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ASHRAE LONDON CANADA CHAPTER #116

TOPIC:

CO2 Monitoring for Outdoor Airflow and Demand-Controlled Ventilation

Presenter:

ASHRAE Distinguished Lecturer

Thomas M. Lawrence, Ph.D.

The University of Georgia

Athens, GA

GBCI Approved | 1 CE Hour | 0920010415

AIA Approved | 1 LU | LAWRENCE01

MONDAY FEB 24/2020

5:15PM – SOCIAL

6:15PM – DINNER

7:15PM – PRESENTATION

RESEARCH PROMOTION NIGHT

MEETING LOCATION

Four Points by Sheraton

1150 Wellington Rd. S., London

\$60 for MEMEBERS

\$20 for STUDENTS

FEB TOPIC**CO2 Monitoring for Outdoor Airflow and Demand-Controlled Ventilation**

GBCI Approved | 1 CE Hour | 0920010415
AIA Approved | 1 LU | LAWRENCE01

A number of programs and standards that exist for buildings today specify the use of outdoor air monitoring. Monitoring is to be done either based on CO2 levels in the occupied space or actual measurement of outdoor airflow, depending on the space design occupancy and ventilation type (mechanical or natural). Current standards or program descriptions do not provide detailed guidance for determining what level of CO2 should be considered the maximum concentration to expect, and those that do provide guidance are generally based on a single value above the ambient concentration. This session describes how to determine a level for CO2 concentrations for an outdoor airflow monitoring program or as part of the upper control limit for a demand-controlled ventilation system.

FEB PRESENTER**Thomas M. Lawrence, Ph.D.**

ASHRAE Distinguished Lecturer

The University of Georgia, Athens, GA

Dr. Lawrence is the Mechanical Engineering program lead with the University of Georgia, and has 35 years of professional experience. He spent the first 18 years in industry and after going back for his PhD at Purdue he has been at UGA since January 2004. He is the past chair of ASHRAE Technical Committee 2.8 and is a member of the committee that wrote and maintains ASHRAE Standard 189.1 for High Performance Green Buildings. As an ASHRAE Distinguished Lecturer, he gives seminars on green building design at venues around the world. Dr. Lawrence was named an ASHRAE Fellow in 2016 and is a Director-at-Large on the Board of Directors for ASHRAE.



Dr. Lawrence has a B.S. with Highest Distinction in Environmental Science from Purdue University (1978), a M.S. degree in Mechanical Engineering from Oregon State University (1982) and a second M.S. degree in Engineering Management from Washington University in 1989. He received a Ph.D. in Mechanical Engineering from Purdue University in the spring of 2004



Chapter President's Message

Thank you to all who came out to the 4-Points in January to hear Payam speak about Air Filtration in Cannabis Filtration. It's great to see such a strong showing of our membership right through the cold short days of winter.

We'll be finishing off the last two dinner meetings of the season with a pair of Distinguished Lecturers. First up is Thomas M. Lawrence, Ph.D, who will be speaking about CO2 Monitoring for Outdoor Airflow and Demand-Controlled Ventilation. This will be taking place at the Ivey Spencer Leadership Centre which always puts on a great event.

And it's never too soon to start thinking about the spring, and the start of golf season! This year's ASHRAE golf tournament is being held at Firerock on June 15th. Registration is already open and typically sells out, so be sure to sign up to secure your spot.

James Scudamore (email: jscudamore@ztr.com) 519-452-1233 x512
ASHRAE London Canada Chapter
Chapter President 2019/2020

ASHRAE – TECH HOUR VIDEO

Now Available! Tech Hour Videos

#1: Optimize Occupant Health, Building Energy Performance and Revenue through Indoor-Air Hydration

Presented by: **Stephanie Taylor**, M.D., M. Arch., Taylor Healthcare Inc., CEO

Watch Now in the ASHRAE 365 App

Get in the Apple App Store or Google Play
or on the web site:

<https://www.ashrae.org/professional-development/tech-hour-videos>

Upcoming Tech Hour Video (Feb 25/2020)

Tech Hour #2: **Where Have All The Ethics Gone?**

Jan Meeting Summary

ASHRAE London members had a review and discussion involving the **Air Filtration in Cannabis Cultivation** presented by **Payam Najafirad, Product Manager - Camfil Canada**. The presentation and discussions involved what needs to be removed from the air along with possible some methods and media that can be used. A copy of the presentation can be found on the chapter web site.



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Professional Development

Need hours for your professional development requirements? Be sure to attend a chapter meeting. Professional Engineers Ontario requires members to have yearly professional development training recorded through the Practice Evaluation and Knowledge (PEAK) program. Other groups may also require continuing education.

Chapter Upcoming Meetings

March 30, 2020 Marienbad, 122 Carling St., London

**Deep Energy Efficiency and
Holistic Energy Efficiency Application**

ASHRAE Distinguished Lecturer

Thomas Durkin, P.E., LEED-AP, ASHRAE FELLOW
Sims-Durkin Associates, Indianapolis, IN

April , 2020 - webcast

Effects of Low Humidity and High Humidity
on People, Buildings and Energy Performance

Wed May 6, 2020 * extra special meeting added *****

**Building for People and Performance
Achieving Operational Excellence**

ASHRAE 2019-2020 PRESIDENT
Darryl K. Boyce, P. Eng

June 15, 2020

**Annual Golf Tournament
Firerock Golf Club**

** see web site for registration link

\$800.00 per group
\$60.00 per person for just dinner
\$125.00 per hole sponsor

***** be sure to check web site for latest information *****

<http://LondonCanada.AshraeChapters.org>



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Just \$100 for one year
and includes also on the chapter
web site

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Members Save 20% Everyday in ASHRAE Bookstore

ASHRAE members automatically receive a 20% discount on ASHRAE's expansive catalog of standards, guidelines, seminars, textbooks, papers and design guides. Log in and the member discount is automatically applied to pricing. Shop Now: <https://www.techstreet.com/ashrae/ashraegate.html>

New ASHRAE HVAC Design Training

Expand your understanding of the fundamental and technical aspects needed to design, maintain and operate new and existing HVAC systems.

	Level I	Level II
Toronto, ON	May 18 – 20, 2020	May 21 – 22, 2020

See:
<https://www.ashrae.org/professional-development/all-instructor-led-training/hvac-design-and-operations-training/hvac-design-training-toronto-may-2020>

Canadian ASHRAE Award Winners at ASHRAE Winter Conference

ASHRAE Technology Awards - recognize members for the successful application of innovative building designs that incorporate the society's standards for effective energy management and indoor air quality (IAQ)

1st Place – New Healthcare Facility

Kurt Monteiro, P.Eng., and **Kevin K. Sharples**, P.Eng., both principals with nationwide consulting engineering firm Smith + Andersen, for their work on the Peel Memorial Centre in Brampton, Ont., part of the William Osler Health System. The project uses a geothermal field, heat recovery chillers, condensing hydronic boilers and very low-pressure drop air-handling systems (with oversized air handlers and ductwork). A dedicated outdoor air system (DOAS) serves its administrative spaces with dual-duct variable air volume (VAV) boxes, high-occupancy spaces use CO2 monitoring to regulate the volume of ventilation air supplied and enthalpy recovery wheels are used to pre-treat ventilation air with the energy recovered from breathable exhaust.

ASHRAE Society Fellows

This program recognizes members who have attained distinction and made substantial contributions to the heating, ventilation, air-conditioning and refrigeration (HVAC&R) industry, e.g. education, research, engineering design and consultation, publications, presentations and mentoring. This year had 33 members raised to the grade of Fellow. The only Canadian member to earn the grade at this year's conference is **Nicolas Lemire**, P.Eng., president and CEO of Montreal-based Pageau Morel and Associates, a consulting engineering firm that specializes in mechanical, electrical, energy-efficiency and 'eco-design' projects.

Business Card Ads

Place your business card HERE
Just \$100 for one year
contact:

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or

Treasurer

Kathleen Mayberry
kmayberry@sbmltd.ca

Welcome New Chapters!

Members Council is pleased to announce the approval of two new chapter charters during the ASHRAE 2020 Winter Conference in Orlando, Florida:

Oman Chapter (Muscat, Oman)
Libya Chapter (Tripoli, Libya).

Members Council also approved the charter of the Vietnam Section (Ho Chi Minh City, Vietnam) and Ghana Section (Accra, Ghana).

This brings the total number of ASHRAE chapters to 197 and 39 ASHRAE sections globally.



ASHRAE RESEARCH

To donate online please visit: <http://www.ashrae.com/donate>
Current Contributions = \$4,160 (33%) Goal = \$12,600

Current Honour Roll Individual Donors

**Norm Clarke, Tom Pollard, Alex Somers, Andrew Crowley, Ibrahim Semhat,
James Scudamore, Jeff Armstrong, Raj Deenath, Gord Snell, Matt Moore, Kate Mayberry**

Current Honour Roll Corporate Donors

Drennan Refrigeration Western University

Current Corporate Major Donor Silver

Somer's Environmental, Daryl and Susie Somers

Thank You to all those that have contributed

Contribution Levels	Individual	Company
Honor Roll	\$150 +	\$500 +
Major Donor (Bronze)	\$250 - \$999	\$500 - \$999
Major Donor (Silver)	\$1000 - \$2,499	\$1000 - \$2,499

If any questions, please contact me

Andrew Crowley (email: acrowley@drennan.on.ca) 519-671-8454
ASHRAE London Canada Chapter
Research Promotion Chair 2019/2020



Building EQ

Be an Energy Genius

ASHRAE's Building EQ Portal provides a quick energy analysis that benchmarks a building's energy performance. Building EQ assists in the preparation of an ASHRAE Level 1 Energy Audit to identify means to improve a building's energy performance including low-cost, no-cost energy efficiency measures and an Indoor Environmental Quality survey with recorded measurements to provide additional information to assess a building's performance.

Two different evaluations can be used independently to compare a candidate building to other similar buildings in the same climate zone or together for an assessment of a building's design potential compared to actual operation:

- **In Operation** compares actual building energy use based on metered energy information.
- **As Designed** compares potential energy use based on the building's physical characteristics and systems with standardized energy use simulation.

Learn more on how to access the portal, initiate a project, and begin a submission:

<https://www.ashrae.org/technical-resources/building-eq/building-eq-portal>



AMENDMENT TO THE 2012 BUILDING CODE Ontario Regulation 88/19

On January 1, 2020 additional amendments came into effect, including:

- fire safety measures that include fire prevention and early detection and warning systems
- structural sufficiency of buildings to withstand external forces and improve resilience
- water conservation improvements to plumbing fixtures
- public health and safety requirements
- accessibility requirements for barrier-free access

Additional information: <https://www.ontario.ca/document/changes-2012-building-code>

Amendment Packages can be purchased from:

<https://www.publications.gov.on.ca/browse-catalogues/building-code-and-guides>

BUILDING CODE NEWS - CodeNews Issue 293

January 15, 2020 **Winter 2020 National Code Consultation**

The National Research Council of Canada (NRC) has launched a subsequent public consultation on proposed changes to the national construction codes, including the National Building Code of Canada, National Energy Code of Canada for Buildings and the National Plumbing Code of Canada that were not covered in the Fall 2019 consultation.

This public consultation will shape the content of the anticipated 2020 national codes and subsequently Ontario's Building Code. Ontario code users are strongly encouraged to review and provide comments on the national proposals as they are expected to significantly influence the content of future editions to Ontario's Building Code.

As part of on-going efforts to transform the development of construction codes, provinces, territories and the federal government are committed to increasing the harmonization of the technical requirements across Canada. This will help streamline the national and provincial code development process, thereby reducing duplication and increasing efficiency.

The consultation runs from **January 13, 2020 through March 13, 2020**. It can be accessed in the link below:

<https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-development-process/public-review-proposed-changes-codes-canada-publications-winter-2020>

The majority of the changes in NRC's consultation are related to:

- | | |
|----------------------------|-----------------------------------|
| Large Farm Buildings, | Accessibility, |
| Energy Efficiency, | Earthquake and Structural design, |
| Referenced document table, | Plumbing |
| And Others | |
-

NATIONAL ENGINEERING MONTH

MARCH 2020

<http://nemontario.ca/>

In March 1992, Engineers Canada created National Engineering Month (NEM) as a "celebration of engineering excellence" in Canada. Although many of National Engineering Month's high profile activities appeal to youth, fundamentally the campaign strives to strengthen bonds within the profession and those of the profession with society.

The NEM campaign strives to support diverse youth in making better decisions about a possible future in engineering & engineering technology professions. We do this by:

- building their curiosity about engineering and engineering technology;
 - helping them to widen their perception and gain a better understanding of these fields; and
 - creating a sense of belonging within these professions.
-



ASHRAE NEWS

ASHRAE eLearning - Web-Based | On-Demand

ASHRAE eLearning is an approved Continuing Education provider for the American Institute of Architects (AIA), and a U.S. Green Building Council (USGBC) Education Partner. Continuing Education (CE) hours earned from ASHRAE eLearning may be applied toward maintenance of state-licensed professionals (architects and professional engineers) and LEED credentials.

For the complete eLearning catalog, please visit <https://elearning.ashrae.org>

Individuals can register online at <https://elearning.ashrae.org> and immediately gain access. Companies can register employees by contacting email: elearning@ashrae.org or calling 678-500-3917.

ASHRAE's New Headquarters Building!

For latest news and photos, see: <https://www.ashrae.org/about/designing-ashrae-s-new-global-headquarters>

Dear ASHRAE Member,

As I reflect upon ASHRAE's 125-year anniversary, there are many reasons to be optimistic about the future of our Society. And, as I meet with our members and chapter leadership around the world, I am also consistently inspired by your personal stories of ASHRAE and its impact on your careers and lives.

At the hub of our Society's work is ASHRAE's headquarters. We have an amazing opportunity to demonstrate decades of research and progress through the renovation of our new global headquarters in Metro Atlanta, Georgia (opening Fall 2020). This renovated 1970's era building will showcase the latest equipment, systems and technology to demonstrate sustainability in action. This is a historic moment for ASHRAE.

For years, ASHRAE has served as a catalyst for the advancement of building technologies. It has driven the creation and development of entire industries that support the built environment. The new ASHRAE global headquarters provides an opportunity for members to acknowledge that contribution and give back – to support a Society that has labored selflessly for the betterment of the built environment. Together we can do something very, very special! I invite you to join me by making a gift to the new ASHRAE Global Headquarters project:

www.ashrae.org/buildingcampaign

Your support is vital to our success and a project of this magnitude needs participation from members and friends across the globe in order to succeed. On behalf of the Board of Directors, ASHRAE staff and myself, your consideration of this request is greatly appreciated.

Sincerely,
Darryl K. Boyce, P. Eng.
2019-20 ASHRAE President

Some of the opportunities to be recognized for your support include the following:

- \$100 - \$249 Listed on the electronic Wall of Honor
- \$250 - \$499 Listed in the Commemorative Magazine and Receive a Special Edition Coin
- \$500 - \$999 Engraved Special Edition HQ Brick
- \$1,000 - \$4,000 "Adopt a Solar Panel" recognition in the Commemorative Magazine
- \$5,000+ Listed on a Special Plaque in the new HQ building

Donate now: www.ashrae.org/buildingcampaign



YESTERDAY, TOMORROW AND TODAY:

AN ORAL HISTORY OF ASHRAE'S FIRST 125 YEARS

Leading up to ASHRAE's 125th Anniversary, ASHRAE filmed multiple interviews of ASHRAE members that are a reflection of their often funny, very personal and specific experiences in ASHRAE. Most of all, we hope you will enjoy the enthusiasm and dedication that these members have for the Society!

See: <https://www.ashrae.org/about/leadership/leadership-voices/yesterday-tomorrow-and-today>

- Bogi Setty on His First Experience with ASHRA
- Paul Torcellini on His First ASHRAE Handbook
- Bassam Elssaad on Old School Tools of the Industry
- Janice Means on Why Representation Matters
- Bern Nagengast Shares His Top Tip for Incoming Members
- Ken Cooper on If ASHRAE Will Exist in 2145

ASHRAE Releases Smart Grid Application Guide: Integrating Facilities with the Electric Grid

(January 29, 2020) – ASHRAE announced the release of its Smart Grid Application Guide: Integrating Facilities with the Electric Grid. Created as part of 2018-19 ASHRAE President Sheila J. Hayter's presidential initiative, the Smart Grid Application Guide provides building owners, managers and designers with guidance on the smart grid, applicable smart grid standards and regulations, as well as the design and operation of systems in this emerging industry.

"Harnessing the opportunities smart grid systems provide for creating more flexible and dynamic building systems is an integral part of our new energy future," said Hayter. "This guide was specifically designed to help building professionals navigate the steps needed to prepare a building for the smart grid."

Both the Smart Electric Power Alliance (SEPA) and the OpenADR Alliance were heavily involved in working with ASHRAE on the development of the guide.

"The transformation to a smart grid has already begun," said Steven Bushby, Fellow ASHRAE, chair of the guide's ad hoc committee and leader of the Mechanical Systems and Controls Group of the Energy and Environment Division of NIST's Engineering Laboratory. "The Smart Grid Application Guide is a resource to help building professionals understand what is happening during this transformation and the opportunities they can take advantage of now and in the future."

The guide details the concrete steps needed to prepare a building – whether new construction or renovation – for integration with the smart grid. It covers wide variety of topics, including:

- Navigating regulatory environments that affect deployment of the smart grid
- Strategies to accrue benefits
- Utility bill savings and potential revenue streams
- Behind-the-meter distributed energy resources
- Demand-side management
- Customer aggregation for demand response
- Considerations for single- and multiple facility design and operations
- Microgrids
- Meeting building needs during interruptions to grid services
- Constraints on deployment options

The Smart Grid Application Guide will be available for purchase at the 2020 ASHRAE Winter Conference being held Feb. 1–5, at the Hilton Orlando in Orlando, Fla. It can also be purchased online at <https://www.ashrae.org/bookstore> or by contacting the ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada), 404-636-8400 (worldwide) or fax 678-539-2129.

For more information, visit <https://www.ashrae.org/technical-resources>



ASHRAE Announces Nominees for 2020-21 Slate of Officers and Directors

(February 3, 2020) – ASHRAE announced its nominees for the 2020-21 slate of officers and directors during its 2020 ASHRAE Winter Conference in Orlando, Fla.

Nominations for officers and directors were made by the ASHRAE Nominating Committee from a list recommended by individual members and from Chapters Regional Conferences.

The 2020-2021 nominees are as follows:

- President-Elect: Michael "Mick" Schwedler
- Treasurer: Farooq Mehboob
- Vice Presidents: Bill Dean, Don Brandt, Bill McQuade and Tim McGinn
- Directors and Regional Chairs: Chris Gray (Region VII), Randy Schrecengost (Region VIII), Tyler Glesne (Region IX), Devin Abellon (Region X), Andres Sepulveda (Region XIV)
- Directors-at-Large: Ken Fulk, Wade Conlan, Adrienne Thomle
- Alternate Director-at-Large: Art Giesler

ASHRAE members will vote on the nominees via electronic ballot in late April. Chuck Gulledge will serve as ASHRAE President for the 2020-21 society year.

For more information on the 2020-21 slate of officers and directors, visit <https://ashrae.org/2020-21slate>

2020 ASHRAE Winter Conference and AHR Expo Successful

(February 6, 2020) – ASHRAE concluded a successful 2020 Winter Conference and AHR Expo, held February 1-5 in Orlando, Fla. This year's conference attracted over 2,800 buildings-related engineers, architects, contractors, students, and other industry professionals. ASHRAE celebrated its 125th anniversary with paper sessions chronicling the progress of key industries and the evolution of energy modeling. An updated edition of the Society book, Proclaiming the Truth, was released at the conference in addition to a composite video highlighting ASHRAE's history which debuted at the plenary session. The Winter Conference technical program featured more than 300 presentations, with interest surrounding this year's new track, Big Data and Smart Controls, where session topics included smart sensor technologies, occupant behavior in buildings and cost-based control of supply air temperature. The AHR Expo offered more than 1,900 exhibitors, with 300 companies exhibiting for the first time. The three-day show occupying 506,000 net square feet of exhibit space, attracted attendees from more than 160 counties.

2019-20 ASHRAE President Darryl K. Boyce, P.Eng., provided Society updates and initiatives related to his presidential theme, "Building for People and Performance. Achieving Operational Excellence." He focused on how building professionals can ensure operational performance for the people that live, work, and interact in buildings.

During the conference, ASHRAE recognized major donors of its building campaign to support its Global Headquarters Renovation Project.

"With the opportunity to create a new ASHRAE Global Headquarters building, we are living the real-world challenge of designing and building a great environment for our staff, volunteers and industry visitors from around the world, that will operate effectively and not waste energy," said Boyce.

The plenary session drew more than 1,000 people and provided a forum for the presentation of awards to experienced and emerging leaders in the industry. Keynote speaker Ed Hochuli, retired Head Referee in the National Football League, closed the session with an empowering presentation on being successful at any job.

The **2020 ASHRAE Annual Conference** will take place June 27- July 1 in Austin, Texas.

The **2021 ASHRAE Winter Conference** will take place Jan 23-27/2021 and the **AHR Expo**, Jan 25-27/2021, in Chicago.