



AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS INC.

LONDON CANADA CHAPTER #116

<http://LondonCanada.AshraeChapters.org>

Mon Oct 27/2008

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TOPIC:

VARIABLE REFRIGERANT FLOW GEOTHERMAL SYSTEM DESIGN

SIMON T SIMMONS

Technical Sales Director
Total Concept Solutions Ltd.
London UK

Meeting - Mon Oct 27/2008

STUDENT NIGHT

London Chapter Members = \$30.00
Meal Plan Rate = \$150.00
Students = \$10.00 Others = \$40.00

THE LAMPLIGHTER INN, 591 Wellington Rd., London
CASH BAR ALL YOU CAN EAT BUFFET
5:15-Social 6:00-Dinner 7:15-Program





President's Message

Winter is fast approaching, and our thoughts will now turn to heating systems design more and more.

With the cost of fossil fuels rising on a weekly basis, we feel pressured to find alternative sources of heating and energy to make the quality of life better, and not so expensive. ASHRAE has a focus on sustainability, and "Green Building Designs".

This month we have arranged to have Simon Simmons from Total Concept Solutions (an engineering firm in the UK) come to do a presentation on Geothermal System Design, with a special focus on Geothermal Variable Refrigerant Flow Systems. Simon has had several years experience in industrial and commercial systems design, and has worked on several very large geothermal systems projects in the UK and other countries.

The Property Management Expo and Conference is coming to Toronto this December 3rd to the 5th, and we have complementary passes that are available to anyone that is interested in attending. See me or call me for more information.

Gordon V. R. Holness (ASHRAE Society President-Elect) will be our Distinguished Lecturer at the November 24th meeting – speaking on "Energy Efficiency in Existing Buildings - Our Greatest Opportunity for a Sustainable Future".

Your London Chapter of ASHRAE Board of Governors welcomes your input and suggestions for topics of interest that you would like to see presented at upcoming meetings. Feel free to speak to anyone on the chapter board to share your thoughts with us.

We look forward to seeing you at the meeting next Monday night.

Eric Shaw
ASHRAE London Canada Chapter President

Speakers Bio

SIMON T SIMMONS

TECHNICAL SALES DIRECTOR
TOTAL CONCEPT SOLUTIONS LTD

KEY EXPERIENCE

- * Over twenty five years experience in industrial and commercial heating and cooling systems.
- * Extensive experience in assessing client technical requirements into particle low carbon energy efficient and cost effective solutions for heating and cooling geothermal and ground sourced heat pump systems.
- * Experienced design and application of complex hydraulic systems involving refrigeration and water based systems with single contact values exceeding £22M
- * Over eight years experience in project and contract management of multi use and multi serviced environments including industrial, commercial, retail and leisure industries with budget cost control of £100M +
- * Experienced European quality assurance manager with a large multinational blue chip heating and cooling equipment manufacturer.
- * Extensive experience in preparing company and client cost control and project estimate assessments.
- * Technical design engineering manager for high specification military cooling equipment manufacturer
- * Member Of The Chartered Institute Of Building Services Engineers (CIBSE)
- * Representative and involvement with Eurovent, BISRA, Central Government Carbon Emissions and Renewable Energies and The Carbon Trust.
- * Managed and executed design and installation of many prestigious projects such as Bank Of England, AWE Aldermaston, Euro Disney, Coke Cola HQ, Worthing Hospital, Northern Telecom, British Telecom HQs, Alders, Debenhams, Sainsburys and John Lewis stores

Pete Edmiston
Branch Manager



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Upcoming Meetings & Events

Mon Nov 24/2008

Energy Efficiency in Existing Buildings
our greatest opportunity for a Sustainable Future
Gordon Holness P.E.
Grosse Pointe Shores, Mich
Fellow/Life Member ASHRAE
DISTINGUISHED LECTURER

Mon Jan 26/2008 *Membership Night*

Revisions to B149 and Venting
Don McInroy
Industrial Sales & Product Manager
Security Chimneys International

Mon Feb 23/2009 *Student Night*

Controls
Technology Shifts and ASHRAE Standards
Joseph Klotz
Product Sales Manager for Canada
Johnson Controls

Mon Mar 30/2009 *Tour Night*

Tour - Toyota

Mon Apr 27/2009 *Membership Night*

CIPH and the Future of Hydronics In Canada
John Goshulak P.Eng.
Vice President, Sales and Marketing
Weil-McLain Canada

SOMERS ENVIRONMENTAL
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Norm Clarke, P. Eng.
District Manager



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Sustainable Urban Design the Focus of ASHRAE Winter Conference '09 in Chicago

ATLANTA – At the 2009 ASHRAE Winter Conference in Chicago, you can be greeted at the Tech program not once but twice, courtesy of this year's extended series of sessions at McCormick Place on Wed., Jan. 28. Although the conference's technical program begins Jan. 25 at the Palmer House Hilton, the "Wednesday Welcome" event at the AHR Expo location offers ASHRAE members a chance to attend a kick-off morning reception and receive critical technical information at the educational sessions, with access to the show floor to see the latest in HVAC&R offerings.

ASHRAE's free public session also focuses on Sustainability in the Urban Development, sharing how the industry is building on its efforts to increase energy efficiency and indoor environmental quality of buildings by furthering the sustainability of entire communities. It is held at 3 p.m. Jan. 26 at McCormick Place.

The ASHRAE Winter Conference runs Jan. 24-28, 2009, and the AHR Expo takes place Jan. 26-28. For more information on the ASHRAE Conference, please visit

www.ashrae.org/chicago



Market Transformation Taking Place with Advanced Energy Design Guide

ATLANTA – Nine million tons of carbon dioxide. \$600 million in energy costs.

That's the potential savings represented by 100,000 copies in the Advanced Energy Design Guide series now in circulation. More than 88,000 of the publications have been obtained via free download since January.

The series includes publications on small retail and small office buildings, K-12 school buildings, and warehouses and self-storage units. The books provide guidance on how to achieve 30 percent energy savings over building code minimum based on ANSI/ASHRAE/IESNA Standard 90.1-1999.

Calculations show that if every guide downloaded resulted in a single building designed to save 30 percent beyond code minimum, the estimated energy and carbon savings would be 52 trillion btus and 9 million tons of carbon dioxide. With an average cost of electricity of 5 cents per kwh and gas at \$7 per mmbtu, the estimated cost of energy savings is over \$600 million. The guides are developed by ASHRAE, the American Institute of Architects, the Illuminating Engineering Society of North America and the U.S. Green Building Council, with support from the U.S. Department of Energy. The downloads are available at www.ashrae.org/freeaedg.

"ASHRAE is committed to energy optimization and producing guidance that will help move the building industry toward market-viable net-zero energy and carbon neutral buildings," ASHRAE President Kent Peterson, P.E., said. "The call for these high performing buildings is transforming our industry, and the guidance in the Advanced Energy Design Guide series is useable technology guidance to help owners, architects and engineers in accomplishing high-performing buildings."

"This is proof positive that there are substantial economic benefits to green building strategies," said AIA President Marshall E. Purnell, FAIA. "Hopefully this will help convince skeptics of the value and payback of green building design and that practitioners will take advantage of this excellent resource so that we can move closer to reaching our shared goal of carbon neutral buildings by 2030."

"IES is pleased to part of the team developing these important guides, whose success demonstrates that collectively the collaborating organizations are raising awareness about how to achieve energy savings and developing a receptive audience for future guidance on net-zero energy and carbon neutral buildings," said Rita M. Harrold, IESNA director of technology. "The green building movement offers an unprecedented opportunity to respond to the most-important challenges of our time, including global climate change, dependence on non-sustainable and expensive sources of energy, and threats to human health," said Rick Fedrizzi, President, CEO & Founding Chair, U.S. Green Building Council. "Working with ASHRAE, AIA and IESNA on the Advanced Energy Design Guide series is part of a critical collaborative effort to provide the industry with the tools it needs to make an immediate and measurable impact."

Upcoming publications in the series include 30 percent guidance books for highway lodging, existing buildings and small health care facilities. For more information on the Advanced Energy Design Guide series, visit www.ashrae.org/aedg.

ASHRAE Announces Staffing Changes Related to Technology

ATLANTA – Two senior management changes are being announced related to ASHRAE's Technology Department.

Bruce Hunn, Ph.D., who has served as ASHRAE's director of technology since 1997, has been named to a newly created position, director of strategic technical programs. Claire Ramspeck, who formerly served as assistant director of technology for standards and special projects, has been named director of technology.

"These changes allow for better support of ASHRAE resources as the demand for ASHRAE's technical expertise and collaborative projects continues to grow," Jeff Littleton, ASHRAE executive vice president, said. "This will enhance ASHRAE's efforts in key technical areas such as net-zero-energy policy and the advancement of our activities with other organizations in the building industry."

As director of strategic technical programs, Hunn will oversee ASHRAE's special projects, such as development of its Advanced Energy Design Guide series, the upcoming Advanced Indoor Air Quality guide and other documents that will provide design guidance to achieve net-zero-energy buildings.

Prior to joining ASHRAE, Hunn served as head of the Building Energy Systems Program, Center for Energy Studies, the University of Texas at Austin.

Ramspeck will direct staff support of ASHRAE's \$3 million per year research program, its 90-plus technical committees and its 120-plus standards as well as technical services.

She has worked at ASHRAE since 1995, previously serving as manager of technical services and manager of standards. Prior to working at ASHRAE, she was a design engineer for Bechtel.

ASHRAE, Global Cold Chain Alliance Ban to Promote Mutual Refrigeration Interests

ATLANTA – Under a new agreement, ASHRAE and the Global Cold Chain Alliance will work together in a strategic partnership to advance and promote the mutual interests of refrigeration and facility professionals.

Potential collaborative efforts include development of a refrigerated warehouse guide, updating the existing refrigeration warehouse chapter and other guidance in the ASHRAE Handbook, Refrigeration, and co-sponsoring of research related to refrigeration.

"ASHRAE's involvement in refrigeration began more than 100 years ago, and since that time the Society has been a strong link in the cold chain through our research, education and other technical information," ASHRAE President Bill Harrison said. "Through our agreement with the Global Cold Chain Alliance, we will strive to revitalize refrigeration to better serve the needs of the world. Working together, we must seek the best in refrigerants, efficiency, cost reduction, reliability and energy utilization."

"This signed agreement for Strategic Partnership between the Global Cold Chain Alliance and ASHRAE is an example of the strength of an industry addressing the challenges of a safe and efficient cold chain around the world. ASHRAE members represent a key element in the success of this initiative," Bill Hudson, president and CEO of the Global Cold Chain Alliance, said.

**Improving Building Performance Strong Focus of ASHRAE Meeting**

ATLANTA – Tremendous opportunities for improving the performance of existing buildings were highlighted at the ASHRAE 2008 Annual Meeting held in Salt Lake City.

The meeting theme of “Building Performance” was reinforced by focus of the newly elected president on operation and maintenance, introduction of a new “sustainable footprint” project and launch of the Society’s certification program for high performance building design professionals.

Some 1,670 members came together to support the Society’s mission of advancing HVAC&R to serve humanity and promote a sustainable world.

“The beautiful Rocky Mountains surrounding Salt Lake City was the perfect scene for another productive ASHRAE meeting,” Bill Harrison, ASHRAE president, said. “When you’re in the mountains, hiking up those steep walls of rock, it may seem like the climb will never end. But when you take a step back and look at those slopes, the mountains don’t seem so unbearable. With our meeting theme of Building Performance, ASHRAE showed that our climb to our goal of energy efficiency for the world’s buildings doesn’t look so far away. In fact, it seems we are almost there.”

Harrison was inducted as the Society’s president for 2008-09. Through his theme, Maintain to Sustain – Delivering ASHRAE’s Sustainability Promise, Harrison will focus on operating buildings to deliver the energy efficiency inherent in their design, including effective commissioning, improved documentation, and programs to educate and certify building operators.

“We must maintain to sustain, we must train to sustain and we must influence the operation of our buildings to conserve energy,” he said. To read his presidential address, visit www.ashrae.org/harrison.

At the meeting, ASHRAE launched its first sustainable footprint project – designed to leave behind a lasting sustainable footprint in the cities where the Society’s meetings are held. Thanks to funds and equipment donated by members and others, a solar hot water heating system was installed at the YWCA of Salt Lake City’s Teen Home. More than \$9,000 in money and equipment was raised to install the system, with a ribbon cutting held as part of the meeting.

ASHRAE provided four flat solar panels and additional storage capacity for domestic hot water use. The solar panels will replace approximately 100 decatherms of natural gas per year and reduce the carbon footprint for the home by over 10,000 lbs. of CO₂ annually, saving the YWCA more than \$650. For more information, visit www.utahashraesolar.tzo.com.

ASHRAE Learning Institute courses related to natural ventilation and solar applications were well-attended, illustrating that “technology as usual” is no longer the norm for building design, construction and operation.

Top-attended technical program sessions included Utilizing VFD for Building HVAC System Performance; Issues Update: Performance Based Energy Labels for Buildings; Improving Building Performance by Using the IAQ Procedure; Balancing Energy and Water Conservation in HVAC Cooling Systems: A Total Consumption Approach; Benchmarking Performance of Ventilated and Non-Ventilated Attics; Modeling Data Center Airflow and Cooling Performance; and the keynote technical plenary speaker Arah Schuur with the Clinton Climate Foundation.

Top-selling publications at the meeting were the ASHRAE GreenGuide: The Design, Construction and Operation of Sustainable Buildings; ASHRAE Guideline 1.1-2007, HVAC&R Technical Requirements for The Commissioning Process, ANSI/ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality, and its User’s Manual, and ANSI/ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings.

ASHRAE also launched its second certification program in high-performance building design with some 60 people taking part. The examination will be available on computer at testing centers in the U.S. and Canada by mid-August.

The next certification program will focus on operation and maintenance, and is scheduled to launch at the 2008 Winter Meeting, followed by a program on commissioning at the 2009 Annual Meeting. For more information, visit www.ashrae.org/certification.

ASHRAE will hold its 2009 Winter Meeting, Jan. 24-28 in Chicago, accompanied by the AHR Expo, Jan. 26-28.

ASHRAE Raises More Than \$2 Million for Research Promotion

ATLANTA -Five hundred twenty-five thousand six hundred minutes. How do you measure, measure a year?

So goes the song from the hit play Rent. But at ASHRAE, we’ve measured the past year in dollars: \$2,081,422 to be exact. Exceeding the 2007-2008 fiscal year’s \$2 million goal, ASHRAE’s efforts on the chapter and Society level for raising funds for research have led to a record-breaking year.

“Surpassing our goal for Research Promotion truly signifies the dedication of our volunteer base,” says Bill Harrison, ASHRAE president. “ASHRAE volunteers are the backbone of our Research Promotion program, which is a grassroots effort. I thank each of the 160 dedicated fundraising volunteers on the chapter level for helping fund our research program, which is widely respected in the building industry.”

With 6,000 total donations for the year, nearly half came from individual ASHRAE member donations, with corporate donations comprising the remainder. With an increase of nearly \$300,000 over the previous year, the money raised will fund research projects beginning in the 2008-2009 fiscal year. ASHRAE conducts about \$8 million in research in any given year, with projects often spanning several years. Currently, there are 92 active research projects, including ones focusing on hospital operating room air distribution and air quality on board commercial aircraft.

Individual chapters raise funds in a variety of ways, including golf tournaments, auctions and educational seminars. ASHRAE’s Region VIII, which covers Oklahoma, Texas, Arkansas and Louisiana, led the regions in total funds raised with \$375,591.

ASHRAE, founded in 1894, is an international organization of some 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.

**BACnet Looks at Improving Standardized Communications**

ATLANTA – A new standard way of representing building data will give BACnet new capabilities for standardized communications between a wide range of applications.

A definition for an XML syntax which can be used to represent building data in a consistent, flexible and extensible manner, is defined by addendum t, recommended for public review by the BACnet committee during ASHRAE's recent 2008 Annual Meeting.

The Extensible Markup Language (XML) is a popular technology in the data processing and communications worlds, based on its ability to model a wide range of data, and its ability to be transformed and extended.

"With this new IT-friendly way of representing building data, we are opening up a whole range of possible new ways to share data. XML can be used for exchanging files between systems, integrating buildings with energy utilities, and expanding enterprise integration with richer Web services," said Dave Robin, incoming BACnet chair.

In a busy three-and-a-half day session during the meeting, the BACnet committee moved eight other addenda toward publication.

Addendum g, a new means for securing BACnet messages using updated encryption technologies, was recommended for another public review following an extended period of revision and analysis by the Network Security working group following the preceding public review.

The Life-Safety and Security working group, comprised of BACnet and physical security industry experts, recommended another public review for Addendum j, which proposes physical access control extensions for BACnet.

"We received only nine comments on the previous public review," said working group convener David Ritter, "and they were all positive and constructive comments."

The Testing and Interoperation working group revised its definitions of several new types of BACnet operator workstations following the first public review of addendum l last fall.

"These definitions will not only allow users to specify the capabilities of different workstations, but are necessary for defining the tests done on those workstation by BACnet testing labs," said working group convener Carl Neilson.

Addenda h, r and s, all comprised of a number of independent changes, were also recommended for public review.

After reviewing the comments submitted for two addenda, the BACnet committee determined that addenda b and m had passed spring public review and will be submitted for publication. Both addenda are comprised of several independent changes but include user-oriented extensions such as the Event Log object, which keeps a history of BACnet alarms in a standard fashion.

Also during the meeting, outgoing BACnet chair Bill Swan announced the publication of BACnet 2008, incorporating the five addenda that have been approved since the publication of BACnet 2004.

The BACnet committee continues to work on a broad range of other items, such as architectural and theatrical lighting controls, developing standard profiles for various building automation devices, CCTV control, and elevator monitoring.

ASHRAE Publishes New Guidance on Commissioning Process

ATLANTA – Specific tasks to successfully implement the commissioning process for HVAC&R systems and assemblies are featured in a new guideline from ASHRAE.

ASHRAE Guideline 1.1, HVAC&R Technical Requirements for the Commissioning Process, describes the technical requirements for the application of the commissioning process described in ASHRAE Guideline 0-2005 that will verify that the HVAC&R systems achieve the owner's project requirements.

"The quality-oriented process outlined in the guideline provides improved quality and greater cost effectiveness compared to commissioning as currently practiced by many commissioning providers," Walter Grondzik, secretary of the committee that wrote the guideline, said. "One problem with the current practice is that 100 percent checking is performed during the construction phase of the project delivery process, and this checking usually focuses on limited or targeted systems. Quality-based sampling is not used, and so the current approach has limited quality-based random inspection procedures."

The guideline contains more than 100 pages of annexes, providing concrete examples of forms and documents to assist the commissioning team and owners in their efforts to deliver quality buildings that meet the owner's project requirements. Twenty-five sample checklists, covering pre-design, design and construction, are included along with a sample owner's project requirements verification test procedure.

The cost of ASHRAE Guideline 1.1, HVAC&R Technical Requirements for the Commissioning Process, is \$69 (\$55, ASHRAE members).

SIDEBAR

Why should you use the commissioning process? Commissioning a building (and systems within a building) helps ensure that:

- The owner's project requirements are complete, feasible and well-documented;
- The design team's solutions adequately address the owner's requirements;
- Construction is complete and of appropriate quality;
- The owner receives the training and project documentation to successfully operate the project;
- The many players in the project acquisition process can cooperate for the common good.

**Recreation Center Focus of ASHRAE Student Design Competition**

ATLANTA – Healthy bodies and a healthy building go hand-in-hand in the winning entries for ASHRAE's 2008 Student Design Competition.

This year's competition featured architectural design as well as selection and design of HVAC&R systems for a 60,000-square-foot community recreation center. The center features a gym with two full-size basketball courts and a running track, a wellness center with fitness equipment room and aerobics room, a natatorium with a six-lane swimming pool and indoor racquetball courts.

First place in the HVAC system selection category is awarded to Alyssa Adams, James Gawthrop Jr., Amy Leventry, Gregory Smithmyer, Calvin Douglass, Justin Herzing and Michael Smith of The Pennsylvania State University, University Park, Pa. Their advisor is William Bahnfleth, Ph.D., P.E.

The students chose a ground-source heat pump with active chilled beams or fan coils in a four-pipe system configuration for both heating and cooling and a dedicated outdoor air system for all spaces with an enthalpy wheel for energy recovery and a solar assisted LiCl dehumidification unit in the natatorium space.

"This solution was found to be the most sustainable of all the systems considered," the students wrote. "It uses heat transfer from the earth as opposed to burning fossil fuels and utilizes solar energy from the solar thermal collection panels, reducing the amount of energy supplied to the building and the energy footprint of the facility. Electricity used by the facility is directly translated into emissions at the power plant. Therefore, minimizing the onsite energy consumption not only saves energy but also reduces carbon emissions."

First place in the HVAC system design category goes to Chaowanaphan Lekkham, Patarapol Puangkum, Pakorn Nontiwatwanich, Wiroj Ekwongmunkong and Supayos Suveepattananont of Chulalongkorn University, Bangkok, Thailand. Their faculty advisor is Chirdpun Vitooraporn, Ph.D.

The students chose an electric air-cooled chiller system with 134a as a primary refrigerant and water as a secondary refrigerant. Elements of the system include variable-speed drives, outside air units, CO2 sensors, and heat pipe and heat recovery wheel units.

"The relative energy consumption as well as relative operating and maintenance costs determined that the system is not only beneficial for the building owner and users but for the environment as well," the students wrote. "We believe our design provides a functional, economical, environmentally friendly and sustainable HVAC system for serving the center."

First place in the architectural design category is awarded to Alexandra Gibson, Justina Jones, Bryan Quarles and Bazigha Tufail of The University of Kansas, Lawrence, Kan. Their advisor is Brian A. Rock, Ph.D., P.E.

Their design was based on their goal of using sustainable technologies for HVAC&R, lighting, energy supply and water use. Key features include a green roof to combat the urban heat effect and to provide extra roof insulation as well as contributing to CO2 absorption/oxygen output; rainwater harvesting; development of proper lighting controls detecting the amount of daylight penetration, efficient illumination fixtures and the use of light shelves for indirect lighting; and photovoltaic panels to minimize electricity use.

"To produce a building that includes all of these ideas while remaining beautiful and also acting as an educational tool, integration of these systems from the beginning from the design was a key element," the students wrote.

Awards will be presented at ASHRAE's 2009 Winter Meeting Jan. 24-28 in Chicago. Winning student groups will each have a poster presentation to display their projects at the meeting.

The competition recognizes outstanding student design projects, encourages undergraduate students to become involved in the profession, promotes teamwork and allows students to apply their knowledge of practical design.

New Package from ASHRAE Gives Users Tools for LEED

ATLANTA - With a new package, ASHRAE has put the tools for making the most out of your LEED-intended project at your fingertips—at a discount. To help architects, program managers, building owners, and others meet and learn about LEED requirements and the development of high-performing buildings, ASHRAE has put together a new package that includes three ASHRAE standards frequently used in conjunction with LEED v.2.2. Also included are the Standard 62.1 and Standard 90.1 User's Manuals and three books from the popular ASHRAE Advanced Energy Design Guide series.

"The ASHRAE Tools for LEED package is an unbeatable source of technical information for creating sustainable buildings," says W. Stephen Comstock, publisher. "ASHRAE standards have long been a part of the LEED program's technical requirements, and we are pleased to offer these standards together to best benefit the building industry."

The hard-copy-only package price is \$426 (\$335 ASHRAE members), a 30 percent discount. 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.

The full package includes:

- ANSI/ASHRAE/IESNA Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P edition)
- 90.1-2004 User's Manual
- ANSI/ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality
- 62.1-2004 User's Manual
- ANSI/ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy
- Advanced Energy Design Guide for Small Office Buildings
- Advanced Energy Design Guide for Small Retail Buildings
- Advanced Energy Design Guide for K-12 School Buildings
- Procedures for Commercial Building Energy Audits

**ASHRAE, The Green Grid Collaborate to Develop Data Center Efficiency**

ATLANTA – Publications that provide improved guidance for data center design and operation will result from a new agreement between ASHRAE and The Green Grid.

The cooperative publication agreement between ASHRAE and The Green Grid encourages the sharing of technical information, particularly guidance regarding energy efficiency, between the two groups.

With datacom center operations running 24 hours a week, 7 days a week, approximately three times the annual operating hours of most commercial properties, energy use is typically large and concentrated. As a result, issues such as sustainable design, energy efficiency and operating cost become critically important for these facilities.

"This agreement raises our collaboration efforts in the electronics industry and enhances our efforts to provide data center operators with important information to improve the energy efficiency of data centers, paralleling the work already being done by ASHRAE to improve energy efficiency in all types of buildings," said Roger Schmidt, chair of ASHRAE's technical committee on mission critical facilities, technology spaces and electronic equipment. "ASHRAE's unique membership makeup of manufacturers, designers, facility managers, architects and code officials will go a long way in assisting the member companies of The Green Grid."

"With energy shortages and rising energy costs now topping the list of concerns for large scale organizations, the movement to reduce data center and other IT energy usage patterns is quickly gaining momentum," said Geoffrey Noer, a director of The Green Grid. "We believe achieving greater IT energy efficiency is a crucial step to ensuring that growing companies can control costs while enabling future expansion."

The Green Grid, www.thegreengrid.org, is a global consortium dedicated to advancing energy efficiency in data centers and business computing ecosystems.

Eco-Roof Game Developed Through ASHRAE Grant

ATLANTA – University of Oregon students, come on down. You're the next contestants on the Eco-Roof Game.

Under a teaching project funded through a grant from ASHRAE, students at the University of Oregon will be challenged to develop, construct and determine the R-value of a green roof through a hands-on experience, known as the Eco-Roof Game. The project was one of 10 grants funded by ASHRAE through its senior undergraduate project grant program.

The grants, totaling some \$65,000, are awarded by ASHRAE to colleges and universities worldwide to promote the study and teaching of HVAC&R, encouraging undergraduate students to pursue related careers. The grants are used to design and construct projects. For more information, visit ASHRAE.org/studentzone.

As part of the Eco-Roof Game, students will use actual building materials, a heat flux transducer, dataloggers and moisture meters to learn about heat loss and gain, insulation value, material properties, water conservation, evapotranspiration and to consider strategies for conserving energy.

"Targeting both architecture and engineering students about energy and the environment is particularly important because, whether aware of it or not, they play a central role in shaping the world in these areas," said Alison Kwok, a professor at the university who submitted the grant application. "A thoughtless decision about building orientation may create a cooling load that lasts as much as a century. Instilling an experience about envelope materials can influence decisions about building design that will impact power use for thousands of business days."

Other ASHRAE grant recipients are:

American University of Beirut, experimental investigation for performance and optimized design of radiant heating panels for rooms constructed according to Lebanese building thermal guidelines

Cairo University, Water Cooling Tower Educational Stand: Design and Fabrication

Purdue University – Fort Wayne, Design and Development of Solar Cooling Demonstration Unit

Mapua Institute of Technology, Development of an Indoor Environment Quality Measurement Laboratory and Laboratory Set-up of Thermal Ice Storage for Air Conditioning Systems

Purdue University – Calumet, Cooling Systems for Data Centers

Texas A&M University, Design and Construction of Solar Powered Refrigeration System Using Carbon Nanotubes and Methanol

Universidad Pontificia Bolivariana, Solar Absorption Refrigeration Module for the Chiller Type HVAC Lab

Western Kentucky University, Passive Residential Cooling System

ASHRAE, founded in 1894, is an international organization of some 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.