

Annex A

Factsheet

The winners of the BCA-SGBC Green Building Individual Awards are:

Green Visionary Award

1. Er Lee Chuan Seng, Emeritus Chairman, Beca Asia Holdings Pte Ltd
2. Mr Kwek Leng Joo, Deputy Chairman, City Developments Limited (CDL)

Green Architect Lifetime Achievement Award

3. Dr Kenneth Yeang King Mun, Principal, T.R. Hamzah & Yeang Sdn Bhd

Green Innovator Lifetime Achievement Award

4. Mr Lee Eng Lock, Vice Chairman, Measurement & Verification Pte Ltd

Green Advocate of the Year

5. Ms Farizan d'Avezac de Moran, Senior Partner, GreenA Consultants Pte Ltd

Young Green Advocate of the Year

6. Mr Sam CS Tan, Group Managing Director, KEN Holdings Bhd

Young Green Architect of the Year

7. Mr Tan Szue Hann, Deputy Head (Sustainable Urban Solutions) & Principal Architect, Surbana Jurong Pte Ltd

Young Green Innovator of the Year

8. Dr Shah Kwok Wei, Assistant Director, Department of Building, School of Design and Environment, National University of Singapore (NUS), and Deputy Head, Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and Research (A*Star)

Green Building Individual Commendation Award

9. Mr Lau Kah Kee, Paul, General Manager (Projects), Keppel Land Ltd
10. Mr Koh Kok Sin, Director (Organisation Development), NTUC Fairprice Co-operative Ltd
11. Mr Wu Tzu Chiang, Director, DP Architects Pte Ltd
12. Er Lim Ming Sing, Alfred, Vice President and Head (Property Services), CapitaLand Singapore Ltd
13. Er Tang Pei Luen, Assistant Chief Structural Engineer, JTC Corporation
14. Er Yong Siew Onn, Associate Director, DP Engineers Pte Ltd

Green Visionary Award



Er Lee Chuan Seng, Emeritus Chairman, Beca Asia Holdings Pte Ltd

His contributions:

Er Lee is the Emeritus Chairman of Beca Asia, a leading engineering consultancy in Singapore, and was an Executive Director of the Beca Group, New Zealand. After leading the expansion of the Beca Asia business over more than 2 decades into SE Asia and China he has retired from practice in 2013. He has lived and worked in a number of countries in the region.

He is an Honorary Advisor of the Singapore Green Building Council and was its founding President (2009-2011) as well as a Board Member of the World Green Building Council from 2010 to 2013.

He is a Board Member of the Singapore National Environment Agency. He was the Deputy Chairman of the Singapore Building and Construction Authority (BCA) and a Board Member of the Singapore Professional Engineers Board serving for several terms on these statutory bodies.

In addition, he chairs a number of industry committees, including the BCA Green Mark Advisory Committee for green buildings in Singapore, and the BCA Industry Steering Committee for Building Information Modelling (BIM) for industry wide implementation of BIM technology to improve the productivity. He is also Co-Chair of the Singapore BCA International Panel of Experts for Sustainability (2008, 2009 and 2013) and the International Panel of Experts for BIM Technology (2010, 2013 and 2015). He is Chair of the Advisory Board for the BCA Centre for Sustainable Buildings, a collaboration between BCA and the United Nations Environment Programme.

He is on the Expert Assurance Group for the Energy Efficiency in Buildings initiative by the World Business Council for Sustainable Development.

He is Deputy Chairman of the SPRING Singapore Standards Council. He is Advisory Board Chairman for the New Zealand Trade & Enterprise SE Asia Beachheads Programme and a Board Member of the Energy Market Company, the market for trading of electricity prices in Singapore.

He was awarded the Public Service Medal in 2010 by the Singapore Government for his services to the engineering profession.



Mr Kwek Leng Joo, Deputy Chairman, City Developments Limited

His contributions:

Mr Kwek Leng Joo joined City Developments Limited (CDL) as a Director in 1980 and later assumed the position of Deputy Managing Director in 1987, Managing Director in 1995, and was subsequently appointed as Deputy Chairman in 2014.

His advocacy for environmental conservation in tandem with construction has been exemplified in CDL's developments. Under his leadership, CDL has achieved rapid expansion and several breakthroughs in eco-lifestyle concepts, product innovation, as well as sustainable building and best practices. As such, CDL has become a global brand in sustainable development and is recognised by leading international sustainability benchmarks, namely the FTSE4Good Index Series (since 2002), Global 100 Most Sustainable Corporations in the World (since 2010) and Dow Jones Sustainability Indices (since 2011). In the Channel NewsAsia Sustainability Ranking 2014, CDL was named Top Property Developer in Asia, and the top Singapore corporation. It is also listed on the Global Compact 100 Index, Global Real Estate Sustainability Benchmark, MSCI ESG Indexes, Euronext Vigeo – World 120, Ethibel EXCELLENCE Investment Register and STOXX® Global ESG Leaders Indices.

Mr Kwek contributes actively to the business and civic community through several public appointments. To name a few, he is the President of Global Compact Network Singapore, Chairman of the Board of Trustees of the National Youth Achievement Award Council, an Honorary President of the Singapore Chinese Chamber of Commerce and Industry, and a trustee of The Duke of Edinburgh's International Award Foundation. He is also a member of the National Climate Change Network, the National Productivity Council, the National University of Singapore's Master of Science Programme Advisory Committee, and the Singapore Management University's Master of Tri-Sector Collaboration Advisory Group. In 2013, Mr Kwek was appointed as a Justice of the Peace by the President of the Republic of Singapore.

Besides serving his industry appointments, Mr Kwek is a passionate photographer and an active supporter especially in the areas of heritage, arts, environment and youth development. Mr Kwek was personally involved in the Singapore Botanic Gardens' UNESCO World Heritage site inscription journey, having been invited to contribute his photographs of the Gardens for its inaugural presentation at the World Heritage Committee meeting held in Phnom Penh in June 2013. That was the first time images of the Gardens were seen by the Committee.

Green Architect Lifetime Achievement Award



Dr Kenneth Yeang King Mun, Principal, T.R. Hamzah & Yeang Sdn Bhd

His work:

An architect and ecologist by training, Dr Yeang integrates concepts and ideas from both of these fields in his work. Regarded as a pioneer of the green building movement and ecologically-mindful construction back in 1974, his contribution to this field includes developing a model for ecodesign and ecomasterplanning, based on the idea of 'ecomimicry' and on designing to achieve a seamless and benign biointegration of our built environment with nature. His work adopts bioclimatic principles as low-energy buildings with minimal dependency on non-renewable energy. He has designed and delivered numerous passive-mode bioclimatic and ecological buildings worldwide.

Dr Yeang has authored numerous books that challenge conventional building design with his green building principles, especially for tall intensive buildings. He lectures extensively on his ideas and on his built work, at nearly once a week at conferences and schools of architecture at over 30 countries.

His projects:

His work is climate-responsive coupled with the integration, restoration, and rehabilitation of both the natural and built environment. He has designed and delivered more than 200 projects, including several award winning buildings. His key built work include the Roof-Roof House (Malaysia), Menara Mesiniaga (Malaysia), National Library Singapore (Singapore), DiGi Data Centre (Malaysia), Solaris (Singapore), and Spire Edge Tower (India).

His design for the National Library is tailored to meet users' needs for connectivity, efficiency, convenience, and comfort, and provides an integrated learning environment for users through both advanced and interactive technology and elements. Its innovative green features includes the intelligent harmonisation of the natural and built environment through bioclimatic design and its green sky gardens. The building has been accredited and presented with the Green Mark Platinum Award, and is the recipient of the ASEAN Energy Efficiency Award (First prize) and many other awards.

The building consists of two adjoining blocks connected by bridges at the upper levels creating an open-to-the sky central atrium that funnels air flow and provides a naturally-ventilated core to the building. To maximise natural lighting, the building façade has light-shelves to deflect daylight into the deeper parts of the building besides preventing excessive glare and solar radiation. The building has several intelligent technological features such as the rain-sensors to reduce amount of water channelled to the irrigation systems, light sensors to control the intensity of indoor lights, motion sensors within escalators and toilet taps that switch on when in use, and carbon dioxide sensors to govern the air conditioning system. The building is a popular venue for all of Singapore's community.

Green Innovator Lifetime Achievement Award



Mr Lee Eng Lock, Vice Chairman, Measurement & Verification Pte Ltd

His work:

A mechanical engineer extraordinaire, Eng Lock's tremendous passion and innovativeness for building design and energy performance, dating back to the 1980s, has won him international recognition as an energy efficiency expert and one of the best practising engineers in Asia.

Eng Lock pioneered the designing and operation of HVAC and ACMV systems, committed to developing practical solutions for mechanical systems in buildings through superior engineering, innovative design, and attention to details. As such, he has been leading the industry in the optimisation of HVAC systems globally and received several accolades such as the American Council for an Energy Efficient Economy (ACEEE) Champion of Energy Efficiency in Building Award in 2012.

His passion towards an environmentally friendly and energy efficient design has led him to focus on quantifying impacts of the systems he designs and communicating these impacts to building owners and operators for necessary actions. Hence, his designs incorporate high accuracy measurements and comprehensive monitoring in the HVAC system. Eng Lock's has been instrumental in the establishment of the robust energy efficiency and M&V standards for chilled water plants through accurate measurement and monitoring. This emphasis on measurements and monitoring has also led to the adoption of similar measures for other building processes and systems to ensure performance optimisation.

His projects:

In 1985, Eng Lock designed a HVAC system for AT&T Consumer Products in Kampong Ubi. His design achieved the world record for combined air- and water-side performance in the tropics then, with efficiency better than 0.70kW/ton for air handlers, fan coils, chiller, pumps and cooling towers. A key feature of the system includes precise monitoring of all parameters at one-minute interval. This has led to his involvement in R&D project in US, funded by the US department of Energy and the California Energy Commission. Real-time data of two of his projects were also selected and made available online for professionals to study and analyse.

Eng Lock demonstrated his commitment and belief in highly efficient air-conditioning systems in the tropics through his projects where he has designed, built, retrofitted chiller plants at better than 0.6kW/ton in several local projects such as Grand Hyatt Singapore, Tien Wah Press, and Singpost, all at better than 35% return on investment, with high accuracy, web-based monitoring at one-minute intervals, and guaranteed performance. These high monitoring and verification standards were subsequently incorporated into the Green Mark Scheme.

Green Advocate of the Year



Ms Farizan d'Avezac de Moran, Senior Partner, GreenA Consultants Pte Ltd

Her work:

Possessing strong beliefs fuelled by passion that the Green Building agenda shouldn't just be for developed countries or a luxury, Farizan advocates green building through establishing a clear business case on its economic feasibility. In doing so, she hopes to educate and inspire others to take on green building projects.

As the founding member and Vice President of the Tanzania Green Building Council, Farizan introduced the Green Mark Certification to Tanzania to influence and assist the changing built environment of Tanzania.

Currently serving as a United Nations Habitat Technical Energy Expert Consultant for 5 East African countries, Farizan assists in the Energy Efficiency Buildings in East Africa (EEBEA) program. She is also the contributing editor for the Sustainable Building Design Handbook for East Africa together with University of Milan, Italy.

This year, Farizan led the First East Africa Green Building Conference in Arusha, attended by a special delegation from the Singapore Building and Construction Authority (BCA) and Singapore Green Building Council (SGBC). The Event also hosted the Africa Regional Network meeting.

Apart from advocating sustainability in buildings, she is also trained in strategic consulting and brings to light the critical thinking of sustainability in the landscape of business corporations as the Green Knowledge Partner for the prestigious *Channel News Asia*, *Green Luminary* Award along with Deloitte, SMU and DP Information Group.

Her projects:

From forming and strategising alliances, setting sustainability directives, studying groundwork feasibility of various settlements, to setting financial directions with constructive solutions, Farizan handled all tasks that would see the scalability, growth and adoption of sustainability worldwide.

Some of her notable green building projects are, Singapore Changi Airport Terminal 4 (Green Mark Gold^{Plus}), Ci Yuan Community Centre (Green Mark Platinum Award) and other projects across Asia and Africa.

Young Green Advocate of the Year



Mr Sam CS Tan, Group Managing Director, KEN Holdings Bhd

His work:

With great passion for sustainability, Sam spearheaded the green revolution in the built environment sector in Malaysia and led his team to achieving the first green building in Malaysia - KEN Bangsar. Sam's successful implementation of cost effective green building in subsequent projects has encouraged many Malaysian developers to adopt similar path towards sustainability.

In addition to his contributions to the sector, Sam advocates green practices among his staff by instilling behavioural changes through campaigns and incentives. He demonstrates walking his talk of living greener when he switched to driving a hybrid car. He created the KEN Green Allowance to incentivise adoption of hybrid car loans in his company.

His projects:

Sam believes that a green building with sound engineering principles with regard for the comfort and future maintenance of the occupants. This idea was realised in KEN Bangsar Serviced Residences Project which is also the first Green Mark Gold^{Plus} building in Malaysia. His subsequent projects like KEN Rimba Legian Residences and Jimbaran Residences, KEN Rimba Commercial Centre, and KEN Rimba Condominium were also recognised for its sustainable features and received various BCA Green Mark Awards.

While no expense was spared in the building of Ken Bangsar, there was a concern that green buildings are expensive and are catered only for the wealthy. Hence, Sam led his team with the desire to provide green buildings that are both affordable and sustainable through emphasis on passive design through his subsequent projects. In KEN Rimba Legian Residences, Sam designed the "breathable roof" system which is suitable for landed properties in tropical climate.

Sam participates actively in the Real Estate and Housing Developers' Association (REHDA), where he serves as the Co-Founder and Chairman of REHDA Youth. At REHDA Youth, he launched several Green Tour Series to showcase Green Developments in the region. With REHDA, Sam founded GreenRE, a green rating tool with carbon calculator that can assess a building based on 6 key areas. The development of the green rating tool was adapted from BCA's Green Mark but tailored to suit the climatic conditions in Malaysia. GreenRE was officially launched in 2013 to provide the industry with a more efficient and practical green tool to promote greater adoption of practical and efficient green practices and technology at affordable costs to the industry.

Young Green Architect of the Year



Mr Tan Szue Hann, Deputy Head (Sustainable Urban Solutions) & Principal Architect, Surbana Jurong Pte Ltd

His work:

Tan Szue Hann graduated from the National University of Singapore with a Master of Architecture and Bachelor of Arts (Architecture) with First Class Honours. A Registered Architect with the Board of Architects, Singapore, Szue Hann has worked on several completed building projects, including the award-winning PARKROYAL on Pickering (with WOHA; Green Mark Platinum), the SPACE Asia Hub (with WOHA), the Ogilvy & Mather Office Interiors (with WOHA; Green Mark Gold^{Plus}), and CT Hub (with ONG&ONG).

As an architect, Szue Hann took a keen interest in environmentally sustainable design, urban design and integrated engineering systems. This led him to join the Sustainable Urban Solutions Studio, JURONG Consultants (now part of Surbana Jurong Pte Ltd), in January 2013. In the same year, he was certified as BCA Green Mark Manager.

Szue Hann is also active in outreach and sharing. He serves on the Council of the Singapore Institute of Architects as the Chairman of the Institution Thrust, and has also been an adjunct lecturer at NUS Department of Architecture, Singapore Polytechnic School of Design, and an invited critic at NUS Architecture and Singapore University of Technology and Design. As a tutor for the Embedded Studio in Practice under the Sustainable Urban Solutions studio, he mentors students in architecture and sustainable design graduation projects. A passionate public speaker on topics related to architecture, sustainable design and planning issues, Szue Hann has been invited to speak at local and international conferences.

His projects:

Szue Hann was a member of the design team at WOHA for PARKROYAL on Pickering, and also worked on the Green Mark application process. This project boasts a total green area that far exceeded the original green area, as the design team placed an emphasis on the implementation of high-rise and vertical greenery. With climatically-appropriate passive design complemented with energy efficient cooling systems, this project was awarded the BCA Green Mark Platinum award.

With Surbana Jurong, Szue Hann is currently leading several projects in Singapore and the region, including a state-of-the-art test laboratory for building technologies on the roof of the BCA Academy, targeting Green Mark Platinum. This laboratory is the world's first high-rise rotatable laboratory for the tropics, and features a 'plug-and-play' interface for new sustainable technologies in facades, air conditioning and lighting. He is also leading the designs for an IT campus at SunTec Technocity, Trivandrum, India (targeting the Green Mark Platinum (International) Award), and two 'hospital resort' projects, also in India.

Young Green Innovator of the Year



Dr Shah Kwok Wei, Assistant Director, Department of Building, School of Design and Environment, National University of Singapore (NUS), and Deputy Head, Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and Research (A*Star)

His work:

Assistant Professor Dr. Shah Kwok Wei's research focuses on nanomaterials, building energy efficiency and green building technology at NUS and A*STAR. Recently, Prof. Shah was awarded the IES Prestigious Engineering Achievement Award 2015 by the Institution of Engineers Singapore (IES) for his research on nanostructured phase change (PCM) technology. In 2014, Prof. Shah won 2 awards for "Most Attractive for Investment Award" and "Most Promising Idea Award" at Start-up Asia. He also won 2 "Highly Commended" awards for being top-5 finalist for the IET Innovation Award 2014 in "Built-up Environment" and "Start-up" categories (Institute of Engineering and Technology IET, London, UK). Prof. Shah has filed 8 patent applications, of which 3 patents are related to his PCM technology.

With vast knowledge and experience in green building research, Prof. Shah is often invited to speak locally and internationally on nanotechnology and green building technology. Prof. Shah is a Visiting Professor at Tianjin University of Technology, and a member of Singapore Green Building Council's SGBC Technical Taskforce for Roofing and Façade and a member of SPRING's Technical Committee for Surface Coatings. He is often invited to give lectures on "Passive Cooling for Green Building Design in the Tropics" for GreenRE Manager Course in Malaysia. He has organised many scientific conferences such as the "WITS Forum 2014" (Water Innovation, Technology and Solutions) with American Chemical Society and SNIC and the "Green Building Envelopes and Materials Workshop" with Austrian Institute of Technology and Energy Research Institute at NTU.

His projects:

Prof. Shah's research on nanostructured phase change technology, combines heat-absorptive microencapsulated phase change materials with highly thermal conductive nanomaterials to effectively absorb ambient heat, while expending no electrical energy. MKOOL is ~200% more thermal conductive and ~30% more effective in heat dissipation than conventional PCM materials. MKOOL can be used in green building materials, smart wearables and thermal management applications. One of his projects is developing PCM window blinds in A*STAR-MND Grant Call Project. The high solar heat gain in tropical countries like Singapore heats up indoor living spaces rapidly, and increases air-conditioning consumption. PCM window blinds incorporated with engineered phase change materials can be used to absorb and store solar heat energy, thereby reducing cooling energy usage and improving building energy efficiency.

Green Building Individual Commendation Award



Mr Lau Kah Kee, Paul, General Manager (Projects), Keppel Land Ltd

Paul has led his team in various Green Mark projects such as the Ocean Financial Centre in Singapore and the International Financial Centre in Jakarta, Indonesia, where both projects received the highest Green Mark Platinum Award. He promoted integrated design process, established environmental design guidelines, and ensured that his project managers are trained in courses relevant to sustainable design and construction such as the Green Mark Manager course. Apart from local projects, Paul has also been actively involved in several overseas projects to ensure that these projects also meet minimum environmental standards by attaining at least BCA Green Mark Gold^{Plus} Award.



Mr Koh Kok Sin, Director (Organisation Development), NTUC Fairprice Co-operative Ltd

Kok Sin, chairperson of the FairPrice Green Committee, led his team to achieve the BCA Green Mark Gold, Gold^{Plus} and Platinum Award for FairPrice @ Ang Mo Kio Blk 712, FairPrice Finest @ My Village and FairPrice Finest @ Zhongshan Park respectively in 2012. In 2013, FairPrice's new headquarters, FairPrice Hub, attained the Green Mark Platinum award and similarly for FairPrice Xtra @ Sports Hub in 2015. Utilisation of energy efficient refrigeration systems, variable speed drives and minimising plastic bag usage were some of the green initiatives introduced. FairPrice became the pioneer partner in BCA's Green Mark Portfolio programme in 2013, and committed at least 20 stores to be Green Mark-certified by 2016. He continues to drive various green initiatives to ensure FairPrice fulfils its commitment as a responsible retailer in promoting and maintaining a sustainable environment.



Mr Wu Tzu Chiang, Director, DP Architects Pte Ltd

Many projects directed by Tzu Chiang received the BCA Green Mark Platinum Award, such as 368 Thomson, CDL Green Gallery @ SBG Heritage Museum, H2O Residences, and Nanyang Polytechnic. In 368 Thomson, the design and orientation of the units were delicately prescribed after conducting Computational Fluid Dynamics (CFD) studies to strike a balance between capturing the prevailing wind while maintaining an unobstructed view of the scenic surrounding. Building features like balconies and bay windows were utilised to provide effective sun shading for the residential units and to give architects much liberty in the use of glass that allows in more natural light which is essential for residential development.



Er Lim Ming Sing, Alfred, Vice President and Head (Property Services), CapitaLand Singapore Ltd

Er Lim led his team through initiatives in pursuit of corporate sustainable targets. Most of CapitaLand's commercial properties are at least Green Mark certified or have achieved the highest accolade of Platinum. This is due to the continuous efforts of Er Lim and his team to evaluate ways of operating more efficiently and in a sustainable manner. One of CapitaLand's sustainability targets is to reduce energy and water consumption by 15% respectively by year 2015, and under Er Lim and his unit's care, the commercial portfolio have consistently achieved the target savings. The team has now embarked on the next phase of consumption savings which requires capital investment, careful planning and execution as well as leveraging technology to develop systems to enhance work efficiency and reduce paper printing.



Er Tang Pei Luen, Assistant Chief Structural Engineer, JTC Corporation

One-north, Cleantech Park and Lorong Halus were Er Tang's major projects where he implemented and contributed various green ideas and technologies. CleanTech One (CTO) in Cleantech Park was one of his major projects that carry several innovative green features. It houses the first hydrogen fuel cell plant integrated to the power system of the building, with the intention to find greener source of energy alternative to ordinary energy grid. With the knowledge of the effectiveness of Ground Granulated Blast-Furnace Slag (GGBS) in reduction of carbon footprint, Er Tang also led his team in optimising green concrete and therefore successfully introducing them to all the concrete structure elements in the CTO building.



Er Yong Siew Onn, Associate Director, DP Engineers Pte Ltd

As a certified Green Mark Professional and a Professional Engineer, Er Yong was involved in several Green Mark projects since the launch of Green Mark in 2005. Two of his projects, MediaCorp and The Glydebourne, incorporated extensive integrative design which contributed to the excellent efficiency and performance, thereby attaining the Green Mark Platinum Award. In his latest project with Mediacorp, a complex with a gross floor area (GFA) of approximately 79,800m² was able to reduce energy consumption by 33.9%. Er Yong is also involved as Chairman of the Mechanical Taskforce Committee under SGBC, overseeing development of innovative green mechanical products in the construction industry.