



# International Green Building Conference 2012

Singapore

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9-12 Oct 2012

Sands Expo & Convention Centre Marina Bay Sands, Singapore  
Part of Singapore Green Building Week

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## Message from SGBC President Mr Tai Lee Siang

### SUSTAINABILITY TODAY: BEYOND BUILDINGS

Since 2009, we have congregated annually to showcase the different strengths and activities in expanding the global green movement.

SGBC is once again the host of IGBC 2012 and we are delighted to be able to bring together the growing international network of green advocates to share in a series of green building activities and knowledge sharing platforms.

Governments, industries and consumers around the world are becoming increasingly aware and are responding to concerns about the effect of carbon dioxide emissions on climate change by designing more energy-efficient and environmental practices and regulatory regimes.

Currently, buildings use 32 per cent of the world's resources in construction. They are responsible for around 40 per cent of global energy use and generate up to 30 per cent of global GHG (greenhouse gas) emissions. And amongst commercial buildings, the office (including data centres) and retail sectors are some of the largest consumers of energy.

So it is natural for attention to turn to how technological innovations and changing people's lifestyles and working habits can help buildings reduce their carbon footprint.

While energy efficient buildings and technological enhancements are important, it is the cost effective use of energy in our homes and workplaces that offers one of the best solutions to mitigate the effects of climate change.

Therefore the global movement has to go beyond buildings – to reach, touch and galvanise the community and the individual.

Hence, our theme for this year's conference – "Green Community. Green Action."

### Business and Community Partnerships – The Way to Success

The global built environment and the community can work together to deliver rapid and cost-effective reductions to emissions, the major cause of global climate change.

Green buildings can help governments meet their social and economic priorities in delivering affordable housing and creating new jobs.

Government working proactively with the private sector and individual initiatives have the synergistic potential to deliver even more.

With this in mind, SGBC together with BCA will be announcing a series of initiatives and partnerships with the community and businesses such as retailers, supermarkets, restaurants and data centres (which are large consumers of energy) to achieve more energy-saving sustainable solutions.

### The Future Is For Us To Inspire and Transform

Community groups and non-government organisations are critical in engaging and educating the public on how to adopt a more eco-friendly lifestyle.

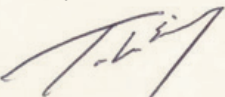
We have thus planned an exciting programme to instill greater environmental awareness and eco-friendly behavior in our kids and teens --- small steps that can make a big difference for the future.

In this regard, we have invited green community icons such as Andy Ridley, the co-founder of Earth Hour, to inspire our young to do more for the environment.

IGBC 2012 will be full of great information on how we can make changes to lead healthy, happy, cost-saving, and sustainable lifestyles.

The future is for us to inspire and transform. Let's join hands to make sustainable living a reality.

Thank you.



Mr Tai Lee Siang  
President  
Singapore Green Building Council

## Speakers' Highlight for IGBC 2012

IGBC 2012 brings together outstanding green movement leaders, renowned business leaders and highly acclaimed industry experts to speak on important green agenda about our environment, business and today economy. Here are some of the best Singapore-based power speakers. Come to meet these thought leaders and many more that this programme brings to you.



**Andy Ridley**  
*Executive Director and Co-founder,  
Earth Hour*

Mr Andy Ridley is probably one of the best well known personas in tackling global climate change. In 2007, Andy initiated the Earth Hour campaign in Sydney, Australia. The campaign has swept across the world, reaching more than 4,600 cities, towns and municipalities, in 128 countries, with hundreds of millions of people taking part. In the space of three short years, Andy's inspiration, led by WWF in partnership with Leo Burnett and Fairfax Media, had gone from a one-city initiative to a global phenomenon. Earth Hour is the world's ever greatest voluntary action.



**Kwek Leng Joo**  
*President, Singapore Compact for CSR  
Managing Director,  
City Developments Limited (CDL)*

Mr Kwek Leng Joo is a distinguished name in the world of real estate, and a firm advocate of Corporate Social Responsibility (CSR). He has led CDL to become the only Singapore company listed on Dow Jones Sustainability Indexes, FTSE4 Good Index Series and Global 100 Most Sustainable Corporations for three consecutive years. Mr. Kwek now also serves as the President of Singapore Compact for CSR, a local network for the United Nations (UN) Global Compact in Singapore.



**Rod Leaver**  
*Chief Executive Officer Asia, Lend Lease*

Mr Rod Leaver is one of the exclusive VIP speakers invited for BCA's Breakfast Talk for CEOs on Green Building Valuation for IGBC 2011 and 2012. Rod has over 30 years experience in the property industry. He is also a Director of the Green Building Council of Australia and Chair of the Australian National Business Leader's Forum on Sustainable Development. Rod was a member of the Australian Government's Business Roundtable on Climate Change and a National Director of the Property Council of Australia.



**Kenneth Er**  
*Chief Operating Officer,  
Gardens by the Bay*

Mr Kenneth Er is presently the Chief Operating Officer of Gardens by the Bay, as well as the Assistant CEO (Projects) of National Parks Board. He was a member of the ASEAN Task Force for the Conservation and Sustainable Harvesting of Edible Nest Swiftlets, Convention of International Trade in Endangered Species (CITES), and a lecturer with the School of Horticulture between 1998 and 1999. Kenneth's research interest is on conservation biology, with emphasis on the design and management of nature reserves within an urban landscape matrix.



**Er Tay Cher Seng**  
*Managing Director, Natflow Pte Ltd  
BCA-SGBC Green Individual Award  
(Green Innovator) 2012  
ASEAN Energy Award Winner*

Mr Tay Cher Seng is a registered professional engineer and an active participant in the building and construction industry. He has helped prepare code of practices used as Singapore Standards. Cher Seng's current research interests are in waste heat recovery, thermal energy storage, and passive displacement cooling. To date, he has several patents to his name including a control device used widely in potable water application. He is currently working on a EWI-funded project that combined heating, cooling and desalination.



**Mr Lee Eng Lock**  
*Technical consultant, Trane, South-east  
Asia, and 2012 Champion of Energy  
Efficiency in Buildings Award American  
Council for an Energy-efficient Economy  
(ACEEE)*

For the past quarter century, Mr. Lee Eng Lock has been designing extremely energy efficient buildings and mechanical systems. For his pioneering work in measurement and verification, Eng Lock has been awarded the Association of Energy Engineers USA Energy Project of the year in 1994. In January 2009, he was invited by LBNL to deliver a distinguished lecture on energy efficiency for buildings. Eng Lock has just bagged the prestigious 2012 Champion of Energy Efficiency in Buildings Award, the first Singaporean and only Asian of the four ACEEE winners.



## Green Tour

Tuesday, 9 October 2012

08:00 - 12:30hrs	Morning Route
13:00 - 17:30hrs	Afternoon Route

## Day 1 Programme

Wednesday, 10 October 2012

08:30hrs	<b>Registration</b>		
09:00 - 11:00hrs	<b>Guests and Delegates to be seated</b> <b>Opening Ceremony</b> <b>Welcome Speech - CEO, Building &amp; Construction Authority (BCA)</b> <b>Welcome Address - Managing Director, Reed Exhibitions</b> <b>Welcome Address - President, Singapore Green Building Council</b> <b>Opening Speech - Guest of Honour</b> <b>Official Opening of BEX Asia 2012 cum Tour by Guest of Honour</b>		
10:30 - 11:00hrs	<b>Networking Teabreak</b>		
11:00 - 13:00hrs	<b>Plenary Session 1: Government Leadership - Industry Response &amp; Community Action</b> The importance of leadership and policies at the city level to minimize the global greenhouse gas emissions, improve the liveability of our communities and boost local economy.  The city policies reflect a diverse and effective mix of strategies, from mandatory efficiency targets and performance disclosure to voluntary incentives and innovative funding mechanisms.  <b>Keynote Speaker 1:</b> Mr Kwek Leng Joo, <i>President of Singapore Compact for CSR and Managing Director of City Developments Limited</i>  <b>Keynote Speaker 2:</b> Professor Jacqueline Cramer, <i>Director of the Utrecht Sustainable Institute and previously Minister of Housing, Spatial Planning and the Environment of the Netherlands.</i>  Professor Cramer will share the experience of the EU countries green building and energy efficiency policies; especially Netherlands.  <b>Keynote Speaker 3:</b> Ms Yuko Nishida, <i>Planner of Bureau of Environment, Tokyo Metropolitan Government</i>  <b>Keynote Speaker 4:</b> Mr Stéphane Pouffary, <i>UNEP-SBCI Advisory Board Chair &amp; Chief Executive Officer - Founder Honorary President, ENERGIES 2050</i> He will be sharing the UNEP SBCI's vision and contribution on Buildings and Cities as a Vehicle for Resource Efficiency and Sustainable Development  <b>Facilitator:</b> Ms Jane Henley, <i>Chief Executive Officer of the World GBC</i>		
13:00 - 14:00hrs	<b>Networking Lunch</b>		
	<b>Track 1 : Government Leadership &amp; Green Building Development</b>	<b>Track 2 : The Cost, Value and Valuation of Green Buildings</b>	<b>Track 3 : Going Beyond Platinum: Pushing the Frontiers of Energy-efficient Green Buildings</b>
14:00 - 14:30hrs	<b>Topic 1: Policy in Green Buildings</b> Speaker: Ms Hilary Beber, <i>Policy Advisor Policy Advisor NYC Mayor's Office of Long Term Planning &amp; Sustainability</i>	<b>Topic 1: Green Buildings and The Triple Bottom Lines</b> Speaker: Mr Eugene Seah, <i>Deputy Chairman, Langdon &amp; Seah Singapore</i>	<b>Topic 1: The DNA of GM Beyond Platinum - Jem™</b> Speaker: <i>Lend Lease/Building &amp; Construction Authority (BCA)</i>
14:30 - 15:00hrs	<b>Topic 2: The Next Challenge - Greening Existing Buildings in Singapore</b> Speaker: Mr Toh Eng Shyan, <i>Director - Green Mark Department (Existing Buildings), Building &amp; Construction Authority (BCA)</i>	<b>Topic 2 : Enhancing Commercial Property Value: the Case of Retrofitting</b> Speaker: Professor Yu Shi Ming, <i>Head of Department of Real Estate, National University of Singapore</i>	<b>Topic 2: The First Eco-Business Park - CleanTech 2</b> Speaker: Mr Nilesh Y. Jadhav, <i>Program Manager, Energy Research Institute @ NTU (ERI@NTU)</i>
15:00 - 15:30hrs	<b>Networking Teabreak</b>		
15:30 - 16:00hrs	<b>Topic 3: Green Building Leadership and Policies - the Hong Kong Story</b> Speaker: Mr Conrad Wong, <i>Chairman, Hong Kong GBC</i>	<b>Topic 3: Performance Managing Energy out of your organisation</b> Dr Martin Blake, <i>Director, The Green Asia Group</i>	<b>Topic 3: Super Green and Energy Efficient at the same cost</b> Speaker: Mr Simon Thomas, <i>South East Asia Project Director, United World College</i>
16:00 -16:30hrs	<b>Topic 4: Malaysia Green Building and Energy Efficiency Policies and Initiatives</b> Speaker: Mr Looi Hip Peu, <i>President of Malaysia GBC</i>	<b>Topic 4: Minimising the cost of green rated buildings</b> Speaker: Mr Marlon Kobacker, <i>Senior Consultant, ESD - Building Services, ARUP</i>	<b>Topic 4: Suruhanjaya Tenaga (Energy Commission) Diamond: featuring the first Platinum Green Mark Commercial Building in Malaysia</b> Speaker: Ir Ahmad Izdihar, <i>Director, Exergy Malaysia Sdn Bhd</i>
16:30 - 17:00hrs	<b>Topic 5: Performance Contract in the public sector</b> Speaker: Mr Ananda Ram Bhaskar <i>Director (Energy Efficiency &amp; Conservation) National Environment Agency</i>	<b>Facilitator:</b> Mr. Curt Garrigan, <i>Co-ordinator, UNEP-SBCI</i>	<b>Topic 5: Net Zero Energy Building-Case study for Singapore</b> Speaker: Tom Wuertz, <i>Design Principal &amp; Tom Hootman, Director of Sustainability, RNL</i>
18:00hrs	<b>IGBC Networking Reception (by invitation only)</b>		

# Day 2 Programme

Thursday, 11 October 2012

9:00 - 11:30hrs	<p><b>Plenary Session 2: Industry leadership, community engagement and community action for Sustainability</b></p> <p><b>Keynote address 1:</b> Mr Andy Ridley, Executive Director and Co-founder of <b>Earth Hour</b></p> <p><b>Keynote speaker 2:</b> Mr Massimo Roj, Architect, Managing Partner of <b>Progetto CMR</b></p> <p><b>Keynote speaker 3:</b> Mr David Nieh, Director of Sustainability Solutions, Asia / Head of China, <b>Lend Lease</b></p> <p><b>Keynote speaker 4:</b> Dr Nirmal Kishnani, Senior Lecturer and Programme Director, School of Design and Environment, <b>National University of Singapore</b>. Editor-in-Chief, <b>FuturArc Journal</b></p> <p><b>Facilitator:</b> Dr Nirmal Kishnani, Senior Lecturer and Programme Director, School of Design and Environment, <b>National University of Singapore</b>. Editor-in-Chief, <b>FuturArc Journal</b></p>		
11:30 - 12:30hrs	<p><b>Networking lunch</b></p>		
	<p><b>Track 4 : GreenTechs - Innovations in ACMV solutions</b></p>	<p><b>Track 5 : Green Techs - Innovations In Lighting Solutions: Optimising Artificial and Natural Daylighting</b></p>	<p><b>Track 6 : Green IT (Data Centres)</b></p>
12:30 - 13:00hrs	<p><b>Topic 1: Measurement &amp; Verification System for Variable Refrigerant Flow (VRF) Unitary Air-conditioning Systems</b></p> <p>Speaker: Mr Lam Kwok Ho, Sam, Senior R&amp;D Engineer, Environmental &amp; Water Technology Centre of Innovation, <b>Ngee Ann Polytechnic</b></p>	<p><b>Topic 1: Lighting management: controls and strategies</b></p> <p>Speaker: Mr Ramin Mehrganpour, Vice President - Global Sales, <b>Lutron Electronics Co., Inc.</b></p>	<p><b>Topic 1a: Green Data Centres Initiatives in Singapore</b></p> <p>Speaker: Mr Ling Keok Tong, Deputy Director, Technology &amp; Planning Group, <b>Infocomm Development Authority (IDA)</b></p> <p><b>1b: BCA-IDA Green Mark for Data Centres</b></p> <p>Speaker: Mr Jeffery Neng, Director, Green Mark Department (New Development), <b>Building &amp; Construction Authority (BCA)</b></p>
13:00 - 13:30hrs	<p><b>Topic 2: ACMV Controls for Sustainable Buildings and Existing Buildings</b></p> <p>Speaker: Mr Lee Eng Hock, Technical Consultant, <b>Trane SEA region</b> Recipient of the prestigious <b>ACEEE 2012 Champion award for Energy Efficiency in Buildings</b></p>	<p><b>Topic 2: Latest Development in Built - Environment Lighting Technology</b></p> <p>Speaker: Mr Lim Yeong Ching, Managing Director, <b>Nanoflex Limited</b></p>	<p><b>Topic 2: Green Mark Framework for Data Centres</b></p> <p>Speaker: Professor Toh Kok Chuan, Principal Research Scientist <b>Temasek Laboratories @ NTU &amp; Energy Research Institute @ Nanyang Technological University (ERI@NTU)</b></p>
13:30 - 14:00hrs	<p><b>Topic 3: Going Beyond 4 ticks for Unitary Air-conditioning System</b></p> <p>Speaker: Mr Thunyawat Chittiphalungsri, Assistant Managing Director, <b>Sanjo Denki</b></p>	<p><b>Topic 3: Innovation of building lighting</b></p> <p>Speaker: Mr Eric Jan Rutten Global Segment Leader and Vice President <b>Philips Lighting</b></p>	<p><b>Topic 3: Assessment of Energy Efficiency of Data Centres</b></p> <p>Speaker: Mr Ray Pfeifer, Senior Vice President of Business Development, <b>SynapseSense</b></p>
14:00 - 14:30hrs	<p><b>Topic 4: Energy Efficient Air-cooled System and Heat Recovery; Improving IEQ and Energy Saving by using energy efficient Water Heat Pipes.</b></p> <p>Speaker: Mr Sudeep Sethi – Managing Director (M.E. &amp; Asia), <b>SPC Heat Pipes FZC</b></p>	<p><b>Topic 4: Innovative Daylight Systems for the Tropics</b></p> <p>Speaker: Mr Gregers Reimann, Managing Director, <b>IEN Consultants Sdn Bhd</b></p>	<p><b>Topic 4: Greening the Data Centre- Going Beyond Energy Efficiency</b></p> <p>Speaker: Professor Wong Yew Wah, Senior Research Fellow, <b>School of Mechanical and Aerospace Engineering &amp; Energy Research Institute @ Nanyang Technological University (ERI@NTU)</b></p>
14:30 - 15:00hrs	<p><b>Panel discussion</b></p>	<p><b>Panel Discussion</b></p>	<p><b>Panel Discussion</b></p> <p>Facilitator – Dr Ronnie Lee, Technology &amp; Planning Group, <b>Infocomm Development Authority (IDA)</b></p>
15:00 - 15:30hrs	<p><b>Networking Tea Break</b></p>		
	<p><b>Track 7: Innovations in Energy Efficiency Solutions</b></p>	<p><b>Track 8 : Innovations in Sustainable Materials and Biomimicry</b></p>	<p><b>Track 9 : Engaging Stakeholders: Community Action against Climate Change</b></p>
15:30 - 16:00hrs	<p><b>Topic 1: Passive Displacement Ventilation (PDV) and Heat Recovery</b></p> <p>Speaker: Er. Tay Cher Seng, Managing Director, <b>Natflow Pte Ltd</b></p>	<p><b>Topic 1: Gardens by the Bay - Illustrating Sustainable Energy Cycles in a Garden</b></p> <p>Speaker: Mr Kenneth Er, Chief Operating Officer, <b>Gardens by the Bay</b></p>	<p><b>Topic 1: Green Mark (Supermarket) - How Consumers and Retailers Can Make a Difference</b></p> <p>Speaker: Mr Koh Kok Sin, Director, Organisation Development, <b>NTUC Fairprice Co-Operative Limited</b></p>
16:00 - 16:30hrs	<p><b>Topic 2: Pioneer eco-efficiency for elevators and escalators</b></p> <p>Speaker: Mr Johannes de Jong, Head of Technology, <b>KONE Major projects KONE Pte Ltd</b></p>	<p><b>Topic 2: Sustainability of Timber - from the perspective of Life Cycle Assessment and what it means on Environmental Product Descriptions (EPDs)</b></p> <p>Speaker: Mr Michael S. Snow, Executive Director, <b>American Hardwood Export Council</b></p>	<p><b>Topic 2: Green Mark (Retail) - Engaging the Designers and Green Tenants with Sustainable Strategies</b></p>

16:30 - 17:00hrs	<p><b>Topic 3: Building-Integrated Heat &amp; Moisture Exchange (BIHME) – Better Air Conditioning with Less Energy</b></p> <p>Speaker: Mr John Breshears, <i>Founder and President of Architectural Applications (a2)</i></p> <p>Mr Nilesh Y. Jadhav, <i>Senior Scientist, Program Manager (Green Smart Buildings) &amp; Energy Research Institute @ NTU (ERI@NTU)</i></p>	<p><b>Topic 3: Cross Laminated Timber (CLT) - An innovation benefitting the entire property value chain</b></p> <p>Speaker: Mr Mann Young, <i>Director, Regional Head of Sustainability, Asia, Lend Lease</i></p>	<p><b>Topic 3: Green Mark (Restaurant) - Re-energizing restaurant foodwaste management through Community Partnership</b></p>
17:00 - 17:30hrs	<p><b>Topic 4: GM-Pro: A Green Mark navigator tool</b></p> <p>Speaker: Dr Uma Maheswaran, <i>Vice President, Sustainable Development, Jurong Consultants</i></p>	<p><b>Topic 4: Biomimetric City of the Future</b></p> <p>Speaker: Mr Nigel Grier, <i>Manager, The Green Asia Group</i></p>	<p><b>Topic 4: Green Mark – MNC's CSR – Employee engagement strategies to encourage green behavior and organisational culture</b></p>
17:30 - 18:00hrs	<p><b>Topic 5: Chilled Beam Successful implementation in Singapore project</b></p> <p>Speaker: Mr Chong Kwang Chin, <i>General Manager, Fläkt Woods (Singapore) Pte Ltd</i></p>	<p><b>Topic 5: Digital Cathedrals and the 21st Century City</b></p> <p>Speaker: Mr Chris Bosse, <i>Asia Pacific Director, LAVA</i></p>	<p><b>Panel Discussion</b></p>
18:30hrs	<p><b>SGBC 3rd Anniversary Dinner (for members &amp; invited guests only)</b></p>		

## Day 3 Programme

Friday, 12 October 2012

9:30 - 10:00hrs	<p><b>Networking Tea Break</b></p>		
	<p><b>Workshops</b></p> <p>The workshops provide an in-depth knowledge on <b>Building Information Modeling (BIM), Designing for Energy Efficiency (DEE) tool, Carbon Calculator, and microclimate optimization</b> that are important to the design and delivery of green buildings. The knowledge of these tools and that of <b>BCA's new and revised Green Mark schemes</b>, would equip participants on how to design and assess low-carbon buildings, targeting at reduced tenant's load consumption, and improved building performance over the embodied energy, natural ventilation and integrated project design and delivery.</p>		
10:00 - 12:00hrs	<p><b>Workshop 1: Integrating BIM into a Sustainable Design Process by Surbana</b></p> <p>Building Information Modelling is changing the way architects, engineers, contractors and building owners work together. This workshop aims to look at how BIM can be integrated into a sustainable design process and how it affects the design and tender process. Surbana's multi-disciplinary team of building consultants will also share their insights gained over the years in implementing BIM in various projects.</p> <p>Speakers: Mr Patrick Lee (<i>Lead Architect</i>), Mr. Gerald Heng (<i>BIM Lead</i>), Mr. Owen Lee (<i>Lead Surbana Archi Green Core</i>) &amp; Ms Joy Gai (<i>ESD</i>), <b>Singapore International Consultants Pte Ltd.</b></p>	<p><b>Workshop 2: Designing Green Mark for Energy Efficiency Performance</b></p> <p>Designing for Energy Efficiency (DEE) is an engineering tool to aid modelling of a building's energy performance against a prescribed set of standards. This workshop would demonstrate how the tool could enable on-line calculation of energy performance indicators for building projects.</p> <p>Speaker: Professor S.K. Chou, <i>Professor, Mechanical Engineering Department, NUS / Executive Director, Energy Studies Institute (ESI)</i></p>	
12:00 - 13:00hrs	<p><b>Networking Lunch</b></p>		
13:00 - 15:00hrs	<p><b>Workshop 3: Details for Green Mark schemes for Supermarkets and Retail</b></p> <p>BCA launches a new suite of occupant-centric Green Mark Schemes to target at energy consequences of users' behaviours. Find out how to use the occupant-centric GM schemes to reduce tenants' energy load, water use and waste production, over and above the base building consumption for greater energy efficiency for commercial establishments.</p> <p>Mr Lim Chan Boon (<i>Senior Manager</i>), Mr Benjamin Towell (<i>Executive Manager</i>), <b>Green Mark Department (New Buildings) Building &amp; Construction Authority (BCA)</b></p>	<p><b>Workshop 4: Green Mark Carbon Calculator and Its Use for Planning and Design of High-density Industrial Estates</b></p> <p>First carbon management tools related to Singapore's building sector will be introduced in this workshop. The three set of carbon tools look into the equivalent carbon emissions for new buildings assessed by GM NRB Version 4; embodied carbon calculator using LCA approach; and carbon footprint of industrial buildings through BIM</p> <p>Speaker: Dr Edward Anggadaja, <i>Deputy Director, Building &amp; Construction Authority (BCA)</i>, Mr Yong Ping Quen, <i>Director, Building System &amp; Diagnostics Pte Ltd</i>, Dr Evelyn Teo Ai Lin, <i>Associate Professor, National University of Singapore</i>, Dr Huang Yi Chun, <i>Assistant Professor, National University of Singapore</i></p>	
15:00 - 15:30hrs	<p><b>Networking Tea Break</b></p>		
15:30 - 17:30hrs	<p><b>Workshop 5: Green Mark (New Buildings) Version 4 and Green Mark (Existing Buildings) Version 3</b></p> <p>GM (New Buildings) Version 4 and Green Mark (Existing Buildings) Version 3 have revised the criteria, in line with the requirement for owners to conduct the three-yearly audit on their building cooling systems. This workshop provides the updates on the latest revisions to these GM schemes, and how to use these latest versions for green buildings assessment and certification.</p> <p>Speaker: Mr Jeffrey Neng Kwei Sung (<i>Director</i>), Ms Grace Cheok-Chan (<i>Principal Manager</i>), <b>Green Mark Department (New Development)</b>, Mr Yong Siew Hwa (<i>Principal Manager</i>), Mr Thomas Pang (<i>Senior Manager</i>), <b>Green Mark Department (Existing Buildings) Building &amp; Construction Authority (BCA)</b></p>	<p><b>Workshop 6: Harnessing the Microclimate Around Buildings for Natural Ventilation and Thermal Comfort: Intentional Design</b></p> <p>This seminar is to describe strategies and processes to design and harness the microclimate (e.g. wind, solar, rain, temperature, etc.) around buildings. The objective of harnessing the microclimate is to maximise the perception of acceptable thermal comfort experienced by pedestrians and residents and to increase the viability of natural ventilation within the building units. During the course of the presentation the tools, and means to score "success" for both natural ventilation and thermal comfort, will be discussed. Other microclimate features such as rain penetration, solar impacts (e.g. glare), noise and odour will also be addressed.</p> <p>Speaker: Mr Duncan A. Phillips, Ph.D., P.Eng, <i>Principal, Global Practice Leader: Building Performance/Physics Senior Consultant: RWDI Habitat</i></p>	

End of IGBC 2012

This conference is accredited under Professional Engineers Board's CPD programme (18PDUs) and BOA (pending accreditation)





## Singapore Green Building Council

The Singapore Green Building Council (SGBC) was officially launched on October 28, 2009 as the only non-profit organisation with a concerted private-public sector partnership to achieve a world-class and sustainable built-environment in Singapore. SGBC received the Established Member status from the World Green Building Council in March 2010. Our key role is to advocate green building design, practices and technologies and drive environmental sustainability in the building and construction industry.

The key areas of SGBC's focus include:

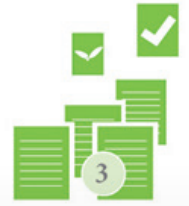
- Profiling Singapore as a leading Sustainable Hub in the tropics through Public Education and Industry Promotion
- Creating International Collaboration, and Expanding Global Outreach



- Enhancing Professionalism and Knowledge in Sustainable Development via Knowledge Creation and Industry Research



- Providing a dedicated Certification Body for Green Building-related Products and Services



## Official Hotel – MARINA BAY SANDS

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### Other Hotel Options

IGBC 2012 has appointed Safe2Travel Pte Ltd to be your Official Travel Agent. Safe2Travel Pte Ltd (S2T) is one of Singapore's largest homegrown travel and event management companies.

Please contact them for other hotel options: Safe2Travel Pte Ltd • Contact Person: Maureen Goh • Email: [maurengoh@safe2travel.com](mailto:maurengoh@safe2travel.com) • Tel: +65 6823 3120



10 - 12 October 2012  
Marina Bay Sands, Singapore



**Build Eco Xpo (BEX) Asia** is your priority business event for Southeast Asia's building market. The exhibition focuses on eco-friendly, energy efficiency building materials, design and architecture. It features critical content that sharpens your knowledge of the BUILD GREEN sector and enhances your competitive edge. The event brings together industry practitioners, professionals and key buyers across the regions to learn, network and do business with Southeast Asia's developing economies.

**BEX Asia 2012 has 3 new exciting profiles – Green Interiors, Skyrise Landscaping and HVAC!**

In 2011,  
More than **7,693** visitors with 15% from overseas  
More than **20% C-Level Executives**  
More than **45% Decision Makers**  
**250** exhibiting companies from **30** countries

### Key Visitor Profile:

- Architects, Interior Architects
- Interior Designers, Decorators
- Contractors
- Project Managers
- Developers
- Estate/ Maintenance/ Property Managers
- Engineers/ Consultants
- Hotel, Hospitality and Hospital Professionals
- Landscape Architects, Professionals
- Lighting Designers
- Manufacturers
- Park Managers
- Quantity Surveyors
- Agents / Distributors/ Retailers / Traders
- Government / Statutory Board Officers



For enquiry, please contact BEX Asia at +65 6780 4671 or visit [www.bex-asia.com](http://www.bex-asia.com)

# Track Synopsis

## Track 1 DAY 1 14:00

### Government Leadership and Green Building Development

- Government leadership spurs the growth of green building industry worldwide.
- **What are the purposes and mechanism behind these policy tools? How do these knowledge enables businesses get a clearer insight to map out business plans, as operations expand domestically or go regional?**
- This section looks at the most interesting comparison between market-based cap and trade approach and government regulation, and some of the most dynamic government policy and incentives in the region, and how the respective government leadership continues to stimulate and sustain the momentum of green building development.



## Track 2

### The Cost, Value of Green

- The construction cost, return on investment, market drivers for green real estate, and full property developers, investors and consumers.
- **How could businesses effectively manage implementing carbon neutral technology case for green buildings? Could the trip be integrated in the real estate investment?**
- The panelists spanning across academia, cost experts offer critical insights on the trends that are evolving for green building proper rapidly changing marketplace.

## Track 4 DAY 2 12:30

### GreenTechs - Innovation in ACMV Solutions

- Air-conditioners and Mechanical Ventilation (ACMV) consumes a substantial part of energy in buildings.
- **How could we make ACMV more energy and cost efficient in tropical climate?**
- This session introduces new technology for unitary air-conditioners, and the latest research finding on measurement and verification methodology of variable refrigerant flow (VRF) unitary air-conditioners, for better specification and performance monitoring. Besides, experts will also be sharing how heat pipe technology could effectively address dehumidification to reduce air-conditioning load, as an alternative to reheating, desiccant and mechanical dehumidification. In addition, this session also discusses the latest control technologies for ACMV as part of the overall energy-efficiency strategy for space cooling.

## Track 7 DAY 2 15:30

### Innovation in Energy Efficiency Solution

- Innovation in energy efficiency addresses alternative means for space cooling other than ACMV.
- **Can we cool the space without employing refrigeration-cycled based cooling sources? Is it possible to dehumidify without ACMV?**
- This session will inspire audience with new innovation for space cooling. It discusses passive displacement ventilation, as well as the use of chilled beams, to address even the heavy loads found in the offices today. New is also the Building-Integrated Heat and Moisture Exchange (BHIME) system, the membrane-based heat and moisture exchanger, installed and integrated into the building wall to dehumidify the tropical air. The session also offers insights into lift innovation, a ubiquitous feature in high-rise buildings. Besides, the latest software initiative – the Green Mark Tool will address performance integration for green buildings.





### Track 3 DAY 1 14:00

## Going Beyond Platinum: Pushing the Frontiers of Energy-efficient Green Buildings

- Going beyond Platinum for Green Mark certification requires not only the buildings to achieve substantial energy saving above the code-compliant buildings, but also demonstrate a holistic integration of architectural design and carbon neutral technologies to deliver highly environmental responsive buildings.
- **Is it possible to combine architectural design vision, excellent environmental performance and cost associated with advanced technological solutions when buildings go beyond Platinum?**
- This session presents the most exemplary case studies of GM buildings beyond Platinum, showcasing not only the ambitious design vision and state-of-the-art technologies, but also successful project and cost delivery of these super green buildings in the tropics.

### DAY 1 14:00

## and Valuation Buildings

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manage the capital costs of gies? What is the good business ole bottom line be effectively t portfolio?

market strategist and ends and opportunities ty development in the

### Track 5 DAY 2 12:30

## GreenTechs - Innovation in Lighting Solutions

- Artificial lighting provides not only the space lighting, but also the mood and ambience to suit the circumstances. In some commercial environments, artificial lighting could account up to 50% of energy usage.
- **How could we illuminate the space without costing too much on energy bills?**
- This session brings together a panel of industry lighting experts to share the latest development in solid-state lighting technology such as LED, as well as the most effective lighting controls, to manage all aspects of lighting requirements and enhance internal ambience. Other than smart selection of the available lighting technologies, this session also looks at design optimization strategies, as well as innovative daylight systems for the tropic.

### Track 6 DAY 2 12:30

## Green IT (Data Centres)

- With Singapore becoming the information hub and regional headquarters for MNCs, data centres are essential part of the businesses.
- **How to ensure energy efficiency for data centres that are running 24/7, powered by UPS and mission critical?**
- A panel of international and local academia and industry experts will discuss the Green Mark framework for data centres and address how energy efficiency of the data centres could be assessed across the different business operators. This session will also engage audience with sustainable operation and management aspects to green the new and retrofit data centres for various businesses.

### Track 9 DAY 2 15:30

## Engaging Stakeholders: Community Action against Climate Change

- In this new age of environmental consciousness, consumers and community are embracing green attitude as a way of life, and making more environmental conscious choices and purchases.
- **Could sustainable business practices benefit business bottom line? How do we engage green consumers and office tenants?**
- This session engages the eco-retail and F&B sectors to develop actionable plans to save energy costs, and deliver sustainable products and business practices to connect with green-minded consumers, through Green Mark (Supermarket) and Green Mark (Retail), and Green Mark (Restaurant) schemes. Other than engaging the consumers, a successful corporate social responsibility program is what would transform employees' mindset. Come and learn about the employees' engagement strategies for workplace transformation.

### Track 8 DAY 2 15:30

## Innovations in the Use of Sustainable Materials and Biomimicry

- There is always a need to look at the way materials are used in construction and buildings are built.
- **Could timber be used for engineered construction? How are these biomimetic buildings powered? Where would the waste go?**
- Come and be inspired at this session by the use of cross-laminated timber for construction of high-rise apartments, instead of concrete, which has now sparked intense interest across the world. In addition, biomimetic buildings start to dominate the landscape, home and abroad, such as Gardens by the Bay. Come and listen to some of the world's most celebrated architects and strategists sharing their plans about these biomimetic buildings, where we would soon live, work and play within.





## Green Tour - Eco Sites

Some of the sites include:



### Gardens by the Bay

Gardens by the Bay comprises three waterfront gardens spanning 101 hectares in Marina Bay. It is a premier urban recreational space for all to enjoy and would add a new dimension to city living. Bay South, the largest of the three gardens, at 54 hectares, is a showpiece of horticulture and garden artistry, presenting the plant kingdom to visitors, in a whole new way. The highlights of Bay South are the two cooled conservatories, Flower Dome, Cloud Forest and the Supertrees. The conservatories are a statement in sustainable engineering and apply a suite of cutting-edge technologies that provide energy-efficient solutions in cooling. The Supertrees marry the form and function of mature trees and support a living skin of plants, through its vertical greenery. In addition, they mimic the ecological functions of trees through their environmentally sustainable features.



### Treelodge @ Punggol

Over the years, HDB has also been actively promoting environmental sustainability in our building developments. Treelodge@Punggol, HDB's first eco-precinct and Singapore's first Greenmark Platinum Award public housing project, is a culmination of such passive design strategies and environmentally friendly features. Located at the junction of Punggol Road, Punggol Drive and Place, the eco-precinct comprises seven residential building blocks with a podium carpark and a generous provision of green spaces at the precinct level. The guiding design principle is to harness the elements of nature wherever possible, such as wind, daylight, rainfall and greenery, to promote sustainable green living. Green features are incorporated to help promote energy conservation, efficient use of resources, recycling and water conservation efforts, and reduce maintenance cost.



### Pasir Ris Sports & Recreation Centre

With environmental sustainability being crucial in today's society, the Singapore Sports Council has worked closely with grassroots leaders from Pasir Ris-Punggol GRC to develop a full-fledged 'green' Sports and Recreation Centre (SRC) that comprises several environmentally friendly and energy saving features. Pasir Ris SRC adopts a 'Sports in a Park' concept with the intention of integrating the facilities seamlessly with the existing town park. High ceilings for better natural ventilation, a spacious foyer, and lush tropical landscaping give the SRC a rustic 'kampong' resort ambience. The SRC also features a rainwater-harvesting system to irrigate surrounding plants, vertical 'green' walls and landscaping to reduce ambient heat gained, and photo-voltaic cells for energy generation. In addition, louvers acting as sunshading screens, which are installed on the building's façade, were recycled from timber seats at the old National Stadium and given a new lease of life.



### CleanTech One (CTO)

CleanTech One is a building that roots its architectural manifestation on decisions that are directly related to the immediate local (Singapore/Tropical) conditions, and deals with aesthetics using a pure and simple language. As a seed project to the larger Research Park, CTO's architecture is about setting a model for the philosophy behind the intent of JTC's bold initiative. Besides utilizing the many sustainable-design gadgets available, the space and volumetric planning of the building is organised with rudimentary passive design principles that is for the Tropics (and specifically for Singapore). Details such as the (almost) fully exposed corridors that ring round the tenanted zones of flexible spaces, and the deep recessed sky-gardens fronting the eastern and western elevations, are examples of design decisions anchoring on simple passive design logic. So long as air-conditioning is not absolutely essential for any space, such locations are designed to be naturally ventilated. The architecture that results is an 'old-school infused with new technologies' model: what architecture should be in Singapore.



### Woh Hup Building

Since its inception in 1927, Woh Hup has become one of Singapore's leading builders and remains at the forefront of the construction industry owing to its investment in innovative building solutions as well as the care and nurture of its human resource. Both these attributes have underpinned the design of our new headquarters, Woh Hup Building, which was bestowed the Green Mark Platinum Award in 2010. The motivation behind the design of a green building as our new headquarters was firstly to enhance the wellbeing and comfort of our colleagues. Brain-storming sessions were conducted to set out high level green targets and prioritize the most important attributes for Woh Hup Building. Ultimately, our goal was to produce a people-centric high performance office building with highly integrated active and passive design features. The Woh Hup Building comprises just under 2000sqm of floor space over 4 storeys, and was completed in June 2011. It is located at 217 Upper Bukit Timah Road and occupies a site area of 1,414.3 sqm and total Gross Floor Area of 1,980.02 sqm.



### Rolls-Royce Seletar Campus

The Rolls-Royce Seletar Campus is located on a 154,000 sqm site at Seletar Aerospace Park in Singapore and was officially opened on 13 February 2012 by Prime Minister of Singapore, Lee Hsien Loong. The 65,000 sqm campus is the Group's most modern manufacturing, testing, training and research facility to date and the first in Asia. As a Greenfield site, the Rolls-Royce Seletar Campus has allowed us to firmly establish our green credentials in Singapore, having been presented with the Green Mark Platinum Award by Singapore's Building and Construction Authority (BCA). The award is the highest possible rating and reviews five key environmental impact categories - energy efficiency, water efficiency, environmental protection, indoor environmental quality and other environmental features. The Rolls-Royce Seletar Campus has not only addressed all five requirements but most importantly exceeded the minimum requirements to be awarded the Platinum certification. The Rolls-Royce Seletar Campus is a benchmark for future green initiatives at our other facilities around the world.

## Green Tour - ECO SITES (38 seats per route) Tuesday, 9 October 2012

### Morning Routes

#### ROUTE 1

Gardens By The Bay  
(Bay South)

#### ROUTE 2

National University of Singapore  
(NUS) University Town (UTown)  
/ Education Resource Centre

#### ROUTE 3

Bishan - Ang Mo Kio Park /  
Treelodge @ Punggol

#### ROUTE 4

United World College SEA (East  
Campus) / Pasir Ris Sports &  
Recreation Centre

### Afternoon Routes

#### ROUTE 5

CleanTech One (CTO)  
/ JTC CleanTech Park -  
Green Core

#### ROUTE 6

Centre of Building Research  
(CBR) / Ministry of Manpower,  
Bendemeer Service Centre

#### ROUTE 7

Rolls- Royce Seletar Campus /  
Woh Hup Building

#### ROUTE 8

National Institute of Education /  
McDonald's at Jurong Central Park

## Registration Form

Please complete all sections of this form and return it by fax to +65 6588 3808. For multiple registrations, please make copies of this registration form.

### 4 SIMPLE WAYS TO REGISTER

🌐 [www.sgbw.com.sg](http://www.sgbw.com.sg) ☎ +65 6780 4671 (Contact person: Rachel Low) @ [igbc@reedexpo.com.sg](mailto:igbc@reedexpo.com.sg)

✉ Reed Exhibitions, c/o IGBC 2012, 1 Changi Business Park Crescent, #06-01, Plaza 8 @ CBP Tower A, Singapore 486025

#### CONTACT DETAILS

(Please print or write legibly. Illegible information may result in processing delay of your registration)

Mr  Mrs  Ms  Mdm  Dr  Others (please specify \_\_\_\_\_)  
Management level:  Senior  Middle  Junior

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

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

Job Title: \_\_\_\_\_ Organisation: \_\_\_\_\_

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

Postal/Zip Code: \_\_\_\_\_ State: \_\_\_\_\_ Country: \_\_\_\_\_

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#### PARTICIPATION SELECTION Please indicate your package with a (✓) in the appropriate box

Package	Normal Rates	Early Bird Rates (register with payment before 5 Sept 2012)	Special* (SGD 20% Discount)
<b>Full Programme</b> (Conference & Workshops) <i>excludes Green Tour</i>	<input type="checkbox"/> <b>\$S900</b>	<input type="checkbox"/> <b>\$S720</b>	<input type="checkbox"/> <b>\$S720</b>
<b>Daily Pass</b> <input type="checkbox"/> Day 1 <input type="checkbox"/> Day 2 <input type="checkbox"/> Day 3	<input type="checkbox"/> <b>\$S400/day</b>	<input type="checkbox"/> <b>\$S320</b>	<input type="checkbox"/> <b>\$S320</b>
<b>Student Pass</b> <input type="checkbox"/> Day 1 <input type="checkbox"/> Day 2 <input type="checkbox"/> Day 3	<input type="checkbox"/> <b>\$S100/day</b> limited		
<b>Green Tour only</b>	<input type="checkbox"/> <b>\$S300</b> (per route)		

Full-time students of tertiary institutions are entitled to a fee of \$S100 per day. Limited seats. Conference and Workshops only. Students must submit matriculation number for certification First-come-first-served basis.

\* A 7% Goods & Services Tax (GST) is applicable to all Singapore-registered companies.

\* 20% discount for  members of CIJC,  Supporting Partners,  Sponsors,  BEX Asia Exhibitors,  Group registration (minimum 4) from same company,  certified GMM/GMP,  Professionals registered for GMM/GMP course with BCA Academy,  UNEP-SBCI members,  Members of GBCs

#### TRACK SELECTION (Please select 1 track/workshop per day/session)

**Day 1**  Track 1  Track 2  Track 3

**Day 2** Morning Session  
 Track 4  Track 5  Track 6

Afternoon Session  
 Track 7  Track 8  Track 9

**Day 3** Session 1  Workshop 1  Workshop 2

Session 2  Workshop 3  Workshop 4

Session 3  Workshop 5  Workshop 6

#### GREEN TOUR-ECO SITES (38 Seats Per Route)

**9th Oct 2012, Tuesday.** Please tick 1 preferred route below. First-come-first-served basis

**Morning Route**  Route 1  Route 2  Route 3  Route 4

**Afternoon Route**  Route 5  Route 6  Route 7  Route 8

#### FOR MORE INFORMATION

##### ON CONFERENCE PROGRAMME AND SPONSORSHIP OPPORTUNITIES:

**Ms Candy Tan**  
Manager, Marketing & Events  
Singapore Green Building Council  
Tel: +65 66345518  
Fax: +65 66345528  
Email: [candy\\_tan@sgbc.sg](mailto:candy_tan@sgbc.sg)

**Ms Judy Poh**  
Assistant Manager, Marketing & Events  
Singapore Green Building Council  
Tel: +65 66345518  
Fax: +65 66345528  
Email: [judy\\_poh@sgbc.sg](mailto:judy_poh@sgbc.sg)

##### ON EXHIBITION:

**Project Management**  
**Ms Louise Chua**  
Reed Exhibitions  
Tel: +65 6780 4653  
Fax: +65 6588 3832  
Email: [louise.chua@reedexpo.com.sg](mailto:louise.chua@reedexpo.com.sg)

**Marketing**  
**Ms Eudora Chew**  
Reed Exhibitions  
Tel: +65 6780 4586  
Fax: +65 6588 3787  
Email: [igbc@reedexpo.com.sg](mailto:igbc@reedexpo.com.sg)

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Notice of withdrawal must be given in writing at least 14 working days before the closing date for registration. Failure to do so will result in your organisation being billed for the registration despite "non attendance". No refund of fees will be made for cancellations on or after 24 September 2012 or "non attendance" participants. Substitutions are acceptable in writing to the organiser. However, non members substituting for members must pay the difference in fees prior to the Conference.

If, in the sole discretion of the Organiser, the Conference premises shall become unfit for occupancy or if the holding of the Conference or the performance of the Organiser of any of the provisions of the event is interfered with by virtue of any cause or the Conference may or could in any way be affected by a cause not within the control of the Organiser, this Conference (or any part thereof), may forthwith be terminated or cancelled or postponed or otherwise rearranged by the Organiser at its sole option, without the Organiser or the Manager being liable in damages or otherwise to the Participant. Upon the termination or cancellation as aforesaid, the Organiser shall not be liable to the Participant and no refund will be made upon any postponement or rearrangement as aforesaid, including in the event the Participant deciding not to participate in the Conference. The Organiser may retain all amounts then paid by the Participant.

#### Confirmation Details

Entry to the Conference is subjected to FULL PAYMENT being received before the commencement of the Conference. It is therefore important to ensure that payment reaches the Organiser at least 14 working days before commencement. Outstanding payment may be made at the Conference registration counters in CASH or by CREDIT CARD only. Delegate Administration Letters will be provided to each registered delegate at least two weeks before the commencement of the Conference. The letter will provide details of delegate administration at the venue. Registered delegates who do not receive the Letter one week before the Conference, please contact the Organiser.