



Dinner Meeting	
Wednesday, January 10th, 2007	
Topic:	Retrofitting for Condensing Boilers Speaker: Godfrey Nash, Weil-McLean Canada
Place:	Italian Cultural Centre
Time:	5:30 PM: Social Hour 6:30 PM: Dinner
Cost:	Chapter Members - \$30 Society Members & Guests of Members - \$33 Students - \$10
<p>All reservations should be made by noon on Monday, January 8th, 2006 Please fax, phone, or e-mail your reservations to Victor Raju, Attendance Chairman Fax: 604-525-3147 Tel: 604-525-3341 vraju@decdesign.ca</p>	



PRESIDENT'S MESSAGE

President's message, Nov-Dec 2006



We had 37 members, 19 guests and 3 students at the Italian Cultural Centre October 18 for an excellent presentation by Tom Hartman. Tom advocates a change from the proportional, integral, derivative (PID) controls that have been applied to HVAC systems for decades to Relational Controls. Tom has installed several Relational systems, systems that use large numbers of temperature and occupancy sensors and the power of computer systems to manage conditions in a large building while considering the recent past, present and likely future conditions in and around the building.

We have seen a few buildings that turn off the lights when daylight meets the lighting requirements for a space, and when rooms are unoccupied. We could also feed occupancy sensor information to HVAC systems, and have them increase the allowable temperature range in unoccupied rooms. A building control system could learn the occupancy schedule of each room, and adjust temperature settings and ventilation rates to maximize the benefit/cost ratio of system operation. A relational control system could also gain an understanding of how loads are being met in each part of the building and adjust fan and pump speeds to meet them with the least amount of energy. Reducing energy use will reduce greenhouse gas emissions at a power plant somewhere.

No less a figure than Tony Blair, Prime Minister of Great Britain issued a statement last month urging immediate action to reduce greenhouse gas emissions. If I heard the announcement correctly he has formed an alliance with Al Gore, star of the film "An Inconvenient Truth". I saw that last summer, and highly recommend it. The message I took away, which was reinforced just last week, is that a large portion of the ice on the Arctic Ocean has melted, and the amount of open water in the high Arctic is dramatically increasing year by year. Serious amounts of the Greenland Ice Cap, a 3 km thick layer that has been building up for many thousands

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PRESIDENT'S MESSAGE

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of years, have melted over the last 5 years. The rate at which that ice melts will increase over the next few years, even if we take very effective action on greenhouse gas emissions during those years.

I expect Tony Blair's statement was inspired to some degree by the recognition that at some point during the melting of the Greenland ice cap the City of London will be flooded. England will shrink significantly as the melting ice on Greenland and Antarctica fills the oceans and raises sea level.

Al Gore's sources tell him that melting all that ice will raise sea levels by 6 meters. Give some thought to the impact that will have on the Lower Mainland. How much of the highways that link us to Hope and Seattle are less than 6 meters above present sea level? Could we build and maintain 6 meter higher dikes around our Vancouver Airport? What is the elevation of Abbotsford Airport?

What does this have to do with us as ASHRAE members? Listen to our Society President, Terry Townsend. We have the skills and organization to substantially reduce the energy used in buildings. Less energy used means less coal and natural gas burned. Less fuel consumed means less greenhouse gas emissions. We may have opportunities to reduce the energy used to provide building materials or other services for our industry.

Each of us has a degree of control over how much energy we use for transportation, to operate our homes and feed ourselves. Exercising that control with due consideration for the impact of our actions will have an impact on larger systems.

Let's check our energy bills, and compare annual kwh for our homes. I'll show you mine if you show me yours. Our house shelters 3 adults and a cat, and uses natural gas for space heat and domestic hot water.

We occasionally use a wood burning fire-place for heat. I have several years worth of gas and electric bills, and will work out consumption over the past few years. Let's compare different types of homes, e.g. single family, row house and apartments for electrical energy use and, where possible, gas or other energy use. We'll pick out the low energy homes in each category and get the occupants to tell us how they keep consumption down.

So, just to keep the comparisons as fair as possible, tell me what range of electrical appliances are connected in your home, e.g. stove, fridge, freezer, dishwasher, clothes washer, dryer, microwave, TV, computers. Hey, that's the list for my house, unless we get down to counting the VCR, DVD player, and smaller kitchen appliances. Let's work on making a difference at home and at work. Keeping the beaches where they are will be good for all of us.

Ed Chessor



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Become Part of the Green Team: New Guidance from ASHRAE

ATLANTA – Looking to become a more effective player on the green team?

ASHRAE GreenGuide: The Design, Construction and Operation of Sustainable Buildings will help teach designers how to participate effectively on design teams charged with producing green buildings.

“This is a design guide for mechanical engineers who are interested in advancing integrated, high performance/green concepts and applications on building design projects,” said Malcolm Lewis, Ph.D., a member of ASHRAE’s technical committee on building environmental impacts and sustainability, which wrote the book. “The guidance will help building professionals analyze system design options and point them in the right direction for deeper analysis.”

The book, an update to the 2003 version of ASHRAE GreenGuide, contains a new chapter outlining guidance on the Leadership in Energy and Environmental Design (LEED™) Rating System developed by the U.S. Green Building Council. The chapter discusses ways in which LEED credits affect engineers and how they can best respond to the opportunities presented by the use of LEED on projects.

“The GreenGuide will assist the design and development team in striving for a level of accountability as to the effectiveness of their efforts to produce a building that is truly green,” Lewis said.

The book also contains a new chapter on how HVAC&R systems interact with the local environment and methods for mitigating or reducing that impact.

“There are some areas that are either not intuitively obvious as being potential impacts of HVAC systems or are items that some may not consider to be truly sustainable issues,” Lewis notes.

The ASHRAE GreenGuide also contains more than 40 GreenTips, which are sidebars containing information on techniques, processes, measures or systems. The tips contain a list of other sources for reference. To read the GreenTips, visit www.engineeringforsustainability.org.

This is the first in a new series of books, known as The ASHRAE Professional Series, published in cooperation with Butterworth-Heinemann/Elsevier. The series is intended to provide high-quality professional information for a global audience of HVAC&R engineers as well as professionals in related fields.

The cost of the ASHRAE GreenGuide is \$79.95 (\$62.95, ASHRAE members).

To order, contact ASHRAE Customer Service at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 404-321-5478, by mail at 1791 Tullie Circle NE, Atlanta, GA 30329, or visit the ASHRAE.org Bookstore at www.ashrae.org.

Central Heating *and the* Feudal System

“Another essential component of modern comfort—the adequate heating of houses—was made impossible, at least for the great ones of the earth, by the political structure of ancient societies. Plebeians were more fortunate in this respect than nobles. Living in small houses, they were able to keep warm. But the nobleman, the prince the king and the cardinal inhabited palaces of a grandeur corresponding with their social position. In order to prove that they were greater than other men, they had to live in surroundings considerably more than life-size. They received their guests in vast halls like roller-skating rinks; they marched in solemn processions along galleries as long and as draughty as the cataracts of the Nile frozen into marble. Being what he was, a great man in those days had to spend a great deal of his time in performing solemn symbolical charades and pompous ballets—performances which required a lot of room to accommodate the numerous actors and spectators. This explains the enormous dimensions of royal and princely palaces, even of the house of ordinary landed gentlemen. They owed it to their position to live, as though they were giants, in rooms a hundred feet long and thirty high. How splendid, how magnificent! But oh, how bleak! In our days the self-made great are not expected to keep up their position in the splendid style of those who were great by divine right. Sacrificing grandiosity to comfort, they live in rooms small enough to be heated.”

From “Comfort” in *Proper Studies*, published by Harper & Brothers. Copyright, 1928, by Aldous Huxley.





PRESIDENT'S MESSAGE

President's Message—January 3, 2007

Happy New Year to all BC Chapter members and friends. Let's take a few minutes to reflect on the events of 2006, and plan some events and achievements for 2007.

We may remember 2006 as the year of a very successful ASHRAE Trade Show in Vancouver, or an excellent CRC in Victoria. Or we may remember the ground breaking goals set by Society President Terry Townsend, and the progress report he presented at our December 6 lunch meeting.

We may also remember 2006 as the year when most of the Northwest Passage remained ice free through October, or the year of Al Gore's movie, An Inconvenient Truth. It was also the year when an ice core a Russian team brought up from near the South Pole became world wide news. The ice at Vostok base was 3.2 km thick, and the bottom layers date back about 420,000 years. Analysis of gas trapped in the ice from layers laid down over that whole time found CO₂ concentrations ranging from 180 to 300 ppm. In the last 100 years, the concentration of CO₂ in our atmosphere has gone from 300 to 380 ppm.

The following comments were published September 5, 2006:

- * *Deep ice cores from Antarctica reveal there is more carbon dioxide in the atmosphere today than at any time in the last 800,000 years.*
- * *The data comes from analysis of tiny air bubbles buried 3.2km down in the Antarctic ice sheets. These provide a record of the ancient atmosphere and give insight into how climate was affected by CO₂ levels in the past.*
- * *Dr Eric Wolff from the British Antarctic Survey explains: "Ice cores reveal the Earth's natural climate rhythm over the last 800,000 years. When carbon dioxide changed there was always an accompanying climate change."*
- * *He says over the last 200 years the concentration of CO₂ has been increased beyond the natural variation, and that human activity is to blame. No one knows how the environment and climate will respond to this amount of atmospheric CO₂, he added.*
- * *He told the BBC: "There's nothing that suggests that the Earth will take care of the increase in carbon dioxide. The ice core suggests that the increase in carbon dioxide will definitely give us a climate change that will be dangerous."*
- * *As well as unprecedented CO₂ levels, we are also seeing the fastest rate of change in the concentrations of the greenhouse gas, Wolff added. Until very recently, the fastest rate of change was an increase of 30 parts per million over a thousand years. We have seen the same increase, 30ppm, in the last 17 years.*
- * *"We just don't have an analogue in our records," Wolff said.*
- * *The impact of further increases in atmospheric carbon could be wide ranging, [the BAS says](#), beyond the well publicised potential to affect the climate.*
- * *Although the Earth has plenty of natural carbon sinks - places that absorb carbon - it is uncertain how effective these stores will be in the future. If carbon levels continue to rise, the oceans will have to absorb more and more carbon, and as a consequence will become more acidic. This could have consequences for marine organisms' ability to build skeletal parts. ®*

Thanks to Lucy Sheriff at http://www.theregister.co.uk/2006/09/05/co2_ice_cores/

In December, British Columbia's ski resorts were entertaining record numbers of visitors from Europe, because there was no snow on Europe's ski hills. A Christmas phone call to family in Trondheim, Norway brought the news that there was no snow there either.

Let's make 2007 a year we remember for having made significant progress toward ASHRAE's goal of building energy neutral commercial and institutional buildings. We may add more cities to the "stop global warming coalition" Terry mentioned December 6. We should celebrate the achievements of BC Hydro's PowerSmart program by helping our members there make more progress in the efficient use of electrical energy.

More of us should take the time to check out draft standards at ashrae.org, and provide our input. Please make a list of things you can do to reduce greenhouse gas emissions in 2007, and find a way to work with your fellow ASHRAE members to make progress happen on several fronts. Writing an article for the Totem, or the ASHRAE Journal, might be a place to start.

A Happy Low Emission New Year to All—**Ed Chessor**



OCTOBER DINNER MEETING

License to Chill is the first rap video released by ASHRAE. It was produced by Society to reach out to teenagers (and maybe 20 somethings?) and convince them to join the HVAC industry. There are cameo appearances by several young looking, (okay, 90% of ASHRAE members look young to me) members, and the lead performer is apparently a well known rapper, although not one of the 3 I have heard of. It seems well done to me, I solicit more informed opinions.

I have a copy that I will be glad to pass on, or you could send an e-mail to: apruett@ashrae.org.—Ashley Pruet, the person in charge of distributing the DVD.

Ed Chessor

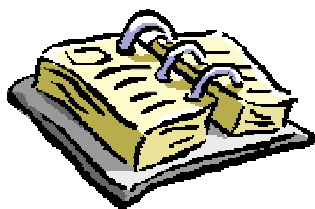
The ASHRAE-BC Totem wants your input and ideas. Send your comments, articles or digital photos to keithjordan@shaw.ca

MEMBERSHIP MATTERS
Steve Montagano
Chapter Membership Chairman

Visit the [ASHRAE BC HOME PAGE](http://www.ashrae.bc.ca)
www.ashrae.bc.ca

Advertising on the ASHRAE-BC Website

The “Manual for Chapter Operations” allows our chapter to accept “business card” type advertising on the Website. We can include links to company web sites and charge fees for those links. Some conditions apply.



ASHRAE-B.C. Chapter and Industry Events - 2006/2007

Generally, chapter meetings are the second Wednesday - after the first Monday of the month - at the Italian Cultural Centre at 5:30 pm. Exceptions are there are no meetings in the summer June through August, and no meeting in December

December 6, 2006	ASHRAE Society Presidential Visit, Terry Townsend
January 10, 2007	Retrofitting for High Efficiency Condensing Boilers
February 07, 2007	Fresh Air Ventilation Strategies & Economizer Ventilation, Mike Schell, Airtest Technologies
March 14, 2007	UBC Olympic Venue Tour
April 11, 2007	ASHRAE Standard 62 Update, Dennis Stanke, Trane
May 23, 2007	BCIT Centre for the Advancement of Green Roof Technology
May 30, 2007	ASHRAE Golf Tournament



November Dinner Meeting Report By Ed Chessor

November 15 was the day for people who are interested in ventilating swimming pools to get together at the Italian Cultural Centre. Forty-five of us attended Brian Monk's workshop. We learned that the energy cost of operating a swimming pool goes down as the air temperature goes up. That applies even during the heating season, because if you maintain the same relative humidity at a higher temperature the water vapour pressure will be higher, and less water evaporates. That reduces the load on the dehumidifier, and the amount of make-up water that must be heated.

Incidentally, Brian mentioned that in some jurisdictions pools are required to recycle condensate from dehumidifiers to the pool. That conserves both water and energy, because the condensate is warmer than tap water. In BC, pools are not allowed to recycle condensate, I assume it goes to the sanitary sewer system. Perhaps we need to talk to the people who write or enforce those regulations about allowing the more efficient practice here. Your thoughts, is this something the Chapter should be doing?

Brian offered a number of pointers on ways of improving air quality in pools, and avoiding structural problems due to corrosion and moisture migration.

At the dinner table the conversation turned to pool water disinfection. Vancouver Parks Board has recently installed a UV disinfection system in one pool, and they monitored the air for chloramines before and after. If I heard correctly the chloramine concentration went down about 80%, which would make the air much less irritating. For more information on measuring chloramines in air, and chloroform in pool water, contact Winnie Chu, Lab Manager at the UBC School of Occupational & Environmental Hygiene. Her phone number is 604 822-9580.

Thanks Chris for organizing another excellent speaker.

SMACNA- The Sheet Metal and Air Conditioning Contractors' National Association.

The third edition of the HVAC Duct Construction Standards-Metal and Flexible Products report has been published by SMACNA. Intended primarily for commercial and institutional duct construction, the (ANSI/SMACNA 006-2006) publication contains tables and details for construction duct work pressures. An improvement over the second edition, this publication has expanded pressure tables, and expanded tables for round duct construction. Also new in this edition is an engineering and design chapter to provide additional information for design professionals, double-wall construction details, new casing construction details and additional accessory items. For more information go to www.smacna.org or call Bruce Sychuk at 604-299-4641.

IAQ 2007 Conference to Discuss Sustainable Buildings

ATLANTA - Healthy and sustainable buildings are the talk of the building industry, but what exactly defines what a healthy building is? ASHRAE will discuss this and other topics at its IAQ 2007: Healthy and Sustainable Buildings conference in Baltimore Oct. 15-17.

IAQ 2007 addresses what tools and metrics can be used to quantify buildings' health and sustainability and how indoor air quality can be certified as sustainable. Plenary session speakers will compare the functionality of rating systems, how they can be improved and what information other than the ratings can developers, designers and public entities use to distinguish high-performing buildings.

Kevin Hydes, P.Eng., P.E., chair of the Board of Directors of the U.S. Green Building Council, will address the Council's Leadership in Energy and Environmental Design building rating system and case studies. Nils Larsson, executive director of the International Initiative for a Sustainable Built Environment, will cover the same questions for other rating systems, labels and green building/IAQ metric tools.

"Buildings' health and efficiency impact everyone," said Larry Schoen, chair of the committee organizing the conference. "It's important to discuss how our designs as building professionals will affect the occupants' lives and the global community for many years to come. This conference helps attendees learn how we can work together to maximize sustainability."

The conference is open to anyone with a stake in the built environment or with an interest in indoor air quality, including researchers, policy makers, owners, designers, builders, building operators and remediation experts.

To submit an abstract to be a speaker at the conference, visit www.iaq2007.org.

The submission deadline has been extended to Jan. 15, 2007.

ASHRAE - November Meeting



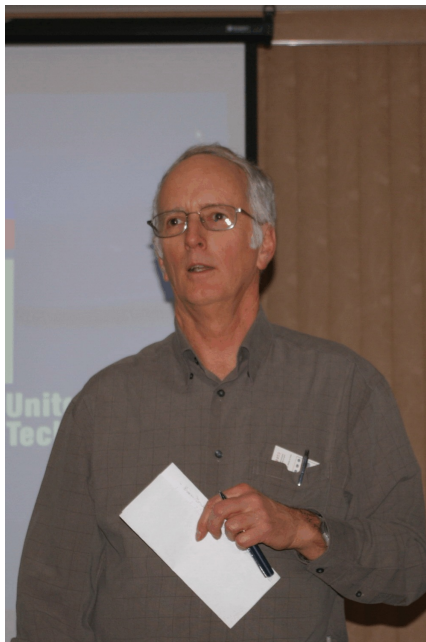
Registration Table at Work



Guest Speaker - Brian Monk from Carrier on Pool Dehumidification & IAQ



Leila Vaive, David Iwabu, Charlotte Ross, Melissa Smith, Audrey Quay and Greg Lee



President Ed Chessor



Dick Perry Swearing Les Pereira as Secretary