KANSAS CITY CHAPTER

TECHNOLOGY FOR A BETTER ENVIRONMENT

ASHRAE BREEZE

A publication of the Kansas City Chapter of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

Editor: Jason Funk http://www.kcashrae.org/ January 2012

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January Program

Holiday Inn Hotel & Suites
Overland Park – West
8787 Reeder Road (Hwy 69 and 87th Street)
Overland Park, Kansas 66214

January Meeting
Monday, January 9, 2012
11:30 – 1:30
Lunch meeting

Topic: Engineering Ethics
Speaker: Mr. Vincent Wedelich, P.E., MBA

Menu

English Cut Broil

Slices of marinated flank steak. Smothered with sautéed mushrooms and onions in demi-glaze. Served with choice of garlic mashed, roasted baby red, or baked potatoes with seasonal vegetables. Cheesecake.
House salad, fresh baked bread and herbed butter, Coffee, iced tea and water.

RSVP via the ASHRAE Website by **Deadline Thursday, January 5th - at Noon**

$20 – Members $25 after RSVP deadline

Student Sponsorship-$10

January Program

Joint Meeting with ASPE Kansas City

Engineering Ethics
In today's complex design and construction industry, an engineer must understand more than basic design calculations. This presentation will discuss the ethical and moral commitments of the engineering profession. Special attention will be paid to defining ethics, why ethics are important and how to address moral dilemmas.

Speaker: Mr. Vincent Wedelich, P.E., MBA
Mr. Wedelich graduated from the State University of New York at Albany with a Bachelor of Science in Electrical Engineering and has earned an MBA in Finance and Economics from Houston Baptist University. He is an active member of the Institute of Electrical & Electronics Engineers (IEEE) and participates in the organization's Houston Executive Committee. As a consulting engineer for Burns & McDonnell, Mr. Wedelich works in the Transmission and Distribution Group as well as providing corporate training. In addition to his consulting engineer experience, Mr. Wedelich has worked in product design for several manufacturers and in construction for the United States Navy.

Hope to see everyone at this month's technical program! Please RSVP at www.kcashrae.org by Noon, January 5, 2011.

President's Message

With 2011 coming to a close it signals that we are already halfway through the ASHRAE year. Your Kansas City ASHRAE chapter continues to try adapting and improving to best serve the needs of the ASHRAE members. This can only be done through the efforts of individual ASHRAE members that have gotten involved with the operation of the chapter. As we begin a New Year with all of the New Year's resolutions, I would ask that you consider becoming more involved in the KC ASHRAE Chapter.

2011 Accomplishments: Taking a look back on the first half of the year, we have a number of accomplishments to build on during 2012……..

KC ASHRAE Website:
The KC ASHRAE chapter's website had not been very well maintained for the last few years. We now have one of our BOG positions dedicated to the website. Thanks to Jarrod Foster we have changed the website host and website design and we are trying to continually update the content. We are also taking reservations and payments for our meetings on the website. Now that the transition has been accomplished, we are discussing website sponsorship.

Social Media:
Austin Allen has volunteered to lead a social media committee. This committee will be responsible for KC ASHRAE on facebook, twitter and other social media outlets.

- Facebook: Our facebook page is **Kansas City Ashrae**
- Twitter: Our twitter account is **@KCASHRAE**

YEA Committee:
We did not have a YEA committee in the past. Now Rick Alspaugh has come forward to lead the committee. We are tentatively planning our first social type event in the spring.

December Meeting
Our December meeting was a joint meeting with the Kansas City Association of Hospital Engineering (KCAHE) and featured **Lynn Van Winkle** discussing **Steam System Design in Hospitals**. Thanks to Lynn for the presentation!

January Meeting
Our January meeting will be held over the lunch hour on January 9th. This will be our second joint meeting of the year with ASPE. Vincent Wedelich will be the speaker talking about Engineering Ethics. We are expecting a big turnout to start the year so I would encourage you to pay for the meeting on the website and avoid the line at the meeting.

Here's to a prosperous New Year! Please do not hesitate to contact me with any questions or concerns or any suggestions you might have to make ASHRAE and our chapter more productive. E-mail: bellis@burnsmcd.com.

Blake Ellis
Kansas City Chapter President

PS. ***ASHRAE Winter Conference*** – The Winter Conference is coming up quickly in Chicago on January 21-25, 2012. See http://www.ashrae.org/events/page/chicago2012.

KANSAS CITY ASHRAE MEMBERSHIP INCENTIVE PROGRAM

Program:
Each member that refers a NEW paid member to ASHRAE shall receive a $25 VISA gift card.

Guidelines:

1. A new member constitutes an individual that currently does not have an active membership in ASHRAE. This does NOT include delinquent members.
2. NEW member must be signed up and fully paid for that year's membership before gift card is issued.
3. NEW member cannot be a transferred member from a different chapter.
4. Members that have been cancelled for a period of no less than 12 months will be considered a NEW member referral.
5. There is no limit to the number of referrals that can be received.
6. One gift card will be issued per NEW member referral.

Details:

1. Referral bonus will be paid when:
    a. Current member presents NEW member's name and date of initiation via email to reid.begnoche@siemens.com.
    b. The gift card award shall be presented to the referring member at the following ASHRAE meeting.

Don't Wait, Please Donate for the 2011-2012 Calendar Year

We were able to raise $30 with last month's 50/50 raffle thanks to the generosity of **Lee Murray** who gave his winnings to ASHRAE Research. This is third time Lee has won the raffle and the third time he's donated the winnings to ASHRAE Research this year.

Thanks again Lee for your support!

We have had several donors already for the 2011-2012 Campaign. Those who have contributed to this year's campaign are:

Individual Donors – Honor Roll ($100+)
Gregory A. Paulsen
Greg Towsley
Milind Mainkar
Frank Schroer
Vince W. Masucci

Corporate Donors – Silver ($1000+)
McQueeny Group

Corporate Donors – Bronze ($500-$999)
A-J Manufacturing Co. Inc.
Grundfos Pumps Corporation

Corporate Donors – Honor Roll ($150-$499)
George Butler & Associates
Doyle Field Services

Board of Governors "Full Circle" Donors – Honor Roll ($100+)
Stuart Braden, Kelly Johnson, Blake Ellis, Jim Van Hoecke, Tom Benassi
Jarrod Foster, Austin Allen, Jason Funk

This list will be updated monthly with the names of the individuals and companies who have donated to the 2011-2012 Research Promotion Campaign. Contact Jim Van Hoecke at jvanhoecke@mcqueenygroup.com or 913-396-4705 to make your donation to the 2011-2012 Campaign and get your name added to the list!

Thanks again to all of our donors,

Jim Van Hoecke

ANNOUNCING:

Region IX Regional Dinner

This year's regional dinner is at Giordano's Pizza, 223 W. Jackson Blvd. in Chicago on Monday January 23, 2012 at 6:30.

Please email Rich Rose if you plan on coming! RichR@mticontrols.com

January 2012

ASHRAE Learning Institute

Seminars & Courses at ASHRAE's Winter Conference in Chicago, IL

2 WAYS TO REGISTER

Internet: www.ashrae.org/lasvegascourses
Phone: Call 1-800-527-4723 (US and Canada) or 404-636-8400 (worldwide)

Full Day Professional Development Seminar

$485/$395 ASHRAE Member -- Earn 6 PDHs/AIA LUs or .6 CEUs

The Commissioning Process in New & Existing Buildings
Saturday, Jan 21 – 8:00 a.m. to 3:00 p.m.

Data Center Energy Efficiency
Saturday, Jan 21 – 8:00 a.m. to 3:00 p.m.

Integrated Building Design
Saturday, Jan 21 – 8:00 a.m. to 3:00 p.m.

Using Standard 90.1 to Meet LEED Requirements
Tuesday, Jan 24 – 9:00 a.m. to 4:00 p.m.

Energy Modeling Best Practices and Applications: HVAC/Thermal
Tuesday, Jan 24 – 9:00 a.m. to 4:00 p.m.

Half Day Short Courses

$159/$119 ASHRAE Member -- Earn 3 PDHs/AIA LUs or .3 CEUs

Understanding Air-to-Air Energy Recovery Technologies
Sunday, Jan 22 – 2:00 p.m. to 5:00 p. m.

Understanding & Designing Dedicated Outdoor Air Systems (DOAS)
Sunday, Jan 22 – 2:00 p.m. to 5:00 p.m.

Application of Standard 62.1-2010: Multiple Spaces Equations & Spreadsheet Calculation
Sunday, Jan 22 – 2:00 p.m. to 5:00 p.m.

Basics of High-Performance Building Design
Monday, Jan 23 – 8:30 a.m. to 11:30 a.m.

Complying with Standard 90.1-2010: Envelope/Lighting
Monday, Jan 23 – 8:30 a.m. to 11:30 a.m.

Energy Management in New & Existing Buildings
Monday, Jan 23 – 8:30 a.m. to 11:30 a.m.

Advanced High Performance Building Design
Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

The Commissioning Process & Guideline 0
Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

Comply with Standard 90.1-2010: HVAC/Mechanical
Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

Evaluating the Performance of LEED-Certified Buildings
Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

Combined Heat & Power
Tuesday, Jan 24 – 9:00 a.m. to 12:00 p.m.

Healthcare Facilities: Best Practice Design
Tuesday, Jan 24 – 9:00 a.m. to 12:00 p.m.

Project Management for Improved IAQ
Tuesday, Jan 24 – 9:00 a.m. to 12:00 p.m.

Healthcare Facilities: Best Practice Applications
Tuesday, Jan 24 – 1:00 p.m. to 4:00 p.m.

Design Toward Net Zero Energy Commercial Buildings
Tuesday, Jan 24 – 1:00 p.m. to 4:00 p.m.

ASHRAE LEARNING INSTITUTE

ASHRAE HVAC Design Essential Workshop

January 11-13, 2012 • ASHRAE Foundation Learning Center • Atlanta, GA

Obtain the skills needed to:

- Improve overall building performance
- Design high-performance HVAC systems
- Effectively collaborate on an integrated design team

ASHRAE has created the HVAC Design Essentials to provide intensive, practical education for designers and others involved in delivery of HVAC services. Developed by industry-leading professionals, this workshop provides participants with training design to accelerate their evolution into effective member on a design, construction or facilities maintenance team.

In addition to gaining in-depth knowledge and understanding, attendees will receive real-world examples of HVAC systems based on the newly renovated ASHRAE Headquarters building. The workshop teaches a systematic approach to guide a design team to a solution that optimally meets the client's expectations.

Visit www.ashrae.org/hvacdesign to register

How can I Become an ASHRAE Member?

We encourage you to join ASHRAE, a leader in sustainability and the premier source for the latest technology in HVAC&R. There are two ways to join ASHRAE. The first and the easiest is to visit the website www.ashrae.org. Or, you can complete the application below and mail it in. You will automatically become a member of the Kansas City chapter after joining. Feel free to contact membership committee chair, Reid Begnoche, reid.begnoche@siemens.com with questions.

Member Benefits and Resources

Publications & Resources

- The ASHRAE Handbook — the indispensable, industry-wide resource for all HVAC&R professionals. (Available to Members and Associate Members)
- ASHRAE Journal — the most trusted monthly technical magazine in the HVAC&R community
- ASHRAE Insights — the monthly newsletter of key Society news and activities
- HVAC&R Industry News — a weekly electronic news resource keeping ASHRAE members abreast of the latest industry news and information
- Access to the members-only resource website

Professional Education and Career Development

- Maximize your knowledge with seminars and courses from the ASHRAE Learning Institute
- Maintain your professional designation/license with over 40 courses
- Earn PDHs / CEUs / AIA LUs
- Build communication and management skills by participating in a technical program or technical committee

Networking

- Meet with industry experts and colleagues at chapter, region and Society meetings
- Connect locally, regionally and internationally with over 160 chapters worldwide
- Learn, share and grow at the ASHRAE Annual & Winter Meetings, and the AHR Expo at the ASHRAE Winter Meeting

What Do Members Say About Being a Member of ASHRAE?

Thirteen years ago, I joined ASHRAE as a student member. Since that time, I have been embraced by a community of peers from throughout the world that continues to help to build both my knowledge of HVAC&R and career as a Professional Engineer.

– RL, Winnipeg, Manitoba, Canada

ASHRAE has provided me with incredible opportunities to network with others in the industry while being of service to them. Now, in my advanced years, I am satisfying my mentoring thirst.

– LS, Prairie Village, Kansas

Being a member of ASHRAE has helped me make invaluable contacts in the HVACR industry - the annual meetings are an easy way to keep on top of every aspect of the industry as they provide opportunities for networking, information about the newest codes and chances to participate in updates to standards.

– SS, Washington, DC

To be an ASHRAE member is very important internationally, for me especially, in Argentina and Brazil. With the growth of green buildings, energy savings and sustainability, ASHRAE standards are a valuable resource. The ASHRAE community is a constant source of friends and professionals with similar ways of thinking.

– WL, Buenos Aires, Argentina

NATIONAL UPDATES

New Book Offers Guidance on Implementing Energy Savings Plan

Released: December 14, 2011

ATLANTA - Guidance on increasing energy efficiency in existing buildings through measuring and tracking efficiency and implementing an efficiency plan is featured in a new book from leading built environment organizations.

"Energy Efficiency Guide for Existing Commercial Buildings: Technical Implementation" provides clear and easily understood technical guidance for energy upgrades, retrofits and renovations by which building engineers and managers can achieve at least a 30 percent improvement in energy performance relative to a range of benchmark energy utilization indexes. It features practical means and methods for planning, executing and monitoring an effective program, based on widely available techniques and technologies.

"Energy efficiency improvement in buildings is one of the greatest means to increase resource efficiency, improve environmental stewardship and save operating funds," George Jackins, who chaired the committee overseeing the book, said. "More importantly, energy efficient improvement should happen because it makes good business sense. Good planning and on-going commitment is essential to maximizing investments in energy efficiency."

Improving energy in an existing building is an iterative process, but first you have to know where you are starting from, according to Jackins. The book recommends some tips on how to begin the energy savings process:

1. Calculate energy use and cost
2. Set energy performance goals
3. Measure and analyze current energy use
4. Select and implement energy efficiency measures
5. Measure and report improvements
6. Continue to track performance and reassess goals

"Energy Efficiency Guide for Existing Commercial Buildings: Technical Implementation" is the second energy efficient guide for existing commercial buildings developed by the same group developing at the Advanced Energy Design Guide series for new buildings - ASHRAE, the American Institute of Architects, the Illuminating Engineering Society of North America and the U.S. Green Building Council and supported by the U.S. Department of Energy. In addition, the Building Owners and Managers Association and the U.S. General Services Administration were involved in its development. The first, "Energy Efficiency Guide for Existing Commercial Buildings: The Business Case for Building Owners and Managers," provides the rationale for making economic decisions related to improving and sustaining energy efficiency in existing buildings.

The cost of "Energy Efficiency Guide for Existing Commercial Buildings - Technical Implementation" is $75 ($64, ASHRAE members). To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 404-321-5478, or visit www.ashrae.org/bookstore.

Call for Papers Extended for Cold Climate Conference

Released: December 12, 2011

ATLANTA—The call for papers deadline for the Seventh International HVAC Cold Climate Conference, Nov. 12-14, 2012, in Calgary, Alberta, Canada, has been extended to Jan. 6, 2012. Cold Climate HVAC 2012, hosted by ASHRAE, will provide key elements of a strategy by which scientists, designers, engineers, manufacturers and other decision makers in cold climate regions can achieve good indoor environmental quality (IEQ), with a minimum use of resources and energy.

"The deadline is being extended to Jan. 6 to foster the submission of a greater number of papers on international innovations in cold climate HVAC design," Erich Binder, conference president, said.

A predominate number of Canadian papers have been submitted, and the conference's Scientific Committee of nearly 40 members from 15 countries seeks broader participation, he said.

The range of topics includes energy and sustainability in cold climate environments; building technology for people in cold climates; indoor environment and health; challenges for remote areas; cold climate building envelopes and moisture management; HVAC system operation and maintenance; and cold climate standards, codes, regulations and requirements.

The Scientific Committee seeks papers featuring innovations in cold climate HVAC design. This includes new technologies and applications; improved methodologies, improvements to computational models or other design tools; novel methods of management, organization or quality assurance; and novel avenues of research or revised conceptual frameworks for designers.

Submit abstracts no longer than 350 words, which summarize the objectives, approach, results and conclusions of the proposed paper, and five to seven keywords by Jan. 6, 2012. Upon acceptance, papers will be due April 1, 2012. For specific topics, to submit a conference paper abstract or for more information go to www.ashrae.org/ColdClimate. For additional information, contact meetings@ashrae.org.

The Scandinavian Federation of Heating, Ventilation and Sanitary Engineering Associations (SCANVAC) initiated the series of Cold Climate HVAC Conferences. The six previous conferences have been successfully organized in Rovaniemi, Finland in 1994; Reykjavik, Iceland in 1997; Sapporo, Japan in 2000; Trondheim, Norway in 2003; Moscow, Russia in 2006; and Sisimiut, Greenland in 2009.

The series of congresses have earlier been supported by national HVAC societies, the Federation of European Heating, Ventilation and Air Condition Associations (REHVA) and ASHRAE.

O&M Mini-Conference Featured in ASHRAE 2012 Winter Conference Tech Program

Released: December 5, 2011

ATLANTA—With low and zero energy buildings becoming more prevalent, there are many issues that arise with installation, startup, commissioning and operations and maintenance. To help ensure that the design intent of these more complicated systems is understood, an O&M "mini-conference" is being offered as part of ASHRAE's 2012 Winter Conference, Jan. 21-25.

The mini-conference takes place Jan. 22-23 and is held in conjunction with the Technical Program of the ASHRAE Winter Conference, Palmer House Hilton, Chicago, Ill. The mini-conference kicks off with a debate on building operations and several sessions addressing current practices and tools.

"The mini-conference offers an opportunity to have an in-depth conversation for interested professionals in an abbreviated period of time," Sarah Maston, Technical Program track chair of Operations & Maintenance, said.

The mini-conference addresses lessons learned, improvement of process and team communications and effort to improve the installation, startup, O&M of HVAC systems.

In particular, the importance of test procedures for HVAC systems for is addressed on Monday, Jan. 23, in "Air-Handling System Leakage: Benefits and Costs of Field Tests." Such procedures are necessary because as much as one third of a system's airflow can leach through the air distribution system, which can lead to loss of comfort and heating or cooling capacity; increase air conditioning and heating bills; and contribute to indoor air quality problems. The session highlights the benefits and costs of performing system leakage tests from the perspective of a testing, adjusting and balancing contractor, an association of sheet metal contractors and researchers, as well as an upcoming standard from ASHRAE and the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) pertaining to testing procedures and requirements for total HVAC system air leakage in commercial buildings. The session is held 8 a.m.-9:30 p.m. at the Palmer House Hilton.

Additional sessions include:

- "What is the Right Degree of Automation in Building Operations: A Debate and Discussion"
- "Has Your TRAINing Left the Station?"
- "Fault Detection and Energy Audits"
- "Energy Savings and Performance Improvements through O&M"
- "Maximizing the Benefits of Commissioning: Incorporating Design Reviews and the Building Envelope into the Commissioning Scope"
- "Vibration Induced Noise and Mechanical Equipment Vibration Isolation, Balance and Predictive Maintenance"
- "YEA for Air Cleaning!"
- "Approaching Net-Zero and Maintaining Your Course: O&M Tools to Maintain Building Performance"
- "The New Age of Water Treatment for Mixed Metal Systems and High Efficiency Aluminum Boilers" – a free session to be held at the AHR Expo, McCormick Place

Additionally, the Chicago Virtual Conference is included with a paid Conference registration—comp and single day registration excluded—and includes on-demand access to all speakers' audio

presentations synced to their presentations. Attendees and speakers can post comments on the presentations for a two-week period following the completion of the Conference. Those not attending the Chicago Winter Conference in person may register for the Virtual Conference only. Register at www.ashrae.org/chicagovirtual.

For more information on the ASHRAE Conference, Jan. 21-25, or the Tech Program visit www.ashrae.org/chicago.

ASHRAE Technology Awards Highlight Outstanding Building Projects

Released: November 28, 2011

ATLANTA – Designers of systems for a university building, a cancer center, an ice rink and other commercial building are recognized by ASHRAE for incorporating elements of innovative building design.

The ASHRAE Technology Awards recognize outstanding achievements by members who have successfully applied innovative building design. Their designs incorporate ASHRAE standards for effective energy management and indoor air quality. The awards communicate innovative systems design to other ASHRAE members and highlight technological achievements of ASHRAE to others around the world. Winning projects are selected from entries earning regional awards.

"Every year, the judging panel looks forward to the reviewing the outstanding projects submitting by our membership," Nathan Hart, chair of the judging panel said. "Being a consulting engineer myself, I appreciate the effort involved in submitting an entry to Society-level competition. I enjoy seeing what fellow ASHRAE members are doing to strive for more energy efficient, well ventilated maintenance friendly building designs. Many of the entries this year incorporated innovations and technologies that took advantage of their specific geographical locations to provide more energy efficient systems—helping to highlight that one size does not fit all and that a more energy efficient design solution may be available when considering the project as a whole."

Following are summaries of the winning projects.

Mountain Equipment Co-op

Roland Charneux, P.Eng., ASHRAE Fellow, ASHRAE Certified Healthcare Facility Design Professional, Pageau Morel & Associates, Montreal, Quebec, Canada, receives first place in the new commercial buildings category for the Mountain Equipment Co-op store, Longueuil, Quebec, Canada. The building is owned by the Mountain Equipment Co-op.

The Mountain Equipment Co-op store, a 2,600 sq. ft. single story retail sporting goods outlet, was designed and built so as to have a minimal impact on the environment. Traditionally, artificial lighting contributes to a large part of the total energy consumption in commercial retail stores. It was thus decided to maximize day lighting through a series of clerestory with a saw tooth shape roof. Also, light sensors were integrated in the design to partially or completely shut down the artificial lighting when natural lighting is sufficient. Occupancy sensors were integrated in small spaces to completely shut off lighting when not in use.

Optimization of the envelope resulted in an envelope insulated near twice the recommendations of the Model National Energy Code for Buildings, thus reducing the overall energy needs for the building. Structural Insulated Panels (SIP) were used for their efficiency, tightness and minimal construction time. Energy simulations showed a measured annual energy saving of 54 percent and cost savings of 57 percent.

Taking into consideration new, unpacked products that retail stores carry—which bring pollutants into the occupied zone—and racking which impedes good air distribution if supplied from the ceiling, air is supplied via underground air distribution with displacement ventilation diffusers at floor level. Additionally, the building utilizes active solid thermal energy storage in its concrete slab; an underground cistern to collect rain water and to feed the water closet, as well as waterless urinals; and natural/hybrid ventilation with leeward vents at roof level, to name just a few innovations. Overall, the new store consumes 57 percent less than the recommendations provided by the Canadian Energy Model Code.

IKEA Brossard Distribution Center

Ken Sonmor, Ecovision Consulting, Montreal, Quebec, Canada, receives first place in the existing commercial buildings category for the IKEA Brossard Distribution Center, Quebec, Canada. The building is owned by the IKEA Distribution Services, CA LP.

The extensive distribution center (79,750 sq. m.) belonging to one of the largest furniture retailers in the world consists of a warehouse, where goods are received, stored and then shipped, along with adjoining office spaces.

On the lighting front, nearly 700 T12 high output (HO) lighting fixtures were replaced with a combination of T8 and T5 HO lights. An additional 510 high-intensity discharge fixtures were replaced with T5 HOs fixtures with custom made reflectors to bring the light where needed. Motion sensors were installed throughout the entire facility shedding 250kW of lighting power. Luminosity sensors near windows in the office areas turn off lighting when not required thus harvesting daylight.

A 160T geothermal system is now the principal source of heat for the building. To attain the greatest possible efficiency, a dual maglev frictionless compressor heat pump was chosen. A greater number of wells than average maintain a very close approach with the ground temperature of 50 F. This higher temperature permits the reduction of glycol concentration which benefits the efficiency of the heat pump, the heat transfer through the vertical geothermal wells and lower pumping power. These improvements allow for a coefficient of performance of 5-7 in heating—representing a 50 percent improvement over a traditional geothermal layout. During a typical winter, the geothermal system is capable of supplying 70 percent of required heat.

The overall project thus provides greater human comfort, with never-before cooling in the warehouse while realizing greater than 50 percent dollar energy savings.

Université de Sherbrooke

René Dansereau, Dessau, Longueuil, Quebec, Canada, receives first place in the educational facilities category for the design of the Université de Sherbrooke—Campus de Longueuil, Quebec, Canada. The building is owned by the Université de Sherbrooke.

With its 16-story glass tower built in the heart of Longueuil's downtown area, the Université de Sherbrooke's new campus building is one of the tallest structures on Montreal's South Shore. The 650,000 sq. ft. campus includes classrooms, offices and labs for nine faculties under a single roof. Its architectural design focuses on open spaces and gathering areas, such as a green roof "oasis," to enhance a sense of community within the campus.

Determined to create an eco-friendly building, Dansereau and his firm took a unique approach to engineer the heating, ventilation, and air-conditioning systems: Right from the start, designers chose an integrated design approach to the project. Though geothermal energy is rarely used in urban settings, designers connected a chiller to a geothermal system consisting of 37 vertical boreholes. The 165-ton screw chiller acts essentially like a heat pump and provides about 25 percent of the building's heating and cooling capacity.

With average winter temperatures falling significantly below freezing in the Montreal area, fresh air treatment can be quite costly. To enhance energy savings, three enthalpy wheels were installed on new ventilation units. These wheels recover latent and sensible heat that is usually lost in exhaust air. With an efficiency rate of 76 percent, the wheels help reduce annual heating, cooling and humidity demands.

Along with several other energy efficient innovations, energy consumption was reduced by 46 percent, consequently saving over $250,000 a year on energy invoices. Including subsidies, the return on investment for energy-saving equipment is approximately two and a half years.

Abbotsford Regional Hospital and Cancer Centre

Paul Marmion, Stantec Consulting, Vancouver, British Columbia, Canada, receives first place in the new health care facilities category for the design of the Abbotsford Regional Hospital and Cancer Centre, British Columbia, Canada. The building is a Public Private Partnership (P3) sponsored and operated by Laing Investments Management Services (Canada). The building is owned by the hospital.

The Abbotsford Regional Hospital and Cancer Centre (ARHCC) is an acute care hospital built in the province of British Columbia. The hospital is a technologically advanced, 63,000 sq. m., $355 million, 300 bed acute care hospital with nine operating theatres, pediatric and maternity services, inpatient isolation rooms, medical imaging and radiation cancer treatment facilities.

Marmion and his team were responsible for the design of the HVAC, plumbing and fire protection systems of the hospital, helping to successfully complete the fast tracked health care facility on time and on budget. The building incorporates several features to conserve energy, one of which is two 900 ton chillers which are piped in a counter-flow configuration with chilled water temperature reset control to optimize energy efficiency, consuming a maximum of .5 Kw/ton of cooling. There was no incremental capital cost of adding the courter-flow configuration, resulting in an annual energy saving of $3,400, providing in instant payback. Additionally, the water use in the hospital has been reduced by 20.6 percent through the innovative use of dual flush toilets, even in the inpatient rooms, low flow lavatory and kitchen sinks and low flow showers.

The ARHCC is running 56 percent below the Environmental Protection Agency's energy benchmark, using just 153 kBtu/ft2 compared to the typical 350 kBtu/ft2 for a similar building. It has also been determined that the hospital is producing 3140 metric tons of CO2, compared to an equivalent facility

which produced 8470 metric tons of CO2. Ultimately, the savings in CO2 emissions is equivalent to taking 1,400 cars off the road.

Thermal Energy Corporation—Thermal Energy Storage

Blake Ellis, P.E., Burns & McDonnell, Kansas City, Mo., receives first place in the new industrial facilities or processes category for Thermal Energy Storage at the Texas Medical Center, Houston, Texas. The owner is Thermal Energy Corporation, Houston, Texas.

In 2007, master planning determined that the cooling load of the 80,000 ton chilled water system that served the Texas Medical Center would double over the next two decades. With that in mind, the owner sought the most cost effective way to provide the increased quantity of chilled water to the campus while maintaining the high level of reliability to serve the critical needs of the medical center.

It was determined that thermal energy storage (TES) in a load leveling scheme was the most cost effective first step to meet the increased chilled water demand. This resulted in the selection of an 8.8 million gallon stratified chilled water storage tank; with a height of 150 ft., it is the tallest stratified chilled water storage tank in the world. Connecting such a tall tank that is open to the atmosphere to a closed chilled water system creates 65 psig of pressure at the bottom of the tank on both the chilled water supply and return lines connected to the tank. A traditional single direction pumping scheme could no longer be utilized and a unique simultaneous dual direction pumping scheme was created.

Conventional wisdom would indicate that a TES system uses more energy than an equivalent non-TES system. However, TES systems use slightly less energy (BTUs or kW-hr) by shifting chilled water production from the middle of the afternoon when the highest wet-bulb temperatures of the day are experienced to the evening when wet-bulb temperatures are lower. The lower wet-bulb temperatures yield lower condenser water temperatures, which allow the chillers to operate more efficiently during the night hours when the tank is charged.

Energy savings during the first year were 7-9 percent in the summer and approximately 5 percent aggregated over the entire year. Energy costs were dramatically reduced due to the real time pricing in Houston, Texas. During the first 23 days of August 2011, the owner saved over $500,000 in electrical energy cost due to very high ($3,000+/MW-hr) electric costs.

Arena Marcel Dutil

Luc Simard, Compressor Systems Control (CSC), Les Coteaux, Quebec, Canada, receives first place in the existing industrial facilities or processes category for the renovation of Arena Marcel-Dutil, St-Gédéon-de-Beauce, Quebec, Canada. The building is owned by the Municipalite St-Gédéon-de-Beauce.

In 2010, the arena was equipped with the first 100 percent CO2 based refrigeration system for ice rinks in the world. The existing R22 chiller was removed, as well as the existing ice mat, and the concrete slab was retrofitted to install the new system. The system uses R744 as both a primary and secondary working fluid, a natural, non-toxic, non-corrosive and highly efficient refrigerant listed A1 in the B52 code. Because there is no secondary fluid, the evaporating temperature of the CO2 can be set at -7 C while keeping the ice sheet at -5 C. The result is an evaporating temperature higher than all other standard ice rink refrigeration systems.

The refrigeration system has a 3kW variable speed CO2 pump that reduces the power needed for circulating the cold fluid by 90 percent compared to secondary fluid installations. For a typical ice rink facility, the savings can be up to 125,000 kWh per year. The arena was also compared to similar projects in the area and was found to have a 25 percent reduction in total energy costs. Also, when comparing the new system with the old chiller using R22, and considering an annual leak rate of 15 percent for the old system, the total greenhouse gas reduction associated with the new 100 percent CO2 refrigeration system is up to 100 tons per year.

ASHRAE, founded in 1894, is an international organization of 55,000 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.

2011-2012 Kansas City ASHRAE Chapter Committee Chairs

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Chapter Events Calendar for 2011 – 2012

The following table is the Kansas City ASHRAE Chapter Meeting and Events planned for the 2011/2012 Chapter year. Additional programs, tours, and speaker ideas are welcome.

Please contact Program Chair, Tom Benassi at tbenassi@mmccontractors.com
Topics, speakers, meeting times listed are subject to change or revision. Watch for updates in future newsletters and on the Chapter website: www.kcashrae.org

Date	Time	Event/Speaker	Subject	Special Guests	Location
Sep 12 2011	11:30 – 1:00	Ryan McAfee	UV Water Disinfection	ASPE	Holiday Inn
Sep 29 2011	5:30 - ??	4th Annual Putt-Putt Pub Crawl		Membership Promotion	Waldo District (75th &Wornall)
Oct 3 2011	5:30 – 7:30	Interactive Proposal Preparation	Integrated Project Delivery 101	Student Night / Mechanical Contractors Association	Holiday Inn
Nov 7 2011	11:30-1:00	Kevin Cash	Chilled Beam Design		Holiday Inn
Dec 5 2011	11:30-1:00	Lynn Van Winkle	Steam System Design in Hospitals	Kansas City Area Healthcare Engineers	Holiday Inn
Jan 9 2012	11:30-1:00	Vince Wedelich	Engineering Ethics	ASPE, Membership Promotion	Holiday Inn
Feb 6 2012	5:30-7:30	Bob Feduke	Psychometrics		Holiday Inn
Mar 5 2012	TBD	TOUR		Student Night	
Apr 2 2012	11:30-1:00	Nick Gangemi	Data Center Design	Research Promotion	Holiday Inn
May XX 2012	TBD	36th Annual Golf Tournament			Overland Park Golf Club