

THE HOT AIR DIFFUSER

Idaho ASHRAE Chapter Newsletter



MAY 2011

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PRESIDENT'S MESSAGE

Hello Idaho ASHRAE Members,

Thanks to all those that came out to support and enjoy our annual technical conference. Again thanks to all those that made it possible and a big thanks to Laura Rasmussen for all of her hard work. We will hand out your PDH certificates at next week's meeting, we will mail out the remaining to those that cannot attend.

Randy Reed has lined up great speakers this month, another ASHRAE Distinguished Lecturer. Our chapter is very lucky to have THREE DL's in one year.

The golf tournament is coming up next month and Spencer has a few exciting things in store for this year. The big news is there will be a \$10,000 hole-in-one cash prize. If you or your company is interested in sponsoring a tee or green sign up soon; Scott has been selling them and space is limited.

Hope to see you all next Wednesday!

Carl Marcum
President Idaho ASHRAE Chapter



APRIL PROGRAM

Methods of Effective Room Air Distribution (MERAD)

This month's speaker will be Dan Int-Hout III, the chief engineer for Krueger.

**When: WEDNESDAY, May 11, 2011
(11:45AM-1:00PM)**

**Where: Idaho Power Building
1221 W. Idaho Street
Boise, Idaho**

**Please RSVP
at www.idahoashrae.com**

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In addition, papers are sought for tracks on Specialized Applications, Energy Modeling, Operations & Maintenance, HVAC Systems, HVAC Fundamentals and Applications, Professional Skills and Refrigeration.

The deadline for paper submissions is April 18, 2011. For complete information on tracks, contacts and submittal requirements, visit www.ashrae.org/chicago.

Full-length technical papers or conference paper abstracts (400 words or less) should be submitted by April 18.

For more information about the two types of papers and how to submit a full-length technical paper or conference paper abstract, go to the ASHRAE Chicago Conference webpage: www.ashrae.org/chicago. For accepted conference paper abstracts, the completed conference papers will be due July 8, 2011.

The Conference is expected to attract some 3,000 attendees from 60 countries. The technical program takes place Sunday, Jan. 22–Wednesday, Jan. 25, and includes paper presentations as well as non-paper presentations. Approved papers are published in ASHRAE Transactions. Held in conjunction with the ASHRAE conference is the ASHRAE-cosponsored AHR Expo, Jan. 23-25.

“The overwhelming choice from our several webcast surveys has been ground source heat pump systems,” Dave Shugars, chair of ASHRAE’s Chapter Technology Transfer Committee Webcast Ad Hoc Committee, said. “This webcast will highlight several critical factors in the evaluation and design process that are essential to deliver system efficiency. From understanding ground characteristics, to avoiding pitfalls of design and installation, the webcast is a must see for discerning owners and designers alike.”

The webcast presenters are Jeffrey D. Spitler, Ph.D., P.E., professor in the School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, Okla.; Kirk T. Mescher, P.E., principal, CM Engineering, Inc., Columbia, Mo.; and Mick Schwedler, P.E., manager, Applications Engineering, Trane, LaCrosse, Wis.

Three Professional Development Hours (PDHs) or three AIA Learning Units (LUs) may be awarded to viewers who complete the participant reaction from online by May 5, 2011.

The live program will be archived online until May 5, 2011, for viewers who are unable to participate on April 21. Registration is required to view the archived program. Online registration for the webcast begins March 21, 2011. For more information on the webcast program, continuing education credits and ASHRAE ground source heat pump resources, visit www.ashrae.org/ghpwebcast. If you have questions about the webcast, call 678-539-1200 or email ashrae-webcast@ashrae.org.

ASHRAE Funds Undergraduate Project on Net Zero Energy Design Toolkit

ATLANTA – A toolkit to help better understand the impacts of building construction related to net zero energy targets is being developed by undergraduate students in their senior year through an ASHRAE Undergraduate Senior Project Grant.

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.

This year, 14 schools from around the world were awarded grants, including the University of Oregon for its proposal to develop a net zero energy design toolkit. As the top grant award winner, two students from the university are invited to present their project as part of the Student Program at the 2012 ASHRAE Winter Conference in Chicago.

As the building industry looks toward more energy efficient design, with the eventual goal of net zero energy use, additional tools are needed. The toolkit being developed by students will help facilitate understanding of the impact of design decisions on the rising cost of energy and enhance dialogue between engineers, architects, contractors and building owners.

“The toolkit offers a three-tiered approach to investigate, evaluate and experience the impacts of building construction in achieving net zero energy targets related to design, construction and occupancy,” Allison Kwok, faculty advisor and branch advisor for the University of Oregon Student Branch, said. “The approach is provided through pre-occupancy onsite investigations, post-occupancy audits of the existing building stock and through a professional workshop between local members and students.”

The toolkit will include a building air tightness testing system as well as an infrared camera to detect moisture, missing or defective insulation, structural shortcomings, HVAC problem areas, sources of heating and cooling loss, plumbing blocks, roof leaves and electric issues.

The kit will be used for pre- and post-occupant audits followed by a workshop, where students will discuss their real experiences with building performance analyses dealing with topics such as occupant comfort, system effectiveness and energy use.

Other ASHRAE grant recipients are:

- University of Nebraska – Lincoln – CO₂-Based Demand Control Ventilation (DCV) of Multiple-Zones in a LEED™ Building
- UNC Charlotte – Advanced Cooling Technologies: Nanofluids Flow and Heat Transfer Lab
- Ryerson University – Design and Construction of a Compact Integrated Variable-Capacity Multi-Zone Air Handling Unit with HRV/ERV/Economizer for Super Energy Efficient/Net Zero Energy Houses
- Purdue University – Living Laboratory for Smart Home
- UET Lahore – Design and Fabrication of 1KW Solar Stirling Engine
- Bradley University – Design of a System for Regulating AC Capacity by Compressor Rapid Cycling
- National Tapei University University of Technology – A Performance Study on Electric Powered Vehicle Air-Conditioning System
- American University of Beirut – The Use of Shading and Condensate Drain to Improve the Efficiency of a Residential-Sized DX Split Air Conditioning System in Beirut City

- Southern Illinois University - Carbondale – PCM Solar Energy Storage Demonstrator for Air and Water Heating
- Mapua University (team 2) – Development of a Laboratory Set-Up for a Ducted Underfloor Air Distribution System
- National Chin-Yi University of Technology – Development of a Demonstrator of Thermoelectric Cooler/Heater System for Bio-medical Cold-Chain System: Design, Fabrication and Performance Testing
- University of Algarve – Development of a Hot-Wire Anemometry Multi-Channel System and an Air Velocity Sensors Calibration System
- Manipal University – Solar Liquid Desiccant Air Conditioning System

For more information on the grant program, visit www.ashrae.org/students. ASHRAE will begin accepting applications for the 2012-13 program in August 2011, with a December 2011 final deadline.

Sustainability Knows No Borders: ASHRAE Annual Conference to Take Place in Montreal

ATLANTA–Montréal, known for bringing a bit of European charm to North America, blends cultures, languages and people from all over the world, culminating in a unique and vibrant joie de vivre. In the same way, the 2011 ASHRAE Annual Conference brings together members from all over the world to share their knowledge of HVAC&R.

The theme of the Conference, Sustainability Knows No Borders, serves as a reminder of ASHRAE's international reach. The Society's members bring different perspectives, design styles and experiences to the HVAC&R industry, but all work toward the same goal: Advancing HVAC&R.

New to the Conference Technical Program is the Engineering Tools track that seeks to keep up with the fast pace of development in energy modeling and building information modeling programs. Programs include BIM calculations as applied to the ASHRAE HQ building; numerical models for predicting dispersion of exhaust stacks, environmental impacts of buildings, building material properties for reducing energy consumption, code compliance, incorporating acoustics into BIM and large public spaces ; operation-oriented flexible building system modeling; an integrated project delivery medical center case study; HVAC design checklists that work; computational fluid dynamics; DOE's new buildings energy efficiency HUB; VAV system controls; inverse modeling tools; and energy audits.

The Tech Program also addresses alternative technologies and net zero buildings and balance those programs with HVAC&R applications. Additional tracks include Refrigeration; HVAC Systems; Professional Skills; and Commissioning. The technical program begins Sunday, June 26, and ends Wednesday, June 29, with all sessions at the Hilton Montreal Bonaventure. Complete program details are available at www.ashrae.org/montreal.

The ASHRAE Learning Institute offers nine instructor-led training opportunities, including full-day seminars on

ASHRAE Standard 90.1-2010 and Data Center Energy Efficiency. Half-day sessions cover Energy Management, High Performance Building Design, Using Standard 90.1 to Meet LEED® Requirements, ASHRAE Standard 62.1 and Project Management for Improved IAQ.

The Conference keynote speaker is Rob "Waldo" Waldman, a former combat pilot, businessman and authority on leadership and sales. While relaying his personal experiences as a combat fighter pilot and businessman, he makes a parallel that is memorable and exciting, bringing fighter-pilot energy to each illustration. The Plenary session takes place Saturday, June 25 at Fairmont Queen Elizabeth.

ASHRAE technical tours offer an inside view of how technology developed by members is practically applied in building environments. Tours at the Annual Conference include the Bell Center, home of the Montréal Canadiens; the Montreal Biodôme; and the Beauharnois Generating Station. The ASHRAE Annual Conference takes place June 25-29. Register before May 31 to save; purchases of a full registration also receive the Montreal Virtual Conference. Visit www.ashrae.org/montreal for more information. The Fairmont Queen Elizabeth will serve as the headquarters hotel.

ASHRAE Seeks Public Comment on Standard for Existing Buildings

ATLANTA – To ensure a sustainable future, the greatest opportunity lies in modifying existing buildings. Only 2 percent of construction projects are for new buildings, while 86 percent of construction dollars go into renovation of our existing building stock.

ASHRAE and the Illuminating Engineering Society (IES) are revising ANSI/ASHRAE/IESNA Standard 100-2006, Energy Conservation in Existing Buildings, to provide greater guidance and a more comprehensive approach to the retrofit of existing buildings for increased energy efficiency. The standard was first published in 1981, and the need for its requirements has grown as more attention is paid to improving energy in our current building stock.

The standard is open for an advisory public review until May 25, 2011. Visit www.ashrae.org/publicreviews for more information. ASHRAE's advisory public review process is designed to seek suggestions for new, unusual or potentially controversial elements of a proposed standard that the committee feels would benefit from increased public scrutiny. Unlike ASHRAE's formal call for public comments process, comments received under advisory public reviews are supportive and do not need to be resolved.

Of the 94.6 quadrillion BTU of energy consumed in the United States in 2009, 42 percent was used by commercial and residential buildings. Over the next 24 years, national electric consumption is expected to grow by over 22 percent and natural gas consumption by 16 percent. In the same period, the amount of commercial and residential floor space in the marketplace is expected to increase by 37 percent and 17 percent respectively.

“In order to offset the growing amount of floor space and subsequent increased energy demands, existing buildings must improve their efficiency, even if every new square foot were built and operated at net zero energy,” Rick Hermans, chair of the Standard 100 committee, said. “ASHRAE and IES are working to make Standard 100 the best source of practical, accurate and cost effective design guidance for existing buildings.”

“Achieving improvements in energy efficiency in existing buildings provides significant rewards in operating savings, conservation of resources and improvements in the environment,” Rita Harrold, IES director of technology, said. “The standard addresses the necessary guidance for a variety of users to develop action plans for their specific needs. Making the standard available for an advisory public review is an important opportunity for contributory comments that will add value to the final document.”

The revised standard provides comprehensive and detailed descriptions of the processes and procedures for the energy efficiency improvements of existing residential and commercial buildings in order to achieve greater energy efficiency.

“Cities like New York, which are constrained in their development due to infrastructure limitations, can use this tool to renovate their existing building stock, freeing up energy for new developments,” ASHRAE Presidential Member Gordon Holness, whose presidential theme focused on energy in existing buildings, said. “Since the standard sets specific energy targets based on building type and climate zone, it can also be used by state and federal agencies and by utility companies as a means of validating building efficiency improvements as a result of tax rebate and incentive programs. Given that 75 to 80 percent of all buildings that will exist in the year 2030, exist today, this

rewritten standard gives us a vital resource to fulfill our sustainability goals. President Obama recently announced a series of tax and regulatory changes with a collective goal for a 20 percent reduction in energy use in commercial buildings by the year 2020. That can only be achieved by addressing our existing building stock.”

The standard addresses major and minor modifications for both residential and commercial buildings, single and multiple activity buildings with variable occupancy periods and identifies an energy target for 53 building types in 16 climate zones/sub-zones.

The revised standard also identifies energy efficiency requirements for buildings without energy targets – mostly industrial, agricultural, data centers and special laboratories – and provides multiple levels of compliance.

Recognizing that the type of occupancy, operation and the use of a building plays a key role in its performance, the standard establishes the requirement for developing an energy management plan and an operation and maintenance plan, according to Hermans.

Included within the revised standards is criteria for energy use surveys, auditing, implementation and verification. Appendices are included for life cycle cost analysis procedures as well as identification of potential energy efficiency measures. “Through this advisory public review, we are seeking broad and general comments on the text of the standard, the concepts of requirements and opinions about the value of the standard,” Hermans said. “Throughout the text there are questions seeking your advice as reviewers of this draft document. Please look at these questions and add your thoughts, answers and comments in the ASHRAE comments database as described in the instructions.”

ASHRAE 2010 BACnet® Published

ATLANTA – A large collection of new technologies for emerging applications is contained in ASHRAE’s newly published BACnet standard. ANSI/ASHRAE Standard 135-2010, BACnet – A Data Communication Protocol for Building Automation and Control Networks, allows building equipment and systems manufactured by different companies to work together. It is the only open, consensus-developed standard in the building controls industry. The new standard contains 19 addenda approved since the 2008 standard was published.

“The 2010 version of the standard represents a large amount of work in a short amount of time by the BACnet committee,” Dave Robin, committee chair, said. “In just two years, the committee has added a wide variety of new technologies and contributed more than 400 pages to the standard.”

The standard contains several new ways to communicate: wireless communications is provided for applications where wired networks are impractical or expensive; a new XML vocabulary is provided for complex standard and proprietary data and metadata; a new character encoding method is provided for greater flexibility and compatibility with international text; and new state-of-the-art network security is defined to allow the creation of highly secure communications channels for sensitive data.

It also adds:

- higher speeds for MS/TP networks and wiring guidance for optically isolated segments
- new requirements for workstations and the definition of new kinds of workstations
- new engineering units to support smart grid and other emerging applications
- a new Global Group object for gathering, monitoring and distributing sets of data
- six new objects to support physical access control
- 12 new objects to support the full complement of all data types, including strings

The cost of ANSI/ASHRAE Standard 135-2010, BACnet – A Data Communication Protocol for Building Automation and Control Networks, is \$170 (\$140 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, or visit www.ashrae.org/bookstore.

RESEARCH PROMOTION

There is less than 1 month left in this year's Research Promotion campaign! To date we have \$4755 in donations, which amounts to 57.3% of our \$8300 goal. Please join me in thanking the following companies and individuals for their generous support: NEC, Idaho Power, Tikker Engineering, BST, Midgley-Huber, Northwest Energy Efficiency Alliance, Felts House Engineering, Musgrove Engineering and RoBar Technical Services. The individuals contributing to date are as follows: Andrew Beall, Dean McKellip, Cory Law, Dennis Fox, Carl Marcum, Laura Rasmussen, Scott Mackay, Jeff Robenstein, Ben Kohler, Henry Bauer, Spencer Shepard, Bruce Cleveland and Sam Parkins.

Also, please remember that this year's campaign allows your donation to ASHRAE Research to count for a tee/green sponsorship at the golf tournament. I have contacted many companies that have expressed interest in taking advantage of this opportunity. Most have given me a check and for that I say "thank you." For those others that have yet to turn in the money, I say please don't delay. While there is the opportunity to have great benefits, there is also a chance to miss out on it all if I don't have a record of your donation. To refresh your memory, a \$250 donation will also sponsor a tee AND a green, while \$150 will sponsor your choice of a tee OR a green. Please call me (319-0629) and let me know how I can help you with your contribution to ASHRAE Research.

Lastly, as time grows short on the campaign, remember that you can make your donation 24 hours a day online at www.ashrae.org/contribute with your credit card. Thanks again to everyone who has given so generously to further the mission of ASHRAE! Your gift is very much appreciated. I look forward to seeing you all at the golf tournament!

Scott Mackay
Idaho ASHRAE Research Promotion Chair

Donate to ASHRAE Research NOW at www.ASHRAE.org/contribute, call Scott Mackay at 319-0629, or clip and mail coupon with your check:

Mail check (Payable to "ASHRAE Research") to:		Your contribution brings our chapter closer to our goal. Please send what you can today!			
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