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08' ASHRAE

ASHRAE's Role in Providing Guidance for Contractors Explored in Forum

ATLANTA – To ensure design and construction of the most efficient and comfortable buildings possible, ASHRAE is working to provide its technical guidance to all members of the building team.

Input on guidance needed from ASHRAE to best serve contractors and design build firms is sought in a forum at ASHRAE's 2008 Winter Meeting, *Missing the Bus: What is ASHRAE Not Doing for the Contractor?* It takes place from 12:15-1:15 p.m. Jan. 22, Javits Convention Center.

"ASHRAE isn't looking to reinvent the wheel on training documentation targeted to contractors and design-build firms but instead to work with existing organizations to market a more comprehensive suite of training information for contractors," Jim Fields, chair of ASHRAE's task group on HVAC contractors and design-build firms, said. "One of our primary goals is to see how we can make existing products, such as standards and design guides, more user-friendly for contractors."

ASHRAE formed its task group earlier this year. Fields said more active involvement with contractors and design-build firms will help strengthen the level of understanding between design engineers and these other disciplines.

For more information about the ASHRAE meeting, Jan. 19-23, at the New York Hilton, visit www.ashrae.org/newyork.

Held with the ASHRAE Winter Meeting is the ASHRAE co-sponsored International Air-Conditioning, Heating, Refrigerating

Exposition, Jan. 22-24, at Javits Convention Center. For more information, visit www.ahrexpo.com.

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08' ASHRAE

Refrigerated Shipping Celebrated in ASHRAE Technical Program Session

ATLANTA – Londoners enjoying a lamb chop dinner tonight should take time to celebrate a milestone anniversary in the history of refrigeration.

This year marks the 125th anniversary of the first frozen shipment of meat from New Zealand to Europe. In 1882, the *Dunedin* carried 3,521 sheep and 449 lamb carcasses, arriving in London in good condition after a 98-day voyage.

“Early attempts to meet the English demand by exporting canned meat failed, as it was an unreliable product disliked by the English population,” Dr. Richard Love, lecturer, Massey University, New Zealand, said. “Fortunately, worldwide technology was being developed at this time, and there were several candidate technologies available, such as absorption systems, mechanical compression systems and air-cycle systems, to ensure successful refrigerated shipping.”

Love will share findings from his historical research, *Early Refrigerated Meat Shipping from New Zealand*, in the poster session at ASHRAE’s 2008 Winter Meeting, Jan. 19-23, New York City. The poster session is held from 11 a.m.-1 p.m. Jan. 22 at the New York Hilton.

The *Dunedin* used an air-cycle refrigeration system, which was seen as more reliable than a mechanical compression system on an ocean voyage, as it could not suffer from refrigerant leaks, according to Love. In the decades that followed, carbon dioxide- and ammonia-based mechanical compression systems became much more popular.

“Today, New Zealand still exports a large amount of frozen product around the world – 92 percent of New Zealand lamb is exported, and meat exports comprise about 14 percent,” Love said. “Refrigerated shipping remains an important technology for the country.”

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ASHRAE Studies Heat, Moisture Production Rates of Swine, Houses

ATLANTA – The proverbial “little pig who stayed home” will be assured of good indoor environmental quality under proposed research from ASHRAE.

The Society is funding research to update heat and moisture production rates from pigs and their housing facilities, which are the foundation for effective design and operation of HVAC&R systems.

“Without proper heat and moisture production values, ventilation systems will be inadequately designed and operated, resulting in unsuitable building environments for animals and workers,” said Lingying Zhao, Ph.D., a member of ASHRAE’s technical committee on plant and animal environment, which is sponsoring the project. “Incorrect data about those values also can create potential moisture buildup that could lead to premature building failure.”

The project is one of 16 currently out for bid by ASHRAE. Complete information on all of the projects and bid submittal information can be found at www.ashrae.org/research.

Currently available data on heat and moisture production rates is nearly 50 years old. Since that time, swine production has undergone significant changes in terms of genetic potential, nutrition, housing strategies and production systems, all of which affect swine heat and moisture production rate.

New feeds, for example, can affect the heat production rate from the actions of eating, digestion, and absorption and utilization of the nutrients. The amount pigs are fed today on a regular basis has changed throughout the years as well as differences in the nutrients contained in today’s feed.

Types of housing also impacts swine heat and moisture production rates. Although pigs have a few sweat glands, they mainly stay cool due to other moisture sources in their pen evaporating from their skin, according to Zhao.

Other projects out for bid are:

- 1216-RFP, *Inlet Installation Effects on Bi/Airfoil Centrifugal Fans, Air & Sound*, sponsored by TC 5.1.
- 1267-RFP, *Development of an ASHRAE Design Manual for District Heating and Cooling Systems*, sponsored by TC 6.2.
- 1345-RFP, *Waterside Fouling Performance of Brazed-Plate Type Condensers in Cooling Tower Applications*, sponsored by TC 8.5.
- 1356-RFP, *Methodology to Measure Thermal Performance of Pipe Insulation at Below-Ambient Temperatures*, sponsored by TC 1.8
- 1387-RFP, *Thermal Energy Storage Design for Emergency Cooling*, sponsored by TC 6.9.
- 1408-RFP, *The Effect of Lining Length on the Insertion Loss of Acoustical Duct Liner in Sheet Metal Ductwork*, sponsored by TC 2.6.
- 1416-RFP, *Development of Internal Surface Convection Correlations for Energy and Load Calculation Methods*, sponsored by TC 4.7.
- 1418-RFP, *Indoor Environment Modeling*, sponsored by TC 4.10.

- 1456-RFP, *Assess and Implement Natural and Hybrid Ventilation Models in Whole-Building Energy Simulations*, sponsored by TC 4.10.
 - 1466-RFP, *Development of a Calibration Reference Device for Use with Test Standard ANSI/ASHRAE 52.2-2007*, sponsored by TC 2.4.
 - 1475-RFP, *Updating Heat and Moisture Production Rates of Modern Swine and Their Housing Systems*, sponsored by TC 2.2.
 - 1480-RFP, *Island Hood Energy Consumption and Energy Reduction Strategies*, sponsored by TC 5.10.
 - 1481-RFP, *Economic Data Base In Support of Standard 90.2*, sponsored by Standing Standards Project Committee 90.2.
 - 1482-RFP, *Update to Measurements of Office Equipment Heat Gain Data*, sponsored by TC 4.1.
 - 1484-RFP, *Energy and Performance of Secondary Coolant Low-Temperature Refrigeration Systems*, sponsored by TC 3.1.
 - 1486-RFP, *Fault Detection and Diagnostics for Centrifugal Chillers - Phase III: Online-Time Implementation*, sponsored by TC 7.5.
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08' ASHRAE

Prediction of Building Lifecycles via BIM Explored in ASHRAE Session

ATLANTA – Imagine having a crystal ball that allows you to predict the design, construction and operation of a building while still in concept phase.

Building information modeling (BIM), which is the use of real-time, intelligent, multi-dimensional and dynamic models long used in the manufacturing and aerospace industries, provides you with that look into the future of a building.

A look at how BIM is changing the building industry will be presented in a seminar at ASHRAE's 2008 Winter Meeting, Jan. 19-23, New York City. The seminar, *Building Information Modeling*, takes place from 8-9:30 a.m. Jan. 20 at the New York Hilton.

“Although buildings will continue to be unique undertakings that will never enjoy the refinements and economies that mass production industries do, BIM allows the construction industry to accurately design, construct and operate buildings in a virtual environment before the first yard of earth is moved or the first brick or bath of mortar ordered,” Dennis Knight said. “By allowing for greater collaboration between disciplines and trades involved in the process, we will produce better buildings that are safer, healthier, environmentally more sustainable and economically more efficient with fewer errors, omissions and less waste.”

Knight is vice chair of ASHRAE's technical committee on integrated building design, which is sponsoring the session. The session seeks to provide practical information from practicing HVAC&R design professionals on how to begin the process of implementing BIM into a design or construction practice.

Knight notes that ASHRAE is actively participating in the process of making BIM a preferred method of designing, constructing and operating buildings.

ASHRAE has established a Building Information Modeling and Interoperability Steering Committee to develop and identify initiatives and opportunities presented by interoperability, BIM, and related topics.

"We need to be cognizant of the bigger picture – the potential impact of BIM on almost everything we do as a technical society, not just on technology associated with buildings but the actual process of design, construction, commissioning and operation," Gordon Holness, chair of the steering committee, said.

The committee also is working to develop informational and educational programs on BIM and interoperability.

Externally ASHRAE is participating in collaborative efforts to help develop common terminology and common technologies to ensure data exchange across operating platforms and software systems is reliable and accurate.

ASHRAE has representation on the "buildingSMART" Alliance, which is an independent body of the National Institute of Building Sciences. The alliance, whose members include the International Code Council, the International Alliance on Interoperability and the Construction Specification Institute, is working to develop an open information environment for knowledge based collaborative processes throughout the lifecycle of a building.

Speakers in the ASHRAE seminar are:

- *Automating Code Compliance Checking with BIM*, David Conover, International Code Council, Washington, D.C.
- *The Promise and Reality of BIM*, Christopher Wilkins, P.E., Hallam-ICS, Burlington, Vt.
- *Building Information Modeling and ASHRAE's Steering Committee on BIM and Interoperability*, Gordon Holness, P.E., Grosse Pointe Shores, Mich.

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Hitting the O&M Notes to Achieve Net-Zero-Energy Buildings

ATLANTA – In composing net-zero-energy buildings, operation and maintenance are two of the most important chords.

“Zero energy is only in its infancy,” said Richard Rooley, FREng. “Right now, engineers are like a composer, who sets out the notes and the way music is presented. As our knowledge grows, we will learn how to play our instrument to achieve a zero carbon building. But without more guidance on design of net-zero buildings, the music will fail.”

The role of operation and maintenance in achieving net-zero-energy buildings is highlighted in a two-part seminar at ASHRAE’s 2008 Winter Meeting, *Net-Zero Energy Buildings: The Impact of O&M Practices?* It takes place from 8-9:30 a.m. and from 9:45-10:45 a.m. Jan. 22, New York Hilton.

In recent years, high-performance and net-zero-energy buildings have been identified as performance targets by ASHRAE, federal governments and other organizations. Much of the work to date toward these targets has focused on design of such buildings. Commissioning, operation and maintenance (O&M) are likely just as critical to achieving actual net-zero-energy performance as design.

“The seminar shows us how we are slowly learning to procure buildings for use, not just to look beautiful and meet theoretical design-as-an-end criteria,” said Rooley, chair of the seminar, sponsored by ASHRAE’s technical committee on operation and maintenance management

Other sessions in the technical program focusing on net-zero energy buildings include:

- *How to Model Nothing: Energy Simulations of Net-Zero Energy Buildings: Part 1 and 2*, 11 a.m.-12:30 p.m. and 1:30-3 p.m., Jan. 20.
- *Long Term Data Center Planning: the Push Toward Net-Zero Energy and Other Considerations*, 12:40-1:20 p.m., Jan. 20.
- *Net-Zero Buildings: Will Energy Storage Be Essential*, 12:40-1:20 p.m., Jan. 20.
- *Thermoeconomics of Net-Zero Design* 9:45-10:45 a.m., Jan. 21
- *Exergy Analysis 2: Exergy Efficient Design, Analysis and Rating for Net-Zero Energy Buildings, Part 1*, 9:45-10:45 a.m., Jan. 21; *Part 2*, 11 a.m.-noon, Jan. 23.
- *Exergy Analysis 3: Advanced Applications for New Heights in Net-Zero Energy Buildings*, 11 a.m.-noon, Jan. 21.
- *Zero Energy Buildings of the Future: Is it Time to Define Resource Energy Efficiency and Apply it to Buildings in the Future*, 11 a.m.-noon, Jan. 21.
- *How Low Can You Go? Case Studies of Low-Energy Buildings*, 9:45- 10:45 a.m., Jan. 22.
- *How Do You Connect Your Net-Zero Building to the Grid*, 8-9 a.m., Jan. 23.
- *What Defines a Net-Zero Energy Building*, 11 a.m.-noon, Jan. 23.
- *Low- and Zero-Carbon Cities of the Future*, 1-2:30 p.m., Jan. 23.

Performance Monitoring to Achieve Net-Zero Energy, 1-2:30 p.m., Jan. 23.

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ASHRAE Launches New Magazine Dedicated to High-Performing Buildings

ATLANTA – ASHRAE has launched a new magazine to help decision-makers in the building community learn about the latest developments in innovative technologies and energy-efficient design and operation.

Targeted at building owners, facility managers, architects and engineers, High Performing Buildings features working case studies of exemplary buildings developed by leading practitioners in the sustainability movement.

Also included is a “lessons learned” section in each article where building designers and operators explain what went right, what went wrong, how problems were resolved and what could have been done better.

“It is essential that ASHRAE share both the technologies and measured performance of high-performance buildings to change the status quo and help transform the building industry to a more sustainable built environment,” said Kent Peterson, ASHRAE president.

ASHRAE’s goal is to advance the concept of integrated building design with a focus on measured building performance, not just design of sustainable buildings. The cases studies featured will provide performance data, verifying actual sustainability performance.

The cover story of the first issue focuses on Heifer International. By providing gifts of livestock and plants to financially disadvantaged families around the world, Heifer International teaches sustainability by showing recipients how to use those gifts wisely.

The importance of passing on the gift of sustainability is also highlighted in the organization’s Arkansas headquarters, which features earth-friendly designs such as a constructed wetlands, a gray-water tower and energy-saving techniques.

“One thing that Heifer understands is that if we are going to have a lasting impact on world hunger, everything we do must be sustainable – that is, the means for production of food and income must renew the environment and not deplete it,” Jo Luck, Heifer’s CEO and president, said. “In conceiving and constructing our new office building, we are striving to live up to the aspirations of Heifer’s own mission of ending hunger and saving the earth.”

To learn more or to subscribe, visit www.HPBmagazine.org. The quarterly magazine will be distributed via print and digitally.

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'08 ASHRAE

Measuring Up: Case Studies of Green Building Energy Performance Shared in ASHRAE Seminar

ATLANTA – When it comes to high-performance buildings, the proof is performance.

Measuring actual energy performance, however, can be challenging due to inadequate modeling practices, failure to include operations staff in goal setting, and lack of adequate budgets for commissioning, evaluations and ongoing benchmarking.

“As more actual energy performance data become available on high-performing buildings, clearer and more realistic expectations will help establish confidence within the building design and construction industry about costs and savings,” said Donald Winston, The Durst Organization, New York, N.Y.

Winston is one of three speakers who will provide a look at the role of performance measurement in high-performing buildings presented in a seminar at ASHRAE’s 2008 Winter Meeting, Jan. 19-23, New York City. The seminar, *Green Building Energy Performance: Some Experience and Data from the Field*, takes place from 9:15-10:45 a.m. Jan. 23 at the New York Hilton.

Winston will focus on his experiences with Class A office space in midtown Manhattan, including the Conde Nast Building at 4 Times Square and recent high-rise green residential buildings. His experiences with this building also are featured in a new magazine, *High Performing Buildings*, recently launched by ASHRAE.

Based on the Durst Organization’s experiences with 4 Times Square, several design changes are being made to its current project, the Bank of America Tower at 1 Bryant Park. These changes deal with use of fuel cells, photovoltaics and commissioning and owner involvement.

“Energy cost savings are often cited as offsetting any additional first costs of green buildings,” said Adam Hinge, a member of ASHRAE’s Technical Committee TC 7.6, Systems Energy Utilization, which that is sponsoring the seminar. “Many times the cited energy benefits are based on predicted, not measured, savings. In some cases actual energy performance can be quite different from predicted performance. Accurate reporting of the actual performance of green buildings is important, as sharing operating results and lessons learned earlier rather than later can avoid repeating potential mistakes as the green buildings movement proceeds. This seminar presents experience and data on several high-profile projects.”

Other speakers in the ASHRAE seminar are:

- *High-Rise Residential Buildings: What Works and What Doesn't*, Michael Gubbins, The Albanese Organization, New York, N.Y.
- *From Energy Model to Ongoing Operation: A Portfolio Wide Approach to Greening Schools*, James F. Dolan, P.E., O'Dea, Lynch, Abbatista Consulting Engineers, PC, Hawthorne, N.Y.
- *Lessons Learned in Operation High-Performance Green Buildings*, Donald Winston, P.E., Durst Organization, New York, N.Y.

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