

# ASHRAE SINGAPORE CHAPTER DISTINGUISHED LECTURER EVENT

**The New Carbon Standards:  
Towards Net Zero Operational, Embodied, Upfront, and Whole Life Carbon**

**WEDNESDAY**  
1 November 2023



**VENUE**  
Singapore Polytechnic Graduates' Guild

**TIME**  
2.30 - 4.00 pm



**SPEAKER**  
Luke Leung

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# THE NEW CARBON STANDARDS: TOWARDS NET ZERO OPERATIONAL, EMBODIED, UPFRONT, AND WHOLE LIFE CARBON

*While the past focus on energy and carbon is more about operational, the new focus will be on Whole Life Carbon. For the past 20+ years, the MEP industry was focused on operational energy reductions. Through strategies related to energy efficiency, utility source selection, and integration of renewable energy, great progress was made to reduce operational carbon. Our focus is now moving to the embodied and Whole Life Carbon associated with the materials and systems found in the built environment. Embodied carbon looks at the carbon impacts associated with extracting, manufacturing, and transporting materials to the jobsite, in addition to manufacturing and transportation, including impacts related to in-use and end of life. While life cycle analysis (LCA) accounts for impacts over the full lifecycle of a material, which includes embodied and operating carbon, or, cradle to grave. Also, more focus is on Upfront Carbon, or, cradle to gate to understand the carbon impact of different materials.*

*This will greatly impact our work tomorrow. This discussion will include different methodologies in the counting of carbon, examples of different carbon calculations, and ways to reduce carbon emissions holistically. With the new administration goal of 1.5C net zero economies by 2050, and 2035 all-renewable electricity grid, we need to accelerate holistic carbon effort to an all-electric, and net zero future.*



**Distinguished Lecturer:**  
**Luke Leung, P.E.**  
**Director**  
**Skidmore, Owings & Merrill**

Luke is a LEED (Leadership in Energy and Environmental Design) Fellow. He is also a Centennial Fellow from The Pennsylvania State University Architectural Engineering Department; Board of Directors for USGBC (United State Green Building Council), Illinois; Chairman of the ASHRAE (American Society of Heating, Refrigeration and Air Conditioning) Committee on “Tall Buildings”; Chairman of the Building Pressure Committee, Chicago Committee on High Rise Buildings; Sustainable Committee with Council on Tall Buildings and Urban Habitat; Part-Time Professor at IIT; Member of the Chicago Sister Cities Program with China; MBA from the University of Chicago, MS and BAE from Architectural Engineering at Penn State University.

Luke Leung is the Director of the Sustainability Engineering Studio for Skidmore, Owings and Merrill LLP. He is the incoming Chair of ASHRAE Environmental Health Committee; Team leader for ASHRAE Epidemic Task Force, Commercial Buildings; Group Leader for LCA and Embodied Carbon, ASHRAE Decarbonization Task Force; National Renewable Energy Laboratory IN2 Incubator Industry Advisor; BOMA Toronto, Health Committee Co-Chair. His work includes Burj Khalifa, the world’s current tallest man-made structure; Multiple times “Excellence in Engineering” award from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE); Selected projects also include Pertamina Tower (Net Zero Supertall), General Motors Global Headquarters, XiongAn Net Zero Development, Beijing Finance Street, Embassy of Ottawa in Canada, Embassy in Beijing, Lakeside – 55 million sqft low energy development, a LEED Platinum building with the first large scale horizontal wind turbine in the city of Chicago; etc., and has served as a member of the editorial team for the CTBUH guide Natural Ventilation in High-Rise Office Buildings, ASHRAE “Design Guide for Tall, Supertall, Megatall Building Systems”, among other publications.

# EVENT AGENDA

Time	Programme
2.20 - 2.30PM	Guest Registration
2.30 - 2.35PM	Welcome Speech by ASHRAE Singapore Chapter
2.35 - 3.20PM	DL Presentation <i>The New Carbon Standards: Towards Net Zero Operational, Embodied, Upfront, and Whole Life Carbon</i> by Luke Leung
3.20 - 3.30PM	Break
3.30 - 4.00PM	Panel Discussion

## MODERATOR

## PANELISTS



**Praveen Hassan Chandrashekar**  
Director, Sustainability and Resilience Office  
Surbana Jurong Consultants Pte. Ltd.



**Luke Leung, P.E.**  
Director  
Skidmore, Owings & Merrill



**Syed Mubarak**  
Founder & CEO  
Sustainable Future (Asia) Pte Ltd

## LIMITED SLOTS AVAILABLE



Fees:  
\$50 for ASHRAE Singapore Chapter members  
\$80 for non-members

SCAN TO REGISTER AND SECURE YOUR SLOT

Should you have any questions, feel free to contact us [techtransfer@ashrae.org.sg](mailto:techtransfer@ashrae.org.sg)