THE HOT AIR DIFFUSER

Chapter Newsletter

MAY / JUNE 2013 Volume 19 Issue 7

ASHRAE Idaho Chapter

PRESIDENT'S MESSAGE

Hello fellow ASHRAE members,

Summer is finally here and the weather is getting hotter by the day! This is a great time of year for outdoor activities and enjoying all of the beautiful scenery Idaho has to offer. As we close up another ASHRAE season I would like to thank all of you for your support, service, and commitment to our local chapter; we truly could not do it without each of you. I would like to thank Spencer Shepard for organizing our annual golf tournament this Friday June 14 at Eagle Hills. We have many teams registered, lots of prizes to give out, and I am sure this will be the best tournament yet. (Don't forget to bring some cash for mulligans too).

Our chapter has the honor of hosting CRC this year at the Grove Hotel in Boise. Region IX has thirteen chapters and the conference rotates locations each year. So please come out and support Region IX and join the fun! We will have a white water rafting trip July 31st, a golf tournament August 1st at Quail Hollow, banquet dinner at the Stueckle Sky Suite August 2nd, award ceremonies, and outstanding technical presentations (Checkout the chapter website for additional information and registration) The ASHRAE society president Tom Watson will even be in attendance! Don't miss this networking opportunity! I hope to see all of you there.

IDAHO ASHRAE GOLF TOURNAMENT

When: FRIDAY, JUNE 14, 2013
1PM—6PM

Where: EAGLE HILLS GOLF COURSE
605 N. EDGEWOOD LANE
EAGLE, IDAHO

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.

INSIDE THIS ISSUE:

PROGRAM	1
PRESIDENT'S MESSAGE	1
HISTORY LESSON	2
NATIONAL CHAPTER NEWS	2-7
ADVERTISING	7-8

HISTORY LESSON

MAY

Five Years Ago

The chapter president was Xenon Long. The meeting was held on Friday, May 9, 2008 at the Idaho Power Building. Gus Engstrom, Boise State University, brought in a recumbent bicycle that he built to compete in the Human Powered Vehicle (HPV) competition. He discussed the design process, how the bike handled in the competition, and areas that he would improve in future iterations.

Ten Years Ago

The chapter president was Preston Nance. The meeting was held on Friday, May 9, 2003, at the Double Tree Riverside. Tim Wentz, ASHRAE Region IX DRC, gave a regional and national ASHRAE update.

Twenty Years Ago

The chapter president was Richard Kartchner. The meeting was held on Friday, May 14, 1993, at Edwards Restaurant. Gary Chellette, Bell & Gossett, presented a steam seminar with emphasis on steam trap operation, application, and selection.

JUNE

Ten Years Ago

The chapter president was Preston Nance. The golf tournament was held on Friday, June 13, 2003, at the Centennial Golf Course in Nampa.

NEWS FROM THE NATIONAL CHAPTER

ASHRAE Publishes Second Edition of Hospital Design Manual

ATLANTA – Health care HVAC systems serve facilities in which the population is uniquely vulnerable and exposed to elevated risks of health, fire and safety hazard. These heavily regulated, high-stakes facilities undergo continuous maintenance, verification, inspection and recertification, typically operate 24/7 and are owner occupied for long life.

A newly published manual from ASHRAE provides guidance on addressing these issues for mechanical and consulting engineers, designers, architects, facility managers, infection control personal, maintenance staff, contractors, developers and code accreditation and licensure officials.

“HVAC Design Manual for Hospitals and Clinics, Second Edition,” provides in-depth design recommendations based on best practices, and presents proven, cost effective and reliable solutions that result in low maintenance cost and high reliability with systems providing desired performance and efficiency. The book, a complete rewrite of the first edition, focuses specifically on HVAC system design for health care facilities, omitting general system descriptions that are readily available in other ASHRAE publications.

“The manual presents a unified and comprehensive summary of engineering background on the standard, how to meet it and alternatives for best engineering practices beyond the minimum requirements,” Daniel Koenigshofer, P.E., editor of the manual, said. “A principle objective of the manual is to present what is different about designing HVAC systems for hospitals and healthcare facilities.”

Chapter Two describes how the principles of infection control have influenced the regulations which in turn are the bases for the unique design principles needed for hospitals.

ASHRAE’s first “HVAC Design Manual for Hospitals and Clinics,” which serves as a comprehensive source for the design, installation and commissioning of HVAC systems for hospitals and clinics, was published in 2003.

Koenigshofer, of Dewberry, noted the writing of this manual was a highly collaborative effort by 20 of the top consulting and hospital engineers in the country. These contributors include:

- John Murphy, Trane Co.

- Walter Grondzik, P.E.
- Reg Brown, P.E., Price Industries
- Donald Burroughs, P.E., Dewberry
- Jill Connell, P.E., CDi Engineers
- Hal Corin, Dewberry
- Jeff Crozier, P.E., Precis Engineering Inc.
- Jeremy Fauber, P.E., Heapy Engineering
- Traci Hanegan, P.E., Coffman Engineers, Inc.
- Jeff Hardin, P.E., U.S. Army Corps of Engineers
- John M. Kramer, P.E., Duke University Medical Center
- Nicolas Lemire, P.Eng., Pageau Morel
- Michael Meteyer, P.E., Erdman
- Frank Mills, C.Eng., Sinclair Knight Merz
- Heather Platt, P.E., Seneca Construction Man agement Corp.
- Layle Thomas, Dewberry
- Jerry Thompson, P.E., Duke University Medical Center
- Ron Westbrook, P.E., State University of New York

The cost of "HVAC Design Manual for Hospitals and Clinics, Second Edition" is $115 ($99 ASHRAE members).

To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax: 678-539-2129, or visit www.ashrae.org/bookstore.

ASHRAE Expands Jobs Opportunity Board

ATLANTA – ASHRAE members now have increased opportunities to find jobs within their chosen field under an expanded jobs board.

The expansion between ASHRAE and BirdDog, which have worked together since 2009 to provide job board support at www.ASHRAEjobs.com, will make it easier for employers to fill built environment technology positions, as well as provide ASHRAE members with increased opportunities to find jobs within their chosen fields. The expanded ASHRAEjobs site specifically allows employers, looking to hire ASHRAE members, to post their listings throughout the BirdDog family of job boards, as well as ensure all ASHRAE members have the opportunity to see the job posting.

"Our members are in high demand, and that's good news," Tim Wentz, volunteer chair of ASHRAE's Publishing and Education Council, which oversees ASHRAEjobs.com. "Unfortunately, like so many industries, companies wanting to or already employing ASHRAE members, report troubles finding the right candidate. The improved ASHRAEjobs site, along with its four years of history, gives us the foundation to expand our efforts and ensure the right talent is being matched up with right job."

"It had become evident in the past year that there was a gap between what we had in place and an increasing demand for both employers and job seekers to have a solution that was both effective and efficient," Bryan May of BirdDog said.

This announcement comes at a time where employers are reporting difficulties finding qualified candidates for open positions. ASHRAE members are the global leaders of building technology. To qualify as a full ASHRAE member, a minimum of 12 years professional experience must be shown in the industry.

The new service launched April 15, 2013. Employers who have questions about the expanded partnership should contact Bryan May at 515-473-9212.

BirdDog provides a cloud-based recruitment and applicant tracking software to small and medium sized companies across the country that simplifies the hunt for right-fit candidates.

The Sky's the Limit at the ASHRAE Annual Conference in Denver

ATLANTA— ASHRAE helps you rise above it all in the Mile-High City. Join the Society in Denver, Colo., June 22-26, to elevate your career to new heights with its technical program, learning courses, technical tours and opportunities to network.

The Technical Program kicks off early Sunday, June 23, with interactive programs and a networking coffee break. The Technical Program addresses the practitioner's needs for the built environment industry with such tracks as Building Energy Modeling vs. Measurement and Verification; Renewable and Alternative Energy Sources; and the Mile-High Efficiency and Equipment track. The Integrated Project Delivery mini-conference, which takes place Sunday-Monday, presents success and lessons learned. The Technical Program runs June 23-26.

Additionally, a newly created Research Summit—which comprises a major portion of the technical program with some 30 sessions scheduled, 22 of which are paper-based sessions—brings together distinguished researchers to present and discuss the latest research results, innovative research techniques and forecast future research directions.

ASHRAE Learning Institute offers seven in-depth training courses including a new Professional Development

Seminar, “Operations and Maintenance of High-Performance Buildings,” and a new Short Course, “Optimization of HVAC Systems and Their Components.”

The city of Denver provides numerous opportunities to get out and explore; whether you’re exploring impressive rock formations or impressive hydronic heating systems. ASHRAE technical tours include the National Renewable Energy Laboratory, the Pepsi Center Stadium, Solar Technology Acceleration Center (SolarTAC) and the Denver Zoo. General tours feature Colorado Springs, the Platte Riverwalk, Red Rocks and Coors Brewery and Boulder, Colo.

The Conference Headquarter hotel is the Sheraton Denver Downtown. To register or for more information, visit www.ashrae.org/denver.

Carbon Monoxide Alarms Required, Default Leakage Rate Removed in New ASHRAE Residential IAQ Standard

ATLANTA – The newly published 2013 version of ASHRAE’s residential indoor air quality standard removes the default leakage rate assumption and also requires carbon monoxide alarms.

ANSI/ASHRAE Standard 62.2-2013, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, is the only nationally recognized indoor air quality standard developed solely for residences. It defines the roles of and minimum requirements for mechanical and natural ventilation systems and the building envelope intended to provide acceptable indoor air quality in low-rise residential buildings.

One of the biggest changes in the standard over the 2010 version was an increase in mechanical ventilation rates to 7.5 cfm per person plus 3 cfm per 100 square feet. This is due to the earlier removal of the earlier default assumption regarding natural infiltration.

The Standard 62.2 Committee had previously assumed homes got a minimum of 2 cfm, per 100 square feet, according to Don Stevens, committee chair.

“Because research shows houses have gotten tighter and apartments have always been tight, the 2013 edition drops this default assumption and calls for the entire amount to be provided mechanically,” he said. “The only exception is when single family homes have a blower door test – then the predicted average annual leakage rate can be deducted.”

Another major change is a requirement for carbon monoxide (CO) alarms in all dwelling units. CO poisoning

leads to hundreds of deaths and thousands of injuries each year in homes, resulting from automobiles left running in attached garages as well as from portable generators, power tools and heaters, according to Paul Francisco, committee vice chair. A small fraction of poisonings also result from failed central heating combustion appliances.

“Residents have very little ability to sense the presence of CO without detectors, unlike many other indoor polluting events,” he said.

Whether to include CO alarms as a requirement in the standard had been discussed since the standard was first proposed with debate focused on the unreliability and cost of alarms.

Francisco said the committee believes the time has come to make this change, noting that it brings the standard into closer alignment with the International Residential Code, which requires alarms if the house has combustion appliances or attached garages, and with many states that have passed laws requiring CO alarms.

The requirement goes a step further, expanding the protection to all homes, regardless of fuel type or garage configuration, reflecting the fact that many CO exposures occur due to causes completely independent of these factors, he said. It also requires that alarms be hard-wired with battery backup to address an increased likelihood of high CO exposure events during power outages.

Other significant new changes include the removal of the climate limitations on pressurization and depressurization; specifications related specifically to multifamily buildings; and new calculations and weather data for estimating annual leakage based on a blower door test.

The cost of Standard 62.2-2013, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, is $58 ($48, ASHRAE members).

To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 678-539-2129, or visit www.ashrae.org/bookstore.

ASHRAE Seeks Papers for "Efficient, High Performance Buildings for Developing Economies" Conference

ATLANTA – Papers are being sought for a conference focused on the design, construction and operation of buildings in developing economies.

Organized by ASHRAE along with the Philippines Chapter, the "Efficient, High Performance Buildings for Developing Economies" Conference will take place April 24-25, 2014, in Manila, Philippines. It is co-sponsored by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and endorsed by the International Association of Plumbing and Mechanical Officials (IAPMO).

Abstracts (400 or less words in length) are due July 12, 2013. If accepted, papers are due Oct. 18, 2013. Submittal information can be found at www.ashrae.org/Developing2014.

The conference addresses the challenges developing countries face in sustainable construction, such as rapidly growing energy demand, population density and urbanization, and focuses on aspects relating to design, construction and operation of high performance buildings, including the HVAC&R industry's role in meeting this objective.

The Conference seeks to bring people from diverse cultures and climates together to share building design approaches that are responsive to local needs, said Ashish Rakheja, conference co-chair. A key motivation behind the conference is to utilize traditional construction practices.

"The papers and presentation will provide examples of how to apply the latest technology to achieve cost effective solutions to support high performance buildings in developing economies," he said.

Papers are sought on the following themes:

- Design criteria for developing countries
  - Hot and humid climates
  - Thermal comfort preferences and cul tural expectations Impact of thermal de sign criteria on energy use and occupant well-being
- Indoor air quality
  - Impacts of outdoor air quality issues
  - Potential application of natural ventilation
- Energy efficiency
  - Indoor environmental quality constraints on energy efficiency Reductions in emis sions of global warming gases through use of renewable energy Energy impacts associated with water use
- Standards and government regulations
  - Green building programs in developing countries Energy efficiency standards
  - Indoor air quality and comfort regulations
- Refrigeration
  - Refrigerants: Limitations and Opportuni ties Applications, e.g. improved food preservation
- Rural communities
  - Water use
  - Lack of energy infrastructure
  - Combustion using low-grade fuels

In addition to paper presentations, invited speakers from around the world will focus on the most critical challenges facing developing economy countries.

Building Energy Labeling Program Expanded

ATLANTA— A building energy labeling program that allows the industry to zero in on opportunities to lower building operating cost and make informed decisions to increase value has been expanded to include an As Designed label.

The program is now two labels in one: an As Designed label that rates the building's potential energy use under standardized conditions—independent of the building's occupancy and usage—and an In Operation label that rates the building's actual measured energy use as influenced by the building's occupancy and usage.

A building's utility costs are some of the largest, yet most controllable, operating expenses; therefore, managing a building's energy efficiency is an integral part of the building's operational and financial performance.

As the marketplace, the built environment industry and the government look at reducing energy use and saving money, the Building Energy Quotient (bEQ) is an easily understood, yet technically sound, tool for understanding a building's energy use and identifying opportunities to reduce that use is needed. ASHRAE, a building technology society with more than 50,000 members worldwide, is the developer of bEQ.

"Owners, tenants, potential owners and tenants and building managers need to have the information necessary to make informed decisions about the energy use of the existing buildings where we live, work and play," Amy Musser, Ph.D., P.E., a consulting engineer in Asheville, N.C., and volunteer chair of the bEQ Committee, said. "bEQ allows commercial building owners to zero in on opportunities to lower building operating cost and make informed decisions to increase value. It also allows potential buyers or tenants to gain insight into the value and potential long-term cost of a building."

"What makes bEQ unique is the depth of the analysis upon which each rating is based," Musser said. "Each label requires an ASHRAE-certified professional to perform either an energy assessment or standardized model; this brings a highly qualified individual to the building's energy management team."

The As Designed label is based on the results of an energy model with standardized inputs as compared to a baseline median EUI. The rating is based on simulated energy use—independent of operational and occupancy variables. Since the label compares a building under a standardized set of operating assumptions, it is a useful tool for tenants who want to compare different buildings without including effects of the current occupants as well as for operators to know whether they are achieving the full designed potential for a particular building. To receive an As Designed rating, a standardized energy model must be performed by an ASHRAE-Certified Building Energy Modeling Professional (BEMP).

The key component of the In Operation label is the in-operation assessment, which includes an ASHRAE Level I Energy Audit—the industry standard for determining a building's energy use—conducted by an ASHRAE-Certified Building Energy Assessment Professional (BEAP), along with recommendations for energy improvement measures. The rating focuses on the building's actual energy use for the preceding 12 to 18 months and is based on actual operating data. This helps building owners and operators see how their building's energy usage compares to the energy usage of a median baseline building and highlights their building's potential for energy performance improvement.

"bEQ is a voluntary program that draws on successful features from other U.S. and European building labeling and certification programs." Musser said. "Building energy use disclosure is already mandatory in the states of California and Washington; the cities of Washington, D.C.; Austin, Texas; Boston, Mass.; Philadelphia; Pa.; New York City, N.Y.; San Francisco, Calif.; and the European Union and Australia."
Buildings that participate in the program will receive a displayable label or plaque with an easily understood rating scale to allow a comparison of the building's energy use with similar buildings, as well as demonstrate the building owner's commitment to energy efficiency. Buildings can be labeled using both labels or just one.

The building owner will also be given a dashboard that provides a quick overview of the buildings energy usage, and a certificate that contains additional technical information to explain the score on the label and that could be used to satisfy compliance with state and local disclosure requirements.

Finally, documentation accompanying the label and certificate provides the background information useful for engineers, architects and technically savvy building owners or prospective owners in determining the current state of the building and opportunities for improving its energy use.

For more information, visit www.buildingenergyquotient.org.

Updated Heat Gain, Weather Data Latest Additions to ASHRAE Handbook

ATLANTA—Outdated internal equipment heat gain data can result in oversized systems and higher operating costs, yet it is one of the most difficult areas for engineers to define.

To assist the building environment industry in defining these loads and designing more cost-efficient systems, internal equipment heat gain and load density data have been updated in the newest edition of the ASHRAE Handbook.

The flagship of ASHRAE's Handbook series, the 2013 *ASHRAE Handbook–Fundamentals'* 39 chapters cover basic principles and data used in the HVAC&R industry, including updated information on building materials, load calculations, energy resources and analysis, refrigerants, indoor environmental quality (IEQ), sustainability, controls, duct and piping system design and more. Major revisions were made to Chapter 18, Nonresidential Cooling and Heating Load Calculations, including the new internal heat gain data and recommendations, an elevation correction example and an equation summary.

"Older assumptions based on out-of-date computer, copier and printer heat gains can result in significantly oversized HVAC systems resulting in higher first cost and operating cost," Steven Bruning, Handbook subcommittee chair of Technical Committee 4.1, Load Calculation Data and Procedures, said. "The new data in the Handbook chapter reflect ongoing ASHRAE Research results."

The chapter also includes an entirely new master example section based on the renovated ASHRAE Headquarters building. The updated example reflects current practice in energy efficient building construction, lighting loads and updated Standard 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, compliance, as opposed to the previous example, which reflected 1990s practice.

Additionally, the climatic design content of 2013 *Fundamentals* has been expanded to include data from nearly

900 more worldwide reporting stations than the 2009 volume—a 16 percent increase. Chapter 14, Climatic Design Information, now contains temperature and humidity design conditions and related information for 6,443 locations in the U.S., Canada and other countries around the world. The increase in the number of weather station's data is as a result of ASHRAE Research Project 1613.

"The increased number of stations, particularly noticeable in North and Central America (+26 percent), results in a better geographical coverage and enables designers to find a station closer to the location for which a building is designed," Didier Thevenard, chair of Technical Committee 4.2, Climatic Information, said.

Each station's data now also include monthly precipitation, used in particular to determine climate zones in Standard 90.1. The method and supporting data to calculate solar irradiance during clear sky conditions were also updated. Other new information can be found in Chapters 2, Thermodynamics and Refrigeration Cycles; 5, Two-Phase Flow; 9, Thermal Comfort; 10, Indoor Environmental Health; 11, Air Contaminants; 16, Ventilation and Infiltration; 19, Energy Estimating and Modeling Methods; 21 Duct Design; 23 Insulation for Mechanical Systems; 25, Heat, Air and Moisture Control in Building Assemblies—Fundamentals; 26, Heat, Air and Moisture Control in Building Assemblies—Material Properties; 27, Heat, Air and Moisture Control in Building Assemblies—Examples; 29, Refrigerants; 30, Thermophysical Properties of Refrigerants; and 36, Measurement and Instruments.

Chapters in the ASHRAE Handbook are updated through the experience of members of ASHRAE technical committees and through results of ASHRAE Research reported at ASHRAE conferences and published in ASHRAE special publications and in *ASHRAE Transactions*.

The 2013 ASHRAE Handbook is published in two editions: inch-pound (I-P) units of measurement and the International System of Units (SI).

The new 2013 volume will be added to ASHRAE Handbook Online by the end of June. Members can subscribe for $49 (list $249) and get immediate, searchable access to all four volumes in both I-P and SI units.
The cost of the 2013 *ASHRAE Handbook—Fundamentals,* which includes the CD is $199, in I-P or SI. The 2013 ASHRAE Handbook CD, which contains both the I-P and SI editions, costs $179.

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 click here.

Join us at ASHRAE's 2013 Annual Conference

Denver, Colorado | June 22–26, 2013

Register Early for the Best Deal!
www.ashrae.org/denver

Take advantage of the opportunity to discuss and examine the latest topics in the building industry, such as high performing buildings and integrated design, through the technical program; participate in technical tours; attend ASHRAE Learning Institute courses; and earn professional credits.

Research Summit — held in conjunction with the 2013 Annual Conference. The summit addresses the latest research results, innovative research techniques and forecasts future research directions.

Technical Program — presentations and papers focus on current research worldwide; core HVAC&R applications and systems; and Integrated Project Design, Energy Modeling and Building Efficiency Performance.

Networking — share ideas and learn from fellow members from your hometown and around the world.

ASHRAE Learning Institute — seven in-depth training courses including a new Professional Development Seminar on Operations and Maintenance of High-Performance Buildings and a new Short Course on Optimization of HVAC Systems and their Components.

$$$ Special first time attendee registration fee available!

ATTENTION: ASHRAE MEMBERS

The Chapter is now accepting advertisements in the monthly newsletter.

Sponsorship Rates are as follows:

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

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www.idahoashrae.com

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