

THE HOT AIR DIFFUSER IDAHO CHAPTER NEWSLETTER

MARCH 2011

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PRESIDENT'S MESSAGE

Greetings Idaho ASHRAE Members!

I would like to extend a big thanks to John Rimer with McKinstry for enlightening us on the commissioning process last month. Randy Reed has yet another great topic for us this month.

Dale Stredder came up with a great idea to help improve our local chapters efficiency. Those members that are present and RSVP the day before will be entered into a drawing for a \$20 gift certificate for the lunch being served at the meeting. It is our hope that this will allow us to better estimate the food required and reduce waste.

Next month our Technical Conference will be held on the 15th. The preliminary schedule has a lineup of quality programs as usual. Help spread the word to your colleagues about this great event. This event is a good source of information, an opportunity to earn PDHs, as well as an excellent way to support your local ASHRAE Chapter!

See you all next week,

Carl Marcum
President Idaho ASHRAE Chapter

MARCH PROGRAM

The Latest in "Green" Code Requirements for Cooling Tower Water Efficiency

This month's speaker will be Daryn S. Cline, the director of Environmental Technologies at EVAPCO, Inc.

**When: Wednesday, March 9th
(11:45 – 1:00)**

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

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



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IMPORTANT DATES

MARCH 9, 2011—ASHRAE MONTHLY MEETING

MARCH 17, 2011—ST. PATRICK'S DAY

APRIL, 2011—TECHNICAL CONFERENCE

APRIL 24, 2011—EASTER SUNDAY

MAY 11, 2011—ASHRAE MONTHLY MEETING

MAY 30, 2011—MEMORIAL DAY

JUNE, 2011—ASHRAE GOLF TOURNAMENT

ATTENTION: ASHRAE MEMBERS

The Chapter is now accepting
advertisements in the monthly newsletter.

Sponsorship Rates are as follows:

	Per Issue	Annual (9 issues)
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Business Card	\$10.00	\$50.00
Quarter Page	\$25.00	\$200.00
Half Page	\$40.00	\$325.00
Full Page	\$60.00	\$450.00

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.

RESEARCH PROMOTION

As the RP Chair, I would like to give appreciation to those individuals and companies that have donated money to further the mission of ASHRAE Research! We are currently at \$3368 towards our goal. This year's goal is \$8300, so right now we are 40.6% of that mark. Special thanks go to the following companies for their generous support: NEC, Idaho Power, Tikker Engineering, BST, Midgley-Huber and Northwest Energy Efficiency Alliance. The individuals contributing to date are as follows: Andrew Beall, Dean McKellip, Cory Law, Dennis Fox, Carl Marcum, Laura Rasmussen, Scott Mackay, Jeff Rothenstein and Ben Kohler.

One special feature of this year's campaign that I need to mention is the opportunity for you to have your donation be applied to the purchase of a tee or green at this year's golf tournament in June. If you or your company typically sponsors a tee or green (or both!) at the golf tournament, then you can have your RP donation count towards that too. So if you (or the company) gives \$150, you can have it count to an Honor Roll level contribution AND sponsor a tee or green. If you (or the company) gives \$250, it can count for a Major Donor contribution AND both a tee and green sponsorship. If you or your company has already donated for this year, this option is still open for you. Please call me (319-0629) and let me know that you would like your donation to count towards the golf tournament too!

Scott Mackay, RP Chair

HISTORY LESSON

Five Years Ago

The chapter president was Bob Tikker. The meeting was held on March 10, 2006, at the Idaho Power Building. The speaker was Victor Goldschmidt who discussed the history of air conditioning.

Ten Years Ago

The chapter president was Ben Kohler. The meeting was held on March 16, 2001. The meeting was a presentation by Dr. Richard Hayter, a past president of ASHRAE.

Twenty Years Ago

The chapter president was Scott Richardson. The meeting was held on March 8, 1991 at the King's Table Restaurant. The speaker was Jim Kline, president of Acutherm, who gave a presentation on Variable Air Volume Fundamentals.

Twenty Five Years Ago

The chapter president was David Asmus. The meeting was held on March 14, 1986, at the King's Table Restaurant. The program was a presentation by Georgie Lindsey on Hot Air Ballooning.

NEWS FROM THE HOME OFFICE

ASHRAE Releases Policy Recommendations for New Congress

ATLANTA – As the 112th Congress gets underway, ASHRAE has provided a potential roadmap for the federal government to use in addressing issues related to energy efficiency and environmental concerns.

“Protecting America’s Economy and Conserving Our Environment: The Buildings Answer” provides policy recommendations for the new Congress from the Society. ASHRAE notes that “fueled in part by population growth and the rise in building floorspace, the nation’s demand and consumption of energy is expected to grow by 14 percent through 2035. Residential and commercial building energy expenditures accounted for \$445.8 billion in 2008, and lead the way in primary energy use, accounting for approximately 40 percent, ahead of industry (32 percent) and transportation (28 percent).”

“As part of the call for fiscal and environmental conservation, all individuals and stakeholders must work to discover ways to use our financial resources wisely and protect the environment,” Lynn G. Bellenger, ASHRAE president, said. “Through innovative design and retrofits, buildings are one of the most cost-effective means of solving the nation’s fiscal and energy challenges.”

ASHRAE’s report provides detailed recommendations on shaping energy policy. The following is a sampling of topical areas and summary recommendations:

Energy Policy & Climate Change

- o Require posting and annual updates of buildings’ energy use
- o Include energy efficiency as a renewable fuel source within renewable standards portfolio
- o Encourage decoupling of utility rates from energy sales
- o Encourage states to implement utility demand-side management programs
- o Provide adequate funding and direction for data collection and analysis of energy use in buildings
- o Support implementation of Smart Grid and micro-grid systems
- o Remove barriers to grid-connection for on-site power generation

o Require states to adopt commercial building energy codes with ANSI/ASHRAE/IESNA Standard 90.1-2004 as a minimum

Incentives for Implementing Energy Efficiency

- o Set realistic depreciation schedules for HVAC&R equipment to encourage high-efficiency replacements
- o Ensure adequate planning time in extension or implementation of tax credits/deductions
- o Incentivize widespread use of building commissioning, re-commissioning and retro-commissioning
- o Support implementation of technologies utilizing energy previously deemed as waste heat
- o Encourage ongoing education and training for operations and maintenance personnel and building designers and constructors

Research and Development to Achieve Energy Goals

- o Make the Business R&D Tax Credit permanent
- o Continue increased funding under the American Competitiveness Initiative
- o Fund research on:
 - § on-site and off-site renewable energy technologies
 - § building technologies for improved indoor environmental quality and energy efficiency
 - § building technologies and designs to achieve net-zero energy buildings
 - § human factors of building operation, occupancy and energy use
 - § characteristics and control of indoor contaminants
 - § improving teaching and learning of science, technology, engineering and mathematics (STEM) concepts

Indoor Air Quality (IAQ)

- o Establish ASHRAE Standards 62.1, 62.2 and 55 as the major national minimum guidelines on indoor air quality (IAQ) and thermal comfort management
- o Support research to significantly advance understanding of the impact of IEQ on work performance, health symptoms and perceived environmental quality in offices
- o Fund research to understand the influences of HVAC&R on airborne pathogen transmission in public spaces and develop effective control strategies
- o Continue government support for IAQ-related education and implementation programs
- o Support research on the intersections between building energy efficiency and IAQ

Federal Agencies as National Leaders

Education as a Critical Tool

Government-wide Activities to Further Science and Technology

ASHRAE Hosts Building Energy Modeling Conference, BEMP Certification in April

ATLANTA— An integrated design approach to building energy modeling – and learning how to use modeling tools more effectively – improves the accuracy and reliability of simulation results and increases the return on time and resources invested to generate the models.

ASHRAE’s Energy Modeling Conference: Tools for Designing High Performance Buildings, April 4-6, 2011, ASHRAE Headquarters, Atlanta, Ga., will provide hands-on modelers and principals with the information to better harness the power of energy modeling tools. The conference covers modeling fundamentals, building component contributions, software demonstrations and case studies. A collaborative perspective is provided that demonstrates how energy models and computer simulations can assist all project team members in creating energy-efficient buildings.

For complete information or to register, visit www.ashrae.org/energymodeling. Registration is \$500 (\$450, ASHRAE, AIA and USGBC members).

“There are industry powerful modeling tools that enable engineers and architects to create and refine our vision of a building – its appearance, systems, operation and performance,” Lynn G. Bellenger, P.E., ASHRAE president and conference keynote speaker, said. “Understanding how to use those tools to model new and innovative system types and learning more about building physics will enable modelers to expand their abilities to design the high-performance buildings our clients demand and expect.”

In the conference’s spirit of integrated design, William J. Worthen, AIA, also joins Bellenger as a keynote speaker.

Worthen is the American Institute of Architecture’s national director and resource architect for sustainability, serving as an expert on sustainability.

Sessions cover ASHRAE standards, the cost of energy modeling, modeling for a variety of building types, such as hospitals, data centers and labs, building information modeling and integrating building performance.

Energy modeling software companies are providing 30-minute demonstrations. One-on-one comprehensive demonstrations also are available.

In addition, on April 6, the U.S. Department of Energy is launching its development roadmap for EnergyPlus, OpenStudio, EPGUI and other tools. Attendees can provide feedback on the roadmap and on DOE’s general activities in the simulation tools area.

Also on April 6, ASHRAE will administer its Building Energy Modeling Professional (BEMP) certification examination. The BEMP certifies an individuals’ ability to evaluate, choose, use, calibrate and interpret the results of energy modeling software when applied to building and systems energy performance and economics and to certify individuals’ competence to model new and existing buildings and systems with their full range of physics. Certification applications (submitted online) must be received by ASHRAE 30 days prior to the exam. The application fee is \$415 (\$295 ASHRAE member).

ASHRAE Works to Expand Datacom Environmental Classes

ATLANTA – ASHRAE continues to widen the temperature and humidity ranges for servers through a soon-to-be-published third edition of the datacom book, “Thermal Guidelines for Data Processing Environments.”

The first edition was published in 2004 and was groundbreaking in that it created the first global, vendor neutral environmental specification for data centers, according to Don Beaty, chair of the Publications Subcommittee of ASHRAE’s Technical Committee (TC) 9.9, Mission Critical Facilities, Technology Spaces and Electronic Equipment. Prior to its publication, data center temperature requirements were set individually by each equipment manufacturer. This typically resulted in using the most stringent temperature plus a safety factor being used across the entirety of the data center.

The approach used by TC 9.9 for the first edition through to the present was to assemble a team of thermal engineers from the major commercial IT manufacturers to develop requirements.

The first edition created a recommended temperature upper limit of 77 F (25 C), promoting the use of higher temperatures and endorsed by all of the IT manufacturers.

The second edition (2008) took considerable deliberation amongst the manufacturers and raised the recommended upper limit to 81 F (27 C). Both the first and second editions were groundbreaking (the first edition in unifying the industry and the second edition in enabling the potential to use economizers in many locations and applications), according to Beaty.

The third edition will be equally groundbreaking in that it will enable compressorless cooling (all cooling through economizers) in many applications. Accomplishing this has been a challenge since major tradeoffs (equipment size, equipment cost and operating cost) surface above a certain temperature threshold. This challenge is complicated because the threshold is not the same for all the manufacturers.

“Different locations, applications and business philosophies make it ineffective to force all equipment to be capable of the same high temperature tolerance (in some cases higher thresholds would negatively impact the return on investment),” Beaty said. “To address this, the third edition creates multiple server classes and therefore provides freedom of choice. This is particularly important since the thermal guidelines are used throughout the world.”

Editors Note: The following information provides additional background information on TC 9.9 and the proposed environmental classes.

ASHRAE TC 9.9 was started in 2002 to be recognized by all areas of the datacom industry as the unbiased engineering leader in HVAC and an effective provider of technical datacom information, according to Beaty. Its scope covers all datacom (data processing and communication) facilities including rooms or closets used for communication, computers or electronic equipment.

The first initiative of TC 9.9 was to publish the book, “Thermal Guideline for Data Processing Environments.” Prior to TC 9.9, commercial IT manufacturers published their own, independent temperature specifications. Typical data center temperatures were 20 or 21 C and a common notion of cold is better. However, most data centers are multi-vendor, resulting in the temperature defaulting to the most stringent requirement plus a safety factor.

TC 9.9 obtained informal consensus from the major commercial IT manufacturers for both “recommended” and “allowable” temperature/humidity ranges and for four environmental classes.

Another critical accomplishment was to establish IT equipment air inlets as the common measurement point for temperature and humidity compliance; requirements in any other location within the data center were optional.

The global interest in expanding the temperature and humidity ranges continues to increase. In 2008, TC 9.9 revised the requirements for Class 1 and 2 to be less stringent. The following are the current allowable and recommended maximum dry bulb temperatures:

Class 1 – 32 C Allowable; 27 C Recommended

Class 2 – 35 C Allowable; 27 C Recommended

Class 3 – 35 C Allowable; N/A Recommended (no environmental control)

Class 4 – 40 C Allowable; N/A Recommended (no environmental control)

Increasing the temperature and humidity ranges increases the opportunity to use compressorless cooling solutions. Typically the equipment selected for data centers are either Class 1 or 2. Class 3 is for applications such as personal computers and Class 4 is for applications such as “point of sale” IT equipment used indoors or outdoors.

These environmental specifications/classes are really the domain and expertise of IT OEMs. TC 9.9’s IT Subcommittee is exclusively comprised of engineers from commercial IT manufacturers; the subcommittee is strictly technical.

The commercial IT manufacturers’ proprietary design, field and failure data is shared (to some extent) within this IT Subcommittee enabling greater levels of disclosure and ultimate expansion of the environmental specifications.

“Prior to TC 9.9, there were no organizations or forums to remove the barrier of sharing proprietary information amongst competitors,” Beaty said. “This is critical since having some manufacturers conform while others do not, returns to the trap of a multi-vendor data center where the most stringent requirement plus safety factor or most likely preside. The IT manufacturers negotiated amongst themselves in private resulting in achieving some critical sharing of proprietary information.”

From an end user perspective, it is also important that they be provided with options for their multi-vendor facilities such as:

Option 1 – use IT equipment optimized for a combination of attributes including energy efficiency but the dominant attribute being capital cost.

Option 2 - use IT equipment optimized for a combination of attributes including some level of reliability but the dominant attribute being energy and compressorless cooling

The industry needs both types of equipment but also needs to avoid Option 2 increasing the cost of Option 1 by increasing manufacturing costs through mandatory requirements not desired or used by all end users. Expanding the temperature and humidity ranges can increase the physical size of the IT equipment (e.g. more heat transfer area required), increase IT equipment air flow, etc. This can impact embedded energy cost and IT equipment cost.

ASHRAE Winter Conference Sees Best Attendance in 15 Years

ATLANTA – The 2011 ASHRAE Winter Conference saw its highest attendance numbers in years, as well as the announcement of updated energy savings figures for ASHRAE’s energy standard.

Some 3,400 people attended the Conference, held Jan. 29-Feb. 2, in Las Vegas, Nev.; of that number, 400 were first-time attendees.

Also taking place in conjunction with the meeting was the Air-Conditioning, Heating, Refrigerating Exposition, which attracted over 54,000 registered visitors and exhibitor personnel.

The Show was by far the largest and best attended AHR Expo in the Western states, with more than 1,900 exhibiting companies and their 20,000 exhibiting personnel—the second largest number of exhibiting companies in the Show’s history. Overall, the 2011 AHR Expo was the second largest held outside of Chicago.

The ASHRAE Conference offered a technical program with nearly 300 sessions, 20 educational courses and numerous social events. The meeting also featured more than 600 meetings of technical, standards and standing committees, developing guidance for the future of the industry and ASHRAE.

The biggest buzz at the Conference centered on the latest energy saving figures of ANSI/ASHRAE/IES Standard 90.1-2010, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, which provides minimum requirements for the energy-efficient design of buildings except low-rise residential buildings. Without plug loads, site energy savings are 32.6 percent and energy cost savings 30.1 percent. Including plug loads, the site energy savings are estimated at 25.5 percent and energy cost savings 24 percent. The standard is written in mandatory code language and offers code bodies the opportunity to make a significant improvement in the energy efficiency of new buildings, additions and major renovations.

Other Conference highlights included the Technical Plenary, with its focus on Standard 189.1, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*. The Plenary drew over 700 attendees, with standing room only.

Additional sessions from the Technical Program are part of ASHRAE’s Virtual Conference, which provides access to more than 250 presentations and PDFs of posters. Register or access presentations at www.ashrae.org/lasvegasvirtual.

Also offered were six Professional Development Seminars and 14 short courses from the ASHRAE Learning Institute. The most popular courses were *Using Standard 90.1 to Meet LEED Requirements*; *Determining Energy Savings from Performance Contracting and LEED® Projects: Measurement and Verification*; *Successful Solar Applications for Commercial & Industrial Facilities*; *The Commissioning Process & Guideline 0*; and *Energy Modeling Best Practices and Applications: HVAC/Thermal*.

The Conference served as the launch of ASHRAE’s newest certification program, the Building Energy Assessment Professional certification, with more than 60 candidates taking the exam. The new certification recognizes individuals’ ability to audit and analyze residential, commercial and industrial buildings. It complements ASHRAE’s Building Energy Quotient program as well as the Building Energy Modeling Professional certification. Together, the programs provide a valuable toolkit when it comes to the evaluation and reduction of building energy use.

Top selling publications included Standard 189.1-2009; Standard 62.1-2010; the “ASHRAE Pocket Guide” and new publications including Standard 90.1-2010, “ASHRAE Green-Guide, The Design, Construction, and Operation of Sustainable Buildings,” third edition; “Green Tips for Data Centers;” and the Standard 90.1-2010 User’s Manual.

ASHRAE Online Courses Feature High-Performing Guidance

ATLANTA— For a more sustainable world, high performance is demanded of buildings. The same applies to continuing education.

Two courses related to high-performance building design are being offered as part of ASHRAE Learning Institute's (ALI) spring online series. Twelve online instructor-led short courses run from late March through early May and are available to those interested in expanding their knowledge of the HVAC industry and keeping up to date with the latest technology and their applications. Many popular courses are offered, several of which include updated material.

Basics of High Performance Building Design, taking place April 27, focuses on the basic application of ANSI/ASHRAE/IES Standard 90.1-2010, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, and ANSI/ASHRAE/USGBC/IES Standard 189.1-2009, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*, to achieve high-performance building design. The course focuses on the differences in purpose and requirements between Standards 189.1 and 90.1.

"The Basics of High Performance Building Design course will help you earn the 'three greens'," instructor Tom Lawrence, Ph.D., P.E., University of Georgia, said. "First, you will be helping the planet stay green by reducing the energy, water and materials required to build and operate a facility. Second, you will be left with a facility that will save you 'green' due to lower operating costs and more efficient operations. Finally, you will have a building that will leave its neighboring buildings 'green with envy' when they know that they have a lower market value compared to their high performance neighbor."

Advanced High Performance Building Design, May 4, focuses on advanced concepts involved in applying Standards 90.1 and 189.1 to achieve high-performance building design. More emphasis is placed on case studies to move beyond the minimum requirements of these standards.

"In many instances, building design objectives tend to regard minimum code requirements as a ceiling of quality rather than a minimum requirement," instructor Jeff Ross-Bain, P.E., ASHRAE-Certified Building Energy Modeling Professional, Ross-Bain Green Buildings, LLC, said. "However, the development of high-performance green building methods, strategies and technologies has given designers the tools to reach for energy efficiency levels in buildings that exceed these minimum requirements and, in fact, are beginning to approach net-zero-energy building status. In order to advance the performance of buildings, it is essential that the engineering community rethink 'business as usual' and begin to maximize the performance of buildings – *beyond the codes*. We have tools, resources and real-world examples available to help us achieve those goals. The advanced energy design course will give the attendees an insight into ways in which these principals can be integrated into practice."

Courses and dates are:

- *Using Standard 90.1 to Meet LEED® Requirements*, March 28
- *Fundamental Requirements of ASHRAE Standard 62.1-2010, Ventilation for Acceptable Indoor Air Quality*, March 30
- *Application of ASHRAE Standard 62.1-2010: Multiple Spaces Equations*, April 6
- *The Commissioning Process and Guideline 0, The Commissioning Process (co-sponsored with the Building Commissioning Authority, Illuminating Engineering Society of North America and the National Environmental Balancing Bureau)*, April 11
- *Avoiding IAQ Problems Using ASHRAE's New IAQ Guide*, April 13
- *Understanding Standard 189.1 for High Performance Green Buildings*, April 18
- *District Cooling & Heating Systems: Central Plants*, April 20
- *Understanding Air-to-Air Energy Recovery Technologies and Applications*, April 25
- *Basics of High Performance Building Design*, April 27
- *Complying with Standard 90.1-2010 HVAC/Mechanical*, May 2
- *Advanced High Performance Building Design*, May 4
- *Complying with Standard 90.1-2010 Envelope/Lighting*, May 11

The three-hour courses are taught in real-time, from 1 p.m. to 4 p.m. EDT. Either three professional development hours or American Institute of Architects learning units or 0.3 continuing education units are available for each course.

Those who sign up for courses before March 18 receive a reduced registration fee. A 20 percent discount is also available to participants who register for courses with related topics.

A full list of courses and registration information can be found at www.ashrae.org/onlinecourses.

User's Manual Provides Guidance on 2010 Energy Standard

ATLANTA – Detailed guidance on how to apply the latest ASHRAE/IES standard for the design of energy-efficient buildings is provided in a newly published user's manual.

The User's Manual to ANSI/ASHRAE/IES Standard 90.1-2010, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, was published this week. The standard, which provides minimum requirements for the energy-efficient design of buildings except low-rise residential buildings, contains 109 addenda approved since the 2007 standard was published.

"The new User's Manual is a very useful resource because it helps guide practitioners in by explaining the intent of provisions in the standard and how they apply to buildings through not only written word but also illustrations and example problems," Steve Skalko, chair of the Standard 90.1 committee, said. "The latest edition of the manual is especially valuable because it specifically identifies what changes have

