THE HOT AIR DIFFUSER
IDAHO CHAPTER NEWSLETTER

MARCH 2010 VOLUME 16 ISSUE 6

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PRESIDENT'S MESSAGE

Welcome Spring! As the weather warms ASHRAE members approach the pinnacle of the ASHRAE year. There are only 2 more monthly programs at Idaho Power before closing out the year with our annual Technical Conference and Golf Tournament. Planning is well under way for both events and the Technical Conference is set to host several nationally renowned speakers. Registration for this event will begin within the next several weeks on the Idaho Chapter website: www.idahoashrae.com. After completion of the Technical Conference the local chapter will host the yearly golf tournament at Eagle Hills Golf Club. I have already started my practice for this tournament and plan on taking home the coveted ASHRAE prize of first place since I was unable to play last year.

While the weather warms up and business picks up it I understand how it becomes increasingly difficult to attend ASHRAE meetings. But, I would like to encourage everyone to continue supporting your local chapter. It is this network of co-workers, colleagues, and friends that can provide support throughout your professional career. I hope to see you all at the last few meetings and at our upcoming events. Let's make them successful once again.

Spencer Shepard, PE
President
Idaho Chapter ASHRAE

MARCH PROGRAM

WHEN: FRIDAY, March 12, 2010
11:45AM—1PM

WHERE: Idaho Power Bldg.
1221 W. Idaho Street
Boise, ID

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

MARCH PROGRAM (CONT'D)

Objective:
A summary of the seismic requirements of IBC 2006 as they apply to equipment and associated piping, ductwork and electrical systems.

Speaker:
Richard Lloyd is the West Coast Manager for MASON INDUSTRIES, Inc. and a mechanical engineer with 30 years experience in seismic design of mechanical and electrical systems. Co-author of ASHRAE's "A Practical Guide to Seismic Restraint" and "Mason Industries Seismic Restraint Guidelines for Suspended Piping, Ductwork and Electrical Systems" and also a member of the ASCE 7 TC-8 subcommittee on seismic requirements of non-structural components.

Key Issues:

- Basic design requirements and terminology in IBC 2006 and ASCE 7.
- Determination of seismic requirements for your specific project.
- Bracing requirements and exemptions for piping, ductwork and conduit.
- Relative displacement and flexible connectors.
- Problems with anchors in concrete per ACI 318.
- Equipment certification by experience data or shake table testing.

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IMPORTANT DATES

MARCH 12, 2010—ASHRAE MONTHLY MEETING
MARCH 14, 2010—DAYLIGHT SAVINGS TIME BEGINS
MARCH 17, 2010—ST. PATRICK'S DAY
MARCH 20, 2010—1ST DAY OF SPRING
APRIL 4, 2010—EASTER SUNDAY
APRIL 9, 2010—ASHRAE MONTHLY MEETING
APRIL 21, 2010—ADMIN. PROFESSIONALS DAY

QUOTE OF THE MONTH

"Age is an issue of mind over matter. If you don't mind, it doesn't matter. "

~ Mark Twain (1835-1910), American author

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HISTORY LESSON

Five Years Ago

The chapter president was Tony Sutton. The meeting was held on March 11, 2005, at Louie's in Meridian. Scott Mackay, CTA Architects, gave a presentation on design for heating systems using biomass boilers.

Ten Years Ago

The chapter president was Ben Strawn. The meeting was held on March 10, 2000, at the Double Tree Riverside. Chris Schartz, Ruskin regional manager, gave a 2 hour technical session on UL listed fire/smoke dampers and their code applications. He also gave a shorter presentation at the regular meeting.

Twenty Years Ago

The chapter president was Dave Musgrove. The meeting was held on March 9, 1990, at the King's Table Restaurant. Steve McQueen, McQueen Sales in Salt Lake City, UT, gave a presentation on CFC recovery.

Twenty Five Years Ago

The chapter president was Lee Longson. The meeting was held on March 8, 1985, at the Royal Fork Restaurant. Doug Tims, Northwest River Company, gave a presentation on white water rafting.

RESEARCH PROMOTION

A big THANK YOU goes out to Intermountain Gas Company, Jeff Robenstein and Bart Petterson as donors in February! This brings our total to $3610 or 42% of our goal with 3 months left on this year's RP fundraising campaign. Please don't wait until the golf tournament to join our growing list of donors! The companies that have donated are Engineering Inc., Midgley-Huber, Norbryhn Equipment, Clima-Tech, Drake Plumbing and Heating, and Sabol & Rice. Individuals that have contributed are Spencer Shepard, Cameron Sprinkel, Carl Marcum, Morgan Grohs, Scott Mackay, George Masing and Andrew Beall.

If you need help in making your donation, please contact me. You can contribute 24 hours a day online at www.ashrae.org/contribute using your credit or debit card. Remember that all contributions to ASHRAE Research are 100% tax deductible and that these gifts fund publications like the Handbook series (a major reason why most of us are members in the first place). Thanks for your dedication to our industry.

-Scott Mackay, Research Promotion Chair

NEWS FROM THE HOME OFFICE

BACnet Adds Language Options for Both Computers and Humans

ATLANTA – At ASHRAE's 2010 Winter Conference held recently in Orlando, the BACnet committee celebrated the approval for final publication of eight addenda to the ANSI/ASHRAE Standard 135, *A Data Communication Protocol for Building Automation and Control Networks*.

The addenda are expected to be available on ASHRAE.org by the end of February.

The addenda include a specification for a standard way of representing data in XML that will give BACnet new capabilities for communications between a wide range of applications. The Extensible Markup Language (XML) is a popular technology in the data processing and communications worlds due to its capability to model complex data and its flexibility to be transformed and extended.

"With this new IT-friendly way of representing building data, BACnet will open up new ways to communicate. XML can be used for exchanging files between systems, communicating with the Smart Grid, and expanding enterprise integration with richer Web services," said Dave Robin, chair of the BACnet committee.

The XML syntax is intended to be the core data representation for a variety of uses:

· Powerful new Web services that are capable of efficient exchange of complex structured data.

· An electronic version of a BACnet PICS document, consumable by workstations and other tools, to describe the capabilities of a device.

· An "as built" description of a deployed device, distributed either as a separate file or as a BACnet File object resident in the device itself.

· Descriptions of proprietary objects, properties and data types, which may be simple, for basic data sharing purposes, or extremely rich, providing complete descriptions of the meaning and usage of the data in multiple human languages.

· An export/import format for tools and workstations publish their knowledge of a complete system of devices and networks.

· An XML version of an EPICS, including the complete test database and other test-oriented data.

In addition to the new "computer language" of XML, another addendum has added an important new capability for human languages as well. When the Unicode character set was created many years ago, it was constructed to be universal set of characters to support most of the world's languages together in one stream. However, its original 2-byte encoding caused trouble with a lot of existing systems that were designed to process only the 1-byte characters common in western languages. The "UTF-8" encoding was created to solve this problem and quickly became a very popular method of conveying international text on the World Wide Web. BACnet has also embraced this standard and uses it in a way that fully takes advantage of its compatibility with the existing and ubiquitous ANSI/ASCII character set.

BACnet has also added support for more data types as well. A set of new "Value" objects rounds out BACnet's ability to represent different data types in a uniform and standard way. Added to the original Analog, Binary and Multi State Value objects, are new Value objects for every primitive datatype that BACnet supports, including support for character strings and large numerics.

ASHRAE '10: Building the Future

ATLANTA – A standard set to be a game changer in the industry was introduced at ASHRAE's 2010 Winter Conference, while work continued on other programs and standards that will help the Society build a more sustainable future. Some 2,500 people attended the conference, held Jan. 23-27, in Orlando, Fla. Also taking place in conjunction with the meeting was the Air-Conditioning, Heating, Refrigerating Exposition, which attracted nearly 45,000 registered visitors and exhibitor personnel. The Expo featured an 8 percent registered visitor increase from the last show in Orlando in 2005 and a new record for the Southeast. Other highlights included 1,823 exhibiting companies representing 29 countries and 206 first-time exhibiting companies covering 354,013 net square feet or more than eight acres.

The ASHRAE conference offered a technical program with more than 100 sessions, 22 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. "These are exciting times," ASHRAE President Gordon Holness said. "The industry reaction to our Building Energy Quotient program has been very positive. We are happy to have such distinguished partners as the General Services Administration join with us in piloting the program. The long-awaited Standard 189, which was published at the Orlando conference, will have a tremendous impact on the industry. In my travels this year, there has been much excitement about moving forward toward greater energy efficiency. As U.S. Department of Energy Secretary Steven Chu told us last year, 'energy efficiency isn't just low hanging fruit; it's fruit laying on the ground.' The time has come for truly sustainable buildings."

The biggest buzz at the conference centered on publication of the green standard from ASHRAE, the Illuminating Engineering Society of North America and the U.S. Green Building Council. Standard 189.1, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*, is the first code-intended commercial green building standard in the United States. The standard provides a long-needed green building foundation for those who strive to design, build and operate green buildings. From site location to energy use to recycling, this standard will set the foundation for green buildings through its adoption into local codes. Learn more at www.ashrae.org/greenstandard.

Other conference highlights included the technical program, with its theme of *Building Sustainability from the Inside Out*, featuring more than 100 sessions. The most well-attended sessions were *How to Assess the Performance of Sustainable Buildings*, *Standard 189.1 Overview*, *Enhanced Dehumidification Strategies with Energy Recovery in a Hot Humid Climate*, *High Performance HVAC Systems in LEED Platinum Projects: A Selected Showcase*, *Noise and the Mechanical System Design Process* and *High Density Cooling Issues Update*. More than 400 people attended the technical plenary session addressing H1N1. In addition, the two-part *Standard 189.1 Overview* seminar can be viewed for free at www.ashrae.org/greenstandard. The seminars are part of ASHRAE's first-ever Virtual Conference, which provides access to more than 250 presentations and PDFs of posters. Register or access presentations at www.ashrae.org/OrlandoVirtual.

Also offered were the ASHRAE Learning Institute's five Professional Development Seminars and 17 short courses. The most popular courses were *Successful Solar Applications*, *Using Standard 90.1 to Meet LEED Requirements*, *The Basics of a Proposed Standard on High-Performance Green Buildings*, *Designing toward Net-Zero-Energy Commercial Buildings*, *Determining Energy Savings from Energy Efficiency Projects: Applying IPMVP and Guideline 14 to Performance Contracting and LEED*, and *District Heating and Cooling*.

The Conference also served as the launch of ASHRAE's newest certification program, the Building Energy Modeling Professional certification, with 62 candidates taking the exam. As building owners and developers become increasingly concerned about rising energy costs and potential obligations under climate change programs, building energy modeling helps provide a preview into a building's likely energy use and allows decisions affecting energy use to be made before a shovel even hits the ground. The new certification ensures that professionals modeling a building's energy use have the skills necessary to produce an accurate model.

Top selling publications included Standard 189.1-2009, *The 2009 Pocket Guide* and newly published books including the *Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning;* the *Energy Efficiency Guide for Existing Commercial Buildings: The Business Case for Building Owners and Managers;* and *Dampers and Airflow Control.*

Lighting the Path to Energy Efficiency: Changes Proposed for Standard 90.1

ATLANTA – From green roofs to glazing products, measures to increase energy stringencies are being proposed for major sections of Standard 90.1. ANSI/ASHRAE/IESNA Standard 90.1-2007, *Energy Standard for Buildings Except Low-Rise Residential Buildings,* provides minimum requirements for the energy-efficient design of buildings except low-rise residential buildings. Currently, nine proposed addenda to the standard are open for public review.

Proposed addendum *by* would establish revised lighting power densities for both the whole building and space-by-space compliance methods. The addendum would reduce lighting power allowances in many building and space types while maintaining industry recommended lighting levels as their basis. "This will encourage designers to use more efficient lighting technology applications that provide more light without using more energy, which will require more thought at the design phase," said Eric Richman, chair of the 90.1 lighting subcommittee. "Additional proposed daylighting control requirements will also encourage them to incorporate effective daylighting and corresponding electric lighting control into their designs."

Changes also are being proposed to the envelope section, including addendum *f*, which sets requirements for high albedo roofs. This proposal recognizes a number of roof construction strategies that result in reduced buildings loads.

Other proposed changes to the envelope section are addenda *cl* and *cm*, both of which address glazing products. Addendum *cl* would clarify how to interpret the use of dynamic glazing products that are designed to vary a performance property vs. having just a single value. As the ratings for these products give a range of performance values, designers and code officials require an interpretation on what to use for compliance with the standard. Addendum *cm* clarifies how to interpret the use of dynamic glazing products given the requirements in proposed addendum *bb*, which would update building envelope requirements for opaque elements, such as walls and roofs and fenestration.

In the mechanical section of the standard, a proposed addendum, *ck*, expands the zone control demand control ventilation to include system level strategies to reduce ventilation during system operation. The remaining addenda – *cg, ch, ci* and *cj* – would make modeling defined by Section 11 and Appendix G of the standard consistent with other addenda that have modified Sections 6-9. These modifications include daylighting, dual minimum controls, cooling towers and data centers.

The proposed addenda to ASHRAE/IESNA Standard 90.1 are available for comment only during their public review period. To read the addenda or to comment, visit www.ashrae.org/publicreviews.

ASHRAE Celebrates National Engineers Week

ATLANTA Engineers don't just shape our buildings and infrastructure; they help shape our world. The Atlanta-based American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is a partner in the National Engineers Week program **(Feb. 14-20)**, a celebration of the contributions that engineering makes to our society and encourages engineering as a career path among young students by promoting pre-college literacy in math and science. For specific information about the program, please visit www.EWeek.org.

National Engineers Week showcases how our profession truly engineers the world we live in, ASHRAE President Gordon Holness, said. From buildings to manufacturing and transportation, engineers have been behind so many modern-day marvels. ASHRAE is proud to be involved in this program and celebration.

ASHRAE has twice served as lead organization in National Engineers Week. The last time, in 2003, ASHRAE launched the New Faces of Engineering program as part of the weekly celebration.

The New Faces program promotes the accomplishments of young engineers across various disciplines by highlighting their engineering contributions and the resulting impact on public welfare. The program targets those age 30 and younger. Engineering associations, societies and government groups nominate candidates each year, from which 15 are selected for recognition in USA Today.

ASHRAEs New Face for 2010 is Aaron Smith, a mechanical engineer at M&R Engineering, Ltd., Halifax, Nova Scotia. Smith has travelled the world bringing engineering to isolated communities, from wind project in northern Alaska, to solar energy projects in Nicaragua. Smith also wrote a bilingual construction manual based on the photovoltaic assembly techniques and organized an educational workshop on solar ovens. Other recent projects include a maintenance facility and a farmers market that incorporate geothermal heat pumps with solar thermal assist, wind turbines, in-floor radiant heating, natural ventilation and dedicated outdoor air systems with energy recovery.

The New Faces of Engineering will be featured in USA Today on Tuesday, February 16.

Several events will take place in conjunction with National Engineers Week, including Introduce a Girl to Engineering Day (Feb.20) and the Future City Competition.

Now in its 18th year, the competition attracted 33,000 middle-school students during the 2009-2010 school year from a record-breaking 1,100 schools in diverse regions across America to work with teachers and volunteer engineers to envision the future in large, tabletop models of cities of tomorrow. The teams presented their Future Cities before engineer judges at regional competitions in January. First place teams from qualifying regional competitions won a trip to Washington for the Future City National Finals, February 15-17. For more information, visit www.futurecity.org. ASHRAE will be presenting special awards for sustainability and indoor air quality.

ASHRAE offers 14 spring online courses: Updated Course on New Green Building Standard Available

ATLANTA—With publication of the green building standard, an updated online seminar reviewing its requirements is now available from ASHRAE. ANSI/ASHRAE/USGBC/IES Standard 189.1, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*, is the first code-intended commercial green building standard in the United States. It provides a long-needed green building foundation for those who strive to design, build and operate green buildings. The standard covers key topic areas of site sustainability, water use efficiency, energy efficiency, indoor environmental quality and the building's impact on the atmosphere, materials and resources, and also includes construction practices as well as plans for operation of the building after occupancy.

A course from ASHRAE on the requirements of the standard, *Understanding Standard 189.1P for High-Performance, Green Buildings,* takes place March 15 and is taught by Tom Lawrence, a member of the committee that developed the standard. The course is one of 14 being offered this spring. "The course has evolved as the standard has taken shape, and I anticipate that the course will continue to evolve as changes and addenda are approved, resulting from changes in concepts, technologies and design for green buildings" Lawrence said. "Standard 189.1 has the potential to be a 'game changer' in the industry and thus anyone who is working with green design would benefit from learning more about the standard. One way to do that is by taking this course."

The 14 online, instructor-led seminars that will run from March until 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. A full list of seminars and registration information can be found at www.ashrae.org/onlinecourses. Other courses are:

- *Humidity Controls: Basic Principles Loads and Equipment*
- *Humidity Controls: Application, Control Levels & Mold Avoidance*
- *Introduction to Green Buildings and Sustainable Construction*
- *The Commissioning Process and Guideline 0*
- *Introduction to Thermal Energy Storage Systems for Air Conditioning*
- *Complying with Standard 90.1-2007 HVAC/Mechanical*
- *Energy Management in New and Existing Buildings: a Sustainable Activity*
- *Complying with Standard 90.1-2007 Envelope/Lighting*
- *Using Standard 90.1-2007 to Meet LEED Requirements*
- *Introduction to Cleanroom Design*
- *District Cooling and Heating Systems: Central Plants*
- *Complying with Requirements of ASHRAE Standard 62.1-2007*
- *Understanding and Designing Dedicated Outside Air Systems*

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

Members Sought for Committee- First Changes Proposed to New Green Standard: Daylighting Addressed

ATLANTA—Members are being sought and changes proposed for the new standard for the design of high-performance green buildings published in January.

ANSI/ASHRAE/USGBC/IES Standard 189.1, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*, is the first code-intended commercial green building standard in the United States. The standard provides a long-needed green building foundation for those who strive to design, build and operate green buildings. It covers key topic areas of site sustainability, water use efficiency, energy ef-ficiency, indoor environmental quality and the building's impact on the atmosphere, materials and resources.

Under ASHRAE's continuous maintenance procedure, which allows requests for change to any part of the standard to be made at any time, changes have already been proposed.

"Given the high amount of interest in this standard, using continuous maintenance allows us to incorporate current technical information on a timely basis," Kent Peterson, chair of the committee said. "These changes are then put out for public review and comment, which results in an industry consensus standard."

Open for public comment are addenda *a* and *b*. Addendum *a* makes the daylighting definitions and criteria consistent with changes recently proposed to Standard 90.1, which sets requirements for energy efficient buildings. Addendum *b* reduces the space limitation for daylighting requirements. Rather than requiring daylighting in space larger than 1,000 square feet, the proposal would require it in spaces larger than 250 square feet.

Members also are being sought for the committee developing the standard with slots opening July 1. The deadline to apply is March 31. For more information on membership, contact standardssection@ashrae.org

21 Changes Proposed for Standard 90.1

ATLANTA – Public input to help shape the technical requirements in Standard 90.1 is being sought through 21 proposed addenda, which could become part of the 2010 standard.

ANSI/ASHRAE/IESNA Standard 90.1-2007, *Energy Standard for Buildings Except Low-Rise Residential Buildings,The proposed addenda cover a range of topic areas, including daylighting, air leakage, EER and IEER values and requirements for VRF air conditioners and heat pumps.* provides minimum requirements for the energy-efficient design of buildings except low-rise residential buildings.

"Our goal is to produce a standard to increase energy efficiency in buildings," Mick Schwedler, Standard 90.1 committee chair, stated. "Public input from the industry into development of the standard has proven invaluable since it was first published 35 years ago."

If no comments are received on the addenda, they likely will be incorporated into the 2010 version of the standard slated to be published this fall. If comments are received, the substance and volume of those comments will determine whether they are incorporated into the 2010 standard.

Among the proposed addenda are two that deal with daylighting. Addendum *cu*, which would control the "night lights" that are part of the emergency system when there are no occupants in the space. Today, generally by default, lights are kept on even if buildings are unoccupied. Therefore, there are savings to shut them

off. Addendum *ct* would reduce the threshold for daylighting to 250 square feet from 1,000 square feet.

In another area, addendum *bu* would modify computer room efficiency requirements based on comments from an earlier public review.

"The 90.1 committee worked closely with manufacturers, designers and owners of computer rooms to address comments and produce the language in this addendum," said Drake Erbe, Mechanical Subcommittee chair.

Below is a listing of proposed addenda:

Public Reviews from March 5-April 4, 2010:

- Addendum *bb* – would modify Appendix C and Appendix A in response to comments received on the previous version of the addendum, which modifies all fenestration and opaque assembly requirements in the standard.
- Addendum *bf* – would place performance requirements for air leakage of the opaque envelope. Performance requirements have existed on fenestration and door products to date, but evidence suggests that the opaque envelope is the source of the majority of air leakage in buildings caused by lack of attention in the design, construction and enforcement process due to the absence of performance criteria.
- Addendum *bz* – addresses the comments received during the first public review calling for clarification of the requirements to reduce misinterpretation on the proposed monitoring requirements.
- Addendum *ce* – would clarify the requirements and avoid conflicts with other existing requirements for lighting space control.
- Addendum *cs* – originated with a continuous maintenance proposal to address information received on addendum *bs* on receptacles after the public review period closed and which the committee found to have merit.
- Addendum *cu* – would control the "night lights" that are part of the emergency system when there are no occupants in the space. This has definite energy savings and is not prohibited by the electrical codes.
- Addendum *cv* – would add energy efficiency requirements for service water pressure booster systems.
- Addendum *cw* – would address corrections and clarification necessary to Section 11, Table 11.3.1 section 11 Service Hot Water Systems.

Addendum *cx* – would allow a 40 percent window wall area path within the prescriptive Tables 5.5-1 through 5.5-8.

· Addendum *cz* – would incorporates bi-level control for parking garages to reduce the wasted energy associated with unoccupied periods for many garages and allows an exception for lighting in the transition (entrance/exit) areas to accommodate IES recommendations.

- Addendum *da* – would establish that an Appendix G baseline shall be based on the minimum ventilation requirements required by local codes or a rating authority and not the proposed design ventilation rates.

Addendum *dc* – The conditions and common practice that existed to create the need for this requirement on tandem wiring are no longer practiced primarily with the new Federal efficacy requirements and products available on the market.

Public Reviews from March 5-April 19, 2010:

- Addendum *bu* – would modify the computer room efficiency requirements based on comments received during the first public review.
- Addendum *cd* – wouldstrengthen the language to actually require exterior control rather than just require the control capability; add bi-level control for general all-night applications such as parking lots to reduce lighting when not needed; and add control for façade and landscaping lighting not needed after midnight.
- Addendum *cn* – would add two versions of a combined advanced control to the control incentives table. These control system combinations involve personal workstation control and workstation-specific occupancy sensors for open office applications. The control incentive will apply only to the particular controls when they are applied in open office areas.
- Addendum *co* – would make three major amendments to Table 6.8.1A: update EER and IEER values for all condensing units and water and evaporatively cooled air conditioners with cooling capacities greater than 65,000 Btu/h; establish a separate product class for evaporatively cooled air conditioners with different energy efficiency standards; and replace the IPLV descriptor for condensing units with the new IEER metric and amends the EERs with more stringent values.
- Addendum *cp* – would establishes, for the first time in Standard 90.1, efficiency requirements for VRF air conditioners and heat pumps, including heat pumps that use a water source for heat rejection.
- Addendum *cq* – would modify the duct sealing requirements in 90.1.
- Addendum *cr* – would set a definition for an unmet load hour currently lacking a throttling range or limit to the setpoint. It was decided that the baseline and proposed shall have the same thermostat throttling range. This required additional language in the unmet load hour definition as to how throttling range effects determination of an unmet hour along with additional language in Table 11.3.1 and Table G3.1, Design Model sections.
- Addendum *ct* – would reduce the threshold for daylighting from 1000 square feet to 250 square feet.

Addendum *cy* – would makes several revisions to the economizer requirements in section 6.5.1 and in section 6.3.2

The proposed addenda to ASHRAE/IESNA Standard 90.1 are available for comment only during their public review period. To read the addenda or to comment, visit www.ashrae.org/publicreviews.

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.

SUDOKU OF THE MONTH

Puzzle Difficulty: EASY

Fill in the puzzle so that every row, every column, and every 3 x 3 box contains the numbers 1 through 9. (Answer in next month's newsletter.)

3		1	4			2		
	9		7			6		8
	7		9		8		4	
		9		3	4	1		
7	5						2	4
		3	6	7		8		
	3		1		5		8	
2		4			9		5	
		8			7	9		6

SUDOKU SOLUTION

FROM FEBRUARY'S NEWSLETTER

4	1	2	3	9	5	6	7	8
8	5	9	6	1	7	2	3	4
3	6	7	8	4	2	1	5	9
5	7	8	9	3	1	4	6	2
2	3	1	7	6	4	8	9	5
9	4	6	5	2	8	3	1	7
1	8	3	2	5	9	7	4	6
6	2	5	4	7	3	9	8	1
7	9	4	1	8	6	5	2	3

TRIVIA OF THE MONTH

- St. Patrick's Day is observed on March 17 because that is the feast day of St. Patrick, the patron saint of Ireland. It is believed that he died on March 17 in the year 461 AD. It is also a worldwide celebration of Irish culture and history. St. Patrick's Day is a national holiday in Ireland, and a provincial holiday in the Canadian province of Newfoundland and Labrador.
- In Ireland on St. Patrick's Day, people traditionally wear a small bunch of shamrocks on their jackets or caps. Children wear orange, white and green badges, and women and girls wear green ribbons in their hair.
- Many cities have a St. Patrick's Day parade. Dublin, the capital of Ireland, has a huge St. Patrick's Day festival from March 15-19, that features a parade, family carnivals, treasure hunt, dance, theatre and more. In North American, parades are often held on the Sunday before March 17. Some paint the yellow street lines green for the day! In Chicago, the Chicago River is dyed green with a special dye that only lasts a few hours. There has been a St. Patrick's Day parade in Boston, Massachusetts since 1737. Montreal is home to Canada's longest running St. Patrick's Day parade, which began in 1824.
- St. Patrick was born in 385 AD somewhere along the west coast of Britain, possibly in the Welsh town of Banwen. At age 16, he was captured and sold into slavery to a sheep farmer. He escaped when he was 22 and spent the next 12 years in a monastery. In his 30s he returned to Ireland as a Christian missionary. He died at Saul in 461 AD and is buried at Downpatrick.
- The harp is the symbol of Ireland. The color green is also commonly associated with Ireland, also known as "the Emerald Isle."
- The name "lephrechaun" has several origins. It could be from the Irish Gaelic word "leipreachan," which means "a kind of aqueous sprite." Or, it could be from "leath bhrogan," which means "shoemaker.".

ATTENTION: ASHRAE MEMBERS

The Chapter is now accepting advertisements in the monthly newsletter.

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