

Workshop on

Energy

Measurement *and*

Benchmarking

towards an

Award Winning Building



Date:

Friday, 4 July 2003

Time:

9:00 a.m. to 1:00 p.m.

Venue:

Carlton Hotel

Organised by:

Centre for Total Building Performance

A BCA-NUS Centre for Tropical Building Research



In Partnership with:

PREMAS
INTERNATIONAL

PREMAS Training College

OBJECTIVE

The seminar aims to disseminate research findings of projects undertaken at the Centre for Total Building Performance with respect to energy efficiency developments, measurements and instrumentations. These are important issues concerning today's building project design, procurement and monitoring of services and products. The findings will be presented in a clear and practical manner useful to practitioners. The seminar is part of a series of Continual Professional Development programme especially developed for the industry by the centre for Total Building Performance, a BCA-NUS joint Centre for Troical Building Research.

WHO SHOULD ATTEND

Architects, Energy Engineers, Facility Management Professionals, M & E Consultants, Property Development Consultants and Property Managers

ACCREDITATION

This half-day seminar 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: (4 Professional Development Units).

ABOUT THE SPEAKERS

Dr Lee Siew Eang

Dr Lee is the Director of the Centre for Total Building Performance (CTBP). He is a building scientist by training, specialising in building acoustics and energy efficiency. He is also actively involved in the development and application of total building performance as a design and procurement tool in Singapore and the tropical context. He is presently Singapore's representative in, and Chairman of the ASEAN Board of Judges for the Annual Building Energy Best Practices Award, a member of the R&D Work Group of the National Energy Efficiency Committee, a member of the National Energy Efficient Building Awards Selection Committee of BCA, and a member of the Executive Committee for Energy Conservation in Building and Community Systems of the International Energy Agency (IEA).

Mr Majid Haji Sapar is currently a Research Fellow with the Centre for Total Building Performance and specialises in building energy and building performance studies. Mr Sapar was a Building Services Engineer with the Brunei Government's Department of Electrical Services for about 9 years. He used to represent the Brunei Government as the Focal Point and Committee member of the ASEAN Energy Efficiency and Conservation Sub-Sector Network which is concerned with the implementation of various energy efficiency initiatives in ASEAN.

Dr Wolfgang Schafer is a German Professor for Control and Automation, and currently a visiting Research Fellow at CTBP. Dr Schafer has vast experience in developing and implementing Building Automation Systems in

Singapore. He has undertaken BAS design and instrumentation work for many major projects including Changi Airport Terminals 1 & 2, the Airfield Lighting and Taxi Way Control System, Raffles City, Singapore General Hospital, NTU, MRT Phase 2 and others. Currently he is examining and developing new measurement and data logging systems and procedures for energy and other measurements in buildings.

Mr Sun Han Song is a Research Scholar with NUS. He has a Bachelor of Engineering degree from Tian

Jin University, China. His current research is in the area of Energy Performance Assessment for Data Centres in Singapore.

Dr Freddie Tan holds a PhD Degree from the University of Nottingham and double Master's Degrees from Cambridge University and National University of Singapore. His core expertise is in the fields of Building Thermal Engineering and Environmental Design in Architecture. His professional capacity with PREMAS International Limited (CapitaLand Group) requires him to contribute to CapitaLand's commercial project design management, leading product development and tech-partnership. He is a resource person for the Building Subcommittee in the Singapore National Energy Efficiency Committee (NEEC). He also represents Singapore as a member in the ASEAN Board of Judges for Building Energy Efficiency Competitions. Dr Tan is an adjunct Senior Researcher at the CTBP.

Do you know how your building fares and where does it stand among the cohort of similar buildings in terms of energy performance? Why do you need to go through the hassles of measuring and benchmarking such performance? How do you go about in the benchmarking process and charting the path toward an energy efficient building? Is your building energy efficiency achieved at the expense of other essential environmental performance parameters such as air quality?

FIND OUT THE ANSWERS AT THIS WORKSHOP

PROGRAMME

| | | | |
|----------|--|----------|---|
| 08:30 am | Workshop Registration | | <i><u>Abstract:</u> Building engineers and managers rely on audit data to make expensive and important decisions with wide ranging impacts on energy and systems' performance. Have you been given the right data by the right instruments using the right collection method? It has been found that, for example, RMS indicating is not always true RMS measuring. It is therefore crucial that your auditors are using the right instrument and set-up in obtaining the correct and reliable data to guide management decision. The workshop will explain the fundamentals for electric energy measurements, clarifying methods for measuring the current average, true current RMS (root mean square), true power, and true energy and classify the methods and types of instruments in respect of accuracies and cost ranges.</i> |
| 09:00 am | Overview of Workshop Dr Lee Siew Eang Associate Professor, Department of Building, NUS | | |
| 09:15 am | Setting Suitable Energy Performance Target through Benchmarking Dr Lee Siew Eang Associate Professor, Department of Building, NUS <i><u>Abstract:</u> The Energy Group at the department of building, NUS has developed an interactive web-based energy benchmarking system for office buildings which is now widely used within the ASEAN region to benchmark a building's energy performance. Dr Lee, as the Principal Investigator of the project, will share his experience in the development of the benchmarking system. Dr Lee will also highlight the importance of identifying suitable benchmarks and how to interpret data collated as these are critical in achieving an energy efficient building.</i> | 11:45 am | Towards Low-energy Office Buildings in Singapore Dr Freddie Tan Director, PREMAS International Limited Adjunct Senior Researcher, Department of Building, NUS <i><u>Abstract:</u> Building energy saving potential has always been an interest to industry for many years. The challenge is to really unlock the latent saving in the building asset. Locally, the step towards deriving a sustainable energy efficiency benchmark for office buildings has met considerable success in the joint CTBP-PREMAS energy project. This energy benchmark classification allows the office building owners to know how their buildings will fare in comparison to the performance benchmark - not only at the whole building level, but the ability to profile the different energy-consuming equipment and space utilization type. Any performance below the benchmark would imply that improvement effort could be directed into the certain building system or element per se so as to help the building to attain the possible energy efficiency level. Such a holistic approach, by means of a total building performance (TBP) process, could truly help to give your stakeholders' greater value.</i> |
| 10:00 am | Making Energy Audits Work for Your Buildings Mr Majid Haji Sapar Research Fellow, Department of Building, NUS <i><u>Abstract:</u> There are many energy audit strategies adopted by different engineers to meet the different needs of a building. To enable a building engineer or manager to specify or procure a suitable audit strategy that meets the building needs, Mr Sapar will discuss different audit strategies and their usefulness including those adopted by the research team in auditing the energy performance of buildings.</i> | | |
| 10:45 am | Tea Break | | |
| 11:00 am | Accurate Measurements of Electricity Consumptions Dr Wolfgang Schafer Visiting Research Fellow Mr Sun Han Song Research Scholar, Department of Building, NUS | | |
| | | 12:30 pm | Q&A |
| | | 1:00 pm | End of Workshop |

ABOUT BCA-NUS CTBP

The Centre for Total Building Performance (CTBP) is a joint research centre of the Building and Construction Authority (BCA) and the National University of Singapore (NUS) which focuses on total building performance research with particular reference to tropical building design, construction, maintenance and management. The TBP concept addresses a set of integrated strategies aimed at enhancing professionalism and quality in the construction industry, as envisaged in Construction 21. The objectives of the Centre include promoting world-class and industry based research through collaborations with institutions and organisations at the local and international levels, as well as disseminating research findings and output through publications, seminars and conferences.

ABOUT PREMAS INTERNATIONAL LIMITED

PREMAS International Limited is a leading total real estate manager in the real estate industry. Headquartered in Singapore, the company operates within the Asia Pacific region with more than 1,300 employees. It currently provides management and consulting services for commercial and mixed developments, industrial and facility spaces across nine cities in Asia. This substantial portfolio of managed properties includes some of the most prestigious properties in the region. PREMAS is also involved in several strategic R&D alliances, including a Research MOU with the CTBP. It is currently actively engaged in collaborative research at the Centre in areas such as "Energy and Building Performance Assessment and Classification of Commercial Buildings in Singapore".

REGISTRATION FORM



Yes I would like to attend the seminar on
*Energy Measurement and Benchmarking towards
an Award Winning Building*

Name of Delegate:

Designation:

Name of Delegate:

Designation:

Company Name:

Company Address

Postal Code:

Email: _____

Tel: _____

Fax: _____

Mobile: _____

Contact Person:

Fee

\$100.00 + \$4.00 (GST) = \$104.00 per person

HOW TO REGISTER

Tel: +65 6876 6136 / 6137 / 6138 / 6318

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Email: trainingcollege@premas.com

Address: PREMAS Training College

Blk 750 Oasis Chai Chee Road

#03-04/05/06 Technopark @ Chai Chee

S(469000)

1. Payments are to be made payable to PREMAS International Limited in S\$ and are net of bank charges, which are to be borne by the delegates.
2. Please return this registration form via fax and mail together with payment to ensure enrolment.
3. Cancellation must be made in writing before **27 June 2003**. Thereafter, no refunds will be provided. However, substitutions are allowed.

VENUE

Carlton Hotel, 76 Bras Basah Road, Singapore 189558