



AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS INC.

LONDON CANADA CHAPTER #116

<http://LondonCanada.AshraeChapters.org>

FEB 28/2011

Board of Governors

President

Jason Vanderberghe
ph: 519-670-8066
jasonv@aquatech ws

Vice President & Program

Karl Gilroy
ph: 519-451-5100
kgilroy@price-hvac.com

Treasurer

Jamie Kruspel
ph: 519-667-3445
jamie.kruspel@td.com

Secretary

Ibrahim Simhat
ph: 519-681-1221
ibrahim.semhat@jci.com

Committee Chairs

Research + Past Pres

Eric Shaw
ph: 519-964-0022
eshaw@baymarsupply.com

Membership

Scott Edmunds
ph: 519-667-4108
sedmunds@uniongas.com

Student Activities

Khalid El-Kadri
ph: 519-681-1977
khalid@somerset.com

History & Newsletter

Tom Pollard
ph: 519-685-2570
tpollard@execulink.com

TOPIC:

OVERVIEW OF CRITICAL ACOUSTIC ENVIRONMENTS

Mr Patrick Oliver P.Eng
Noise Control Engineer
EH Price Ltd

Meeting - MONDAY FEB 28/2011

STUDENT NIGHT

Windermere Manor

Western Research Park
200 Collip Circle, London

4:00pm - BOG Meeting

5:15pm Social 6:00pm-Dinner
7:15pm - Program

\$35.00 for London Chapter dues paid members
or \$175.00 for meal plan

\$10.00 for Students with valid student card

\$45.00 for others





President's Message

I thought the snow was going away on Friday but I guess winter is not over yet! There was over 12" of in my driveway to shovel Monday morning!

I would like to thank Phil Cook for being our Guest speaker last month his topic was very informative and brought up great conversation.

This month is Student Promotion Night up at Windermere Manor and it would be great to see a large turn out by the Student Chapter like our October meeting where we had 65 people show up! It was one of our largest turnouts to a Student Night that I had ever seen.

This month our guest speaker is Patrick Oliver from EH Price talking about Noise Control for Schools.

For those of you who had the chance to go to the ASHRAE Show in Las Vegas like my self you would have found the show over whelming from the number of exhibitors to the number of people who attended. We found the show to talk us a long time to get around because of the number of people walking the show like Sue, Steve, Leo and George from UWO who I bumped into at the show. It was interesting talking to the people from Vegas (cab drivers) saying that the economy is still very slow down there.

We have some very exiting news regarding our annual golf tournament but I won't steal his thunder I will let Jamie tell every one at the meeting next week.

Again I look forward to seeing everyone on the 28th @ Windermere Manor, we will also be having our annual technical tour next month which we are still working out the final details but will let the chapter know very soon where we are going.

Jason Vandenberghe
President - ASHRAE London Canada

Feb Meeting Speaker Info

Patrick Oliver P.Eng.
Noise Control Engineer, EH Price Ltd

Patrick has worked in the noise control field for 10 years focusing on custom applications and product development. He has performed field measurements, laboratory witness tests, and acoustic analysis of many different HVAC, industrial processes, and power generation systems. Currently Patrick is the Vice-Chair of ASHRAE TC 2.6 on Sound and Vibration and the chair of the ASTM working group for the E477 Duct silencer test standard.

Patrick will be presenting an Overview of Critical Acoustic Environments.

In many buildings, acoustics is increasingly being recognized as a critical component of the overall indoor environmental quality. This session will discuss some of the recent revisions to the classroom acoustics standard, guidelines for healthcare facilities, and green buildings. Recommendations and examples of how to take acoustics into account in the design process will also be provided by looking at some common scenarios and basic acoustic analysis techniques.



BAYMAR

Eric Shaw
221 Conventium Ct
London Ontario N6C 2S8
Tel: 519 864 0022
Fax: 519 869 7030
Tel Fax: 1 888 238 2357
emba@baymar.com
www.baymar.com

AERCO MITSUBISHI ELECTRIC (Change for the Better) VENMAR CCS

SIEMENS

Siemens Building Technologies, Ltd.

514 Howland Street
London Ontario
N6C 1K6 / Canada
Tel: (519) 680 2390 ext. 2865
Fax: (519) 680 2410
www.siemens.com
www.siemens.ca/bldgtech/index.html

Eric Christopher Sallin
Account Executive
Building Automation, Security
Integrated Building Technologies

ERIE SHEET METAL

1000 LeGue
1000 LeGue
1000 LeGue

IRONROSS INC. (est. 1986)

Manufacturers Agents for Industrial & Commercial Air Handling Products

FANS • COILS • AIR HANDLING UNITS • SILENCERS • ISOLATION • FILTERS • DAMPERS

Jim Inneside George Clark Larry Mills (Sarnia)

678 DELMONT AVE. WEST, SUITE 304
MITCHENER, ONTARIO N3M 1M6
PHONE: 519-742-0174 FAX: 519-742-0543
E-MAIL: info@efi-ironross.com

NORTHERN INDUSTRIAL

- FANS & BLOWERS -

SCOTT C. DEAN, P.Eng.

Tel: (519) 740-7000
Fax: (519) 740-0051
1-888-FAN-COIL
niscnt@iprimus.ca

4-122 Earl Thompson Rd. WYR, ON N0B 1E0

Systemair

Robert Ferris
Vice-President - Sales and Marketing

Tel: 877.797.2471
Fax: 877.797.2472
Cell: 416.689.9693
Email: rolf@systemair.net

Systemair
50 Kamaluk Way
Bouchouche, NB E4S 3M5
www.systemair.net



2011 ASHRAE LONDON GOLF TOURNAMENT

The 2011 ASHRAE London Chapter (#116) is set for Monday June 6, 2011. The tournament will be held at **Firerock Golf Club** in Komoka, Ontario. The format will be a shotgun start and 4-player team scramble. There will a BBQ lunch prior to tee-off and a buffet dinner to follow. The dinner banquet will feature awards presentations, a preview of the 2011-2012 season, and a silent auction.

Registration will open at our next Chapter meeting February 28, 2011. Forms will be available at the meeting and on the ASHRAE London website. The cost has been kept the same as past years and will be \$600 per foursome. Your spot will be guaranteed upon receipt of payment. Sponsorship opportunities are available as well.

For any questions regarding the tournament format, registration, silent auction, or sponsorship, please contact:

Jamie Kruspel,
 Chapter Treasurer, Golf Tournament Chair
 519-200-2197
jamie.kruspel@td.com

Thanks to Forest City National for their past participation and support. We are excited for the 2011 tournament at Firerock and thank them for their accommodation.

ASHRAE WEBCAST

Geothermal Heat Pumps will be the subject the next free ASHRAE Chapter Technology Transfer Committee (CTTC) Webcast scheduled for April 21, 2011.

www.ashrae.org/GHPwebcast

Online Registration begins March 21, 2011

Jan Meeting Summary

Phil Cook from Trane spoke about The Link Between Continuous Commissioning And Sustainable Growth: A Sustainable Business Model. With over 40% of greenhouse gases attributed to buildings, a continuous commissioning process can be undertaken to ensure the building optimizes energy consumption, environmental comfort, security, indoor air quality water consumption, etc.

SOMERS ENVIRONMENTAL PRODUCTS INC.

Daryl Somers, CET

96 Meg Drive London, Ontario N6E 3T7
 Tel: (519) 681-1977 Fax: (519) 688-9324 Mobile: (519) 670-7720
 email: daryl@somersp.com

Norm Clarke, P. Eng. *Energy Manager*

TRANE

1000 Lakeshore Blvd. East
 Suite 1000 London, ON N6C 2K7
 Tel: (519) 833-8800
 Fax: (519) 833-8801
 Email: norm.clarke@trane.com

Jason Vandenberghe *Director of Sales & Marketing*

AQUATECH

Sales & Marketing Inc.

1300 Dufferin Street, Suite 100
 London, ON N6C 2K7
 Tel: (519) 671-5815 Fax: (519) 677-6655
 Cell: (647) 288-0980 Email: jasonv@aquatech.ca
 www.aquatech.ca

HRTS ENGINEERING LTD.

Jim Bender, P.Eng. *Contracting Sales*

86 - 320 Napune Cres.
 London, ON N6M 1A1
 Tel: (519) 457-6700
 Fax: (519) 457-4900
benderj@hrtse.com Toll Free: (800) 341-3110

PALSER ENTERPRISES INC.

Hugh D. Palser

London, Ontario
 Tel: 519-471-5782
 Fax: 519-471-1049
 Cell: 519-560-8135

Concord, Ontario
 Tel: 905-730-5200
 Fax: 905-738-6111

hpalser@psysrent.com
www.palserent.com

DURELL CONTROL SYSTEMS INC.

Your Partner in Energy Savings. www.durellcontrols.com

Bob Durk - Manager

bdurk@durellcontrols.com

Phone: (519) 682-5502
 Fax: (519) 682-0265

3392 Woodland Rd. S., Bldg. 9, Units #1 & 2, London, Ontario N6L 1A8

Delta *BACnet*

ACCESS LIGHTING *Access Inc.*



Upcoming Meetings and Events

Mon Mar 28/2011 (location: tbd): Research Night - Technical Tour

Wed Apr 13/2011 (NOTE DATE) BestWestern - Lamplighter Inn:
Green Bldg Design & Assessment - Dr. Sam Hui, PH.D., CENG, CEM, Dept of Mechanical Design, University of Hong Kong
ASHRAE Distinguished Lecturer

April 21/2011: ASHRAE Webcast: Ground Source Heat Pump Systems – Putting the Earth to Work for You (www.ashrae.org)

Energy Modeling Conference

ASHRAE is hosting an Energy Modeling Conference April 4-6/2011 in Atlanta at ASHRAE Headquarters.

Lynn G. Bellenger, P.E., ASHRAE president - Keynote speaker
William J. Worthen, AIA, LEED AP - Keynote speaker

Sessions include:

- ASHRAE standards
- Cost of energy modeling
- Modeling for a variety of building types, such as hospitals, data centers and labs
- Building information modeling and integrating building performance
- Case studies

The conference covers energy modeling procedures, elements, and systems; case studies; and how different software applications address similar energy modeling challenges all while providing ample opportunities for networking.

ASHRAE is offering a special administration of the Building Energy Modeling Professional (BEMP) certification examination on April 6. There is a separate application fee for the certification exam. Certification applications must be received by ASHRAE 30 days prior to the exam. Applications will not be accepted onsite.

As part of the conference, The U.S. Department of Energy launches its development roadmap for EnergyPlus, OpenStudio, EPGUI, and other tools and introduces new, formal channels for public input. Attendees can provide feedback on the roadmap and on DOE's general activities in the simulation tools area.

Energy modeling software companies will offer 30-minute demonstrations. One-on-one comprehensive demonstrations also are available.

Registration is \$450/Member of ASHRAE, USGBC, or AIA / \$500 Non Member

This conference is ideal for hands-on modelers, principals responsible for energy modeling projects. For more information, and to register for the conference and apply for the BEMP exam, visit ashrae.org/energymodeling. Seating is limited – register early!

CANADIAN CONSULTING ENGINEER

New ASHRAE 90.1 means big energy savings

The standard used throughout Canada for energy efficient buildings has been tightened up and made 30% more rigorous in the 2010 version. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) confirmed the savings after receiving analysis from Pacific Northwest National Laboratories. ANSI/ASHRAE/IES Standard 90.1-2010, "Energy Standard for Buildings Except Low-Rise Residential Buildings" was launched 35 years ago and has become the benchmark for building energy design in Canada and many parts of the world, as well as in the U.S.

Using the 2010 version compared to the 2004 version of the standard, site savings without plug loads are 32.6% and energy cost savings are 31%. When plug loads are taken into account, the site energy savings are estimated at 25.5% and energy cost savings at 24%.

Link for full article:

http://www.canadianconsultingengineer.com/issues/story.aspx?aid=1000401604&link_source=aypr_CCE&link_target=DailyNews

ASHRAE, founded in 1894, is an international organization of some 50,000 persons. ASHRAE fulfills its mission of advancing heating, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world through research, standards writing, publishing and continuing education.



ASHRAE Works to Expand Datacom Environmental Classes

ASHRAE continues to widen the temperature and humidity ranges for servers through a soon-to-be-published third edition of the datacom book, "Thermal Guidelines for Data Processing Environments."

The first edition was published in 2004 and was groundbreaking in that it created the first global, vendor neutral environmental specification for data centers according to Don Beaty, chair of the Publications Subcommittee of ASHRAE's Technical Committee (TC) 9.9, Mission Critical Facilities, Technology Spaces and Electronic Equipment. Prior to its publication, data center temperature requirements were set individually by each equipment manufacturer. This typically resulted in using the most stringent temperature plus a safety factor being used across the entirety of the data center.

The approach used by TC 9.9 for the first edition through to the present was to assemble a team of thermal engineers from the major commercial IT manufacturers to develop requirements. The first edition created a recommended temperature upper limit of 77 F (25 C), promoting the use of higher temperatures and endorsed by all of the IT manufacturers.

The second edition (2008) took considerable deliberation amongst the manufacturers and raised the recommended upper limit to 81 F (27 C). Both the first and second editions were groundbreaking (the first edition in unifying the industry and the second edition in enabling the potential to use economizers in many locations and applications), according to Beaty.

The third edition will be equally groundbreaking in that it will enable compressorless cooling (all cooling through economizers) in many applications. Accomplishing this has been a challenge since major tradeoffs (equipment size, equipment cost and operating cost) surface above a certain temperature threshold. This challenge is complicated because the threshold is not the same for all the manufacturers.

"Different locations, applications and business philosophies make it ineffective to force all equipment to be capable of the same high temperature tolerance (in some cases higher thresholds would negatively impact the return on investment)," Beaty said. "To address this, the third edition creates multiple server classes and therefore provides freedom of choice. This is particularly important since the thermal guidelines are used throughout the world."

ASHRAE TC 9.9 was started in 2002 to be recognized by all areas of the datacom industry as the unbiased engineering leader in HVAC and an effective provider of technical datacom information, according to Beaty. Its scope covers all datacom (data processing and communication) facilities including rooms or closets used for communication, computers or electronic equipment.

The first initiative of TC 9.9 was to publish the book, "Thermal Guideline for Data Processing Environments." Prior to TC 9.9, commercial IT manufacturers published their own, independent temperature specifications. Typical data center temperatures were 20 or 21 C and a common notion of cold is better. However, most data centers are multi-vendor, resulting in the temperature defaulting to the most stringent requirement plus a safety factor.

TC 9.9 obtained informal consensus from the major commercial IT manufacturers for both "recommended" and "allowable" temperature/humidity ranges and for four environmental classes.

Another critical accomplishment was to establish IT equipment air inlets as the common measurement point for temperature and humidity compliance; requirements in any other location within the data center were optional.

The global interest in expanding the temperature and humidity ranges continues to increase. In 2008, TC 9.9 revised the requirements for Class 1 and 2 to be less stringent. The following are the current allowable and recommended maximum dry bulb temperatures:

Class 1 – 32 C Allowable; 27 C Recommended

Class 2 – 35 C Allowable; 27 C Recommended

Class 3 – 35 C Allowable, N/A Recommended (no environmental control)

Class 4 – 40 C Allowable; N/A Recommended (no environmental control)

Increasing the temperature and humidity ranges increases the opportunity to use compressorless cooling solutions. Typically the equipment selected for data centers are either Class 1 or 2. Class 3 is for applications such as personal computers and Class 4 is for applications such as "point of sale" IT equipment used indoors or outdoors.

These environmental specifications/classes are really the domain and expertise of IT OEMs. TC 9.9's IT Subcommittee is exclusively comprised of engineers from commercial IT manufacturers; the subcommittee is strictly technical.

The commercial IT manufacturers' proprietary design, field and failure data is shared (to some extent) within this IT Subcommittee enabling greater levels of disclosure and ultimate expansion of the environmental specifications.

"Prior to TC 9.9, there were no organizations or forums to remove the barrier of sharing proprietary information amongst competitors," Beaty said. "This is critical since having some manufacturers conform while others do not, returns to the trap of a multi-vendor data center where the most stringent requirement plus safety factor or most likely preside. The IT manufacturers negotiated amongst themselves in private resulting in achieving some critical sharing of proprietary information."

From an end user perspective, it is also important that they be provided with options for their multi-vendor facilities such as:

Option 1 – use IT equipment optimized for a combination of attributes including energy efficiency but the dominant attribute being capital cost.

Option 2 - use IT equipment optimized for a combination of attributes including some level of reliability but the dominant attribute being energy and compressorless cooling.

The industry needs both types of equipment but also needs to avoid Option 2 increasing the cost of Option 1 by increasing manufacturing costs through mandatory requirements not desired or used by all end users. Expanding the temperature and humidity ranges can increase the physical size of the IT equipment (e.g. more heat transfer area required), increase IT equipment air flow, etc. This can impact embedded energy cost and IT equipment cost.

**Simulating a Building's Energy Use with EE4 software, ecoEnergy** (Advanced Course)

Code S11-EE4-F001

March 23, 2011 - March 24, 2011 8:30 AM to 5:00 PM

Breakfast and Lunch Included.

Please Register Early!

Location: The Living Arts Centre, Mississauga

Instructor: Brian Fountain, B.A.Sc., P.Eng. LEED® A.P.

Description:

EE4 version 1.7 automates energy use assessments and applies all of Natural Resources Canada's (NRCan's) validation of new building designs rules to verify that a design is at least 25% more energy efficient than if constructed to meet Model National Energy Code for Buildings (MNECB) 1997 requirements.

NRCan's validation is recognized by such organizations as the Canada Green Building Council for LEED® Canada and the Canada Mortgage and Housing Corporation and can also help you to apply for financial incentives from some utilities or to meet requirements in certain jurisdictions. Use it to ensure your proposed building will not consume more energy than if every element of the building envelope, lighting, HVAC and service water systems were designed in accordance with strict prescriptive requirements under the model code.

EE4 Version 1.7 offers flexibility in modelling many building types and functions. The software develops the reference building according to the MNECB addressing the following issues:

- detailed transmission, solar, internal and ventilation load calculations;
- a broad range of primary and secondary systems and components;
- flexible scheduling of occupancy, lighting and equipment loads, temperature schedules, water heating loads and fans, and
- automated generation of detailed compliance reports.

Why participate in this workshop?

- Give your organization expertise in simulating energy use
- Offer your clients options that are based on reliable, credible data
- Learn and understand the ins and outs of the EE4 software
- See how energy optimizing has an impact on your building's total energy use
- Increase your understanding of the reference building and crank up your ecoEnergy performance

Objective:

This advanced two-day workshop on the EE4 ecoEnergy software package. It is devoted almost entirely to learning how to use EE4 software to develop successful energy simulations to demonstrate new building energy performance in comparison with the Model National Energy Code of Canada for Buildings (MNECB).

In this workshop you will learn all the ins and outs, tips and tricks, and tools needed to obtain accurate energy-use simulations with the EE4 package. By the end of the workshop, you will know how to obtain the most relevant energy-use results for your building that can be compared with those of the reference building, you will understand how to use the software, and you will have encountered all the software's modules for calculating the energy use of buildings. Participants will be introduced to both the MNECB version of EE4 plus the Ontario Building Code version which prepares a reference building to meet the modifications to the MNECB specified in Supplementary Standard SB-10 of the Ontario Building Code.

Notes:

For more details about ecoEnergy visit the Office of Energy Efficiency website

Please note: Course participants are required to bring their own laptop computers able to run the EE4 software which is available at [This Link](#)

Additional information and Agenda

<http://www.ospe.on.ca/pd/index.cfm?task=viewcourse&pdcourseid=2461>



Green Tips Provide Guidance for Greening Data Centers: New ASHRAE Book

More than 50 percent of the total energy consumption of data centers can be attributed to the power and cooling infrastructure that supports the IT equipment housed in them. Guidance in a new book from ASHRAE aims to help reduce that energy use through proven, easy-to-implement tips.

"Green Tips for Data Centers" identifies techniques for optimizing energy efficiency in existing datacom facilities. Many of the techniques can be implemented through simple operational changes, upgrades or modifications that require a relatively low investment and that cause little disruption to the existing operations of the IT equipment.

"The book has particular relevance right now since there is a significant focus on energy efficiency in data centers," Don Beaty, co-founder of ASHRAE Technical Committee (TC) 9.9, Mission Critical Facilities, Technology Spaces and Electronic Equipment, said. "While it is fun and exciting to look at how we can design new data centers to be energy efficient, the fact is that there are many, many existing datacenters in operation."

Among the 26 tips from the book are:

- Optimize supply air temperatures
- Install monitoring equipment
- Improve lighting efficiency
- Optimize data storage
- Improve transformer efficiencies

"The tips provide insight into practical techniques that have proven successful in other datacom facilities and give owners and operators the confidence to implement similar techniques in their own facilities," Beaty said.

The book is part of the ASHRAE Datacom Series, developed to provide a more comprehensive treatment of datacom cooling and related subjects. Other books in the series are "Particulate and Gaseous Contamination in Datacom Environments," "High Density Data Centers – Case Studies and Best Practices," "Design Considerations for Datacom Equipment Centers," "Best Practices for Datacom Facility Energy Efficiency," "Thermal Guidelines for Data Processing Environments," "Liquid Cooling Guidelines for Datacom Equipment Centers," "Datacom Equipment Power Trends and Cooling Applications" and "Structural and Vibration Guidelines for Datacom Equipment Centers."

The cost of Green Tips for Data Centers is \$54 (\$46, 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, or visit www.ashrae.org/datacenterefficiency. Bulk discounts are available to individuals, companies and organizations who are interested in purchasing multiple copies.

ASHRAE's 2012 Winter Conference Seeks Papers on High Performance Buildings, Integrated Design, Energy Modeling and Specialized Applications

Papers addressing advances in high performance buildings, integrated design and numerous high-intensity HVAC applications are being sought for ASHRAE's 2012 Winter Conference in Chicago, Ill., Jan. 21-25.

The Specialized Applications track focuses on high-intensity HVAC applications, such as laboratories, hospitals and data centers, and seeks papers on design recommendations, regulations and lessons learned.

The Integrated Design track addresses how the integrated building design and integrated project delivery processes are being applied to build better buildings. Papers are being sought on case studies, lessons learned and ongoing research projects studying new project delivery methods.

The Energy Modeling Applications track seeks papers that address the range of different energy modeling and Building Information Modeling tools available, their use and specific applications, including systems, building and communities. Papers that address an integrated approach from modeling through end designs are requested.

In addition, papers are sought for tracks on Operations & Maintenance, HVAC Systems, HVAC Fundamentals and Applications, Professional Skills and Refrigeration.

The deadline for paper submissions is April 18, 2011. For complete information on tracks, contacts and submittal requirements, visit www.ashrae.org/chicago.

Full-length technical papers or conference paper abstracts (400 words or less) should be submitted by April 18.

For more information about the two types of papers and how to submit a full-length technical paper or conference paper abstract, go to the ASHRAE Chicago Conference webpage: www.ashrae.org/chicago. For accepted conference paper abstracts, the completed conference papers will be due July 8, 2011.

The Conference is expected to attract some 3,000 attendees from 60 countries. The technical program takes place Sunday, Jan. 22–Wednesday, Jan. 25, and includes paper presentations as well as non-paper presentations. Approved papers are published in ASHRAE Transactions. Held in conjunction with the ASHRAE conference is the ASHRAE-cosponsored AHR Expo, Jan. 23-25.

Duct Fitting Database Latest ASHRAE Resource to Become Mobile App

ASHRAE's popular Duct Fitting Database desktop application has become even more valuable as a smart phone app, allowing engineers to make complicated calculations in the field and receive faster results. Developed for Apple's iPhone, iPod touch and iPad, the ASHRAE Duct Fitting Database (DFDB) app allows users to perform pressure loss calculations for more than 200 HVAC duct fittings in both I-P and SI units. The DFDB app is the second mobile app to be released by ASHRAE. The Society published the 62.1 app in the winter of 2010. The ASHRAE DFDB app can be purchased through Apple's online iPhone App Store for \$19.99. This initial release of the ASHRAE DFDB app includes supply and common round fittings only, though subsequent versions including all of the remaining fittings will be released monthly. Those who purchase the app now will receive these updates as free upgrades.



ASHRAE LONDON & AREA 2011 GOLF TOURNAMENT

Date: MONDAY JUNE 6/2011

Location: *** **FIREROCK** *** www.firerockgolf.com
10345 Oxbow Dr., Komoka

Registration: 10:00 - 11:00am

BBQ Lunch: 11:00 - 12:00noon

Golf Start: 12:10pm Shotgun Start / Scramble Format / Best Ball

Cost: \$150.00 Golf, BBQ Lunch and Dinner per person / \$600.00 per foursome
\$ 45.00 Dinner Only

- * Golf Carts included
- * Lunch Included
- * Dinner Included

* LIMITED SPACES AVAILABLE



For Registrations: contact

Jamie Kruspel
email: jamic.kruspel@td.com
cell#: 519-200-2197

Payment must be made before Friday May 13/2011 to secure your group(s).

Please make cheques payable to: ASHRAE LONDON CANADA CHAPTER

name of golf group: _____

**HOLE SPONSORSHIP ALSO AVAILABLE (\$200.00 per company)
for ASHRAE RESEARCH CANADA**

and
donations also accepted for SILENT AUCTION to be held during dinner
contact:

Eric Shaw
email: eshaw@baymarsupply.com
519-964-0022