

ASHRAE Night 2025 – Technical Seminar on

“Development of a Humanized Adaptive Baseline Information Technology (HABIT) system for MVAC Control”

presented by Honourable Speaker

Ir Prof. Mui Kwok-wai, Horace

*Associate Head (Research) and Professor of Department of Building Environment and Energy Engineering,
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The Hong Kong Polytechnic University*

Honorable Speaker:



Ir Prof. Mui Kwok-wai, Horace

PhD, CEng, BEng(Hons), FHKIE, MCIBSE, MASHRAE, RPE

MUI Kwok Wai, Horace is the Associate Head and Professor of Department of Building Environment and Energy Engineering (BEEE) (former Building Services Engineering (BSE)) at The Hong Kong Polytechnic University (PolyU). He received his BEng degree in Building Services Engineering (First Class) from PolyU in 1996. He was awarded the student award of HKIE and CIBSE in 1994 & 1995 and obtained his Ph.D. degree in Building Services Engineering from The Hong Kong Polytechnic University in 2002.

Prof. Mui has been managing numerous research projects and has supervised PhD and Master students who are now serving the energy and environmental engineering communities, among them four are working in major research universities in Hong Kong and Singapore. He studies building and environmental engineering covering the areas of indoor environmental quality, indoor air quality, built environment, and energy efficient building technology. His work covers bioaerosol transportation in indoor environments, thermal comfort, building ventilation and drainage system, etc. He has an excellent track record in securing external research grants from both the Government and the Industry. Prof. Mui has published more than 140 journal and archival papers and about 150 conference papers and technical reports. Prof. Mui is a recipient of 2011 Emerald Literati Network Awards for Excellence and his papers were recognized amongst the most cited articles published in Elsevier's Building and Environment between 2005 & 2008, and the best paper of the year of Journal of Indoor Built and Environment in 2011. He obtained over 40 grants including CRF (as PC), GRF, ECF, PPR and competitive funds, and the total funding sought was over HK\$20 million (exclude PolyU studentship and large equipment fund).

Seminar Highlights:

The roadmap to neutrality recognizes energy management, occupant health and comfort, and digitalization as the driving forces for achieving carbon neutrality. To reduce electricity consumption of the Mechanical Ventilation and Air Conditioning (MVAC) system in existing facilities, both "supply-side" energy management strategies and occupant engagement to enable smart MVAC adjustments, known as "demand-side" interventions are crucial for achieving energy reduction.

In this presentation, we propose passive and active occupant engagement approaches for enhancing intelligent MVAC energy efficiency on the PolyU campus. The project utilizes state-of-the-art Indoor Environmental Quality (IEQ) devices for comprehensive IEQ screening to assess the current IEQ levels in our working environment and facilitate the formation of a space-wide IEQ database for long-term space management.


With active input from occupants regarding their subjective responses and comfort levels, a previously established HABIT (Humanized Adaptive Baseline Information Technology) system will be adopted to identify and fine-tune the environmental conditions maintained by the MVAC system. The thermal environment can be adjusted by air temperature, while indoor air quality can be managed through the provision of fresh ventilation air. The HABIT system will automatically adjust the system's temperature set-point and ventilation rate to maintain an optimal indoor environment according to user preferences, thereby achieving energy efficiency. Adopting a user-centric approach, this system evaluates the interactive effects between physical IEQ data and subjective occupant preferences for MVAC control and energy management. It serves as a platform to demonstrate the application of innovative technologies in indoor environments, integrating and applying various research outputs developed by scholars to promote energy savings and carbon emission reductions, all while safeguarding the health and comfort of occupants.

Registration






ASHRAE Night 2025

 **Chiang Chen Studio Theatre**
The Hong Kong Polytechnic University,
Hung Hom, Kowloon, Hong Kong

 **20 January 2025 (Monday)**

18:00 to 19:00: Cocktail Reception
19:00 to 20:00: ASHRAE Night
20:00 to 21:10: Technical Seminar

A large group of people, mostly men in business attire, posing for a group photo. Some are holding ASHRAE Hong Kong Chapter signs and thumbs-up icons.

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*Look forward to meeting you and
our friends in the ASHRAE Night!*
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ASHRAE Night is an annual sociable gathering for both ASHRAE members and non-members by meeting with our honorable speaker, guests, Governors and Officers of Hong Kong Chapter, other ASHRAE members and friends in the HVAC&R, Energy Sustainable & Environmental related industries. Through this event, you can widen your networks and know more about the organization of ASHRAE, its future planning, organization structure, research promotion and members' benefits.

Fees

FREE of charge, welcome to all ASHRAE members and non-members!

(Every ASHRAE member is encouraged to bring his/her friends and colleagues, who are not our members but working in HVAC&R, Energy Sustainable & Environmental related industry, to attend this event to know more information on ASHRAE Hong Kong Chapter.)

Attendance

1-hour e-CPD certificate will be provided to the participants who attended the Technical Seminar.

Registration

To reserve a seat, please complete registration from the following link:

<https://forms.gle/CVZgrHFqXtQkSJic8> **on or before 10 January 2025**. A confirmation email will be sent according to the registered emails of the participants by 13 January 2025.

Enquiry

For any queries, please contact our Membership Promotion Committee Chair, Mr. Eddie Fung at 9319 9449 or email at eddiefung@nanofil.com.hk

ASHRAE Night 2025




Programme

TIME	Rundown
18:00 - 18:50	Cocktail Reception
18:50 - 19:00	VIP Photo Session
19:00 - 19:05	Welcoming by Chapter President - Taylor Chow
19:05 - 19:10	Introduction to ASHRAE and Hong Kong Chapter
19:10 - 19:15	YEA Promotion
19:15 - 19:25	Research Promotion
19:25 - 19:30	Presentations of ASHRAE Society Awards to Hong Kong Chapter Members
19:30 - 19:35	Appreciations to Patron Sponsors
19:35 - 19:40	Award Presentations of Regional Technology Awards 2024-25
19:40 - 19:50	Nominating Committee Election
19:50 - 20:00	Break
20:00 - 21:00	Technical Seminar: "Development of a Humanized Adaptive Baseline Information Technology (HABIT) system for MVAC Control" - Ir Prof. Mui Kwok-wai, Horace
21:00 - 21:10	Q & A Session

Venue of ASHRAE Night 2025

Location

Chiang Chen Studio Theatre is located in Chung Sze Yuen Building right at the Fountain Square entrance of The Hong Kong Polytechnic University at Cheong Wan Road. It is adjacent to Hong Kong Cross Harbour Tunnel and MTR Hung Hom Station, with Tsimshatsui commercial area in its vicinity, and is easily accessible by various means of public transportation.



How to reach Chiang Chen Studio Theatre?

Mass Transit Railway MTR | Bus | Motor Vehicle

Get off at Hung Hom station at Exit A and follow the directional signage for The Hong Kong Polytechnic University.

