements.

Proposed addenda open for public comment from Sept. 14-Oct. 29, 2007, are:

- Addendum a clarifies air recirculation exceptions related to energy recovery systems and allows Class 2 air to be transferred to toilet rooms.
- Addendum c adds performance-based requirements for each contaminant so designers in jurisdictions outside of the U.S. can more readily determine when air cleaning is required.
- Addendum e updates references to industry standards and documents.
- Addendum g provides additional requirements for demand controlled ventilation systems to augment the section regarding dynamic reset.
- Addendum h updates information regarding U.S. ambient air quality regulations.
- Addendum i modifies the language in 6.2.9., Ventilation in Smoking Areas. It replaces requirements to use engineered methods to determine ventilation in ETS areas with a requirement to use increased outdoor air rates to address odor and comfort for ETS areas, but not health.

Proposed addenda to ASHRAE standards are available during public review periods. To read the addenda or to comment, visit www.ashrae.org/publicreviews.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

ASHRAE Provides Guidance on Achieving Good IAQ

ATLANTA – Providing design guidance on how to achieve good indoor air quality is the aim of a proposed guideline from ASHRAE now open for public comment.

Guideline 24P, *Ventilation and Indoor Air Quality in Low-Rise Residential Buildings*, is the companion guideline to ASHRAE Standard 62.2, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*. The guideline currently is open for public comment until Oct. 29, 2007.

The proposed guideline would provide information on envelope and system design, material selection, commissioning and installation, and operation and maintenance.

The guideline goes beyond the requirements contained in Standard 62.2 by providing explanatory and educational material that would be inappropriate in the code-intended standard.

Topics addressed in the guideline but not covered in the standard include carbon monoxide alarms, air distribution, better air filtration and unvented combustion appliances.

“While both Standard 62.2 and Guideline 24P seek to provide acceptable indoor air quality, the guideline goes beyond by providing additional information for achieving good indoor air quality,” Steve Emmerich, chair of the committee writing the guideline, said. “The guideline also provides information on topics such as verification of ventilation equipment performance and operations and maintenance, which, though important, are not easily addressed in a code-intended standard.”

A draft of proposed Guideline 24P is available during the public review period. To read the guideline or to comment, visit www.ashrae.org/publicreviews.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

Occupant Reactions to IEQ in Offices Presented at ASHRAE Conference

ATLANTA – Glare, noise level and cold drafts during winter months were top concerns of building occupants surveyed in an Australian study regarding indoor environmental quality (IEQ) in office buildings.

Results of the survey will be shared at ASHRAE’s *IAQ 2007: Healthy and Sustainable Buildings* conference, Baltimore Oct. 14-17. For more information, visit www.iaq2007.org.

Occupants of two new buildings in Melbourne were asked about their satisfaction with design features and IEQ including temperature, airflow, air contaminants, sound pressure level, view, lighting and workspace configuration.

Researchers at the University of Melbourne found that the occupants’ complaints dealt with areas related to building operation processes, lack of personal control and noise level.

“The study confirms that it is useful for understanding how design and environmental quality design features impact occupants,” Maxwell Ashibuogu Chiazor, a doctoral student at the University of Melbourne, said. “The study shows that well-being and physiological discomfort are the two factors that account for occupants’ reactions to design and environmental quality. This information is useful for decisions about workplace configuration and building energy efficient design features.”

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

ASHRAE '08

ASHRAE Seeks to Reach New Heights in New York City

ATLANTA – ASHRAE will reach new heights in sustainability, professional development and HVAC&R technology at its 2008 Winter Meeting.

Centered on the theme *Reaching New Heights*, a nod to the skyscraper skyline of New York City, the meeting takes place Jan. 19-23 at the New York Hilton. Held in conjunction with the meeting is the ASHRAE co-sponsored AHR Expo, Jan. 22-24, Javits Convention Center.

For complete meeting information and to register, visit www.ashrae.org/newyork.

Meeting highlights include the technical program, with its theme of *Reaching New Heights in Net-Zero Energy Design*, featuring more than 130 sessions with presentation of 59 papers.

Sessions of special interest in the technical program include a roundtable featuring two of New York's best-known owner/developer firms along with the engineering designers who bring their projects to reality. The session takes place at 11 a.m. Jan. 22, New York Hilton.

A look at New York City's Sustainability Plan, *plANYC 2030*, is presented at 9:45 a.m. Jan. 20, New York Hilton. One goal of the plan is to reduce greenhouse gas emissions by more than 30 percent by 2030. Learn about the city's efforts and ASHRAE's role in meeting these goals.

ASHRAE's free public session focuses on *HVAC System Design for Security and Sustainability*. It is held at 3 p.m. Jan. 22 at Javits Convention Center.

Steve Rizzo, author of *Becoming a Humor Being*, is keynote speaker at the plenary session held at 3:15 p.m. Jan. 19, New York Hilton. He shows people how to choose a healthy attitude both professionally and personally, learning how to succeed and enjoy their lives in the midst of challenging and changing times.

"Concerns about climate change and the need to reduce energy consumption has created numerous challenges, or make that wonderful opportunities, for the built environment engineering community," Kent Peterson, ASHRAE president, said. "Rising to the challenge will require equal parts of perseverance and innovation. Steve Rizzo illustrates how to embrace change as ASHRAE turns its technology engine against the daunting challenge of creating market viable net-zero energy buildings."

Sustainability is highlighted in the technical tours of facilities recognized around the world for their leadership in sustainable design. Buildings on the tour include Four Times Square, One Bryant Park, the Time and Life Building chiller plant, the Helena Apartment building, 7 World Trade Center and Time Warner Center.

The ASHRAE Learning Institute offers seven Professional Development Seminars and 14 short courses at the New York Hilton and Javits Convention Center. New sessions include *Compliance with ANSI/ASHRAE/IESNA Standard 90.1-2007* and *Energy Management in Existing Buildings*.

Sustainability also is highlighted at the ASHRAE Headquarters Hotel, the New York Hilton. Sustainability measures at the hotel include 90 percent fluorescent lighting; environmentally friendly refrigerants used in the chillers; preheating of hot water with steam condensate; and occupancy sensors installed in the meeting rooms. The hotel recently installed a 200KW fuel cell to generate electricity in a clean, environmental friendly way.

In addition, ASHRAE is debuting a program that allows attendees to connect online to carpool or share hotel rooms. Through ShareSpace, attendees can find others in their neighborhood who are attending the meeting, making it easier to find someone to share a cab to the airport and hotel or catch up with someone upon arrival in New York to share ground transportation. Sharing rides or rooms cuts down on energy and vehicle usage, as well as provides networking opportunities. To learn more, visit www.ashrae.org/newyork or www.spaceshare.com/ashrae.

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Contact: Wendy Angel
Public Relations
678-539-1216

ASHRAE Technology Guides Students in the 2007 Solar Decathlon

Guidance from the American Society of Heating, Refrigerating and Air-Conditioning Engineers is being used by the student teams in the 2007 Solar Decathlon, being held Oct. 12-20 in Washington, D.C. ASHRAE. As part of its involvement as title sponsor of the national competition, ASHRAE provided student teams with copies of select standards and publications to aid in energy-efficient and safe design of the solar-powered homes built by 20 university student teams.

ASHRAE also is involved in a variety of other Decathlon activities, such as sponsorship of a reception and student lunch, and has members involved in the competition itself, including judging, student members and team advisors.

“ASHRAE standards are written and adopted to provide for a healthy, comfortable and energy efficient living environment,” says Don Colliver, former ASHRAE president who is overseeing the Society’s Decathlon activities. “There are three major ASHRAE standards which the students could or should have used. Each of these could have a considerable impact upon how the houses are designed and constructed.”

“The Solar Decathlon helps develop the future of sustainable engineering for the building industry,” says ASHRAE President Kent Peterson. “The knowledge and dedication of these students will help ensure that today’s interest in sustainable technology and renewable will propel the building industry into brilliant possibilities for the future.”

ASHRAE standards and publications used by students include:

- Standard 55, Thermal Environmental Conditions for Human Occupancy, which describes the thermostat and humidity settings which should make it comfortable for the people in the house
- Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, which describes the amount of fresh air which is needed to provide for adequate indoor air quality
- Standard 90.2, Energy-Efficient Design of Low-Rise Residential Buildings, which describes the amount of insulation needed and the minimum specifications needed for such things as windows, doors and equipment.
- ASHRAE Handbook-Fundamentals, which gives information about how to determine the way the energy flows within the house or works with the weather conditions in various locations
- ASHRAE’s GreenGuide, which gives the students technical information about building their houses in a green and sustainable manner and how the heating and cooling systems interact with and be influenced by architectural design

Peterson will serve as a judge for this year’s competition, and Colliver will speak at the opening ceremony. ASHRAE will also host a student reception, student lunch, sponsor sessions at Building Industry Day and Consumer Day, and present a team award at the Victory Reception. For more information on ASHRAE’s involvement in the Solar Decathlon, please visit www.ashrae.org/solardecathlon.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

Water-Cooled Chiller Proposal Represents Energy Savings for 90.1

ATLANTA – An estimated annual energy savings of 13 percent relative to ASHRAE/IESNA Standard 90.1-2004 should result from a proposed addendum regarding air- and water-cooled chillers.

ANSI/ASHRAE/IESNA Standard 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, provides minimum requirements for the energy-efficient design of buildings except low-rise residential buildings. Fourteen proposed addenda to the 2007 standard, due out for publication later this year, currently are open for public comment.

Among the addenda is proposed addendum *m*, which establishes effective Jan. 1, 2010, an additional path of compliance for water-cooled chillers as well as consolidation and new requirements for some of the existing categories. The proposed addendum was developed by a team of Standard 90.1 members, industry manufacturers and energy advocacy groups, including the American Council for an Energy Efficiency Economy and the Air-Conditioning and Refrigeration Institute (ARI) and was supported by ARI chiller manufacturers.

Product development for water-cooled chillers in recent years has focused on improving off-design and part-load performance where most of the operating hours occur, according to Drake Erbe, chair of the standard’s mechanical subcommittee. Variable speed drives (VSD) technology has advanced and is finding widespread application in water-cooled

chillers. The use of VSDs has led to off-design and part load improvement of the chiller's performance with efficiencies of up to 30 percent in integrated part-load value (IPLV).

Under the proposed addendum, an alternative set of efficiency levels, Path B, is established for water-cooled chillers intended for applications where significant time is expected at part load. All Path B chillers must be equipped with demand limiting controls. Under this proposal, compliance with Standard 90.1 can be achieved by either meeting the requirements of Path B or Path A (intended for applications where significant operating time is expected at full load conditions). However, both full-load and IPLV levels must be met to fulfill the requirements of Paths A or B, according to Erbe.

The proposed addendum also combines water-cooled positive displacement chillers into one category and adds a new size category for centrifugal chillers at or above 600 tons. The air-cooled chiller without condenser equipment type category has been eliminated. All air-cooled chillers without condensers must now be rated with matching condensers.

The minimum efficiencies of air-cooled chillers have also been updated, Erbe said. Efficiencies in the inch-pound version of Standard 90.1 are now expressed in energy efficiency ratio (EER) for air-cooled chillers, kW/ton for water-cooled chillers and coefficient of performance (COP) for absorption chillers to reflect industry practices. Tables 6.8.1 H through J listing minimum full load and non-standard part load value (NPLV) efficiencies of water-cooled centrifugal chillers at non-standard rating conditions have been eliminated and replaced by an algebraic equation. The tables will now be included in the User's Manual.

This proposal is estimated to save 457.6 GWh of energy per year compared to the requirements of the 2004 version of Standard 90.1. This represents an annual chiller energy savings of 13.3 percent over Standard 90.1-2007, according to Erbe.

Proposed addendum to ASHRAE/IESNA Standard 90.1 is available during its public review period, which ends Oct. 29. To read the addendum or to comment, visit www.ashrae.org/publicreviews.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

ASHRAE '08W

Guidance for Net-Zero Energy Design Highlighted in Technical Program

ATLANTA – How low can you go when it comes to energy reduction in buildings?

Try net zero.

Guidance on how to get there is featured in the technical program at ASHRAE's 2008 Winter Meeting, Jan. 19-23, New York Hilton, New York City. For complete meeting information, including abstracts on all technical program sessions, visit www.ashrae.org/newyork.

"This technical program is ASHRAE's most ambitious ever," promises Mo Hosni, chair of the ASHRAE Program Committee. "First, the technical program is filled with sessions that focus on the hottest issues facing the industry – sustainability and net-zero energy buildings. Second, the program is structured to offer the greatest options for attendees with an extended day of sessions on Wednesday, Jan. 23, as well as the scheduling of 16 seminars at the AHR Expo. Third, for the first time, New York professional development hours will be awarded for several sessions in the technical program, providing excellent value for meeting attendees."

The technical program covers a full range of presentations from basic to advanced, offering more than 130 sessions and 60 papers covering some 100 different technical areas. Programs are separated by tracks: applications, business management, commissioning, data center cooling, dehumidification, exergy, fundamentals, operational topics, refrigeration, sustainability, systems and equipment and underfloor air distribution.

More than 30 sessions related to sustainability are included in the program, with its theme of *Reaching New Heights in Net-Zero Energy Design*.

What is a net-zero energy building? The official ASHRAE definition is "buildings which, on an annual basis, use no more energy than is provided by on-site renewable energy sources." A forum on Jan. 23 explores other definitions and the impact of such buildings on the environment.

A Transactions session on Jan. 22 examines case studies of low-energy buildings, focusing on evaluation of individual technologies, design processes, lessons learned and long-term measured performance.

A Jan. 23 seminar looks at low- and zero-carbon cities of the future, presenting plans by London, Barcelona and Manchester to lower their carbon emissions. Learn how HVAC and related technologies are critical to success.

A Jan. 20 forum looks at the role of energy storage in net-zero buildings, discussing grid impacts, system sizing and costs.

Held in conjunction with the ASHRAE meeting is the ASHRAE co-sponsored AHR Expo, taking place Jan. 22-24, Javits Convention Center. Please note that the Expo is being held Tuesday-Thursday this year instead of its regular Monday-Wednesday schedule.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

ASHRAE Expands Certification to Testing Centers Worldwide

ATLANTA – ASHRAE's first certification program is now available in testing centers in 22 countries. The certification, Healthcare Facility Design Professional (HFDP), is a computer-based examination that tests an applicant's mastery of a body of knowledge.

"An indoor environment that is safe, comfortable and enhances productivity at minimum impact to the environment is a basic need throughout the globe," Richard Hayter, chair of ASHRAE's Certification Committee, said. "One way by which ASHRAE addresses that need is through its certification programs."

In addition to the United States and Canada, the exam is now offered in Australia, China, Egypt, Guam, India, Italy, Japan, Jordan, Kuwait, Lebanon, Philippines, Puerto Rico, Qatar, Saudi Arabia, Singapore, South Africa, South Korea, Taiwan, the United Arab Emirates, and the United Kingdom.

Applicants first apply for the examination through ASHRAE, and if they meet the certification qualifications, register for the examination at a testing center.

ASHRAE's certification program identifies individuals who have mastered a body of knowledge covering successful design and operation of healthcare facilities. Future certifications are planned for sustainable facility design, commissioning, and operations and maintenance.

The technical content for the HFDP exam was developed in cooperation with the American Society for Healthcare Engineering (ASHE) of the American Hospital Association (AHA).

Membership in ASHRAE is not required to participate. A list of recommended resources on healthcare facility design from ASHRAE and other sources is available. For more information, visit www.ashrae.org/certification.

In addition, ASHRAE will offer an onsite HFDP exam March 10, 2008, at the Gaylord Palms Hotel & Convention Center in Orlando, FL. This exam administration is being offered in conjunction with ASHE's Planning, Design and Construction Conference.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

ASHRAE Receives NCEES Accreditation for Educational Programs

ATLANTA – ASHRAE has received accreditation for its education program from the National Council of Examiners for Engineering and Surveying (NCEES).

This accreditation from NCEES' Registered Continuing Education Providers Program (RCEPP) gives ASHRAE's educational offerings, part of the ASHRAE Learning Institute, another level of credibility in the eyes of licensing and renewal authorities.

ASHRAE Learning Institute offers on-site and online educational programs addressing a wide variety of engineering topics, such as commissioning and compliance with ASHRAE standards. For more information, visit www.ashrae.org/ali.

RCEPP is a comprehensive registry of continuing educational providers that have demonstrated adherence to high-quality, effective practices in the development and delivery of professional education activities for engineers and surveyors.

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Contact: Jodi Dunlop
Public Relations
678-539-1140
jdunlop@ashrae.org
1791 Tullie Circle NE
Atlanta, GA 30329

'08 Winter Meeting

Lessons Learned in Sustainable Design Highlighted in ASHRAE Roundtable

ATLANTA - New York City is home to some of the world's best known green buildings and leading design firms that test new boundaries in high-performance, sustainable design.

In a special roundtable session at ASHRAE's 2008 Winter Meeting, two of New York's best-known owner/developer firms, along with the engineering designers who bring their projects to reality, discuss the challenges, opportunities and successes in delivering new green high-rise towers that add to New York City's skyline and grace the covers of engineering trade magazines.

High-Performance Buildings: Lessons from the Leaders takes place 11 a.m.-12:30 p.m. Tuesday, Jan. 22, at ASHRAE's meeting, Jan. 19-23, New York City. Registration is required to attend.

Learn about owner motivations, technical challenges, design choices and trade-offs, costs for these projects, and perspectives about whether the expectations set early in the design process have been met once the buildings are occupied.

"The building market is transitioning to high-performance green buildings," Kent Peterson, ASHRAE president, said. "It is essential that ASHRAE continue to educate owners, contractors and designers on both the challenges and successes in delivering such buildings. This roundtable offers participants the chance to hear what it takes to provide buildings that perform and are environmentally responsible."

Participants in the session are:

- Donald J. Winston, P.E., director of technical services, The Durst Organization, Inc., whose buildings include Bank of America Tower at One Bryant Park, 4 Times Square and the Helena, all of which are featured on technical tours at the ASHRAE meeting.
 - Tom Scarola, director of engineering, Tishman Speyer, whose buildings include the Chrysler Center.
 - Scott Frank, P.E., partner, Jaros Baum & Bolles, whose buildings include One Bryant Park, World Trade Center Site (Towers 1 through 4) and World Trade Center 7.
 - Daniel H. Nall, P.E., senior vice president/director-advanced technologies, Flack + Kurtz, whose projects include The New York Times Headquarters, The Hearst Headquarters and the Verdesian.
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