



# OPTIMIZING BUILDING IAQ THROUGH GREEN HVAC SYSTEM DESIGN

## COURSE OVERVIEW

Indoor Air Quality (IAQ) is one of the many factors that determine building functionality and economics. Good IAQ plays a vital role in creating a healthy and productive workplace. During this one-day course, the trainer will discuss the issues and problems of poor IAQ and how the problems can be mitigated through effective HVAC system design and practices and deployment of advanced air cleaning technologies.

## COURSE OBJECTIVES

The participants of this course will acquire the following skills:

- Understanding of various factors which impact IAQ
- Fundamental knowledge of building related illnesses, their causes and effects
- Adoption of a holistic integrated approach in designing of building systems to improve occupant health and well-being
- Development of creative HVAC system design skills to maximize IAQ and energy performance

---

**SCEM-PDUs & PEB-PDUs  
TO BE AWARDED**

---

**APPLICABLE FOR  
PRODUCTIVITY AND  
INNOVATION CREDIT (PIC)**

---

24 JANUARY 2017

9:00AM - 5:00PM

Republic Plaza II, Trademark Meeting Room  
9 Raffles Place Level 18, Singapore 048616



# OPTIMIZING BUILDING IAQ THROUGH GREEN HVAC SYSTEM DESIGN

## PROGRAMME OUTLINE

### Session 1: IAQ - Basic Concepts and Relevance to Building Functionality and Economics

- Economic value of good IAQ
- Collaborative integrated building design approach
- Indoor air pollutants and health effects
- Environmental contaminants: Organic compounds, Inorganic compounds, Particulate matter and Biological contaminants
- Sick building syndrome/Building related illnesses/Environmental sensitivity

### Session 2: Effective HVAC System Design for Healthy Indoor Air

- Strategies to reduce "Environmental Footprint"
- Techniques to control indoor humidity and moisture
- Establishing proper pressure relationships with outdoor and between spaces
- Design of outdoor intakes and exhaust outlets
- IAQ Code of Practice SS 554:2009, Air-con Code of Practice SS553:2009
- ASHRAE Standard 62.1-2007
- Strategies for effective ventilation, air filtration and air cleaning
- Strategies to counter infectious pandemics and bioterrorism
- Demand-Controlled ventilation
- Special HVAC design concepts: Displacement ventilation, Radiant cooling, Chilled beams, AHU with face and bypass damper, Dedicated outdoor air systems (DOAS)
- Energy recovery ventilation: Run-around systems, heat pipes, fixed-plate air-to-air devices and rotary air-to-air energy exchangers

### Session 3: Air Cleaning Technologies

- Particulate filtration and gas-phase air cleaning
- Adsorption and chemisorption technologies
- Air filtration efficiency testing standards: ASHRAE Standard 52.1 and 52.2, IEST-RP CC001.4
- Minimum Efficiency Reporting Value (MERV) parameters
- Energetic Filtration Technologies: Active electric fields, Ionization, Surface irradiation, Catalytic activation and other Electron manipulation

## ABOUT THE TRAINER



**Mr. Lui Wing Sin** is the Director of GETC Asia Pte Ltd, a company specialising in green IAQ technologies. Mr Lui holds a BE in Electrical Engineering from Monash University (Australia) and has worked for more than 35 years in the controls and building automation industry.

He has good knowledge of the issues and problems relating to IAQ as well as remediation strategies. He is a practitioner in the application of germicidal ultraviolet irradiation, electrostatic precipitation, photocatalytic oxidation and the use of natural plant-based non-chemical disinfection solutions.

Mr Lui has acted in the capacity of Energy and ESD Consultant for many buildings in Singapore and has been instrumental in helping many building owners win energy and environmental awards. He is currently a part-time lecture in BCA Academy and Singapore Environmental Institute, a training and knowledge division of NEA.

## RATES

EARLY BIRD (before 16 Dec 16)	NORMAL FEE	GROUP FEE
S\$350.00 (SEAS Member)	S\$450.00 (SEAS Member)	S\$400.00 (4+ delegates from 1 organization)
S\$450.00 (Non Member)	S\$550.00 (Non Member)	

\* Fees inclusive of GST

\* SEAS reserves the right to make changes to the trainer, programme, venue, cancel or reschedule the programme if necessary or warranted by circumstances beyond our control

\* Payment to be made by the early bird closing date to enjoy early bird rate

\* Enjoy group discount for 4 or more delegates registered at the same time from the same organisation and same billing source

\* Only one type of discount scheme is applicable at any one time

\* Payment to SEAS & Address: Please send a crossed cheque to:

Sustainable Energy Association of Singapore, 1 Cleantech Loop, #02-16 Cleantech One, Singapore 637141

# CALL US AT 6338 8578 TO ENQUIRE

## REGISTRATION FORM

 Yes! I would like to register for this programme  I am unable to attend but please put me on your mailing list

PARTICIPANT'S DETAILS		Number of Delegates	Fees Payable
1	Name (Dr/Mr/Mrs/Ms)		NRIC No
	HP No	Email	Designation
			PEB <input type="checkbox"/> SCEM <input type="checkbox"/>
2	Name (Dr/Mr/Mrs/Ms)		NRIC No
	HP No	Email	Designation
			PEB <input type="checkbox"/> SCEM <input type="checkbox"/>

### ORGANIZATION'S DETAILS

Company Name	
Company Address	
Contact Name	Tel
Email	Fax