

BUFFALO TALES

Newsletter of the Manitoba Chapter



The Manitoba Chapter of the American Society of Heating, Refrigerating and Air Conditioning Engineers was chartered in September 1935. It is the second oldest ASHRAE Chapter in Canada. ASHRAE Manitoba is part of ASHRAE Region XI and covers ASHRAE members in Manitoba and Northwest Ontario.



ASHRAE Supper Meeting

Victoria Inn, 1808 Wellington Avenue

Thursday November 4, 2010

Displacement Ventilation

Cam Regier, EIT

5:00 pm - Cocktails

6:00 pm - Dinner

7:00 pm – Presentation

ASHRAE Supper Meeting

With displacement systems, air is introduced at low velocity through floor or wall mounted diffusers. Cool, low velocity air floods the floor in much the same way as water would. Room heat sources (people, equipment, etc.) pull the cool air towards and across them, cooling the bodies and pushing the heat and contaminants up where they are exhausted at high level. Displacement ventilation has different effects on comfort, capital costs, and operating costs than more traditional overhead supply/mixed flow air distribution systems in buildings.

The choice between the two systems can be reasonably clear in certain circumstances but other situations need careful consideration. In his presentation, Cam will discuss the benefits of displacement with focus on specific applications, as well as demonstrate one of the key aspects of displacement ventilation, which is the architectural appeal and customization possible with displacement diffusers.

Cam Regier, EIT, has a degree in mechanical engineering from the University of Manitoba. He has worked at Price for close to three years specializing in sustainable products; namely displacement ventilation and underfloor air distribution. Currently he works as an Applications Specialist, providing support for these products along with traditional air outlets.

CONFIRM YOUR ATTENDANCE BY NOVEMBER 2, 2010 BY E-MAILING STEPHEN NORSWORTHY at stephen.norsworthy@snclavalin.com and indicate any special meal requirements (vegetarian, allergies, etc.)

ASHRAE dinner meetings are open to all. Pre-registration is required. To pre-register or to get information on the cost of ASHRAE events, e-mail stephen.norsworthy@snclavalin.com or visit www.ashraemanitoba.ca.

Coming Events

ASHRAE Manitoba Supper Meetings for 2010/2011 –December 9, January 13, February 10, March 10, April 14. Mark you calendar so you keep these dates open.

November 23 - LEED Canada for New Constructions 2009 Workshop – for details, go to <http://www.cagbc.org/chapters/manitoba/events/index/events442/2010-11.php>

December 1 -2 - LEED Green Associate Study Course - this an eligible course for LEED Green Associate education. For information please contact CaGBC [Course Information](#)

January 29 to February 2, 2011 - ASHRAE Winter Meeting and AHR Expo/Trade Show in Las Vegas, aka Lost Wages, the city that never sleeps, home of the grandest hotels, the biggest stars in entertainment, the most oogleable dancehall dolls, the brightest lights and for keen HVAC professionals, outshining all that will be the world's biggest HVAC Expo. ASHRAE's Winter Conference theme, *A Safe Bet: Zero-Energy Design*, will highlight the importance of finding the balance in design. The technical program focuses on efficient use of energy, different design approaches and other topics related to refrigeration, standards and codes and HVAC systems, equipment, applications and fundamentals. For the specifying engineer, the AHR Expo/trade show is always a sure bet. Go to <http://www.ashrae.org/events/page/2650> for details and to register.

April 21, 2011- ASHRAE WebCast - Ground Source Heat Pump Systems – Putting the Earth to Work for You – noon til 3PM Manitoba time. It has some great speakers and it is free. On-line registration begins March 21, 2011. For details on why you should participate and how to register, go to www.ashrae.org/GHPwebcast

May 10 - 13, 2011 - The Future of the Building Envelope ... Building Upon Our Past – the 13th Canadian Conference on Building Science & Technology will be at the Fort Garry Hotel in Winnipeg. For information about this conference including sponsorship opportunities, visit the conference website <http://www.becwinnipeg2011.com/>

Increasing Energy Efficiency vs Reducing Energy Use

Despite significant energy efficiency improvements in houses and appliances, average energy use in American homes has changed little since the early 1970s. Energy savings in some areas are being offset by consumption increases in others. Bigger houses and demands for higher levels of thermal comfort and better indoor air quality offset energy savings from more efficient building envelopes (more insulation, better windows, less air leakage) and more efficient heating and cooling equipment. New dishwashers use 45 percent less energy than they did two decades ago and refrigerators use 51 percent less. Consumers have offset these savings by having two or three fridges and buying **power-sucking gadgets that are always on, even when they are off**, like flat-screen televisions, computers and digital video recorders. The U.S. Department of Energy estimates that 5 to 10 percent of a home's energy use comes from "vampire losses", devices such as cellphone chargers, DVRs and computer power supplies that remain plugged in and draw power even when set to "off." An average digital cable box with a DVR built in, for instance, draws 43

watts when in "off" mode.

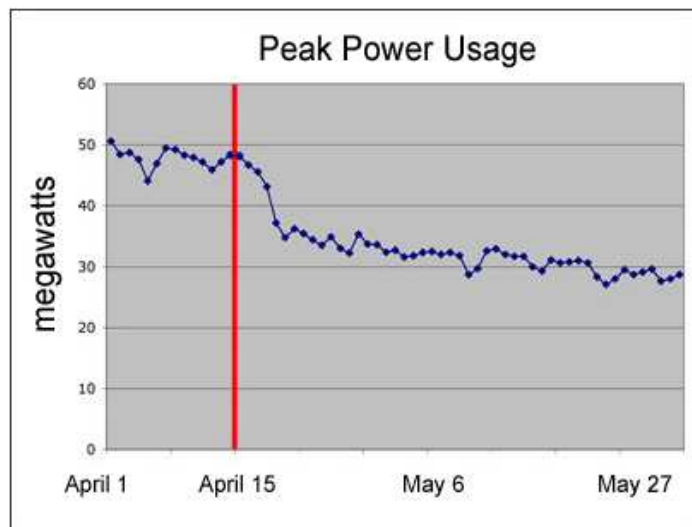
While the use of heating fuels has declined since the late 1970s, electricity use is edging up from about 23 percent of an average household's energy use in 1978 to 42 percent in 2005. Although the amount of energy used inside homes has declined since the early 1980s, the amount of energy required to power them has held steady because most electricity is generated from fossil fuel.

Similarly, since the 1970's there has been a drastic improvement in the fuel efficiency of cars and light trucks. At the same time, there has been a consumer shift from cars to larger truck like vehicles and people are driving more miles.

It seems that implementation of minimum efficiency standards for cars and trucks, furnaces, air conditioners, dishwashers, clothes dryers and televisions and replacing incandescent light bulbs with compact fluorescents have always been countered by other ways to offset the energy savings. However, a couple of recent examples indicate that there is a very easy and effective way to motivate the public into significant energy use reductions which also achieve significant GHG reductions.

April 16, 2008 an avalanche damaged Alaska Electric Light and Power towers and power lines at the Snettisham hydro electric facility which provides 80-85% of Juneau, Alaska's electrical power, forcing a switch to emergency standby diesel-powered generators at a time that diesel fuel prices were at record highs. Diesel fuel consumption rapidly shot above 80,000 gallons per day. When residents learned electricity rates would increase from about \$0.11 to \$0.525 cents per kilowatt-hour, they rapidly found ways to cut electric energy use.

Thermal comfort expectations were recalibrated (convention center Tstats were dialed down to 60°F (15.5°C), people wore sweaters indoors), lighting was upgraded or turned off (compact fluorescent lamps became so popular that stores temporarily ran out, the airport kept runways dark except when planes were landing or taking off, use of outdoor and street lighting was minimized), advertising changed (marques were turned off, all but one of the dozens of television screens on display in an electronics store were off), one of two elevators in the library was shut down. As a result, the city's peak electric demand dropped from about 50 megawatts before the avalanches to below 30 megawatts in late May and electric consumption dropped from about 1,000 megawatt-hours per day before the crisis to roughly 600 megawatt-hours per day in late May. The last week in May, the city's diesel fuel use averaged about 35,000 gallons per day.



By June 2, the power line to the hydroelectric dam had been restored. Two years later, energy prices are back to normal and electric energy use in Juneau is within 6% of pre-avalanche

levels. I suspect the apparent ongoing savings relate more to the nation's economy than changes in public attitude about the value of energy.

My second example is partly based on personal observation. In summer of 2008 when motor fuel prices reached all-time highs, I observed a significant reduction in the number of pick-up trucks on my bicycle commute to work and a notable increase in the number of bicycle commuters and walkers. In holiday season, I saw very few motor homes and camper trailers on the road. We know from news reports and personal experience that the market for large personal vehicles collapsed and North American motor fuel consumption plummeted. Two years later, with motor fuel prices closer to prior highs than 2008 highs, pick-ups and motor homes have returned to the roads and large vehicle sales have largely recovered.

The moral of my tale, and I would like to think that my tale is somewhat moral... high energy prices, whether brought on by the market forces of supply and demand or by government intervention in the form of a hefty carbon tax, will drive energy efficiency and conservation. While high energy prices may cause some short term economic disruptions, I believe measures that significantly reduce our dependence on fossil fuels will ultimately provide significant long term economic and environmental benefits.

I promise not to complain when it costs \$50 or \$60 to gas up my motorcycle. *Bert*

Einstein's Rules

I read that Albert Einstein defined three rules of work. I have added examples to give context to the first rule. Please give me examples to add context to the others.

- 1) out of clutter (e.g., my office) find simplicity (e.g., me)
- 2) from discord find harmony
- 3) in the middle of difficulty lies opportunity.

Regional Dinner at the Winter Meeting

There are always Regional Dinners at the ASHRAE Winter and Annual meetings. This is a night out with colleagues from your Chapter and others in your Region or any other Region you decide you want to connect with. All are welcome to participate. Manitoba is in Region XI. In Las Vegas Winter, our dinner will be on Monday, January 31, 2010. There will be sign up sheets on a bulletin board in the ASHRAE meeting registration/bookstore area with time, location and cost details. There are often other open group dinners posted on the same bulletin board. If you are alone, these are an easy way to find company for supper. If you have to dine with someone you would rather not, this is a great way of meeting that obligation without enduring the full burden of doing so.

ASHRAE Bio's

Go to www.ASHRAE.org and click on “update your bio” located on the left side under the “Member Central” section to create or edit your bio. Your ASHRAE Bio includes information on your education, career experience, publications, and ASHRAE positions. This is used to nominate you for honors, awards, and ASHRAE positions. This is also a great way to keep up your Resume.

Standard 90.1-2007 Available as Free Download

In order to move the industry forward toward more energy efficient design, ASHRAE is making its flagship energy standard, 90.1, available as a free download for a limited time. “Standard 90.1-2007 is widely used throughout the design community, and the download version makes it available to users at their own computers for ready and easy access,” ASHRAE President Lynn G. Bellenger said. “Making the standard available for free ensures that it penetrates the marketplace and reaches owners, contractors and design teams. We appreciate the support of the Department of Energy in reaching a wider audience and extending access to our flagship energy conservation standard.” Copies of the I-P edition of ANSI/ASHRAE/IES Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings, are free and downloadable as a PDF at www.ashrae.org/standard901-2007-free.

Can You See It?

The future, that is. The world is growing with burgeoning populations and rapidly emerging economies.

By 2050, the world's population is expected to increase 35%, reaching 9 billion people. Businesses, government, education, housing and consumer goods, just to name a few, will all have to grow tremendously to meet future needs.

So, what about HVAC&R? HVAC&R professionals need to help in the effort of making the world a greener and more efficient place to live, work and play. Innovations in heating, air conditioning and refrigeration will drive energy efficiency, renewability and creating environments that are healthier and more comfortable around the world and ASHRAE is the organization that supports this global effort.

Why be an ASHRAE Member? To benefit from all the resources ASHRAE provides as the world's leading organization of HVAC&R professionals. Benefits to consulting engineers, property owners and managers, designers, installers and maintenance and repair professionals include these highlights:

- ASHRAE Handbooks - the indispensable, industry-wide resource for all HVAC&R professionals.
- *ASHRAE Journal - the most trusted technical magazine in the HVAC&R community.
- High Performing Buildings - the quarterly magazine for innovation in building technology design and operation.
- ASHRAE Insights - the monthly newsletter of key Society news and activities.
- HVAC Industry News - a weekly news resource keeping ASHRAE members abreast of the latest industry news and information.

- Access to more than 300 of the industry's leading technical publications.
- Access to online education, satellite broadcasts and professional education classes.
- Professional certification.

Looking to the Future The built environment is responsible for more than 40 percent of the energy used in the world today and HVAC&R systems account for 60 percent of the energy used by these buildings. It is an ASHRAE responsibility to set standards for energy consumption and indoor comfort. For engineers and builders who share this commitment to our future, ASHRAE is the organization that will always be here for you to attain these goals.

Learn, Share and Grow Networking gives you a chance to interact with your colleagues from around your city, region, country and the world. ASHRAE has more than 170 chapters, each with outstanding events and opportunities to learn, share and grow with other professionals in your field, plus the ASHRAE Annual Meeting and the ASHRAE Winter Meeting and AHR Expo, both of which feature short courses, technical sessions and discussions on leading trends and issues in the HVAC&R industry.

Your Professional Education & Certification Earn professional certification through ASHRAE's variety of continuing education programs. ASHRAE's certification programs are developed by industry professionals who understand what is expected for superior building design and system operation.

When you earn ASHRAE certification, it assures employers and clients that you have mastered the body of knowledge associated with the respective field. Courses are offered in various formats, including on-site lectures, satellite broadcasts and the best in self-directed and online e-learning programs.

Get Involved with Research, Standards and Technical Committees ASHRAE leads the world in research and technical standards. You can play a part in establishing guidelines and shaping the future of the industry by participating in one of ASHRAE's more than 115 technical committees, task groups and review groups which serve as the Society's technical foundation. ASHRAE's carefully researched standards and guidelines undergo rigorous peer and public review before being published. Because of this process, ASHRAE is recognized as one of only five organizations that can self-designate its standards by ANSI, the American National Standards Institute. To develop these standards, ASHRAE has committed more than \$50 million in research funding since 1960.

Shape Public Policy ASHRAE standards and guidelines continue to affect public policy in the areas of energy efficiency, safety, security and public health. ASHRAE members are involved in all facets of the industry to improve HVAC&R and ultimately make the world a cleaner, safer, greener and more efficient place to live.

More than 50,000 people are members of ASHRAE. For more information on the many benefits of ASHRAE membership contact ASHRAE Manitoba Membership Chair Stephen Norsworthy Stephen.Norsworthy@snclavalin.com

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ASHRAE needs you, but more importantly you need ASHRAE. ASHRAE always has room for more professionals, just like you. For information regarding ASHRAE membership, contact Manitoba Membership Chair Steven Norsworthy Stephen.Norsworthy@snclavalin.com or visit ASHRAE Manitoba at www.ashraemanitoba.ca

ASHRAE, founded in 1894, is an international organization of 50,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public. Visit ASHRAE at www.ashrae.org.

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