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## ASHRAE LONDON CANADA **CHAPTER #116**

## **TOPIC:**

**Emerging HVAC Technologies for Energy Efficient Healthy Buildings in Hot and Humid Climates** 

## **Presenter:**

Chandra Sekhar, Ph.D.

Professor - National University of Singapore, Department of the Built **Environment** 

## Monday September 29th, 2025

5:00pm to 6:00pm = Social; 6:00pm to 7:00pm = Dinner; 7:00pm = Presentation

**Anderson Brewery** 1030 Elias St, London

## **Registration Link**

**\$90 - Members | \$30 - Students** e-Transfer to ashraelondon@gmail.com preferred





## September Topic

# **Emerging HVAC Technologies for Energy Efficient Healthy Buildings in Hot and Humid Climates**

In recent times, clear associations are being established between ventilation rates, Indoor Air Quality (IAQ) and the productivity of workforce in various types of buildings, most significant of which is the commercial and office building sector. It is also an established fact that HVAC systems do consume a significant proportion of national energy budget in any country irrespective of whether the HVAC design is "Cooling Driven" or "Heating Driven". Hence, the notion of Energy Efficient Healthy Buildings is gaining popularity worldwide in the context of sustainable design and it is even more challenging in hot and humid climates that have all-year air-conditioning demand in the form of energy intensive cooling and dehumidification. It is quite apparent that Climate Change effects are only going to make the HVAC designer's job even more challenging in the future. Whilst SOURCE CONTROL is commonly advocated as the fundamental approach to eliminating or containing the contaminant levels inside the building, a more practical and often necessary approach is likely to be EXPOSURE CONTROL. Thus, ventilation plays an important role in providing a quality-built environment. Two considerations are highlighted in order to achieve "good" indoor air quality (IAQ) and energy efficiency – the enhanced dehumidifying performance of cooling coils and the effectiveness of air distribution strategies. The concept of decoupling "ventilation air" from "supply air" is fast emerging as an ideal solution to combat thermal comfort and indoor air quality (IAQ) issues in a sustainable manner. This talk will highlight some of the current and future technologies for air conditioning and air distribution that can collectively contribute to the design of energy efficient healthy buildings. The air-conditioning technologies reviewed include the Low Face Velocity-High Coolant Velocity (LFV-HCV) system; outside air pre-treatment system; single coil twin fan (SCTF) system employing a compartmented cooling coil; desiccant dehumidification system and heat pipe. The air-distribution systems reviewed include SCTF system with independent "ventilation" and "thermal cooling" on zone-based demand; personalized ventilation system coupled with secondary ambient air distribution system and dedicated outdoor air system (DOAS) coupled with chilled beams or radiant chilled ceiling.

## **September Presenter**

## Chandra Sekhar, Ph.D.

Professor – National University of Singapore, Department of the Built Environment

Shaping Tomorrow's

Built Environment Today

## **About the Speaker:**

Chandra Sekhar is a tenured Professor and former Programme Director (M.Sc – Building Performance and Sustainability) in the Department of the Built Environment at the National University of Singapore (NUS). He was also a Founding Director of Enhanced Air Quality Pte Ltd., a former NUS Spin-off Company incorporated in June 2004, arising out of his research in the fields of IAQ and Energy. He holds BE (Mechanical Engineering) from the University of Rajasthan (Malaviya National Institute of Technology), India; and PhD (Mechanical Engineering) from the University of Adelaide, Australia, in the area of energy efficient cooling and dehumidification systems.





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He has been a faculty at NUS since 1992, where he teaches at all levels and conducts research in the areas of thermal comfort, ventilation and indoor air quality, bedroom IEQ and sleep quality, airborne infection control, resilient and energy efficient HVAC systems, building energy analysis/management and integrated building design/operation and has published more than 325 papers in these areas in several international journals and conferences.

Dr. Sekhar is a past Associate Editor of ASHRAE Science and Technology for the Built Environment (STBE) journal and a current Regional Editor (Southeast Asia) of Indoor and Built Environment. He is an editorial board member of Energy and Buildings, Building and Environment, and International Journal of Sustainable Built Environment. He is a co-inventor and holds 3 US and other patents in the area of energy efficient air-conditioning system with zonal ventilation control for enhanced IAQ. He is an International Advisory/Scientific Committee member of several IAQ and energy conferences, notable of which are Indoor Air, Healthy Buildings, IAQVEC, Roomvent and CLIMA. He was the Steering Committee Chair for ASHRAE IAQ2010 conference in Kuala Lumpur in 2010 and continued to be on the steering committee of subsequent ASHRAE IAQ conferences (Vancouver, 2013; Alexandria, USA, 2016; Athens, 2022).

Dr. Sekhar is a Fellow ASHRAE, Fellow ISIAQ (International Society of Indoor Air Quality and Climate) and Fellow Engineers Australia (FIEAust). He has been an ASHRAE Distinguished Lecturer since 2006 and is regularly invited as a DL speaker around the world (122 DL presentations and counting). He has also delivered 21 Keynote Presentations at major international conferences around the world in the field of IAQ and Energy. He has been recognized through many awards, including: Louise and Bill Holladay Distinguished Fellow Award, E.K. Campbell Award of Merit, Environmental Health Award, Exceptional Service Award and Distinguished Service Award from ASHRAE; MNIT Life Time Achievement Award (alma mater), India; Uichi Inouyi Memorial Asian International Award from SHASE, Japan; SPRING Singapore Merit Award, ASEAN Energy Award and The Enterprise Challenge (TEC) Award of the Prime Minister's Office in Singapore. He was on the ASHRAE Board of Directors for five years (Vice President 2023-2025; Director-At-Large 2018-2021). He is currently a member of the Finance Committee, Planning Committee SSPC241(Control of Infectious Aerosols) and TC2.1; and a consultant of SSPC62.1. He is a past Chair of Environmental Health Committee (2012-2013). He was also a Vice Chair (2022-2023) and member (2021-2023) of Residential Buildings Committee, Position Document Committees (Infectious Aerosols, Indoor Carbon Dioxide, Resiliency in the Built Environment, IAQ, Mold and Moisture), IEQ-Global Alliance Ad Hoc Committee (2013-2017), EHC (2006-2012 & 2016-2018) and TC4.3. He has served the ASHRAE Singapore Chapter in various capacities, including as its President during 2010-2011 and as a BOG member, and is also actively involved in local standardization activities in Singapore.

During the COVID-19 pandemic, Dr. Sekhar was an active member of two teams (Residential and Applications) of the ASHRAE Epidemic Task force. He was also a member of the WHO Environment and Engineering Control Expert Advisory Panel (ECAP) for COVID-19.

Dr Sekhar participates in some of the Annex activities (Annex 86 & Annex 87) of International Energy Agency's Energy in Buildings and Communities programme.

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## 2025-2026 Chapter President's Message

To ASHRAE London Chapter Members,

To introduce myself — I am Aaron Hampel, your ASHRAE London Chapter President for 2025/2026. I have been working in this industry since 2016 and have been involved with our chapter since 2018, working alongside the London Chapter Board of Governors (BOG). My hope is this year our chapter members will build strong relationships across the community, engaging in interesting topics with fantastic speakers.

The theme for the 2025-26 ASHRAE Society Year is "Healthy Buildings: Designing for Life." We are hoping, as a chapter, to achieve this goal by having our member organizations see a worthwhile investment in sending people out to our monthly meetings. We want to ensure that our industry has a sustainable future by investing in our members' continued success in this industry.

We have committed BOG volunteers who share the same goal of growing the chapter by providing value to our members. We aim to build on the success of last year by hosting many of our events at similar venues, giving everyone time to connect and share ideas. Everything the chapter decides to do is based on your feedback, so please share your insight! This is your local chapter, and our priority is providing value to our local members.

We wish to thank all donors to our previous year's research promotion campaign. We will communicate how these funds are being allocated and will advocate for your donations to be spent towards projects important to the chapter. Support for this calendar year is appreciated, and donations can be made through the link on our chapter website. If any members are interested in volunteering for the chapter, please contact me at <a href="mailto:aaronhampel@prestonphipps.com">aaronhampel@prestonphipps.com</a> to join our team!

Regards,

**Aaron Hampel** 



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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**

October 27<sup>th</sup> – **Deconstructing Legionella Risk Management:** 

A Practical Approach

Speaker: John Damiani, P.Eng,

**General Manager, WMC Water Management** 

Location: The Club House, London ON

November 24<sup>th</sup> – Topic & Speaker Coming Soon!

Location: The Club House, London ON

December Social - Date & Location TBD!

\*\*\* be sure to check web site for latest information \*\*\* http://LondonCanada.AshraeChapters.org

## **ASHRAE Society Engineering Job Board**

The ASHRAE society Engineering job is a publicly accessible job board where all companies can create job postings for HVACR related jobs. The resource is available at https://jobs.ashrae.org/

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## **Business Card Ads**

Place your business card HERE Just \$100 for one year and includes also on the chapter web site

contact:

#### **Newsletter Editors**

Tom Pollard tpollard@execulink.com or **Scott Sinclair** 

scott.sinclair@chorley.com

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## ASHRAE RESEARCH

Hello ASHRAE London Members,

We sincerely thank all of our donors who supported last year's Research Promotion campaign. While we fell just short of reaching our chapter goal of \$10,000, the support we received was still a tremendous help and is deeply appreciated. Every contribution made a meaningful impact during our 2024-25 calendar year.

Looking ahead, we're hopeful that our local members can come together and help us surpass our new target of \$10,390. Your continued support plays a vital role — and it's important to know that 100% of the funds raised through Research Promotion go directly to research projects.

This year we will be recognizing donors at a RP Donor Recognition meeting by displaying individual and company donors prior to one of the technical presentations. Donors will also be recognized in the monthly newsletter and on the London Chapter website. To donate online please visit: <a href="http://www.ashrae.com/donate">http://www.ashrae.com/donate</a>

### **Current Donors:**

### **Current Honour Roll Individual Donors:**

## **Current Honour Roll Corporate Donors:**

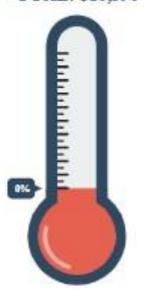
Contribution Levels	Individual	Company
Honour Roll	\$150 +	\$500 +
Major Donor (Bronze)	\$250 - \$999	\$500 - \$999
Major Donor (Silver)	\$1000 - \$2,499	\$1000 - \$2,499

As always, donations can be made through the link on our chapter website, or feel free to reach out to me at tommy.deslippe@gmail.com to assist with the process.

Regards,

## **Tom Deslippe**

GOAL: \$10,390



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## **Previous Meeting: 2025 Golf Tournament**

We're excited to share that our annual golf tournament on Monday, June 2, 2025 at FireRock Golf Club was a tremendous success! We had record attendance, enjoyed a day of perfect weather, and most importantly, great company.

A special thank-you goes out to our event holes:

- O'Dell Beat the P.Eng. (\$1,035.00 raised for ASHRAE research!)
- Kilmer Refreshment Tent
- Masters Beer Stop

And to our many hole sponsors for making the day possible: ACP, Spirax Group, O'Dell, Engineered Air, Madok, Slade-Eng, Trane, Zettler, Ainsworth, Victaulic, Kilmer, Equipco, Carmichael, Masters, Somers Environmental, DXS, Systemair, and EH Price.

Thanks to everyone's support, we were able to make a contribution to **ASHRAE Research Canada**, helping our chapter further the advancement of HVAC knowledge and research, while also supporting chapter operations for the year ahead.

And true to tradition, we even managed to stick to our "out the door by 5pm" promise - no small feat on a day that good!

## **ASHRAE Pocket Guide 10th Edition**

Now available in the ASHRAE Bookstore! The ASHRAE Pocket Guide 10th edition serves as a user-friendly, offline reference for engineers without easy access to complete ASHRAE Handbook volumes. This latest edition has been revised to include updates from the four current volumes of the ASHRAE Handbook series, from the 2019 editions of ASHRAE Standards 15, 34, 62.1, 62.2, and 90.1, and the 2020 edition of Standard 55. Learn more about what is included in the 10th edition and purchase your copy today.

https://www.ashrae.org/technical-resources/bookstore/ashrae-pocket-guide-for-air-conditioning-heating-ventilation-refrigeration-10th-ed

## **New ASHRAE Certification Study Guide**

Now available in the ASHRAE Bookstore

The NEW **Certification Study Guide: Building Commissioning Professional (BCxP)** joins the growing suite of ASHRAE Certification tools to help you reach your professional goals.

Looking for something else? Also available are the **Certification Study Guides for Certified HVAC Designer (CHD)** and **Building Energy Modeling Professional (BEMP)**.

## Tune-in to the ASHRAE Journal Podcast

Tune into conversations between leading ASHRAE experts as they discuss what HVAC engineers need to know to design better systems and grow the HVAC&R industry. Available on all podcast platforms.

https://www.ashrae.org/news/ashraejournal/ashrae-journal-podcast