

**Workshop on Computational Design Support Tools for Building Performance Analysis, 30 May 2003**

**Four Easy Ways to Register!**

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**LIMITED  
PLACES  
AVAILABLE!**

**Terms & Conditions:**

☎ Registration is by submission of the registration form together with full payment either by cheque or cash. Cheques should be crossed and made payable to **"PREMAS International Limited"**.

☎ Confirmed enrolment is based on a first-come-first-served basis upon payment of workshop fee. Maximum number of participants is 20.

**Accreditation**

This one-day workshop has been accredited by the following leading professional institutions under their Continuing Professional Development (CPD) Programmes:

Singapore Institute of Architects: 2 Credit Points

Professional Engineers Board Singapore: 8 PDUs

**Fee**

\$450.00 + \$18.00 (4% GST) = \$468.00

**Cancellation, Refund & Transfer**

A full refund will be made for all written cancellations made at least **ONE week** prior to commencement of the workshop. No refunds will be made any other time thereafter. However, replacements of participants are allowed.

**R E G I S T R A T I O N F O R M**

Name : \_\_\_\_\_

Designation: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

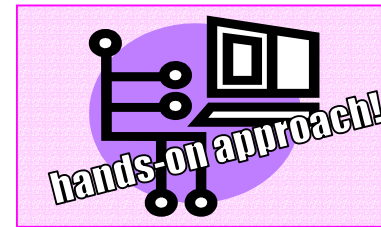
Postal Code: \_\_\_\_\_

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Contact Person: \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_



⇒ Workshop on  
 ⇒ **computational design**  
 ⇒ **support tools for**  
 ⇒ **building performance**  
 ⇒ **analysis**

Date ☎ 30 May 2003

Venue ☎ School of Design and Environment, National University of Singapore,  
E-studio, Level 3, 4 Architecture Drive, Singapore 117566

Time ☎ 9:00 am to 6:00 pm

*Organised by:*

**BCA-NUS Centre for Total Building Performance**







*In Partnership with:*



## **WORKSHOP OBJECTIVE**

This workshop will introduce fundamental principles and computational methods in building performance modeling. Topics include:

-  Theoretical foundations of modeling and representation in computer-aided building design.
-  Specific overview of the visual and thermal performance (including energy and ventilation) domain knowledge.
-  Case studies on the application of simulation in the evaluation and improvement of the visual and thermal performance in buildings.
-  Introduction to the application of advanced computational building simulation tools for visual and thermal analyses.

## **WORKSHOP OUTLINE**

The Singapore construction industry has launched CORENET, a national collaborative IT initiative between the public and private organizations. The objective of CORENET is to re-engineer the business processes of the construction industry to achieve a quantum leap in productivity and quality while optimizing project duration.

Within this broad industry context, there is a trend in building design towards a performance-based rather than the conventional prescriptive-based approach. Advances in computer technology and the affordability of such powerful technology have made it feasible and cost effective to use computational design support tools for building performance evaluation. It offers the opportunity to designers to conduct parametric performance studies of various

design options, even at the preliminary design phase.


This workshop will focus on the theory and application of computational design support tools in the thermal and visual performance domains. Thermal performance will include energy and ventilation analyses. Energy performance simulation will provide an overview of the various issues involved in evaluating the energy consumption of different types of buildings.

For Ventilation Performance, some of the fundamental concepts of ventilation will be introduced, followed by a discussion on the applications of Computational Fluid Dynamics for ventilation studies. Visual Performance will cover qualitative and quantitative performance criteria for architectural and energy related lighting design. Examples of applications of lighting simulation software will be presented, followed by a brief hands-on session with the lighting simulation software Lightscape.

## **WHO SHOULD ATTEND**

Architects, Engineers and M&E Consultants


## **ABOUT THE SPEAKERS**


 **Dr Lam Khee Poh** holds a joint appointment in the Departments of Architecture and Building in the School of Design and Environment at NUS. His fields of research include total building performance studies and the development of computational design support systems. He is a building performance consultant for several major projects in the private and public sectors in Singapore. He is a UK Registered Architect and a Chartered

## **PROGRAMME**

8.30 am	Workshop Registration
9.00 am	Overview of Workshop
9.15 am	Theory and Application of CAD modeling in Design
10.00 am	Tea Break
10.15 am	Energy Performance Simulation
11.15 am	Air-flow Simulation
12.15 pm	Lunch Break
1.00 pm	Visual Performance Simulation
2.00 pm	Hands-on Exercise on Visual Simulation
3.30 pm	Tea Break
3.45 pm	Hands-on Exercise on Energy Simulation
5.45 pm	Q & A
6.00 pm	End of Workshop

Member of the Royal Institute of British Architects.

 **Dr Sekhar** is currently an Associate Professor in the Department of Building, NUS where he is the Programme Director of a graduate programme, M.Sc (Building Science). His expertise is in the areas of ventilation and indoor air quality, air-conditioning and ventilation systems, and building energy analysis. He has recently developed an energy-efficient air-conditioning system for demand-based ventilation requirements, for which US provisional patent application has been filed. In addition, he has significantly contributed to the development of local IAQ guidelines in Singapore. He is also actively consulted in the local building industry in the area of IAQ.

 **Dr Wong** received his Ph.D. degree from Carnegie Mellon University, USA after completing his thesis entitled "*Computational Airflow Modelling for Integrative Building Design*". His research work has contributed to the development of a simulation-based computer software for the analysis of indoor air quality and ventilation in buildings. While he was at Carnegie Mellon, he was very actively involved in the SEMPER project, an integrative design support environment, which effectively integrates the various performance-based simulation tools with CAD systems. Since his return, he was involved in a joint research project between National University of Singapore, Carnegie Mellon University and Temasek Polytechnic.

 **Dr Stephen K. Wittkopf** is an Assistant Professor in the Department of Architecture, National University of Singapore. He is also a member of the Total Building Performance Group of the Department of Building. His teaching focuses on technological aspects of architecture, particularly light and energy integrated design. His research is on the challenges of computer supported design representation and perceptual design imagination in general. Lighting Design in the tropics that seeks the integration of landscaped exterior spaces into transparent buildings while considering energy related aspects is his special research field. As such he deals with computational tools that support generation, evaluation and communication. He is currently a member of the steering committee for Computer Aided Architectural Design in Asia and Member of the Environmental Engineering Committee of the German Business Association.