ASHRAE Singapore Chapter

IBPSA Singapore

ABS Architecture & Building Services 2023
Designing a Safe and Resilient Built Environment

ASC - IBPSA SINGAPORE JOINT SEMINAR 2023

Moving Towards a Low Carbon & AI-driven Built Environment

This year, under the theme of "Tackling the Climate Crisis," our half-day conference will delve into innovative strategies and solutions that address the urgent need for sustainable and climate-friendly practices within the Built Environment sector.

📅 Date: November 17th

🕐 Time: 9:30 AM - 12:30 PM

📍 Sands Expo & Convention Centre, MBS

Our Topic:

- Cooling only when necessary: Harnessing Mixed Mode Ventilation for Energy Savings

- Energy Efficient and Low Carbon Building Design: Reducing Your Environmental Footprint and Meeting Your Environmental Goals

- Moving from a rule-based control strategy to advanced AI-driven machine learning technologies to enable smarter and greener buildings

Our Speakers:

Dr. Adrian Chong
Assistant Professor,
Department of the Built Environment
National University of Singapore

Mr. Chen Wenjie
Associate Director,
Climate Asia a subsidiary of BSD

Mr. Bill Lee
Founder & CEO,
Azendian Solutions

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Dr. Adrian Chong   Mr. Chen Wenjie   Mr. Bill Lee

OUR SPEAKERS & TOPICS

Cooling only when necessary:
Harnessing Mixed Mode Ventilation for Energy Savings

According to the International Energy Agency (IEA), the operations of buildings account for 30% of global final energy consumption, with the energy demand for space cooling tripling since 1990, making it the fastest-growing end-use in buildings. The increasing demand for space cooling is expected to continue in the future due to higher standards of living. Consequently, mixed-mode ventilation provides an exciting opportunity to significantly reduce energy consumption through the integrated use of air-conditioning (when necessary) and natural ventilation (whenever possible).

However, past studies have shown that regions with a hot and humid climate all year round, like Singapore, have little to no potential for natural ventilation, indicating that mixed-mode ventilation is unlikely to work. However, these findings often refer to non-assisted natural ventilation. In this presentation, I will share ongoing work at my research group to achieve effective mixed-mode ventilation in the tropics. Specifically, I will present how we can increase mixed-mode potential in the tropics through systems integration and occupant-centric controls.

Dr. Adrian Chong

Assistant Professor
Department of the Built Environment
NUS

Energy-Efficient and Low-Carbon Building Design:
Reducing Your Environmental Footprint and Meeting Your Environmental Goals

Singapore is accelerating our transition towards a low-carbon-built environment. By driving the adoption of energy-efficient building design, the operational carbon of buildings can be reduced. Disclosure of energy performance data and whole-life carbon emissions shall be encouraged to progress towards net zero carbon assets and portfolio. Carbon accounting and reporting is an important tool for construction companies in Singapore to reduce their carbon footprint, meet their environmental goals, and stay ahead of the curve in the transition to a low-carbon economy. It is a process of quantifying and reporting greenhouse gas emissions from construction projects, and it can help construction companies identify and reduce their biggest sources of emissions.

By attending this presentation, attendees will learn how to develop decarbonising strategies through design, construction, and operational best practices. This will help them to identify and reduce the whole-life carbon emissions of their projects, and to meet their environmental goals. Attendees will also gain insights into the latest best practices for carbon accounting and reporting in the construction industry. This will help them to stay ahead of the curve and to meet the growing demand for net zero projects.

Mr. Chen Wenjie

Associate Director
Climate Asia
a subsidiary of BSD

Moving from a rule-based control strategy to advanced AI-driven machine learning technologies to enable smarter and greener buildings

A lower carbon, more sustainable built environment can be advanced by tapping AI-driven, real-time Machine Learning, closed-loop (minimal human intervention) technologies to enable smarter and greener buildings. Chiller plants are energy guzzlers as they consume up to 60% of energy in buildings. They often operate on a pre-set schedule, irrespective of the building's actual cooling needs resulting in energy wastage and higher operational costs. The traditional approach to smart building, which is "rule-based" and dependent on human intervention, limits what can be achieved in energy optimisation. By integrating Operation Technology with AI, Machine Learning algorithm-driven technologies for energy optimisation, Azendian helps organisations achieve optimal HVAC performance, reducing costs and carbon footprint as well as maximising resources use and operations.

Mr. Bill Lee

Founder & CEO
Azendian Solutions

ASC-IBPSA JOINT SEMINAR 2023
Moving Towards a Low Carbon & AI-driven Built Environment

Friday, 17 November, 2023
Sands Expo & Convention Centre,
Marine Bay Sands

OPENING
9:30AM - 9:35AM
Opening of the ASC Seminar 2023

PRESENTATION
9:35AM - 10:20AM

Cooling only when necessary: Harnessing Mixed Mode Ventilation for Energy Savings
by *Dr. Adrian Chong (NUS)*

10:20AM - 11:05AM

Energy-Efficient and Low-Carbon Building Design: Reducing Your Environmental Footprint and Meeting Your Environmental Goals
by *Mr. Chen Wenjie (Climate Asia a subsidiary of BSD)*

BREAK
11:05AM - 11:20AM

PRESENTATION
11:20AM - 12:05PM

Moving from a rule-based control strategy to advanced AI-driven machine learning technologies to enable smarter and greener buildings
by *Mr. Bill Lee (Azendian)*

PANEL DISCUSSION
12:05PM - 12:30PM
Moderated by *Mr. Tsubasa Bolt*
Senior ESD Consultant,
Surbana Jurong Consultants Pte Ltd

PROGRAM