

# SEMINAR ON

# SUSTAINABLE BUILDING DESIGN AND PERFORMANCE

Date: 6<sup>th</sup> March 2009 (Friday)  
Time: 1.00 p.m. to 5.30 p.m.  
Venue: Auditorium, BCA Academy

*Jointly organised by:*

**BCA ACADEMY**  
of the built environment



**ASHRAE**  
*ASHRAE SINGAPORE CHAPTER*

## ABOUT THE SPEAKERS



**TERRY E. TOWNSEND, PE**  
**Townsend Engineering**  
**Chattanooga, TN**

Terry E. Townsend, P.E., Fellow ASHRAE, is President of Townsend Engineering Inc., Chattanooga, Tennessee, and Panama City, Florida. In 2006-07, he served as President of ASHRAE, where he focused the Society's efforts on The ASHRAE Promise: A Sustainable Future, highlighting ASHRAE's work in sustainability in the building environment. His achievements as President include launching ASHRAE's first ever certification program, accelerating and expanding the Advanced Energy Design Guide series, setting more stringent savings for ASHRAE's energy standard, and providing resources on how ASHRAE can minimize the impact of its meetings on the environment.



**PROFESSOR S.K. CHOU,**  
**Department of Mechanical Engineering**  
**National University of Singapore**

CHOU Siaw Kiang (S.K. Chou) is Professor and Head of the Energy and Bio-Thermal Systems Group in the Department of Mechanical Engineering at NUS. From 1998 to 2003, he was Head of the Department of Mechanical Engineering. From 1992 to 2000, Chou served as Director of the Industry and Technology Relations Office (INTRO), NUS, and concurrently from 1995 to 2000, as Managing Director of NUS Technology Holdings Pte Ltd (NUSH), a wholly-owned NUS company having equities in new technology start-up from university research and inventions. More recently, he helped to form the Energy Studies Institute in NUS and served as its interim Executive Director from September 2007 to January 2009.

Professor Chou's research interests are in energy performance of buildings, clean energy systems, micro combustion and micro power generation, and cryosurgical thermal processes. He is credited with having developed the formulation of the Envelope Thermal Transfer Value (ETTV) and the Residential Envelope Transmittance Value (RETV) criteria in the present building energy standards used in the Singapore Green Mark for Building Scheme. His research team has been cited for its pioneering work on portable power generation based on the micro combustor-thermo photovoltaic system. Chou is ASHRAE Fellow, and a Fellow and Vice-President of the Institution of Engineers, Singapore. He is Associate Editor of Applied Energy and he serves on the Editorial Board of the International Journal of Energy Research.

Professor Chou obtained his Bachelor of Engineering (B.Eng.) from the University of Singapore, and the Diplome d'Etudes Approfondies (D.E.A.) and Docteur-Ingenieur (Dr-Ing.) from Ecole Nationale Supérieure d'Arts et Métiers (ENSAM), Paris, on a French Government Scholarship. He joined the Department of Mechanical Engineering in 1980.

# ABOUT THE TOPICS

## TOPIC 1: Design Guidance for New and Existing Buildings in Hot & Humid Climates

ASHRAE has produced two Design Guides for Buildings in hot and humid climates. These design guides integrate directions for achieving not only energy conservation and proper indoor air quality but also proper occupant comfort in buildings. There is also extensive information on how to maintain proper moisture control within buildings without sacrificing energy conservation goals and acceptable IEQ conditions. To demonstrate the information contained in these two Design Guides as well as ASHRAE's Advanced Energy Design Guides, guidance will be provided on how energy conservation measures can be adopted for office buildings, retail spaces, warehouses and school facilities. There will also be a discussion on the ASHRAE's new Advanced Energy Efficiency Guide for Existing Buildings.

## TOPIC 2: Enhancement of the Envelope Thermal Transfer Value Criterion for Improved Energy Performance of Buildings

Commercial buildings are energy intensive and have a significant "carbon footprint". In the residential building sector, an increasing affluence and the desire for comfort have given rise to the widespread use of air conditioning. This trend has begun to influence the design of residential dwellings which are no longer able to benefit from the elements of passive designs but will need air conditioning to maintain indoor thermal comfort. As a result, the share of energy consumption by residential buildings will increase and ways to solve this problem are needed to reduce the energy wastage and improve the design of residential dwellings for energy efficiency. In this presentation, we will share the most recent Singapore's experience in the design and use of the ETTV criterion to achieve improved energy performance of non-residential and residential buildings.

## PROGRAMME

12.30 pm	Registration
1.00 pm	Design Guidance for New and Existing Buildings in Hot & Humid Climates, by Mr. Terry . E. Townsend, PE, Chattanooga, TN, US
3.00 pm	Refreshment break
3.30 pm	Enhancement of the Envelope Thermal Transfer Value Criterion for Improved Energy Performance of Buildings, by Professor S.K. Chou, Department of Mechanical engineering, National University of Singapore.
5.30 pm	End of Seminar



## ustainable building design and performance

Date : 6th March 2009 (Friday)  
Time : 1:00 pm – 5:30 pm  
Venue : Main Auditorium, BCA Academy  
Address: BCA Academy of the Built Environment,  
200 Braddell Road Singapore 579700

**Register by email or fax application form to facsimile: 68447430 before 28th February 2009. Application and cheque please mail to ASHRAE, Bukit Merah Central, P.O. Box 0626, Singapore 911535.**

Registered ASHRAE Singapore Chapter members: SGD \$40  
Non-Members: SGD \$60

\*\*\* Admission is by prior registration only. Priority shall be given to ASC members, and ASHRAE members.  
As seats are limited, members and guests are requested to register early to avoid disappointment.  
\* Voluntary donations to the ASHRAE Research Promotion Fund will be most welcome.

**PEB : 4 PDU points awarded for this event**

**BOA-SIA: 3 CPD points**

**Please contact the following personnel for clarification:**

On program and registration matters: **Dr. Uma** [Email: [uma@zeb-tech.com](mailto:uma@zeb-tech.com)]

### Registration details:

Name for Registration: \_\_\_\_\_

ASHRAE Membership No. : \_\_\_\_\_

ASC Membership No. : \_\_\_\_\_

PE Reg No. (for PDU) : \_\_\_\_\_

Please complete the following in full

Organization: \_\_\_\_\_

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Fax No. : \_\_\_\_\_

Email: \_\_\_\_\_

Signature: \_\_\_\_\_ Date : \_\_\_\_\_

If you are an invited guest, please state the name of ASC member who invited you:

Invited Guest of: \_\_\_\_\_

Member's Name: \_\_\_\_\_

ASC Membership No. \_\_\_\_\_

