

Updated Issues on Building Energy Efficiency of Recent Development

Course Fee

HK\$300 (HK\$150 for members of SFPE or IFE). Including all workshop papers and refreshments.

Free for PolyU-BSE Mentors.

D a t e

9 June 2009

Tuesday

T i m e

6.30 – 9.30 pm

V e n u e

Room Y302

The Hong Kong
Polytechnic University

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- I enclose a cheque of HK\$300 for the registration for the lecture course on 9 June 2009.
- I am a SFPE/IFE* member. I enclose a cheque of HK\$150 for the registration for the lecture course on 9 June 2009.
- I am a PolyU-BSE mentor, pleased to be invited to attend the lecture course for free on 9 June 2009.

Surname: _____ First name: _____

SFPE/IFE* Membership No: _____

Company Name: _____

Company/Home* Address: _____

Tel: _____

E-mail: _____

(Upon receipt of payment, reservations will be confirmed by e-mail. Cheques to be made payable to **The Hong Kong Polytechnic University**. Substitute delegates allowed provided advance notification is given. "First come first served" basis.)



THE HONG KONG
POLYTECHNIC UNIVERSITY

DEPARTMENT OF
BUILDING SERVICES ENGINEERING



Updated Issues on Building Energy Efficiency of Recent Development

Speakers

Professor Robert F Boehm & Dr. Chen Yitung
The Center for Energy Research
Department of Mechanical Engineering
University of Nevada, Las Vegas

Organized by
Professor W.K. Chow
Head of Department
Department of Building Services Engineering

Program Schedule

1 8 . 3 0	-	1 8 . 4 5	Registration
1 8 . 4 5	-	1 8 . 5 0	Welcome (Prof. W.K. Chow)
1 8 . 5 0	-	1 9 . 0 0	Introduction to Speakers (Prof. Timothy Tong)
1 9 . 0 0	-	2 0 . 0 0	P A R T 1 : Some Experiences with Zero and Low Energy Houses (Prof. Robert F Boehm)
2 0 . 0 0	-	2 0 . 1 5	Coffee break
2 0 . 1 5	-	2 1 . 1 5	P A R T 2 : Application of Computational Fluid Dynamics for High Energy Efficiency Design with Human Comfort of CAD - VAV and UFAD Systems (Dr. Chen Yitung)
2 1 . 1 5	-	2 1 . 3 0	Questions and answers

Abstract

Part 1: The Center for Energy Research at UNLV has been involved in a variety of low energy and zero energy buildings for the Desert Southwestern region of US. This presentation will outline some of the goals of these buildings and their design aspects as well as performance results from them.

Part 2: The numerical simulation of the ceiling air distribution (CAD) system and the under floor air distribution (UFAD) system based on the dimensions of BTLab at UNLV has been performed. Ceiling Air Distribution (CAD) with variable air volume (VAV) and under floor air distribution (UFAD) systems have been widely used in different countries. CAD-VAV and UFAD systems design have been influenced by increasing emphasis on indoor air quality (IAQ), energy conservation, environmental effects, safety, and economics. The computational fluid dynamics (CFD) analysis technique was applied to design high energy efficiency and human comfort CAD-VAV and UFAD systems. The experimental task group at UNLV has performed the UFAD systems compared to CAD systems, including comfort, energy use, indoor air quality IAQ. The experiment has been conducted based on ASHRAE Standard 113-1990 - Method of Testing for Room Air Diffusion. The obtained numerical results related to thermal comfort environment of the CAD & UFAD system have compared with the experimental results. The flow contours such as velocity, temperature, relative humidity and species concentration have been analyzed and parameters such as predicted mean vote (PMV) and contaminant removal effectiveness (CRE) have been calculated and are found to be in the comfort zone on the thermal sensation scale.