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Annual Green Issue

INTERVIEWS



Terri Wills, Chief Executive Officer, World Green Building Council



Mr Chia Ngiang Hong, President, Singapore Green Building Council



Melissa Merryweather, Chair, Vietnam Green Building Council; Director, Green Consult-Asia & Vietnam Representative, Green Cities Fund



Sanwar A. Sunny, Founder & Executive Director, Bangladesh Green Building Council



Romilly Madew, Chief Executive Officer, Green Building Council of Australia



Tony Lee Luen Len, Founding Chairperson, Green Building Council of Mauritius



Alex Cutler, Chief Executive, New Zealand Green Building Council

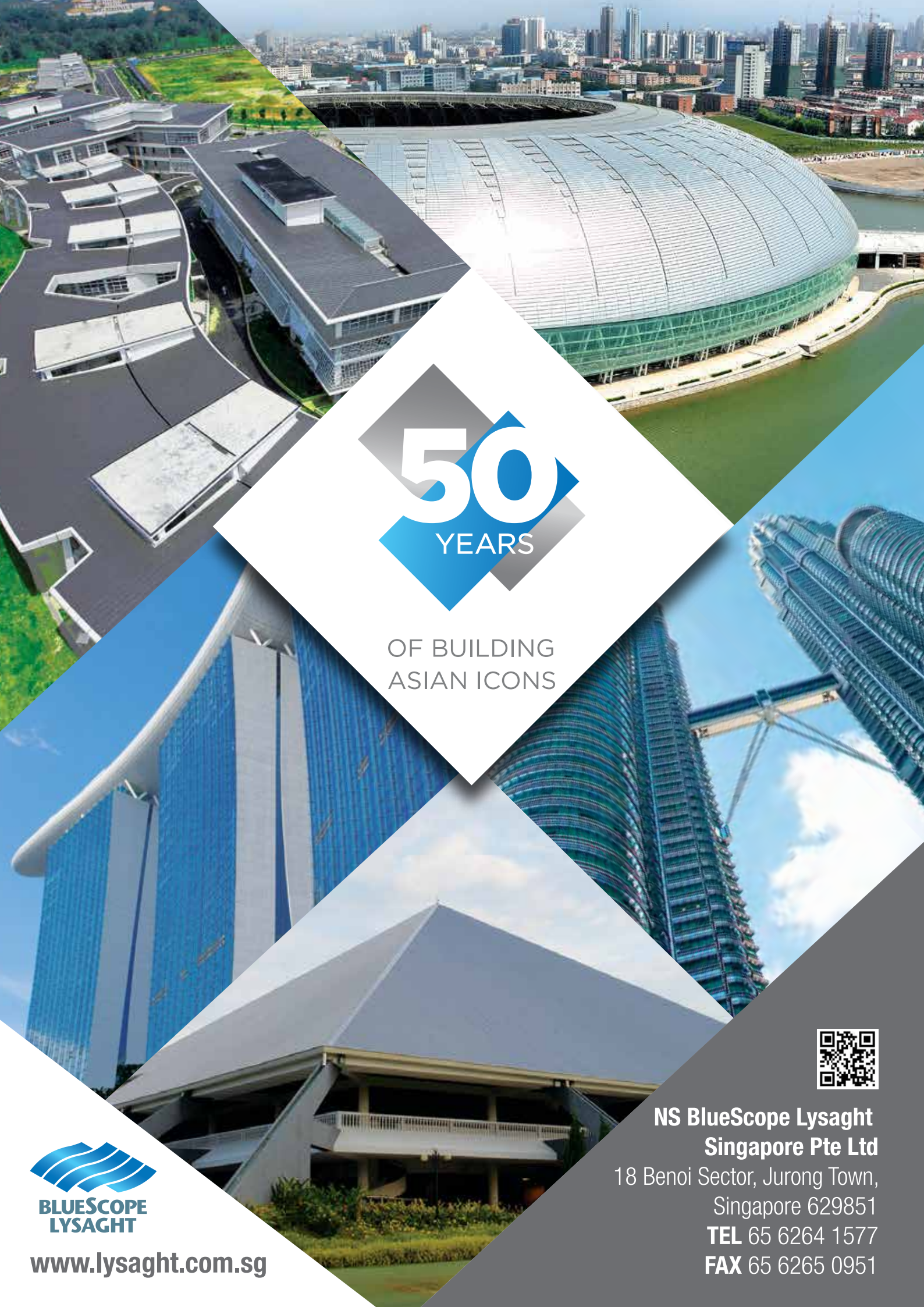


Christopher C. de la Cruz, Chief Executive Officer, Philippine Green Building Council

PLUS Sustainable building projects; Interior design of shopping malls; Playground equipment (Wet) projects; Fire safety management; Show preview of Myanmar Build & Decor 2015 & Green building products showcase



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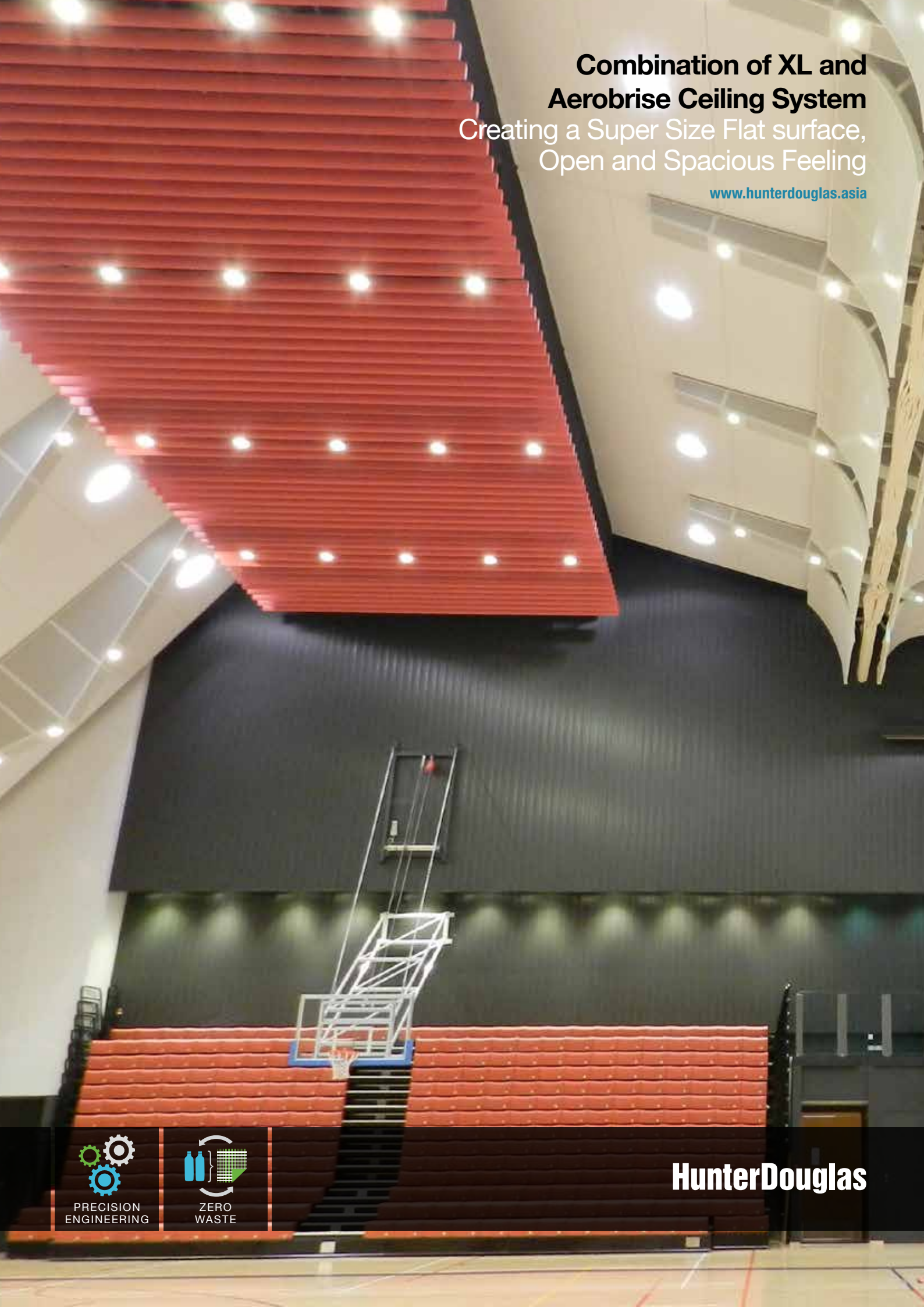
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- Somerset Puteri Harbour

CHINA

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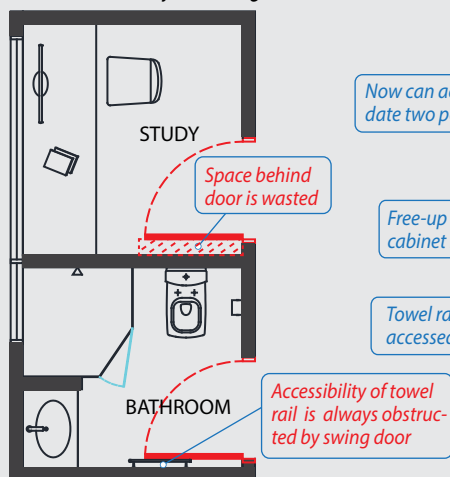


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- Emperor Hotel (Sri Lanka)
- Panorama Apartments (Ho Chi Minh)
- Daiwahouse-Retirement Home (Japan)

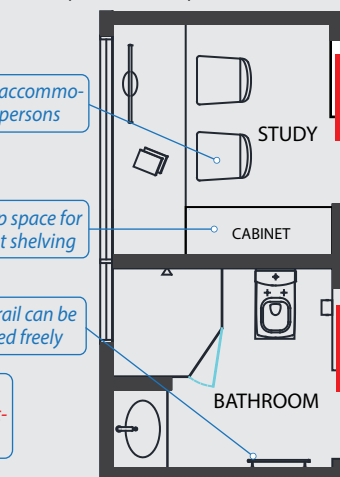
FLAWS OF TRADITIONAL DOOR

Problem: Tight room space reduced further by the swing door.

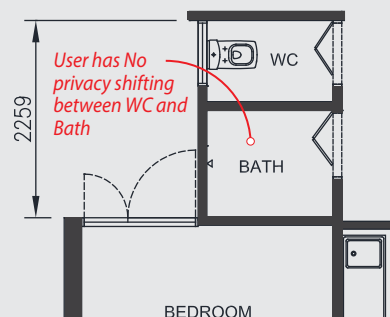


BENEFITS OF SLIDEHIDE

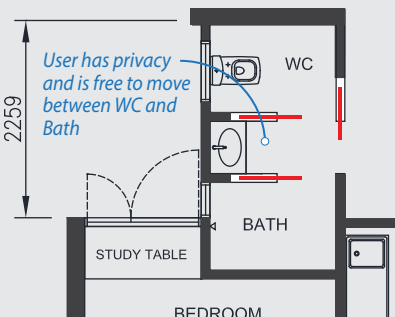
Solution: More storage and working space. More space for occupant to manoeuvre.



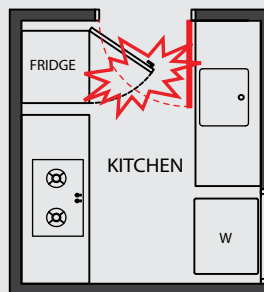
Problem: Space constraint and traditional doors leads to rigid and unfriendly layout.



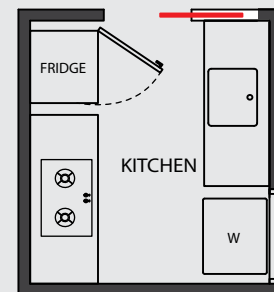
Solution: **SLIDEHIDE** allows more creative layout and better usage of space.



Problem: Swing door tends to clash with home appliances, cabinet and furniture.



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Passion for wood floors

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On the Cover: IRENA Headquarters in Masdar City, Abu Dhabi, UAE
Photo: © International Renewable Energy Agency (IRENA)

Cover design by Fawzeeah Yamin



GCC Sliding And Stacking Wall System



GCC Sliding And Folding Wall System

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Space planning is always a key point that designers and users focus on. To better serve user's expectation and the market trend, **GCC** launches "**Heavy Duty Sliding And Stacking Wall System**" and "**Sliding And Folding Wall System**". There are two major features of these two creative systems. First of all, it dose not require to drill through glass and no need to use AB glue on glass. These two features offer more convenient operability to users and significantly cut down the installation time. Moreover, it dose not require floor guide anymore, and it keeps the floor flawlessly from washing and dust and maintains simple and neat partition system. In addition, **GCC** offers anti-UV PVC seal, weather resisted rubber seal and weather brush to keep mosquitoes and insects away. All these options allows customer to flexible apply **GCC's** products in different conditions.

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Looking forward, **GCC** will continue to devote its effort in developing more user-friendly systems to offer more effortless solutions, and most importantly to provide better living experiences to users.

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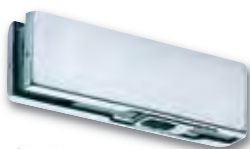
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editor's note



Hello readers! It's our annual green issue and you would have probably guessed it from the cover of the magazine! As you can see, we have lined up interviews with the different heads of the green building councils from the World Green Building to our own local Singapore Green Building Council. When you read the interviews, you will be surprised by how much progress the green building industry in Southeast Asia and Asia Pacific has made. And the good news is that, the trend is set to continue as people become more aware to protect the environment.

In addition to the interviews, we have put together sustainable building projects in the section, 'Going Green'. Sustainability has become a key aspect of design today as it benefits occupants both environmentally and economically.

In the Interior section, read all about the waterfront-inspired mall in Qingdao. The mall's interior, designed by Benoy, offers a truly integrated experience, which unites retail and entertainment for the city. In landscaping, we have a theme on wet playground equipment, where we feature the Splash-N-Surf park at the new Singapore Sports Hub.

For those visiting Myanmar Build & Decor 2015 show in Yangon in October 22-24, 2015, you can get an overview of the show in this issue.

Going Green matters if we want to save our earth and neighbourhood. We hope you enjoy this issue and if you want to share your Green Story with us, please email the editor at seab@tradelinkmedia.com.sg.

Amita Natveelal

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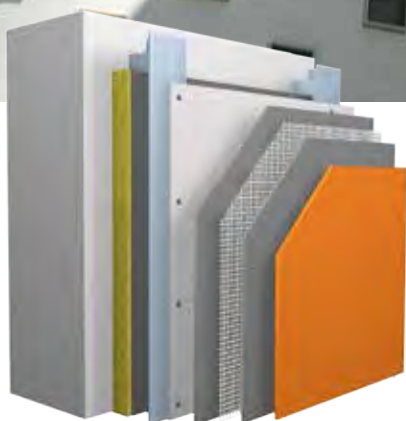
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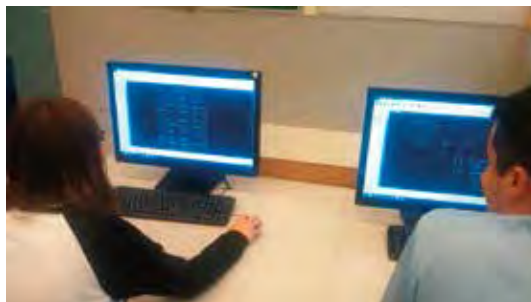
ZWCAD and Wroclaw University of Technology enter into a new phase by cooperating

Guangzhou, China – ZWCAD Design announced that Wroclaw University of Technology, Faculty of Civil Engineering adopted ZWCAD+ for lessons teaching.

Faculty of Civil Engineering is one of the 13 faculties of Wroclaw University of Technology. It educates students in construction. The faculty has three diploma specialties at the BSc studies: Structural Engineering, Geotechnics and Hydrotechnics and Civil Engineering. At the MSc level Faculty offers nine specializations: Building Structures, Building Technology, Hydro engineering and Special Structures, Underground and Urban Infrastructure, Roads and Airports, Railway Engineering, Bridge Engineering, Theory of Structures and Civil Engineering (the latter given in English). It participates in international exchange for students and for didactic and scientific workers in the region, both at home and abroad with companies and universities. It also cooperates with the Polish Chamber of Civil Engineers.

“ZWCAD + is quite a popular programme in our university and it is used by our workers and in offices with whom we cooperate,” said Piotr Berkowski from the university. The bring-in of ZWCAD+ enables students to choose from a variety of applications of various programs. Students will learn a variety of programs for plotting and knowledge as it develops in other applications, which will large improving students’ practical skills as well as competitiveness.

Features in ZWCAD+ are not only sufficient for design needs, but also easy for use. After learning basis students are able to turn abstract ideas into tangible objects without investing large amount time into relearning. They will use ZWCAD+ for all design subjects. Besides, for the university side, they are grateful for the current cooperation with SZANSA and satisfied with the consistent support.



Coles gains certification for first sustainable supermarket



Sydney, Australia – Coles has achieved the first Green Star rating for a supermarket, with Coles Hallam in south east Melbourne awarded a 4 Star Green Star rating from the Green Building Council of Australia (GBCA).

“Coles was determined to develop a ‘supermarket of the future’ – and in doing so, has set a new benchmark for sustainable supermarket design in Australia,” said the GBCA’s Chief Executive Officer, Romilly Madew.

“Coles now has a framework for sustainable supermarkets that are not only more efficient and cost-effective to run, but are also more comfortable places in which to work and shop,” added Ms Madew.

In 2009, Coles began working with the GBCA to develop a Green Star rating tool able to assess the sustainability of supermarkets. The project aimed to develop a model store with sustainable strategies and technologies that Coles could integrate into construction and refurbishment projects.

Coles Property General Manager Sam Pinchbeck said that Coles is proud to be the first Australian supermarket to develop a Green Star rating tool to support its sustainability initiatives. “We have already used our Green Star rating tool to guide the design and construction of our supermarket at Hallam, and now have the opportunity to measure and manage continual improvement in the sustainable design of our supermarkets in the future,” said Mr Pinchbeck.

Key achievements at Coles Hallam include:

- 50 percent more fresh air compared to minimum standards, through high-performance heating, ventilation and air-conditioning systems
- 15 percent reduction in greenhouse gas emissions, with highly-efficient chillers and heat reclaimed from refrigeration cases used to supply heating to other parts of the supermarket
- LED lighting installed throughout, reducing energy consumption and internal heating loads
- 70 percent reduction in water consumption, compared with traditional supermarkets, from a range of water efficiency measures, including water-efficient fixtures and fittings, and 150,000 litre capacity water tanks
- First supermarket in Australia to undergo a Life Cycle Assessment, allowing Coles to make comparisons between different materials and products to pick the healthy, efficient and sustainable options.



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Making energy together

Phoenix Solar to build 1.96 MWp of rooftop PV for the Land Transport Authority in Singapore

Singapore – Phoenix Solar Pte Ltd (Phoenix Solar) has been awarded the construction of 1.96 MWp of rooftop PV systems at the Tuas and Gali Batu train depots in Singapore.

The Land Transport Authority (LTA) is responsible for planning and development of Singapore's land transport infrastructure. Achieving cleaner and greener transport is one of its priorities, as well as reducing the environmental impact of its business activities. Generating clean electricity for train depot operations is a significant step in the right direction.

In August 2014, LTA called for a competitive tender to design, supply and install 1.96MWp of grid-tie PV capacity on two new train depots – Tuas and Gali Batu. Train depots offer several advantages when installing PV, as they are typically located in areas with no surrounding tall buildings. The roofs at depot workshop/stabling buildings are large and usually clear of equipment, so solar panels need not compete for space against other facilities such as water tanks.

The project was awarded to Phoenix Solar after evaluating tenderers according to their quality proposals as well as pricing. Upon completion, the PV systems, comprising 7,536 REC solar modules and 4 central inverters from SMA, are expected to generate over 2.2 million kWh of solar electricity annually. This is enough to mitigate over 1,100 metric tonnes per year of CO₂ from gas fired power plants¹. Phoenix Solar will also maintain and monitor the performance of the PV systems over an initial period of one year. This project dovetails nicely with the Singapore Government's plans to expand its promotion of renewable energy using solar PV energy for public sector projects.

Singapore has enough space to accommodate 6GWp² of solar PV, which can generate 7.5TWh of electricity each year, or approximately 17 percent of Singapore's current electricity demand. "Looking ahead, we expect PV to cover more industrial factories, depots, warehouses, schools and government facilities," said Christophe Inglin, Managing Director of Phoenix Solar Pte Ltd. "The installations will not only provide environmental benefits but also commercial returns, as PV today is a commercially viable complement to conventional energy in Singapore," Inglin continued.

With the addition of LTA PV systems, Phoenix Solar boasts 8 rooftop installations in the MW range, bringing its rooftop portfolio to over 19MWp, including many award-winning projects.

¹Based on typical 0.5 tonnes CO₂/MWh from gas fired power plants

²Source: industry analysis: 6GWp is based on installing 100Wp/m², assuming accessible space on rooftops, LRT tracks and reservoirs.

WorldGBC appoints new CEO

Sydney, Australia – The World Green Building Council (WorldGBC) has appointed Terri Wills as its new Chief Executive Officer. Ms Wills will lead WorldGBC's initiatives to support its members, promote collaboration and innovation, and play an advocacy and policy role to accelerate global change.

Ms Wills will join the WorldGBC from her current role as Director of Global Initiatives with the C40 Cities Climate Leadership Group. During her time with C40, she has overseen the restructure of the Clinton Climate Initiative cities technical assistance programme, and spearheaded the development, fundraising and implementation of the network strategy. Under her leadership, C40's networks have had a direct impact on policy in more than half of C40 member cities.

"We're delighted to welcome Terri as our new CEO," said WorldGBC Chairman, Bruce Kerswill. "The green building movement is growing apace – we have GBCs in 100 countries across the globe and the WorldGBC continues to grow in size and influence. Terri's experience and drive will take us to the next level, boosting the services we offer our members, increasing our global impact, and driving the change to sustainability in built environments globally," said Mr Kerswill.

Ms Wills' previous experiences includes serving as the London City Director for the Clinton Climate Initiative, working with the London Mayor's Office to scale up the award-winning RE:FIT retrofit programme and laying the groundwork for the city's Building Energy Challenge.

She has also worked with the Government of Ontario on clean technology development; project managed Civic Action's Greening Greater Toronto initiative, which created the Race-to-Reduce building retrofit programme; and worked for the British Broadcasting Corporation.

"Through the power of the 100 Green Building Councils, WorldGBC is one of the only global organisations which can truly achieve worldwide impact through the built environment. I am delighted to lead WorldGBC into its next phase of growth, build on past success and secure even greater resources and influence for the green building movement at a local, regional and global level," said Ms Wills.

Ms Wills will begin her new role on 1 June 2015. She assumes the position from former CEO Jane Henley, who departed the WorldGBC in March after five years, during which time she was instrumental in growing the organisation into the global network it is today.



Ms Terri Wills. Photo: © World Green Building Council

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BuildTech Yangon 2015 wraps up three-day show with quality business deals and successful knowledge sharing

Yangon, Myanmar – BuildTech Yangon, a leading trade show for Myanmar's building and construction industry concluded on 29 May 2015 after three days of fulfilling knowledge sharing, trade discussions and successful commercial engagements. The second edition of this much sought-after trade show unveiled innovative products and solutions for Myanmar's built environment sector, resulting with the inking of many quality business deals on the trade floor across three successful trade days.

BuildTech Yangon 2015 brought together over 4,200 exhibitors, speakers, delegates and trade associations from more than nine countries across the region including Germany, Hong Kong, Indonesia, Korea, Malaysia, Myanmar, Singapore, Thailand and Vietnam. Trade mission groups from Cambodia, Indonesia, Singapore and Vietnam visited BuildTech Yangon 2015 to network with regional peers in order to strengthen bilateral ties between their countries and Myanmar.

Organised by SPHERE Exhibits, a subsidiary of Singapore Press Holdings, and co-organised by Myanmar Construction Entrepreneurs Association (MCEA), the industry trade show showcased the latest products and technologies for infrastructure, residential and commercial buildings, transportation, manufacturing and trade development. A three-day business seminar series, held concurrently with the show, led the discussion on the abundant growth opportunities in the region.

Mr Chua Wee Phong, Chairman of SPHERE Exhibits Pte Ltd, said: "The second edition of BuildTech Yangon has done extremely well. Our comprehensive platform combined a product showcase, seminar programmes and networking sessions to encourage industry dialogue and forge business partnerships. With strong partnership from MCEA and other supporting organisations, BuildTech Yangon 2015 introduced new elements to promote industry development. We will continue to strengthen our partnerships with key industry associations as we cater to the growing needs of the building and construction sector in the region."

BuildTech Yangon hosted the first annual Entrepreneur of the Year Award by MCEA. Aimed at encouraging local professionals to elevate construction industry standards and skills of the workforce, the award honoured individuals who were able to incorporate the latest construction technologies into various stages of the supply chain.

Award applicants are divided into three categories according to age. Diamond, Gold and Platinum awards were presented in each category. The Diamond award winners were U Wunna Tun from Myanmar Mahar Tun Co. Ltd in the 30-40 years category; U Kyaw Soe from Aryone Oo Co. Ltd in the 40-50 years category; and MCEA Yangon and MCEA Mandalay (two awards) in the 50-60 years category.

Focused on bringing technology in Myanmar's built environment sector to the next level, the show floor offered visitors a comprehensive product showcase, highlighting a range of construction technologies. Architects, engineers, surveyors, contractors, developers, government ministries and trade



bodies immersed in the latest construction machinery, new materials as well as electrical and mechanical equipment.

A series of business seminars over the three days of the show, saw exciting industry debates and discussions with leading experts weighing in on hot industry issues related to vertical construction, town planning, sustainable energy, construction law and more.

For the first time in the history of Myanmar's construction sector, CPD Points were offered to a seminar platform at a trade exhibition. Local industry professionals from the built environment sector were encouraged to upgrade their skills and expand their business networks, while at the same time collecting coveted industry points.

Noteworthy speakers including Daw Si Than, General Secretary, Myanmar Engineering Council (MEngC); Tan Eng Kiat, Vice President (Urban Planning & Design), Surbana Urban Planning Group; U Win Khaing; President, Myanmar Engineering Society (MES); U Tun Naing Aung, Joint Secretary, Myanmar Industries Association (MIA), among others engaged over 600 delegates in thought provoking discussions and knowledge building topics over three days at BuildTech Yangon 2015.

BuildTech Yangon 2015 saw strong support from six trade delegations and 14 industry associations from across the region. Close to 30 delegates from Singapore's Building and Construction Authority (BCA) visited the trade show aside from other delegations from Cambodia, Indonesia, Myanmar, Vietnam and Singapore.

BuildTech Yangon 2015 offered a one-stop shop for purchasing requirements for the 28-strong trade delegation from Vietnam Association of Building Materials. Ms Nguyen Thi Minh Phuong, Vice Chairman and Head of International Cooperation

Department of the Vietnam Association of Building Materials, said: "It was a very impressive display of relevant machinery equipment at BuildTech Yangon 2015 and our delegates were impressed with the show. We were here to network with local businesses in the CLMV region and have made some useful contacts. Our delegates can now reduce their travel this year as they are able to make some of supply decisions based on what they have seen and heard at this show."

Other industry associations included is supported by the Indonesia's Institute of Architects (IAI), International Power Access Federation (IPAF), Master Builders Association Malaysia (MBAM), Myanmar Engineering Council (MEngC), Myanmar Engineering Society (MES), Myanmar Industries Association (MIA), Singapore Business Federation (SBF), Singapore Institute of Building Limited (SIBL), The Republic of the Union of Myanmar Federation of Chambers of Commerce & Industry (UMFCCI), Vietnam Association for Building Materials (VABM), Vietnam Building Ceramic Association (VIBCA), Vietnam Electronic Industries Association (VEIA), Vietnam Electrotechnical Industry Association (VELINA), and the Workplace Safety & Health Asia (WSH Asia).

The next edition of BuildTech Yangon will be held in May 2016. For more information, visit www.btyangon.com.



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Surbana merges with Jurong International to become Surbana Jurong

Singapore – Surbana International Consultants Holdings Pte Ltd (“Surbana”), and JURONG International Holdings Pte Ltd (“JIH”) have merged to become Surbana Jurong Private Limited (Surbana Jurong).

Surbana Jurong also announced the strategic acquisition of two companies – KTP Consultants Pte Ltd (“KTP”) in Singapore and Sinosun Architects & Engineers Co. Ltd (“Sinosun”) in China.

Mr Liew Mun Leong, Chairman of Surbana Jurong said: “The formation of Surbana Jurong Private Limited and our first two acquisitions done soon after the signing of the merger agreement in February this year demonstrate our determination to build up the company to become Asia’s consultancy powerhouse for urbanisation and infrastructure developments. We are well underway to achieve building our staffing strength to 6,000 within the next three to five years. Scale is a key strategy for successful international urbanisation and infrastructure consultancies.”



From left to right: Er. Allan Teo (Deputy Managing Director, KTP Consultants Pte Ltd), Er. Yeo Choon Chong (Managing Director, KTP Consultants Pte Ltd), Mr Wong Heang Fine (Group CEO, Surbana Jurong Pte Ltd), Mr Liew Mun Leong (Chairman, Surbana Jurong Pte Ltd), Mr Xu Jian Wei (General Manager, Sino-Sun Architects & Engineers Co. Ltd), Ms Deng Xiao Ai (Asst General Manager, Sino-Sun Architects & Engineers) and Mr Pang Yee Ean (CEO, Surbana International Consultants).

Archifest 2015 returns with a thought-provoking theme ‘What Future?’



Archifest 2015 Festival Village

Singapore – Archifest, the annual Festival of Ideas for the City, returns in 2015 with a thought-provoking theme ‘What Future?’.

Organised by the Singapore Institute of Architects (SIA), Archifest 2015 will take place from 26 September to 10 October 2015. It will celebrate the urban environment, hosting a programme of exhibitions, installations, conference, conversations, screenings and architecture tours, anchored at the newly minted SIA Building on Neil Road.

Now entering the 9th edition, Archifest’s theme in 2015 is ‘What Future?’. The theme seeks to encourage Singaporeans to look ahead and imagine the possibilities and opportunities they collectively face, as they celebrate the nation’s 50th year of independence. The subject matter will manifest itself as a series of questions posed by the myriad of activities, through which participants can envisage their own interpretation of the future of architecture.

“Archifest celebrates more than just the positive qualities of our built environment, its spirit is derived from the dreams and aspirations of our people,” commented Mr Richard Ho, Chairperson, Design Thrust, SIA. “This year’s theme ‘What Future?’ is a particularly timely notion as our nation turns 50 and we hope to engage all in a purposeful celebration,” he added.

The two-week-long festival will address the theme ‘What Future?’ through different contexts. Some of the highlights include a Conference featuring award-winning architects including Li Xiaodong and Kerry Hill; a pop-up design studio City-Studio; specially curated Architours to explore Singapore’s hidden architectural gems; an interactive model-building installation ‘We Build This City’; a forum ‘Why Architect?’ to share insights on how to realise your dream home; as well as an arresting series of Singapore’s land spaces documented in Plot, a digital art exhibition by celebrated photographer Caleb Ming.

For more information, visit www.archifest.sg.



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Founded in March 2003, **VERDITECTURE Pte Ltd** is a one-stop greenery expertise hub that specialises in provision of consultancy services in rooftop landscape projects and supplies the necessary systems, products and accessories, including fall protection safety devices. With a core focus on skyscraper greenery – a collective term for green roofs, roof gardens and vertical greenery, Verditecture employs a very targeted approach in its business solutions that centres around the customers' needs, environment and reasonable costing.

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Mitsubishi Electric to build elevator factory in India

Tokyo, Japan – Mitsubishi Electric Corporation announced that Mitsubishi Elevator India Private Limited will build a factory in Bangalore, India, aiming to strengthen local competitiveness and expand business in the world's second largest market for elevators and escalators.

India's elevator and escalator market, which has grown in step with the country's rapid economic development, is now the world's second largest, next to China. Annual demand rose to 47,000 units in 2014 and is expected to continue growing. In 1995, Mitsubishi Electric began selling elevators through local distributors. In August 2012, it established a company in Chennai to reinforce sales, installations and maintenance, and in April 2014, Mitsubishi Electric launched the NEXIEZ-LITE elevator model for low- to mid-rise buildings in the India's market.

Bangalore is located in southern India, where an increasing number of enterprises in fields including the IT industry are setting up operations. By producing locally, Mitsubishi Electric expects to strengthen product competitiveness in terms of price and delivery time, focusing especially on its NEXIEZ-LITE model. A special emphasis will be placed on the efficient integration of sales, manufacturing, installation and maintenance.

Product development will be reinforced with an elevator test tower, approximately 41 metres high, and field-training centre for installation and maintenance work on the premises of the new factory. The enhanced education of engineers is expected to further elevate the quality and reliability of products and services, ultimately for increased customer satisfaction.



Interior of NEXIEZ-LITE.



Rendering of factory.

SSG signs MOU with AGC for technology transfer of Glass Integrated Photovoltaic

Singapore – Singapore Safety Glass (SSG) has entered into a Memorandum of Understanding (MOU) with Asahi Glass Company Limited (AGC) of Japan to acquire technological and marketing know-how for the purpose of installing and marketing AGC's glass with built-in photovoltaic (PV) modules for Building Integrated Photovoltaic (BIPV). With this MOU, SSG has become the first partner in Southeast Asia for AGC in the development of BIPV in the region.

In this MOU, SSG has acquired the support of AGC in the development and promotion of glass-glass PV modules in Singapore. AGC will be providing training, technical assistance, and marketing materials. Unlike conventional solar modules which are made with glass on the front surface and a film on the back surface, glass-glass PV modules are made with glass on both surfaces making it suitable for application and installation on building roofs and façade.

While conventional standard PV modules have made their significant inroads on rooftops in Singapore, BIPV adoption in Singapore has yet to take off in buildings integrated features and facades. AGC and SSG are confident that with the right technology and materials, they will see wider adoption of building integrated PV and contribute to the development of Singapore to become a truly urban solar city.



Mr Tomonori Imada, General Manager, System Solution BU, Japan/Asia Pacific Division, ASAHI GLASS CO., LTD (left) and Mr Gan Geok Chua, Executive Director, Singapore Safety Glass at the MoU signing ceremony.



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The art of making society safer

Auckland, New Zealand – An experimental art project designed to make society safer for women has won the 2015 International Award for Public Art. The project *Talk to Me* by Indian artist Jasmeen Patheja, was named the winner at the Award Ceremony Dinner, held this evening at the Auckland Art Gallery Toi o Tāmaki.

Talk to Me, started three years ago to draw attention to the significant problem of sexual harassment in India, was described by the judges as bold, compassionate and courageous.

India's public spaces can be unsafe for women and what the West calls sexual harassment is widely referred to as 'eve-teasing', a trivialising euphemism that makes light of the problem and reduces it to innocent play.

The project forms part of wider art practice started when Jasmeen was a student, which over the years has gained momentum becoming a nationwide community arts movement and prompting public conversations about sexual violence in India.

Talk to Me was originally staged in an isolated street in Bangalore nicknamed the 'Rapist Lane' where after dark it was common for men to hang out in cars or on motorbikes, drinking, harassing or molesting women who dared to pass.

For a month, helped by volunteers the artist calls 'Action Heroes', the area was renamed the 'Safest Lane' and events were held, including setting up tables and chairs and inviting men and women to sit down together and talk over tea and samosas. The focus was on empathy and on taking time to communicate with a stranger.

The discussions between men and women demonstrated how understanding and compassion can be gained if people have safe space in which to interact. *Talk to Me* encouraged people to reflect on their behaviour and face their fears and biases and to consider who they felt intimidated by and why. At the end of the encounter the 'Action Heroes' offered each participant a flower.



Indian artist Jasmeen Patheja named winner at the award ceremony dinner.



Talk to Me experimental art project was described by the judges as bold, compassionate and courageous.

projects as diverse as a floating school in Nigeria, a restaurant serving cuisine from countries with which the USA is in conflict, and a post-earthquake pavilion for the people of Christchurch.

Lewis Biggs, Chair of the Institute for Public Art and former director of Tate Liverpool and the Liverpool Biennial (UK) commented: "In recommending the seven projects selected to be highly commended, the jurors felt clear that these were outstanding examples of art-led place-making. While all seven projects could have justly taken the Award, *Talk to Me* caught their attention for its bold simplicity, its economy of means, its compassion and originality, and its courage in facing up to a deeply ingrained injustice within the prevalent culture in India."

The International Award for Public Art is a biennial prize for the most outstanding, contemporary, socially-engaged art project. The inaugural award (2013) was won by Venezuelan artist and architect Alejandro Haiek Coll, co-director of design collective LabProFab, for the *Tiuna el Fuerte Cultural Park* project, an inventive and community-focused redevelopment of an abandoned parking lot in Caracas.

"*Talk to Me* shows how simply the first steps toward understanding one another can be taken, with the help of a few tables and chairs, some flowers, some snacks, and a willingness to try. We need to make ourselves safe by making other people familiar," said Jasmeen.

"It requires a purposeful unclenching of the fist. Fear creates fear. Defense creates defense. We need to build safe cities with empathy," she said.

As well as the 'Safest Lane' encounters, *Talk to Me* employs a variety of ongoing strategies to combat sexual harassment, including advocating for effective legal tools, staging theatrical public protests and using new technology to publicise offenses.

Talk to Me won the 2015 International Award for Public Art from a shortlist of 32 entries, of which seven were selected as 'highly commended' semi-finalists. These included

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BUILDTech 2015 aims to be the sourcing hub for building materials, construction technology and hardware tools

Kuala Lumpur, Malaysia – BUILDTech (Malaysia International Building Materials and Construction Technology Exhibition) will be launched for the fourth time in Malaysia. The exhibition is scheduled to take place at the Putra World Trade Centre from 7 to 10 October 2015.

Billed as the most comprehensive event and sourcing hub for the building and construction industry, BUILDTech has gathered companies supplying products, technologies and solutions for the building and construction industry under one roof.

BUILDTech has set to expand further by introducing co-locating shows that will run concurrently at the same time and venue. The shows are: Construction Machinery Show (CONMAC), Building Material, Architecture & Interior Exhibition (A&I), Construction Materials Show (CONMAT) and Malaysia International Hardware Show MHS.

Throughout the event, many interactive activities will take place to keep both exhibitor and visitors busy networking and to ensure that people who are essential to the business will be there. Interactive activities including; business matching programme, new and reconditioned machines' sales galore for first come first serve basis and many more!

Apart from local participants, BUILDTech 2015 anticipates the participation of 367 local and international participating companies from 20 countries. Spanning over 15,000 square metres in exhibition space, BUILDTech is targeted to attract 10,000 trade visitors from the region comprising of developers, architects, engineers, planners and craftsmen, contractors, builders, building owners, interior designers, facilities and renovation specialists etc.

For more information on BUILDTech 2015, visit www.tradelink.com.my/BUILDTech.



Tanjong Pagar Centre clinches two international property awards in mixed-use category



Singapore – Tanjong Pagar Centre, the integrated mixed-use development by Singapore-listed GuocoLand Limited ("GuocoLand"), has won international recognition for its excellence in design and architecture by garnering two property awards: the World Architecture News (WAN) Award for Mixed-use Future Projects, and the Asia-Pacific Property Award for Best Mixed-use Development Singapore.

The WAN award is the world's largest architectural awards programme, and recognises excellence across various development specialties, such as urban design, sustainable buildings and small spaces. Tanjong Pagar Centre is one of two inaugural winners under the mixed-use category, a new addition to this year's awards.

The proposed development assimilates five distinct components: an 890,000 square feet office tower, luxury residences soaring up to level 64, food and beverage (F&B) driven retail spaces, a five-star business hotel, and a large Urban Park, lauded for its innovative design and vision as a green space for dining, recreation and community activities.

Designed by world-renowned architect, Skidmore, Owings and Merrill (SOM), Tanjong Pagar Centre will be the tallest building in Singapore at 290 metres when completed in mid-2016. The development features strong aesthetics with a heavy focus on sustainability. Awarded the Platinum Green Mark Award and LEED pre-certification, it has been designed to achieve overall energy savings of 32 percent, and water conservation of 35 percent, as compared to similar code-compliant buildings. Besides the installation of some 3,800 square metres of solar photovoltaic cells and a rainwater harvesting system, it is also being fitted with shading panels to limit the direct solar gain and glare to the building's glass windows.

Left: Artist's impression of Tanjong Pagar Centre. Photo: © GuocoLand



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AHEC celebrates 20th SE Asia & Greater China Convention in Nanning

Nanning, China – The American Hardwood Export Council (AHEC) held its 20th SE Asia and Greater China Convention in Southwest China on 25 and 26 June 2015.

The Convention started with a press conference of 75 with presentations from Mike Snow and Jennifer Brand, AHEC Chairman and Tom Inman, President Appalachian Hardwood Manufacturers Inc., Di Nguyen, President American Softwoods and Mark Barford, CEO NHLA.

John Chan, Regional Director of AHEC welcomed the media from all over China and Southeast Asia, saying that in 2014 China had become the largest furniture exporter in the world and was the largest export market for American hardwoods. He

predicted a bright future. Jennifer Brand pointed out that China had grown from importing 40 containers a year from the U.S. to 160 per day. Mike Snow said that half all graded lumber is now exported, of which half goes to China, with urbanisation the main demand driver. Mark Barford confirmed the NHLA mission, activity and commitment to China as part of its 'Global Reach' and Di Nguyen discussed the structural advantages of American softwoods.

Speaking at the meeting of members and media during AHEC's 20th SE Asia and Greater China Convention, Executive Director Mike Snow said: "Our strategy is now to focus on China's inland cities. The huge coastal cities, such as Shanghai, Guangzhou and Tianjin near Beijing are mature markets well supplied and familiar with American hardwoods. But there are dozens of newer, inland markets that AHEC needs to develop, such as Nanning."



Group photo of the Asia market panel with Mike Snow (centre).



Group shot of the convention speakers.

(importer & distributor) Eddy Budiono, PT Abadi Indorono, Indonesia (veneer trader), Nguyen Chanh Phuong, HAWA, Vietnam (contractor). Michael Buckley quoted the old Chinese saying "we live in interesting times" and cited the currency crisis in Europe, economic and political tensions that affect all, but that one thing is sure – China needs wood.

The two hour session then drew many questions from the AHEC membership about species, promotion initiatives, the importance of the ASEAN population of 630 million in Southeast Asia, branding and hang tags, the check-off programme and, last but not least,

The Convention theme 'Designed in Asia and made in Asia with American hardwood' extended a campaign that AHEC launched in Singapore earlier in the year to recognise and inspire Asian talent in design and manufacturing. Nanning kicked off with 'Asia Market Panel Discussion' moderated by Michael Buckley, Turnstone Singapore, with an introduction by Mike Snow with their joint presentation of market data and trends in Southeast Asia and China. The panel comprised Ernie Koh, President of SFIC, Singapore (manufacturer), Harry Bai, AM Forest Products, China (Distributor), Michael Hermens, APPTimber, Malaysia

the current inventory surplus of U.S. hardwood lumber in China. Michael Hermens felt that the market in China is changing and urged closer relationships with manufacturers. Ernie Koh was convinced of the ongoing demand for high value (imported) wood products by Chinese consumers and John Chan was not so pessimistic as some, given the furniture exports from China running at \$55 billion in 2014. There was much talk of the important role of designers and trend setting in driving demand; and a final call for AHEC to develop more projects in Asia, as it has done in Europe.

Convention Programme

On 26 June a full programme of speakers was prefaced by welcome speeches by Bruce Zanin, Acting Minister Counsellor, FAS, U.S. Embassy, Beijing and Hoa Huynh, U.S. Agricultural Trade Office, Guangzhou, Jennifer Brand, Chairman AHEC, Pei On Dao, President of Guangxi Forestry Industry Trade Association and John Chan, Regional Director, AHEC.

Mike Snow gave a very comprehensive presentation on 'American Hardwoods around the World', their benefits and the importance of China to the U.S. hardwood industry. "There are lots of cites in China still growing," he said. David Venables, AHEC European Director, presented a stunning array of projects executed by AHEC in recent years including the Red Oak 'Wave', the 'Wish List' and 'Out of the Woods' in several species and the 'Endless Stair' in CLT Tulipwood, which may lead to new markets for CLT in American hardwoods. All of this work by AHEC gives a better understanding of the material which has relevance in more than just one region he suggested. Mark Barford, CEO and Dana Spessert, Chief Inspector of NHLA presented the mission of NHLA and explained the NHLA Grading Rules. They extended a welcome to NHLA's annual convention to be held this year in Nashville TN in October. Barford was leading a group of NHLA members touring China, which included participation at the Nanning Convention, where he stressed the ever stronger relationship and cooperation between AHEC and NHLA.

After lunch Nguyen Chanh Phuong showed his latest prestigious project in American Ash joinery – the 'Gem Convention Centre' in Saigon, where recently AHEC had held a seminar as one of the Centre's inaugural events. Eddy Budiono concluded the programme with a presentation on veneer from an Indonesian perspective.

About 400 delegates attended the two-day Convention in June, which included 300 Chinese and about 40 AHEC member companies; most of which had small booths at a mini trade show to promote their products during the networking reception that ended the event.



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The Big 5 Construct Indonesia provides strategic gateway to tap flourishing business opportunities in Indonesia's construction market

Jakarta, Indonesia – dmg events, organiser of The Big 5, one of the largest building and construction exhibitions in the Middle East, together with PT. Infrastructure Asia – a Tarsus Group Company as a local expert of organising infrastructure and construction events in Indonesia, hosted The Big 5 Construct Indonesia from 7-9 May 2015 at JIEXPO Kemayoran. This event served as the strategic gateway for local and global brands to gain deeper insights about business opportunities offered by the Indonesian construction market. The show was opened by Patrick Latchem, COO, PT. Infrastructure Asia, Simon Mellor, President Middle East and Asia, dmg events, and inaugurated by Ir. Yusid Toyib, M.Eng. Sc, Director General of Construction Development, Directorate General of Construction Development, Ministry of Public Works and Public Housing, Republic of Indonesia.



The opening ceremony of The Big 5 Construct Indonesia 2015.

"Indonesia's construction sector plays an important role in the country's economy as it provides the physical foundation of infrastructure development in Indonesia. The construction sector contributed 9.88 percent to the country's GDP in 2014 and is ranked in the fourth biggest position of contributors of Indonesia's economic development. This reflects the fact that the construction sector regularly has the highest growth, which is 6.97 percent higher than the national economic development which only reached 5.2 percent. With the construction sector reaching 67 percent of the ASEAN market, Indonesia will increasingly be the point of interest of the regional and international markets," said Ir. Yusid Toyib, M.Eng. Sc, Directorate General of Construction Development, Ministry of Public Works and Public Housing, Republic of Indonesia, in his opening remarks during the ceremony.

The construction sector finds firm growth in Indonesia and is certainly heading down a path of rapid development as it is projected to be the 10th biggest construction market in the world in by 2025. Therefore the country's construction sector will need a healthy pool of suppliers to cater to the growing demand.



The Certified Continuing Professional Developments (CPD) Workshops attracted a large audience.

The Big 5 Construct Indonesia brought exhibitors from over 200 companies, and featured brands from over 20 countries including France, Germany and Italy to serve the Indonesian building & construction market. Over the three-day show, the companies showcased the latest and widest range of products, solutions and innovative technologies, some never before seen in Indonesia. The product sectors being covered included steel, HVAC, coverings, solar energy, water technology, safety & security building system and more.

Running alongside the exhibition were a series of over 15 free to attend Certified Continuing Professional Developments (CPD) Workshops, which were held all three days of the show. Some of prominent speakers of industry experts who delivered and presented at these workshops came from credible companies and institutions such as Green Building Council, AECOM Indonesia, SEPAM Consultants, PT MRT Jakarta, SGS Consulting Group, Sigma

Sustainability Institute to name some. This CPD workshops series covered popular topics from efficient energy management, implementation of green materials construction, application of BIM software to flood and earthquake risk management as well as new trends and innovations in architecture and interior design.

For more information, visit www.thebig5constructindonesia.com.

Dubai to build world's "first" 3D printed office

Dubai, UAE – Dubai has revealed plans for the world's "first" fully functional 3D printed building, an ambitious move that will establish the UAE's position as the global centre of technology in architecture construction and design.

Speaking on the occasion, His Excellency Mohamed Al Gergawi, the Chairman UAE National Innovation Committee, said the UAE aims to deploy the latest technologies to improve people's lives and to develop its economy in line with the

country's National Innovation Strategy and the vision His Highness Sheikh Mohammed bin Rashid.

"This project reflects the vision of our leadership here in Dubai," said His Excellency Al Gergawi. "We are keen to use the latest technologies to simplify people's lives and to serve them better. This project is part of our overall innovation strategy to create new designs and new solutions in education, healthcare and cities. Our goal is to increase the happiness and wellbeing

of our residents and to pioneer new solutions for the world."

Experts estimate that 3D printing technology can reduce the production time of buildings by 50 to 70 percent, reduce labour costs by 50 to 80 percent, and can save between 30 and 60 percent of construction waste. These savings translate to enhanced productivity, higher economic return, and increased sustainability.

The 'Office' will be approximately 2,000 square feet in size and will be printed layer-by-layer using a 20-foot tall 3D printer, then assembled on site in Dubai in just a few weeks. All interior furniture, detailing, and structural components will also be built using 3D printing technology, combining a mixture of Special Reinforced Concrete (SRC), Glass Fiber Reinforced Gypsum (GRG) and Fiber Reinforced Plastic (FRP). This combination will make it the most advanced 3D printed structure ever built at this scale and the first to be put into actual use.

The building is the result of a partnership between Dubai and WinSun Global along with leading global architecture and engineering firms Gensler, Thornton Thomasetti, and Syska Hennessy.

In addition to prototyping new technology, the 'Office' reflects the latest input from experts and researchers in workplace design and the future of work. Located at a busy intersection in the heart of Dubai, the 'Office' is designed to bring together different professionals, community members,



and experts through a mix of public events. The space is open and flexible, allowing for a range of uses and team sizes. It will also feature a small digital fabrication facility and a 3D printing exhibition space.

The project is the first major initiative of the 'Museum of the Future', launched earlier this year by His Highness Sheikh Mohammed. It highlights the Museum's model of industry – government – designer collaboration, which is intended to develop and deploy cutting edge prototypes across the city of Dubai. It will act as the temporary headquarters for the staff of the 'Museum of the Future' while the permanent Museum is being built.

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ThyssenKrupp calls for action to improve city sustainability

Essen, Germany – ThyssenKrupp is calling for more energy efficient design in our urban landscapes, having analysed that energy savings in our buildings need to be implemented now in order to achieve meaningful levels in 15 years. Today buildings account for 40 percent of global energy consumption.

Ahead of the EE Global Summit, the world's premiere forum dedicated to energy efficiency taking place this week in Washington DC, Andreas Schierenbeck, CEO of ThyssenKrupp Elevator AG, said, "Buildings in our cities today are being "locked in" to poor energy patterns by inefficient building services which have an average lifespan of 15 years. Facilities such as elevators, heating, ventilation and refrigeration are not running at their most efficient levels, so it is of upmost importance we address this now and upgrade facilities more resourcefully, else we run the risk of low energy performances until 2030."

Every single commercial building that is built today locks in an average of 12,000 MWh of electricity consumption for the next 15 years. In the US alone, every year, more than 150,000 buildings are built, resulting in locked in electricity consumption of 120 TWh per year, the equivalent of the Netherlands' total annual electricity consumption. Reducing this by only 10 percent now would save the equivalent of 180 TWh over the next 15 years, equaling reduced carbon emissions of up to 180 Million tons CO₂, equivalent to reducing the number of cars on the street by two million per year or three billion trees planted and grown over the same period. Accounting for the largest share of global energy usage today (40 percent), buildings are at the very heart of the energy efficiency debate. In cities, the upward trend of buildings revolves the conversation around how to make high-rise buildings run more smartly; minimising consumption and reducing the urban energy footprint. With buildings getting taller, elevators are one of the most integral energy-using facilities in our cities and are thus a key area for

address when seeking to improve urban energy efficiency. Andreas Schierenbeck cites innovative elevator technologies such as ThyssenKrupp's TWIN system as one of the solutions that can help. Comprising of two elevator cabins operating in the same shaft across different floors, the system can save an average of 27 percent of energy and reduce the electrical power required in a building by half when compared with other technologies. These elevators can also operate as power generators by converting the elevators' kinetic energy

into electricity and feeding it back into the power grid, reducing energy needs for the building by as much as 30 percent.



Andreas Schierenbeck, CEO of ThyssenKrupp Elevator AG. Photo: © ThyssenKrupp

Putting advanced technology into buildings - now

Such technological solutions are required around the world, and can be adapted to suit the needs of different regions. In Europe, for example, a third of the buildings standing in 2030 will have been built before 1970, and as a result will require significant modernisation to bring them in line with contemporary energy requirements and standards. Retrofitting these aged elevators with modern solutions could reduce energy consumption by up to 70 percent. Schierenbeck concluded: "The need for sustainable urbanisation is something we can no longer ignore, and with a number of clear and tangible benefits, energy-efficient elevator solutions are at the core of delivering truly sustainable cities of the future. The time to integrate these systems into buildings is now. The expertise and products already exist; the challenge is speeding up the integration process to upgrade our building stock more quickly."

Investment in residential and infrastructure markets to support Japan's weakened construction industry

London, UK – Despite Japan's construction industry having contracted by 1.6 percent in real terms in 2014, the industry's value is expected to pick up over the forecast period (2015–2019). Growing investments in residential and infrastructure markets will support this trend, according to Timetric's Construction Intelligence Center (CIC).

Japan's construction growth is likely to be supported by factors such as low unemployment rates, investment in public transport infrastructure, improvements in consumer and investor confidence and positive developments in regional economic conditions. Residential construction was the largest market in Japanese construction in 2014, accounting for 32.9 percent of the industry's total value. Timetric predicts that it will maintain its share of the market over the forecast period. According to the United Nations Department of Economic and Social Affairs (UNDESA), the country's urban population is expected to reach 94.1 percent by 2020, rising from 115.3 million in 2010 to 119.4 million in 2020.

Sina Zavertha, Economist at Timetric, commented: "The

country's growing urbanisation will create fresh demand for the residential construction market over the forecast period. Consequently, we can expect market output to record a CAGR of 2.25 percent in nominal terms over the forecast period, to value JPY20.7 trillion (US\$223.3 billion) in 2019."

Infrastructure construction accounted for 28.2 percent of the construction industry's total value, which made it the second-largest market after residential construction. Growth in the country's infrastructure development over the next five years will be driven by investments in public transport infrastructure, such as the construction of the JPY5.5 trillion (US\$57.3 billion) ultra-high speed magnetic levitation (maglev) train line and the JPY10.0 billion (US\$97.6 million) Kansai international airport expansion project. Overall, Japan's construction industry is expected to record a real CAGR of 1.2 percent over the forecast period (2015–2019), rising from US\$600.2 billion in 2014 to US\$637.4 billion in 2019. However, there are risks to the positive outlook for construction industry growth in Japan associated with rising labour and construction materials costs.

DESSO® signs declaration to the principles of the UN Global Compact

Waalwijk, The Netherlands – Desso, a leading global carpets and sports pitches company has signed a letter to the United Nations' Secretary General Mr Ban Ki-moon, declaring its support for the UN Global Compact and its principles in relations to human rights, labour, environment and anti-corruption.

"We are committed to making the Global Compact and its principles part of the strategy, culture and day-to-day operations of our company," said Desso Managing Director Roland Jonkhoff.

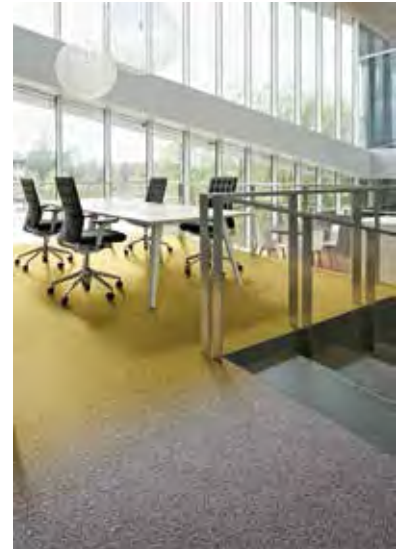
Since 2008 Desso has adopted Circular Economy practices powered by Cradle to Cradle® principles to make things that can be made again in an ever-moving non-toxic closed loop.

This encompasses using healthy materials to make its products, developing scalable take back and recycling systems, good stewardship of water resources, social fairness and using renewable energy for production. These objectives meet Desso's vision to make the transition to the circular economy, away from the 'take, make and waste' linear model, and to produce the best environmentally responsible carpet and sports pitches products that contribute to people's health and wellbeing.

In support of open and transparent communications, also in line with the UN Global Compact, Desso publishes an annual Corporate Responsibility (CR) report, adhering to the GRI (Global Reporting Initiative) standards. Desso's 2013 CR report gained a B+ level status, was verified by GRI and externally assured by Deloitte.



Roland Jonkhoff



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Design by Paris firm Moreau Kusunoki Architects wins historic international competition for proposed Guggenheim Helsinki Museum

Helsinki, Finland – Paris firm Moreau Kusunoki Architects has won the Guggenheim Helsinki Design Competition, which began in June 2014 and generated a record-making 1,715 submissions from more than 77 countries.

Solomon R. Guggenheim Foundation announced the winning concept: a design that invites visitors to engage with museum artwork and programs across a gathering of linked pavilions and plazas organised around an interior street. Clad in locally sourced charred timber and glass, the environmentally sensitive building would comprise nine low-lying volumes and one lighthouse-like tower, connected to the nearby Observatory Park by a new pedestrian footbridge and served by a promenade along Helsinki's South Harbor. Moreau's design for the Guggenheim Helsinki Museum was one of the six finalists.

In a joint statement, Nicolas Moreau and Hiroko Kusunoki said: "Thanks to the bold vision of the Solomon R. Guggenheim Foundation and the City of Helsinki, the international open competition process offered a unique challenge for practices around the world to partake in this exceptional project. Such events represent great hope for architects. We are delighted and honoured to have been selected from among 1,715 entries. We are happy to share this victory with all the people we work with: our staff, our partners, and our clients. This great adventure brought us energy, joy, and dreams. The adventure now continues with the Solomon R. Guggenheim Foundation, the people of Helsinki, and lovers of architecture and art."

As the winner of the competition, Moreau Kusunoki will receive a cash award of Euro 100,000.

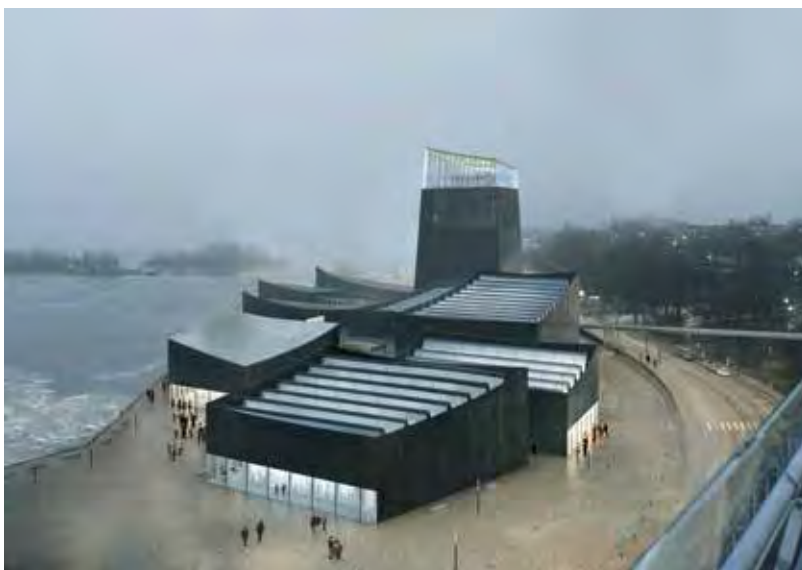


Photo: © Moreau Kusunoki Architects

Aga Khan Park opens in Ontario

Ontario, Canada – On 26 May 2015, Ontario Premier Kathleen Wynne officially inaugurated the Aga Khan Park, a landscaped garden that encompasses the green space between and around the Aga Khan Museum and the Ismaili Centre. The Park, the Museum and the Centre together form Toronto's newest cultural hub.

His Highness the Aga Khan joined Premier Wynne at the opening of the Park, which has become the site for a number of cultural, educational and social programs designed to foster intercultural dialogue and the exchange of ideas. The Park, created by Lebanon-based landscape architect Vladimir Djurovic, unites two buildings designed by renowned architects: the Ismaili Centre, by Indian architect Charles Correa, and the Aga Khan Museum by Fumihiko Maki of Japan. Moriyama and Teshima are the Canadian architects of record for the entire project.

During his address to the guests, the Aga Khan expressed the hope that "this park will contribute to strengthening Toronto's already vibrant pluralism, showcasing to the world Canada's rich example of pluralism in action."

In her remarks, Premier Wynne said, "The Park brings its own unique style and its own atmosphere to this beautiful corner of the city. This is a true 21st century space, one that's steeped in history but that speaks to our modern vision of a global, inclusive and peaceful society."

The Park can be enjoyed all year-round, with trees and plants chosen to thrive in Toronto's climate. Based on a traditional Persian and Mughal *chahar-bagh* (four-part garden), the formal gardens within the Park provide a place for contemplation as well as areas for public programming or private events.



Aga Khan Park. Photo: © Janet Kimber

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Sites in China, Iran, Mongolia and Singapore inscribed on UNESCO's World Heritage List

Bonn, Germany – The World Heritage Committee approved the inscription of six cultural sites on World Heritage List: Tusi Sites (China), Susa, Cultural Landscape of Maymand (both in the Islamic Republic of Iran), Singapore Botanic Gardens (Singapore), Baekje Historic Areas (Republic of Korea), Great Burkhan Khaldun Mountain and its surrounding sacred landscape (Mongolia).

Tusi sites (China) – Located in the mountainous areas of south-west China, this property encompasses remains of several tribal domains whose chiefs were appointed by the central government as 'Tusi', hereditary rulers from the 13th to the early 20th century. The Tusi system arose from the ethnic minorities' dynastic systems of government dating back to the 3rd century BCE. Its purpose was to unify national administration, while allowing ethnic minorities to retain their customs and way of life. The sites of Laosicheng, Tangya and Hailongtun Fortress that make up the site bear exceptional testimony to this form of governance, which derived from the Chinese civilization of the Yuan and Ming periods.



Core area of the domain and Lingxi river, Laosicheng.
Photo: © Management Office of Laosicheng Tusi Domain

Susa (Islamic Republic of Iran) – Located in the southwest of Iran, in the lower Zagros Mountains, the property encompasses a group of archaeological mounds rising on the eastern side of the Shavur River, as well as Ardeshir's palace, on the opposite bank of the river. The excavated architectural monuments include administrative, residential and palatial structures. Susa contains several layers of superimposed urban settlements in a continuous succession from the late 5th millennium BCE until the 13th century CE. The site bears exceptional testimony to the Elamite, Persian and Parthian cultural traditions, which have largely disappeared.



Achaemenid village. Photo: © ICCHTO

Cultural Landscape of Maymand (Islamic Republic of Iran)

– Maymand is a self-contained, semi-arid area at the end of a valley at the southern extremity of Iran's central mountains. The villagers are semi-nomadic agro-pastoralists. They raise their animals on mountain pastures, living in temporary settlements in spring and autumn. During the winter months they live lower down the valley in cave dwellings carved out of the soft rock (*kamar*), an unusual form of housing in a dry, desert environment. This cultural landscape is an example of a system that appears to have been more widespread in the past and involves the movement of people rather than animals.



Living traditions in Aghol. Photo: © Maymand Cultural Heritage Base

Singapore Botanical Gardens (Singapore)



The Bandstand. Photo: © Singapore Botanic Gardens

– Situated at the heart of the city of Singapore, the site demonstrates the evolution of a British tropical colonial botanic garden that has become a modern world-class scientific institution used for both conservation and education. The cultural landscape includes a rich variety of historic features, plantings and buildings that demonstrate the development of the garden since its creation in 1859. It has been an important centre for science, research and plant conservation, notably

in connection with the cultivation of rubber plantations, in Southeast Asia since 1875.

Baekje Historic Areas (Republic of Korea) – Located in the mountainous mid-western region of the Republic of Korea, this property comprises eight archaeological sites dating from 475 to 660 CE, including the Gongsanseong fortress and royal tombs at Songsan-ri related to the capital, Ungjin (present day Gongju), the Busosanseong Fortress and Gwanbuk-ri administrative buildings, and the Naseong city wall related to the capital, Sabi (now Buyeo), the royal palace at Wanggung-ri and the Mireuksa Temple in Iksan related to the secondary Sabi capital. Together, these sites represent the later period of the Baekje Kingdom – one of the three earliest kingdoms on the Korean peninsula (18 BCE to 660 CE) - during which time they were at the crossroads of considerable technological, religious



Goransa temple. Photo: © Baekje Historic Sites Nomination Office

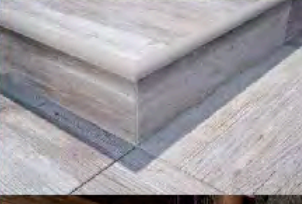
(Buddhist), cultural and artistic exchanges between the ancient East Asian kingdoms in Korea, China and Japan.

Great Burkhan Khaldun Mountain and its surrounding sacred landscape (Mongolia) – The site is situated in the north-east of the country in the central part of the Khentii mountain chain where the vast Central Asian steppe meets the coniferous forests of the Siberian taiga. Burkhan Khaldun is associated with the worship of sacred mountains, rivers and ovoos (shamanic rock cairns), in which ceremonies have been shaped by a fusion of ancient shamanic and Buddhist practices. The site is also believed to be the place of Genghis Khan's birth and burial. It testifies to his efforts to establish mountain worship as an important part of the unification of the Mongol people.



Nomadic lifestyle. Photo: © B. Tsogtbaatar





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IFLA 2016 – Call for Abstracts

Turin, Italy – The 53rd IFLA World Congress will be held in Turin, Italy, from 20-22 April 2016, organised by the Italian Association of Landscape Architecture (AIAPP).

The present Call for Abstracts aims to solicit an exploration of the theme 'Tasting the Landscape' from various perspectives focusing on the landscape architecture project as the determinant of change towards achieving the best possible quality of spaces and places.

AIAPP is calling for abstracts that show the diversity of approaches and experiences possible at every scale as evidence that professional skill and a deep understanding of environmental, economic and social realities can make all the difference and allow people to truly "taste" their landscapes.

The Call for Abstracts is open to all professionals and advanced university students (studies related to Landscape Architecture, last year course or post-graduate). There will be special sessions for research papers and posters. Deadline for abstracts is 10 August 2015.

For more information, email call@ifla2016.com or visit www.ifla2016.com.



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Onyx Solar awarded with a new project in Turkey

Avila, Spain – Bursagaz, one of the most important Turkish gas companies, will have a new headquarter which is aiming to obtain the LEED Platinum rating.

Onyx Solar is responsible of developing originality in the design by superimposing a mosaic double skin onto the façade. The glass, featuring Amorphous Silicon, will have 20 percent transparency, allowing homogeneous light into the building and reducing the need of artificial lighting.

Adhering to the Bursagaz corporative strategy of developing innovative projects that contribute to a more sustainable future, this project exemplifies one of many reasons why Bursagaz is well accepted in the market.



UC Innovation Center – Anacleto Angelini wins in the Architecture Category of the Designs of the Year 2015



UC Innovation Center – Anacleto Angelini, designed by Elemental.
Photo: Courtesy of the designers

London, UK – The Design Museum in London has revealed the six category winners for its annual Designs of the Year Awards. Designs of the Year celebrates design that promotes or delivers change, enables access, extends design practice or captures the spirit of the year.

In the Architecture category, UC Innovation Center – Anacleto Angelini, designed by Elemental, has won the award. This open and eco-friendly university building in Santiago features a thermal mass on the perimeter and open air squares throughout. It creates the right environment for knowledge-creation and reduces energy costs by two-thirds.

MVRDV wins competition for Zaanstad Cultural Cluster

Rotterdam, The Netherlands – The municipality of Zaanstad in the Netherlands announced that MVRDV has been selected as the winner of the competition for the new Cultural Cluster in the city of Zaanstad. The new building will neighbour the city's main train station, city hall and the famous Inntel Hotel, designed as a stack of green Dutch houses. The Zaanstad Cultural Cluster is part of Sjoerd Soeters' urban plan, which is designed to add more local character to the inner city and construct in a 'new Zaan style'. The 7,500 square metres Cultural Cluster will house five local cultural institutions, with each institution given its own clear presence on the building's façade in the form of a void in the shape of a historic Zaan house.

Since 2001, the centre of Zaanstad has been transformed to agree with the style of the nearby UNESCO World Heritage site the Zaanse Schans. Architectural highlights of this requirement include the city hall in shape of oversized Zaan houses and the Inntel hotel, which appears as a large stack of the same green houses. The new Cultural Cluster is the next step in this urban plan. The question was raised of how to continue the Zaan style given these existing variations of the traditional house, and also how to secure a clear identity for each of the established cultural institutions within the larger envelope of a single building.

MVRDV co-founder and principal Jacob van Rijs explained the solution: "We started with a compact volume and then turned the typical Zaan house inside out, creating an urban living room. On the exterior façade a wallpaper motif contrasts with interior spaces clad in the green wooden facades so typical of the Zaan region. The characteristic shape of the Zaan house returns as the shape of the building's main atrium void, a cut-out within the larger volume."



Main view of the exterior. Photo: © MVRDV

An advertisement for 'Green building by OBO!'. The top half features a large green leaf motif with the text 'Green building by OBO!' in a bold, green, sans-serif font. Below the text is a logo for the 'SINGAPORE GREEN BUILDING COUNCIL' consisting of a green leaf icon and the text 'SINGAPORE GREEN BUILDING COUNCIL'. The bottom half of the advertisement shows a close-up of a metal grate or screen, likely a product from OBO.

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Celebrating 50 years of solid track record in building Asian icons

NS BlueScope Lysaght celebrates its golden jubilee with loyal customers.

Singapore – NS BlueScope Lysaght Singapore celebrated its 50th anniversary by hosting a customer appreciation night, aptly themed “Retro 60’s”, at Furama RiverFront Hotel, Singapore on 29th May 2015.

Several decades of sustained success in business is an accomplishment that calls for a celebration and the night did not fail to excite guests as it was celebrated in all its grandeur, by paying homage to the 1960’s as a tribute to the company’s first Lysaght office in Singapore, which marks the pivotal journey helping build the companies heritage in one of the most globalised countries in the world.

As one of ASEAN’s largest and most reputed roll formers of steel building products, with unmatched experience in the manufacturing of roofing, walling and structural products, NS BlueScope Lysaght is a renowned name in Asia’s building and construction industry and premier supplier of steel building components and systems for the past 50 years.

The Appreciation Dinner was part of Lysaght’s Golden Jubilee celebrations in Asia, which signifies the birth of Lysaght Singapore in 1965, making it the first establishment and the beginning of Lysaght’s footprint in Asia, followed by Lysaght Malaysia in 1968, Lysaght Indonesia in 1971, Thailand in 1988 and Vietnam in 1993. The business in Asia then started to grow making Lysaght a major player in the manufacture, supply and installation of truly tested suite of premium steel building products and solutions.

Honourable guests at the event included Lysaght’s loyal customers, members of building and construction associations, architects and consultants. Guests were dressed in the most colourful psychedelic 60’s attire, treated to performances, and music from the 1960’s including some sixties rock music from chart toppers the likes of The Beatles, Elvis Priestley, music from Motown. Guests were also seen taking selfies and wifies in room sets inspired by the 60’s with bright bold colours.

During his welcoming speech dedicated to customers, President of NS BlueScope Lysaght Singapore Mr Tarun Sinha said: “The 50th anniversary marks an important milestone for the company as we look back on our incredible heritage of talents and accomplishments. This has enabled the company to maintain its position as a pioneer in steel building products and solutions through its cutting edge roll-forming technology, research and product development.”

He further highlighted and spoke about the joint venture with Nippon Steel Sumitomo Metal Corporation in 2012. “The joint venture helped to build on the strength of our global partnerships, business opportunity, networks and brands,” he said. NS BlueScope Lysaght also continues to invest and develop on future technology through the establishment of the Lysaght Product Innovative Centre (Lysaght PIC). Located in Singapore, the centre is responsible to lead and champion Lysaght’s product researches, developments and innovations for the ASEAN region.

The event also marked an important milestone for NS BlueScope Lysaght as the company launched its brand new website (www.lysaght.com.sg). The website is made more interactive, resourceful and user-friendly, enabling users to access products, company information, case studies, reference literatures, technical data sheet and many others resources instantaneously at their fingertips. In addition, a Lysaght Mobile App was also made



President of NS BlueScope Lysaght Singapore Mr Tarun Sinha, giving his welcome speech to the audience.



Launch of NS BlueScope Lysaght’s brand new Website and Lysaght Mobile App by Mr Atul Gogna – Vice President Strategic Marketing, Regional Head Offices - Malaysia & Singapore.



Dance performance at the dinner.



A lucky draw awarded prizes to the winners.



Best Dressed competition.



Guests at the event included Lysaght's loyal customers, members of building and construction associations, architects and consultants.

available to users, downloadable on both Google's Play Store and Apple's App Store for all smartphone and tablet users highlighting the company taking a step forward by going social, and providing convenient, instant access to all required information on the go.

Since its first establishment in Singapore in 1965, Lysaght has come a long way and have grown to be one of the important business sites in Asia, providing high quality building products and solutions to countless of iconic structures in Asia, such as China's New CCTV Tower and Chengdu Shuangliu International Airport, Thailand's Biyok Tower 2 in Bangkok, Malaysia's Petronas Twin Towers, Kuching International Airport, Singapore's Changi Airport, Esplanade Theatres on the Bay and Marina Bay Sands.

Staying true to its commitment with the motto "To be the trusted partner for building systems", the company strives to meet the most stringent and architecturally demanding structures without compromising on strength, flexibility and aesthetic beauty. All Lysaght Products are tested and developed at BlueScope Technology Centre in Chesterhill, Australia. This independent testing facility is accredited internationally by the National Association of Testing Authorities (NATA) and the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia.

While justifiably proud of its heritage, NS BlueScope Lysaght keeps its focus on the future. With a commitment to research and development, initiatives in specialised fields and technology, NS BlueScope Lysaght continues to stay innovative and versatile, adapting well to the demands of the ever evolving styles and design needs of Asia Pacific's construction sector, offering more options which enable its customers to translate their architectural designs from the drawing board to tangible structures in the most efficient manner possible.

For more information, please contact NS BlueScope Lysaght Singapore Pte Ltd at tel (+65) 6264 1577 or visit www.lysaght.com.sg.



A guest signs on the signatory board.

TECHNAL to unveil two trend setting acoustic concepts and its majestic stand at BATIMAT fair in Paris



TECHNAL's stand at BATIMAT 2015.

Toulouse, France – TECHNAL, a specialist in aluminium building systems, uses BATIMAT fair as a platform on which to experiment and exhibit its innovative solutions and places great emphasis on providing architects, purchasing advisors and contracting authorities with solutions tailored to their requirements. For several years, the brand has stood out on its markets, combining the ideas of well-being, design and elegance in the development of its tailor-made joinery products. Having previously focused on thermal performance and accessibility in accordance with successive regulations, TECHNAL has for the last two years concentrated its research efforts on auditory perception.

At the heart of this research is acoustic protection, which has become a key social issue with the verticalisation of cities and urban densification, both of which exacerbate noise pollution in work and home life. Over 80 percent* of architects say that sound insulation is a key criterion when working on building or renovation projects. According to an IFOP** study, French people are increasingly looking to protect themselves against noise. 86 percent have felt discomfort at home and 85 percent at their place of work.

Considering vehicle traffic and neighbours (everyday life, work, children, animals, etc.) to be the primary sources of noise pollution, 92 percent think that closing their windows is the right solution to protect themselves against noise.

At the 30th edition of BATIMAT fair in Paris in November – from 2 to 6 –, TECHNAL will reveal two trend-setting acoustic concepts to visitors, which were designed and developed based on this global vision. The brand's goal is to provide effective tools and solutions to professionals and private individuals.

1) TECHACOUSTIC® BY TECHNAL SOFTWARE

The first on the market to measure joinery products' acoustic performance to an accuracy of 1 dB.

2) ACTIVE ACOUSTIC CONCEPT

A patented system that guarantees the acoustic attenuation of joinery products, even with the window open. Based on the combination of complementary "passive" and "active" technologies, this system enables an acoustic attenuation of up to 25 dB, that's the equivalent, on average, of 300 times less noise inside.



Alain Moatti

Hearing and the other senses will be the central theme on the TECHNAL stand at BATIMAT 2015. Designed by renowned architect Alain Moatti of the MOATTI-RIVIERE agency, a majestic 450 square metres showcase beckons you to a sensory experience through the interplay of reflections, large dimensions and the feeling of verticality. In designing this stand, the architect used four evocative themes; "Monumentality", "Disappearance", "Threshold" and "Scent". These themes reveal TECHNAL's values of innovation, design, comfort and quality of life. The stand will be both a meeting space that is suitable for business exchanges and an exhibition area for several new products such as a façade, a fire door, a folding door, etc.

TECHNAL to have a majestic architectural stand

In keeping with the tradition of the last 15 editions of the BATIMAT fair, TECHNAL hired a well-known architect to create its stand. This year, it is Alain Moatti of the MOATTI-RIVIERE agency that is designing the stand. He has that special talent of being able to draw upon the brand's DNA to find the impetus for an architectural project. The 2015 stand, covering an area of 450 square metres, reveals TECHNAL's values of innovation, design and comfort. To design the stand, Alain Moatti used four evocative themes that define the essence of the brand: Monumentality, Disappearance, Threshold and Scent.

Monumentality

When visitors enter the stand, they discover façades 5 metres in height. A mirrored ceiling doubles these heights and makes them seem unknown. These vertical elements monumentalise the products and transcend the scale of the place.



Overview of the TECHNAL stand at BATIMAT 2015.

Disappearance

Creating a world in which limits become blurred, and where walls seem invisible and highlight TECHNAL aluminium solutions. The finesse of the joinery products, the simplicity of their mechanisms, the transparency and reflections of their glazing make material disappear.

Threshold

For Alain Moatti, TECHNAL defines the thresholds. A relationship between the inside and outside is the very basis of architecture. This subtle border between the interior and the exterior is achieved on the stand by the transparency of products and the marks on the ground.

Scent

The architect plays around with his drawings which are the only graphical representation of the stand. TECHNAL products are the only three-dimensional representations. These drawings represent a garden, the outdoors. The project that the architect proposes is not, therefore, the bottle, an object, but the experience, a scent.

"This is an architecturally rigorous project, with no limits and significant depths"

Alain Moatti wanted to create an immaterial place where the visitor has a unique experience and loses all notions of landmarks and spaces. "Architecture is the creation of imaginary places; we give them a face in reality," said the architect.

This stand is a project of depth rather than shape, which plays with reflections, large dimensions and verticality. Here, TECHNAL products are not placed on a stage; rather they enter into a refined universe of blue and white hues which serve as a reminder of the brand's logo.

The main entrance exhibits three full-height façade solutions. This is an architecturally rigorous project, with no limits and significant depths, which epitomises the stand. When the visitor glances skyward, the feeling of timelessness, unknown expanses and transparency is accentuated by the mirrored ceiling and lights integrated into the product structures (façades, sliding systems, doors, windows, etc.).

The stand is composed of an "Exhibition" area and a "Backstage" area. The Exhibition area is split into two clear zones by marks on the ground, in which new products are presented. This layout highlights the subtle boundary between interior and exterior. According to the plan, the "outside" will have fine vegetation of various shades of grey. The "inside" contains virtual meeting rooms with tables, chairs and window openings that are sketched and dimensioned like on an architect's drawing. The Backstage area (equipment rooms, locker rooms, etc.) connected by a cafeteria serving as a central meeting area and linking point. The cafeteria has a green courtyard, around which a translucent curtain gives the impression of an architectural façade reflecting in the mirror. This fourth dimension corresponds with the reflection and gives a feeling of depth.

A part of the stand is exclusively reserved for presenting TECHNAL's acoustic concepts. This is where visitors are invited to enjoy a true sensory experience. On the stand, visitors can move freely in wide, flowing walkways. A nod to the brand, the historic 4114 profile which symbolises the logo will adorn each reception booth.

For more information, visit www.technal-int.com.

**According to an IFOP poll conducted for the French Ministry of Ecology, Sustainable Development and Energy in September 2014.*

***Source: ARCH VISION.*

Emirates Green Building Council launches first 'Technical Guidelines for Retrofitting Existing Buildings' in the UAE

Dubai, UAE – Emirates Green Building Council (EmiratesGBC), an independent forum aimed at conserving the environment by strengthening and promoting green building practices, has launched the 'Technical Guidelines for Retrofitting Existing Buildings' to serve as a guide for UAE industry professionals and building end-users.

The Guidelines have been created in conformance with the UAE's sustainability agenda, as part of its National Agenda 2021 and in line with local sustainable strategies such as the Dubai Integrated Energy Strategy and Abu Dhabi Vision 2030.

Compiled by EmiratesGBC and written by volunteer EmiratesGBC members and stakeholders, with the endorsement of the Ministry of Public Works and the Dubai Supreme Council of Energy, the 'Technical Guidelines' cover current processes, technologies, and local and regional standards in place to successfully and efficiently retrofit existing buildings in the country.

At the launch event, Saeed Al Abbar, Chairman of EmiratesGBC, said: "The UAE has a great potential for shifting towards a greener future. In Dubai alone, it is estimated that 30,000 out of the 120,000 existing buildings have a high energy saving potential. The 'Technical Guidelines for Retrofitting Existing Buildings' have been compiled to leverage on this by reaching out to all stakeholders across the industry and guide them through the process of making existing buildings more sustainable."

"A fundamental aspect of this document is that it has been compiled by industry experts within the UAE, which ensures that the guidelines are specific to the UAE's unique climatic and economical context," added Al Abbar.

The Guidelines provide an organised collection of economically viable methods that will equip existing building owners in the UAE with the necessary tools to achieve sustainable and comfortable buildings, as well as specific processes that can be implemented to improve a building's performance, save money, and prevent further pollution of the environment.

The retrofit solutions provided enable immediate and long-term reductions and/or efficiency in energy and water use, improvements in indoor air quality, and effective waste management, with subsequent lowering of utility and labour costs for building owners.

This new publication further complements the 'EmiratesGBC Energy Efficiency Programme (EEP)' launched late last year, which consists of a database that serves as a catalyst for all interested players, including energy efficiency equipment manufacturers and vendors; contractors, facility managers, banks and financiers; insurance companies and energy service companies (ESCOs) to assist in facilitating their industry requirements related to energy efficiency, by directing their needs to other players.



Saeed Al Abbar, Chairman of EmiratesGBC.



Group photo of Saeed Al Abbar, EmiratesGBC Chairman (extreme left) and contributors of the Technical Guide during the launch.

EmiratesGBC Chairman Saeed Al Abbar appointed to the board of World Green Building Council

Dubai, UAE – Saeed Al Abbar, Chairman of Emirates Green Building Council (EmiratesGBC), has been appointed to the Board of World Green Building Council (WorldGBC), a network of national green building councils in more than 90 countries.

Al Abbar follows the footsteps of Adnan Sharafi, who held the post for the past two years as the first Emirati to serve on the Board; and will assume his two-year tenure on 1 July 2015. The appointment underlines the success of EmiratesGBC in promoting sustainable built environments in the UAE and the wider Middle East region.

Al Abbar said: "It is with great respect that I take on this new role and I thank the WorldGBC for this recognition. I am particularly thankful to His Highness Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice President and Prime Minister and Ruler of Dubai, whose 'green vision for sustainable development' has been a constant source of inspiration and guidance for our ongoing strategy and activities. It is a true

honour for EmiratesGBC and me personally, to be able to continue with our task of representing the UAE in the global green agenda.

"Since its inception in 2006, EmiratesGBC has served the goal of advancing green building principles that help protect the environment and foster sustainability across the Middle East region. Through our mission to be a catalyst for collaboration and a hub for excellence to promote sustainability of the built environment in the UAE, we have been a prime driver in facilitating the UAE's vision to be a global leader for sustainability in the built environment. The board membership at WorldGBC will enable me to ensure the Middle East gets the attention it deserves on the global sustainability dialogue," he added.

Terri Wills, WorldGBC CEO, said: "Green Building Councils in the Middle East and North Africa region are instrumental in transforming the marketplace towards green building, in turn addressing unique environmental challenges faced in the area."

"Saeed Al Abbar's appointment to the board of the World Green Building Council is a reflection of the importance of the region. I know that Saeed's role with the WorldGBC will enable Green Building Councils the world over to learn from this key region," she added.

As the Founding Managing Director of Alabbar Energy and Sustainability Group (AESG), a firm specialising in the provision of energy and sustainability consultancy in the Middle East, Al Abbar is involved in managing and directing sustainable design and construction projects throughout the Middle East.

He has contributed to landmark projects including some of the largest and prestigious master-planned developments, high rise buildings, housing development and critical infrastructure. AESG has developed a strong reputation in the region for delivering high quality sustainability and energy consultancy.

Al Abbar holds a First Class Masters degree with honours in Mechanical Engineering from the University of Bath and is a Certified Energy Manager, LEED Accredited Professional and Estidama Pearl Qualified Professional.

In his new capacity as board member of WorldGBC, he will actively work in promoting the advancement of sustainable buildings in the UAE and MENA region across a global platform.



Saeed Al Abbar, Chairman of Emirates Green Building Council.

Vietnam Green Building Council launches LOTUS Non Residential Version 2.0

Hanoi, Vietnam – The Vietnam Green Building Council has announced the release of LOTUS Non Residential Version 2.0 (LOTUS NR V2.0) tool.

The tool includes a high number of amendments to improve LOTUS NR by:

- offering more compliance methods and thus, flexibility for projects
- better reflecting current industry best practice in Vietnam.
- encompassing more relevant criteria and information
- recognising more effectively the higher performance reached by projects (Platinum level)
- removing inappropriate requirements
- and streamlining the process, making it easier



VietinBank Tower.
Photo: © Foster+Partners



DBW Garment Factory. Photo: © Green Consult-Asia & VGBC

The English version of LOTUS NR V2.0 is now available for free download from the VGBC website at www.vgbc.org.vn.

Two projects that will benefit advantages from the latest LOTUS rating tool are:

1) **VietinBank Tower:** Vietinbank Tower project is an office building located in a complex of three buildings at the Ciputra gateway in Ha Noi. The complex includes a retail podium with other services of dining, bar, gym and hotel in addition to the office building. After it is finished, the building will accommodate the headquarter of the Vietnam Joint Stock Commercial Bank for Industry and Trade.

2) **DBW Factory:** Deutsche Bekleidungswerke Limited Factory Long An project is a garment factory. The building is located in an Industrial Park in Nha Be. The building will be a steel or concrete-framed building of five storeys including workshop, offices, storage, canteen and 4 small apartments."

Appointment for worldwide sustainable building at Veronafiore Greenbuild Europe & The Mediterranean: Case histories include Singapore

Rovereto, Italy – This is the first European edition of the largest event dedicated to training and communication in the context of sustainability in the construction industry and offers impressive networking and business opportunities for companies. The Green Building Council Italy and Veronafiore join forces to organise Greenbuild Europe & The Mediterranean (14-16 October 2015) in collaboration with USGBC and Informa Exhibition (www.greenbuildeuromed.com).

The case histories presented during the event will include Singapore – a pioneer of “green buildings”. Dr John Keung – CEO of the Building and Construction Authority of Singapore, the main government agency responsible for achieving the goal of transforming 80 percent of Singapore into “green” buildings by 2030 – will speak about this subject.

The topic of sustainable buildings is by now central to the revival of the construction industry. Greenbuild EuroMed confirms its status as a landmark international meeting to discuss sustainability projects, methods, approaches and techniques. The building sector is responsible for 30 percent of harmful gas emissions around our planet and 40 percent of energy consumption. Recent European directives in the urban redevelopment and building area confirm this data and, thanks to specific framework programmes, Member States are working to promote large-scale implementation of effective energy re-qualification strategies to upgrade their property assets.

The event in fact boasts partnership with several European GBC groups, including GBC France, GBC Hungary, GBC Croatia, GBC Romania, GBC Slovenia, Polish GBC, Slovak GBC and the German DGNB. The project is also supported by the consortium of 13 European GBCs belonging to BUILD UPON, an ambitious European project financed within the H2020 framework with over 2 million euro which aims to create an effective reference supporting Governments in designing and implementing national redevelopment strategies in accordance with European directives.

The appointment is divided into an exhibition section named “expo” and a training section named “conference”. It will be characterised by networking and business opportunities for companies, market excellence and innovation and qualified training thanks to the involvement of international speakers.

The impressive programme organised for “Conference” – which covers thematic focus concepts including Certification Systems, Performance of Buildings, Professional Development, Innovative Design, Materials, Health and Well-Being, Regulations and Governance Tools, Sustainable Schools, Economic and Financial Aspects and Climate Change – has been developed thanks to 120 topics put forward in response to the Call for Proposals issued to qualified operators and national and international researchers.

Greenbuild EuroMed essentially targets builders, architects, property owners, developers, interior designers, engineers and producers of materials for sustainable building.

The event developed thanks to Veronafiore's skill and consolidated international relationships in the construction sector and numerous events of world-wide calibre in the building sector, such as Marmomacc, Samoter and Legno&Edilizia, where markets such as the United States, Brazil, the Middle East and Africa are especially in the forefront.

Companies which have chosen Greenbuild EuroMed include Saint-Gobain, the world leader in construction markets with 41 billion euros in turnover and 180 thousand employees worldwide. Given its history going back 350 years, Saint-Gobain continues to distribute new generations of materials for sustainable building as well as provide innovative solutions for energy efficiency and living comfort.

Greenbuild EuroMed will take place alongside Smart Energy Expo, the trade fair dedicated to energy efficiency solutions, products and technologies that focuses on an innovative format to help businesses find their way around the market at a time of far-reaching changes (www.smartenergyexpo.net).



Photos above: Visitors at the Greenbuild International Conference and Expo 2014, which took place from October 22-24, 2014 in New Orleans, LA, USA.

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Big C Green Square

– A sustainable Hypermarket & Commercial building

Completed in March 2013, Big C Di An is the first commercial building to achieve both LOTUS Certification (VN) and LEED Certification (US) and is the first Big C commercial centre to be certified as a Green Building, illustrating Big C's commitment towards a more sustainable Vietnam.

Located at National 1K, Dong Hoa ward, Di An town in Binh Duong province, the building possesses many green features, such as high-performance insulating envelope, reflective roofing, water efficient fixtures, low VOCs materials, permeable hardscape materials, etc. The car parking roof has been covered with 1,450 square metres of solar panels that produced 231,430 kWh of renewable electricity during the first year of operation. Another notable feature is the ice storage system offering a cost-effective solution for the investor. Particularly, porous concrete was used to reduce stormwater runoff and refill the underground water.

Besides energy savings, the building recycles 100 percent of its waste water, offers a large parking space for bicycles including charging outlets for electric ones, covers and manages public pavement as a green public park benefiting Big C younger customers as well as local kids.

Thanks to all these efforts, Big C became the first building in Vietnam to be awarded with LOTUS Silver Certification in October 2013. "The pursuing of green building certifications (LEED & LOTUS) seems to be the most appropriate choice of Big C Vietnam for their CSR programme implementation. Thanks to all green features, they not only get benefits in marketing and a high recognition, but also get significant expense savings during the operation phase, with up to 25 percent of savings compared to other regular Big C hypermarkets in the same climate condition," said Mr Vu Hong Phong, Project Manager, Vietnam Green Building Council.

Green Features

- 23 percent of energy use reduction
- 51 percent of water use reduction
- 1,450 square metres of photovoltaic panels (5 percent of total energy use)
- 35 percent of site perviousness (porous concrete parking)
- 100 percent wastewater collected and recycled
- Green transportation plan implemented
- Public park and children playground for local people

PROJECT DATA

Project: Big C Green Square

Location: National 1K, Dong Hoa ward, Di An town, Binh Duong, Vietnam

Owner: Viet Nhat Real Estate JSC – Big C

Architect: HighEnd Architecture

Engineering: Cebi Vietnam, Artelia, Phu Hung Gia, Schneider Vietnam

Consultant: Green Consult-Asia, Indochine Engineering

Photos: Courtesy of Vietnam Green Building Council & Big C Vietnam



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Imagine the design possibilities with natural terracotta

Hunter Douglas has successfully completed the Anggerek Desa Technology Park Phase 3 Brunei, a project by the Brunei Economic Development Board (BEDB), using its NBK Terracotta Facade system.

Located in the capital of Brunei, Bandar Seri Begawan, Anggerek Desa Technology Park Phase 3 was a prestigious project for P.A.Y. Architects and NBK by Hunter Douglas. After a year of intense construction activities, it is now ready to cater to international and local companies in the creative and information technology industry. Initiated by the BEDB, the US\$ 14 million Design & Technology (D&T) building, together with a multi-storey car park, was designed to complement the establishment of the iCentre and Knowledge Hub as a step in progressing towards a full-fledged Anggerek Desa Technology Park (ADTP).

The project features a “green” office building with a Green Mark Gold Certification from the Building and Construction Authority (BCA) of Singapore. Tenants include world-renowned companies such as Autodesk, SideFX and Beijing Sesame World Technologies Ltd. The new building houses various facilities, such as an auditorium, mini theatre/studio, teleconference rooms, meetings rooms, and training rooms as well as a cafeteria.

The use of Hunter Douglas NBK Terracotta Façade panels allows the architect, P.A.Y. Architects, the creative freedom to contrast the modernity of glass with the traditional art of terracotta. Additionally, a key feature of these panels is the proprietary façade solutions. NBK Terracotta Façade is a ventilated curtain wall / rainscreen system whose exposed components are made exclusively from terracotta. Using a ventilated system, water is moved away from building envelopes, a natural chimney effect is thus created, keeping the building dry to reduce maintenance as well as to save energy.

Today, the Terracotta Façade system developed by Niederrheinische Baukeramik (NBK) is widely used in varied applications across the globe. Many renowned architects have harnessed the tremendous creative possibilities offered by this terracotta façade system to create buildings garnering immense interest and attention. The ability of the Terracotta Façade system to accommodate even the finest design details in terms of shape, colour, texture and glaze paves the way for unique, tailored solutions.

For more information, contact Hunter Douglas Asia at tel (+60) 3 5191 2020, email facades@hunterdouglas.asia or visit www.hunterdouglas.asia.



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External view of the Hawthorn Arts Centre.

Hawthorn Arts Centre in Boroondara

A 19th-century historical building has turned into an Arts Centre.

Since its opening in 1888, the Hawthorn Town Hall has been an iconic fixture of the City of Boroondara, located in the eastern suburbs of Melbourne (Australia), and a fine example of Victorian architecture. Designed by architect John Beswicke, the hall used to house the City of Hawthorn's council chambers.

Since 1994 the building was used as a library, museum and gallery space. In 2008, the City of Boroondara's adopted Arts and Cultural Strategy 2008-2013 that identified the vision 'for a city of harmony where citizens can celebrate, share, express and experience a rich arts and cultural life.' To fulfill this vision, the redevelopment of the Hawthorn Town Hall was recommended. In 2009, concept development for the Hawthorn Town Hall Arts Precinct Project began. Construction of the Hawthorn Arts Centre was completed in September 2013.

The Town Hall Gallery has been transformed into three new professional gallery spaces allowing for a broader exhibition calendar and educational programme. Other key redevelopment features include the refurbishment of Town Hall areas with new kitchens, amenities and meeting rooms; new arts studio and workshop spaces; new, expanded exhibition spaces and a café.





Photo 1



Photo 2



Photo 3

Photo 1: Wooden floors were bonded with ULTRABOND P990 1K adhesive.

Photo 2: The wooden coverings were treated with ULTRACOAT PREMIUM BASE undercoat and ULTRACOAT HIGH TRAFFIC varnish.

Photo 3: Tallowwood wooden floors were laid in the foyer using ULTRABOND P990 1K.

Laying wooden floors with eco-sustainable materials

The company in charge of laying over 2,400 square metres of wooden floorings throughout the Town Hall contacted Mapei Technical Services who surveyed the building site and suggested some laying systems able to meet the site's needs and ensure high-quality and eco-sustainability.

The substrates were first treated and repaired with NIVORAPID ultra-fast setting thixotropic cementitious levelling mortar for vertical surfaces, for thicknesses from 1 to 20 mm. In some areas plywood was installed. The plywood was lightly sanded and 2,000 square metres of solid wooden floors were installed using ULTRABOND P990 1 K one-component, ready-to-use, solvent-free, flexible polyurethane adhesive for all types of wooden floors on screeds.

In addition to the solid wooden flooring, contractors also installed over 400 square metres of Tallowwood eucalyptus floors in the main and foyer areas again using ULTRABOND P990 1 K. All wooden surfaces were coated with ULTRACOAT PREMIUM BASE two-component, NMP (N-Methyl-pyrrolidone)-free, water-based undercoat with low emission of volatile organic compounds (VOC) and high insulating capacity. Once the surfaces were dry, they were finished with two coats of ULTRACOAT HIGH TRAFFIC two-component, 100 percent polyurethane water-based varnish with high resistance to wear and abrasion and low emission level of VOC.

The concrete substrates which were to be covered with textile and vinyl floorings were first repaired with PLANIPREP FF to smooth out any levelling differences in the substrate. This product has been lately superseded by PLANIPREP SC, distributed on the Australian market by Mapei Australia Pty Ltd.

The existing concrete floors were then primed using PRIMER G synthetic resin based primer in water dispersion and ECO PRIM T solvent-free, acrylic primer prior to the installation of the levelling and smoothing compounds. UC LEVELLER fast-hardening levelling smoothing compound (which is manufactured and distributed on the Australian market by Mapei Australia) was pumped onto the concreted areas where the flooring levels needed to meet adjoining levels. ULTRAPLAN ultra-fast hardening self-levelling smoothing compound was then applied over the UC LEVELLER layer to form a smooth surface for installing the vinyl coverings.





Photo 4



Photo 5



Photo 6

Photo 4: Before laying textile and vinyl floors, the substrates were levelled and smoothed with UC LEVELLER (manufactured and distributed on the Australian market by Mapei Australia) and ULTRAPLAN.

Photo 5: ULTRABOND ECO TACK adhesive was chosen to bond textile floors.

Photo 6: MAPECONTACT reinforced adhesive strip was used to bond the textile coverings on the stairs.

The contractors installed over 1,000 square metres of textile floors using ULTRABOND ECO TACK adhesive with permanent tack in water dispersion with a very low emission level of VOC for self-laying textile squares. This is a solvent-free adhesive designed to create a permanent tacky film when dry, allowing the removal and replacement of self-laying textile tiles when required.

ULTRABOND ECO 350 was instead used to install the vinyl floors in the kitchen and corridor areas. This is an acrylic adhesive in water dispersion with very low emission level of VOC, which forms a tough bond even after being left open for a long time. It is easy to apply and ideal for laying rubber, PVC, vinyl, polyolephenic, linoleum and carpet flooring.

ROLLCOLL was also used to install the vinyl coverings on the walls where required. This is a rapid-setting universal adhesive in water dispersion for the installation of vinyl floor and wall coverings that can be applied by trowel, roller or spray in a single application.

The laying company used MAPECONTACT to bond the textile coverings to the many flights of stairs throughout the building. MAPECONTACT is a reinforced adhesive strip for laying profiles, base-boards, covings and resilient and textile coverings on steps.

For more information, email mapei@mapei.com.sg.

Article source: *Realtá Mapei International* no. 52/2015

Mapei Products

Preparing the substrates: Eco Prim T, Nivorapid, Planiprep FF (lately superseded by Planiprep SC*), Primer G, UC Leveller*, Ultraplan

Laying wooden floors: Ultrabond P990 1K, Ultracoat Premium Base, Ultracoat High Traffic

Laying vinyl floors: Rollcoll, Ultrabond Eco 350

Laying textile coverings: Mapecontact, Ultrabond Eco Tack

*These products are manufactured and distributed on the Australian market by Mapei Australia Pty Ltd

PROJECT DATA

Project: Hawthorn Arts Centre

Location: Boroondara, Australia

Period of Construction: 1888-1890

Design: John Beswicke

Year of the Intervention: 2013

Intervention by Mapei: supplying products to repair and treat the substrates laying wooden vinyl and textile floors

Design: Peddle Thorp Architects

Contractor: APM Group

Laying Companies: D Borthwick & Sons (for wooden floors), Floor91 (for textile and vinyl floors)

Mapei Co-ordinators: Scott Coutts and Debby Norgrove, Mapei Australia Pty Ltd



BCA AWARDS THE NEW GREEN MARK PEARL PRESTIGE AWARD FOR 2015 TO...CDL!

CDL's City House in the Central Business District, a Green Mark Platinum building, emerged as the sole winner of the Green Mark Pearl Prestige Award.

The BCA Green Mark Pearl Award recognises the strong commitment of developers, building owners, landlords and tenants of the same project/building working in tandem to achieve greater environmental sustainability for their project/building. The Award is given to developers, building owners and landlords who have a substantial number of tenants who are Green Mark certified under the Green Mark occupant-centric schemes within a base building which is Green Mark Gold^{PLUS} or higher. There are two tiers of the Award – Green Mark Pearl Award and Green Mark Pearl Prestige Award.

City House has achieved annual energy savings of about 1.9 million kWh (equivalent to about S\$500,000* annually). Beyond retrofitting City House with a more energy efficient chiller plant, CDL has introduced a 1 percent electricity rebate for commercial tenants who attain 2 percent savings over the last quarter's bill. Tenants were also given kits with practical tips to green fit their premises and were encouraged to recycle.

As one of Asia's leading eco-developers, CDL has adopted a company ethos to 'Conserve as we Construct', remodelling its operations around a triple bottom line strategy focused on financial, environmental, and social performance.

Beyond pioneering visionary sustainable buildings with green design, CDL has raised its target to achieve a minimum of BCA Green Mark Gold^{PLUS} for all existing buildings since 2011. Through various effective engagement initiatives such as Project: Eco-Office, "1°C Up Programme" and green fitting-out kits, CDL has encouraged and enabled its commercial tenants to play a more proactive role in Singapore's sustainable development agenda.

Since September 2014, CDL has also progressively implemented its Green Lease Partnership programme. As of April 2015, close to 80 percent of its commercial tenants have signed the CDL Green Lease Memorandum of Understanding, pledging to monitor and reduce energy consumption.

With its strong and unwavering leadership commitment to sustainable development, CDL has distinguished itself as the most-awarded developer in the BCA Awards 2015 and largest winner of the inaugural Green Mark Pearl Award.

**Based on 2014's average electricity tariff of S\$0.2559.*



CDL's City House in the Central Business District of Singapore.
Photo: © City Developments Limited

AND THE BCA GREEN MARK CHAMPION AWARD FOR 2015 GOES TO...MAPLETREE!



Mapletree Business City in Singapore.



Mapletree Benoi Logistics Hub in Singapore.

The BCA Green Mark Champion award for 2015 was given to Mapletree Investments Pte Ltd, which has a total of 12 Green Mark projects that are rated Gold and above. This includes five Platinum and one Gold^{PLUS} awards.

Mapletree is committed to environmentally sustainable practices. As a leading real estate developer, investor and capital manager, it recognises the value and cost savings that sustainable design brings to its developments and their communities. To this end, Mapletree strives to integrate green building features in its properties.

For its Singapore-based projects, Mapletree seeks to achieve the Green Mark accreditation that is issued by Singapore's Building and Construction Authority (BCA). Their annual energy savings amount to more than 53 million kWh from its Green Mark accredited properties. This is equivalent to meeting the electricity needs of over 9,500 Singapore households for one year.

Mapletree's flagship development, Mapletree Business City (MBC), exemplifies the Group's focus on developing sustainable properties. It has clinched numerous accolades as a green and sustainable development that has incorporated a user-centric philosophy in its design, operations and maintenance. Another environmentally-friendly development is Mapletree Benoi Logistics Hub (MBLH).

Recycled aggregates and green materials were used to build MBLH, while its roof has a skylight strip integrated with a photo sensor to reduce lighting consumption. A Green Mark Platinum rated property, MBLH is also the first naturally ventilated warehouse in Singapore to earn this accolade.

Roof garden at Havelock City in Colombo creates a 'safe and peaceful haven'

**Article by Ho Wan Weng,
Managing Director of Verditecture Pte Ltd**

This one-of-a-kind roof garden at Havelock City leads at the forefront of the Sri Lanka luxury private residential market in terms of size, intensity and landscape technology. While the first of four phases of the roof garden was completed in 2009, the eventual roof garden, in its entirety, would offer 28,000 square metres of lush rooftop greenery. Situated in the exclusive district of Colombo 6, the garden is part of a unique selling point that embraces the "Garden City" concept.

As the only largest flora and fauna canvass within the area, various forms of birdlife are attracted to it as a temporary stopover, painting a colourful picturesque backdrop against which residents interact amongst the comprehensive facilities.

Design concept

The design concept of the roof garden was birthed during the days of old when Sri Lanka was intensely embroiled in years of civil war especially in the northern part of the country. At the capital city, Colombo, army personnel and checkpoints dotted the public roads and institutions. Though, by 2008, signs were indicating that the war was ending, the cries of the population for safety and peace could not quenched. Amidst such an environment, the roof garden was designed with the solid determination to provide a safe haven for both the residents and wildlife, synonymous to a tropical paradise – a cultural uniqueness of Sri Lankans to live, work and play close to nature and wildlife. Bits of every aspect of a tropical rainforest were re-created at the roof garden. At every corner of the roof garden, the message of "peacefulness" is very explicit, allowing the residents to enjoy an intense and direct interaction with nature and wildlife at their own pace, unrestricted by time; a great contrary to state of unrest outside the boundaries of Havelock City. The frequent visits by a wide spectrum of birdlife validates the message of "peacefulness."

The Havelock City development is shaped like a "bowl with a spout" where the roof garden resides at the basin surrounded by tall apartment towers along almost the entire "rim of the bowl" except for the "spout" that provides a "gateway" and allows the whole development to connect back with the rest of the capital city. The spaces between apartment blocks allow air flow as well as flight paths for birdlife across and through the roof garden. Glorious sunshine and shadows cast on the roof garden throughout the day created vast and comfortable opportunities for an almost endless spectrum of plant species to thrive.



Fig 1: Phase 1 of 4 of the roof garden at Havelock City, Colombo, Sri Lanka – Nature for all to enjoy!



Fig 2: The roof garden at Havelock City, Colombo, Sri Lanka, in its entirety when the 4 phases are completed.



Fig 3: Whether on the paved walkway or on the grass, a walk through the roof garden always offer peace and a direct and intense opportunity to interact with nature.



Fig 4: The large canopies of many trees at the roof garden provide sufficient shade even on a hot sunny day.

Plants

Built on top of a covered car park, at the second level, the 8,000 square metres roof garden took five years (2010-2014) to cultivate into a truly lush tropical paradise. Boasting of over 450 trees consisting over 30 species, and more than 50 species of shrubs. Species of shrubs and ground-covering plants were carefully selected to form a cluster in different parts of the roof garden. It is through the interaction between plants and the mutual support that these plants render to one another in order to thrive and self-regulate at the roof garden.





Ficus microcarpa



Ficus benjamina



Bambusa vulgaris 'vittata'



Delonix regia



This results in the evolution of a naturalistic garden at the Havelock City. The vast greenery is accentuated by big trees, some reaching 10 metres in height by 2014. Indigenous tropical trees included the *ficus benjamina*, *maila*, *ehela* and *kohomba* were planted. Three intentionally-designed, hollow-core mounts of up to 4.5 metres carve an interesting terrain that is both idyllic and environmentally-inclined; and breaks the monotony of a flat surface. It was envisaged to create fun for both the parents and their children to “charge” up the mount just to roll down again. Vegetation of diverse features exhibiting similar growth character is placed in a common cluster to promote sustainable plant growth. To give a hint of Japanese influence, there is also a bamboo pool where *phyllostachys bambusoides* were planted in cylinders of soil mix within a water pond.

Engagement of the stakeholders

Appealing to the need toward toning the physical human body, interconnected walking tracks meanders around the mounts and valleys of the roof garden, passing by a 5-station fitness section. Shades and coolness provided by the trees bring much relief especially after a good work-out. To satisfy the cravings for the national sport – cricket, extensive flat areas were turfed, but still, the desire for more flat surfaces lingers.

Communal living is intricately intertwined into the luscious natural setting through the largest and most comprehensive Clubhouse in the capital city. It is equipped with a large swimming and wading pool, BBQ pits, gym, squash courts and banquet facilities.



Fig 5: Large turfed area for outdoor games and sports amidst a tropical rainforest environment.



Fig 6: Tucked neatly away are the exercise stations for the fitness buffs.



Fig 7 & 8: Clubhouse that meets the social and leisure needs of the residents.

The Singapore connection – Performance, Functionality and Sustainability

Injecting the Singapore element into the Sri Lankan lifestyle of being close to nature, the garden is sculpted with vegetation that emulates a rainforest of appropriate intensity and infused with Singapore's a sense of efficiency, performance and neatness. The artistic juxtaposition of orderly cleanliness with clinical messiness is a feature particular to this project that depicts poetic aesthetic. From the perspective of the energy conservation, the bowl shape of the whole development has the potential of accumulating heat at the basin. From the Singapore's experience in reducing urban heat island effect, a lush and intense greenery at the basin is an effective tool in mitigating the effect. The cooling effect brought about by the evapo-transpiration of the roof garden would further reduce the cooling-cost of the development.

The vastness of the roof garden coupled with the lack of surface drainage facility pose a particular risk – ponding of water that might lead to mosquito breeding. To resolve this, the build-up of the roof garden was carefully designed. The layer of growing media averages only 300 mm comprises of a relatively porous soil mix sits on top of a geotextile or filter sheet which prevents material loss; and the geotextile covers the drainage cell that is made of recycled plastics. This build-up efficiently channels surface run-offs directly downwards through the layers and drains at the sub-surface level. This grossly reduces surface run-off, which is usually the root cause of ponding of water. To further enhance this feature of sub-surface drainage, specially designed vertical drains were installed and carefully camouflaged in strategic locations. In containing the potentially extensive root growth of trees in the long term, aggressive trees were planted in precast concrete open-base cylinders at column grids. This methodology allows trees to grow comfortably within the cylindrical space in a much deeper soil depth for a long time without breaching the design load bearing capacity that was taken care of by the column beneath. Over time, as demonstrated to this day, the different shapes and crowns of trees would camouflage the predictable regularity of the column grid pattern.



Fig 9: The roof garden is built at level 2, on top of the car parking deck.

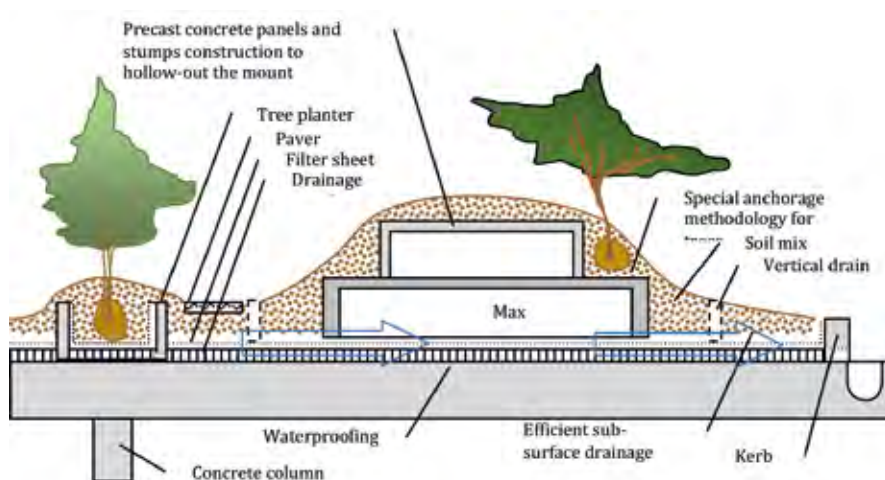


Fig 9: The build-up of the roof garden.



Fig 10: The vertical drain that attracts surface run-off is cleverly camouflaged within the turfed area and valleys of the roof garden.



About the author

Mr Ho Wan Weng is the Managing Director of Verditecture Pte Ltd, a company that he started in 2003, and offers consultancy services on and distributes the Optigreen (Germany) roof greenery systems and accessories, and Verdigreenz (Singapore) green wall system in the ASEAN region. A structural engineer by training, Mr Ho is also a well-known expert in the green roof industry, earning the pseudo-name of **"The Preacher"** of the gospel of green roofs, and an invited speaker at several major events including the World Expo Shanghai, China (2010), IGRA Green Roof Congress in Germany (2004, 2009) and Singapore (2010) and, WGIN Green Roof Congress in Hangzhou, China (2012) and Nantes, France (2013). In 2009 and 2011, Mr Ho was engaged by NParks CUGE as a Consultant to draft the industry guidelines on skyrise greenery. **For more information, email wwho@verditecture.com or visit www.verditecture.com.**



HOW TO CHOOSE WOOD FLOOR FINISHES

There is nothing like a wooden floor to enhance the personality of a room. Wood is a beautiful material that only becomes more attractive over time. Because it is a natural living material, a wooden floor meets different challenges throughout its lifetime.

Wood is a material with many possibilities. In a home, it can give an organic homely feel, but in an airport it can look stylishly sleek. It all depends on how you treat the surface. It's not just deciding whether you want a glossy or matt surface, but with a colouration system you can change the appearance of the floor completely. An oak floor can for example be given a stylish new look of Amber.

Creating a beautiful floor

To get a beautiful wooden surface, it is necessary to treat the floor correctly from its foundation. After sanding and before using coating, a primer should be applied. Primers determine the colouration of the wood while reducing the risk of side bonding due to their flexibility. Before applying a primer, you also need to decide if you want to change the look of the floor by applying a stain. Once the floor has been stained or primed, choose a top coat according to your requirements.

Choosing a finish

Whether creating an exclusive shiny look for a boutique, a



cozy rustic feeling for a kitchen, or a wear proof floor for a sports hall, there are different solutions on the market for your needs. The market has traditionally been dominated by solvent based finishing products but the growing focus on environmental issues and health has led to changes and is rapidly embracing water-based solutions. In the past it was often said that although water-based products were non-toxic, low odour, quick drying and non-yellowing, they did not wear as well as solvents based materials. This is untrue, good quality water-based products are 100 percent polyurethane based and have a wear resistance as least as good, and in many cases better, than their solvent based rivals.

However, it is important to remember that not all waterborne finishes are the same. With the increasing popularity of waterborne floor finishes, it is important to know the differences. There are many different factors that influence the performance of a waterborne finish. Of major importance is what is left on the floor after the finish has dried. This is known as the binding agent or dispersion. In simple terms, a dispersion is the plastic material that floats in the finish. This can be likened to very small plastic balls floating in water. As the finish dries, the small plastic balls stick together and form a film.

There are a number of different types of dispersions used in waterborne finishes today.

1. Acrylate dispersion: Used in the very first waterborne

finishes 20 years ago. Acrylate is cheap, but has poor wear resistance.

2. Polyurethane dispersion: Very wear, scratch and scuff resistant with a clear and deep appearance, but expensive.
3. Polyurethane/Acrylate mix: This type of finish is very common. Price differences between products are based on the ratio of more expensive polyurethane to cheaper acrylate. The more polyurethane, the better the wear factor and the higher the price.
4. Co-Polymer dispersion: In simple terms, this is dispersion where the plastic balls are made of acrylate on the inside and the wear resistant polyurethane on the outside.

Finishes based on any of the above dispersions form a finish film by 'physical drying'. In other words, as the water and small amount of solvents evaporate, the plastic balls glue together.

When choosing a finish, buy the highest quality you can afford and allow for three coats when calculating how much you will need. This will give you the protection you need and ensure that the wooden floor looks beautiful for a long time.

Different needs, different treatments

Depending on where a wooden floor is placed, it will have different needs and to be exposed to varying degrees of wear. It is therefore very important you choose the correct product

that has the feature and characteristic that will satisfy the demands that are put on the specific wooden floor.

Setting the right foundation

Treating a wooden floor is not just about protecting the surface. It is sometime not enough to just apply a topcoat as side bonding can become an issue. That's why it is important to us a primer that will prepare the bare sanded surface before coating. On the market there are a wide range of primers with different properties – fast drying, deep colouration of trowel application. Part of the priming stage is about deciding if you want to stain the floor in any way. It is at this stage that you can let your creativity run free.

High traffic demand

When designing the surface of a commercial floor, you need to think about both the functionality and design. What are the needs regarding durability, slip resistance and design? Do you want a glossy surface or a matt? All these factors are important when deciding on a coating. Whether you need a floor finished for an airport or a library, you will need a company that can offer a solution customized to your practical and aesthetic requirements. Choosing a commercial coating is also about taking into account the total customer benefit meeting demands on total economy

for the floors optimal performance over time.

Mastering domestic challenges

A wooden floor is one of the main features of a home. When deciding on how to treat a domestic wooden floor, there are a few questions to decide on.

Do you want a matt or glossy appearance, finished or oiled? How quickly do you need the floor to be ready to use. How heavy will the ear be? Do you have a pet that may increase the risk of scratches?

Since 1919, Bona has worked with wooden floors and become experts in treating this fantastic material. Pioneering in 1979 with waterborne finishes, today Bona is world leading offering a full range of environmentally sound products covering all wooden floor treatments. Our extensive offer makes contractors' everyday work smoother and pleases floor owners all across the world. All Bona products are based on innovation with a sustainable perspective in mind, considering the floor, the craftsman and the indoor and outdoor environment.

Bona's coatings are all designed for meeting life on wooden floors. Whether you need a natural and safe finish for your home, or a hard wearing surface for a busy shop, with Bona's coatings you can feel certain that you get the best solution for the needs of your wooden floor.

Bona Mega

Based on crosslinking technology, Bona Mega has the performance of a two component finish without requiring any mixing. Found in four versions, it is the perfect choice for kitchens, offices and hallways alike.

- Bona Mega Gloss
- Bona Mega Silk Matt
- Bona Mega Matt
- Bona Mega Extra Matt



Bona Traffic HD

Bona Traffic provides a clear appearance wherever a high resistance to wear is required, like museums or airports. Choose between three versions depending on your specific requirements.

- Bona Traffic HD 2-comp Extra Matt
- Bona Traffic HD 2-comp Matt
- Bona Traffic HD 2-comp Silk Matt



Bona Novia

Bona Novia combines primer and topcoat in one product producing an even, warm colouration. Crosslinking technology ensures extra strength making it a suitable choice for all areas in the living home.

- Bona Novia Gloss
- Bona Novia Silk Matt
- Bona Novia Matt



Bona Resident Plus

Bona Resident is a one component water-borne finish for the domestic environment. The high viscosity provides a well-bodied surface and makes application easy without affecting the good levelling properties.

- Bona Resident Gloss
- Bona Resident Silk Matt
- Bona Resident Matt



For more information, contact Bona Far East & Pacific Pte Ltd at tel (+65) 6377 1158 or e-mail info.apac@bona.com.



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Your Launchpad into Asia's Rapidly Expanding Greenery, Landscape & Urban Design Industry

As Asia rapidly urbanises, there's a strong demand for urban design, landscaping and greenery to create spaces that are conducive for work, life and play.

Against this dynamic backdrop, GreenUrbanScape Asia, an international exhibition and conference on landscape, greenery design, construction and technology, returns for the second edition in 2015 at the Singapore Expo Convention & Exhibition Centre.

GreenUrbanScape Asia serves as a platform for policy makers, facility owners & managers, landscape architects, architects and service providers to exchange knowledge on latest greenery and urban design methods and evaluate current cutting edge solutions and technology.

GreenUrbanScape Asia will be held alongside with the International Skyrise Greenery Conference.

Mark your calendar for GreenUrbanScape Asia!

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Held alongside





The IRENA headquarters building is the first in the UAE to achieve a four-pearl Estidama construction rating – a UAE-certification system stressing energy, water and carbon efficiency. Photo: © International Renewable Energy Agency (IRENA)

IRENA headquarters in Masdar City – A green office in Abu Dhabi

On 3 June 2015, high-level officials from around the world gathered in Masdar City to celebrate the official inauguration of the permanent headquarters of the International Renewable Energy Agency (IRENA). The event celebrated the history and achievements of the Agency since its foundation in 2009, while recognising the move as the latest milestone in the global clean energy movement.

“We are delighted to finally be home in our new global headquarters, an extraordinary building that is a paragon of sustainability throughout the region,” said IRENA Director-General Adnan Z. Amin. “Its advantageous location in Masdar City, and in Abu Dhabi, positions the headquarters as a nerve centre for renewable energy action and knowledge for the future.”

The IRENA headquarters building is the first in the UAE to achieve a four-pearl Estidama construction rating – a UAE-certification system stressing energy, water and carbon efficiency. Located at the geographic centre of sustainable Masdar City, the 32,000 square metre complex consists of three interconnected buildings, which work together to conserve energy and water, and create shared space.

The new IRENA headquarters enables IRENA to lead by example in operating from a building that is a symbol of sustainable design and development.



Main entrance of the IRENA headquarters building.
Photo: © International Renewable Energy Agency (IRENA)

Building Facts

- A 1,000 square metres solar photovoltaic rooftop system will produce 305,000 kWh of electricity annually. In addition, the solar hot water system will be equivalent to 27,850 kWh. Altogether, the renewable energy systems output of the building will cover more than 10 percent of the building energy demand.
- The complex received Four Pearls, the highest rating from



Interior of the IRENA headquarters. The air-conditioning system recovers 75 percent of the energy released through air exhaust, using this to cool incoming fresh air. Photo: © International Renewable Energy Agency (IRENA)



Thanks to an efficient envelope, the building is twice as airtight as Estidama requires, reducing overall energy use. Photo: © International Renewable Energy Agency (IRENA)

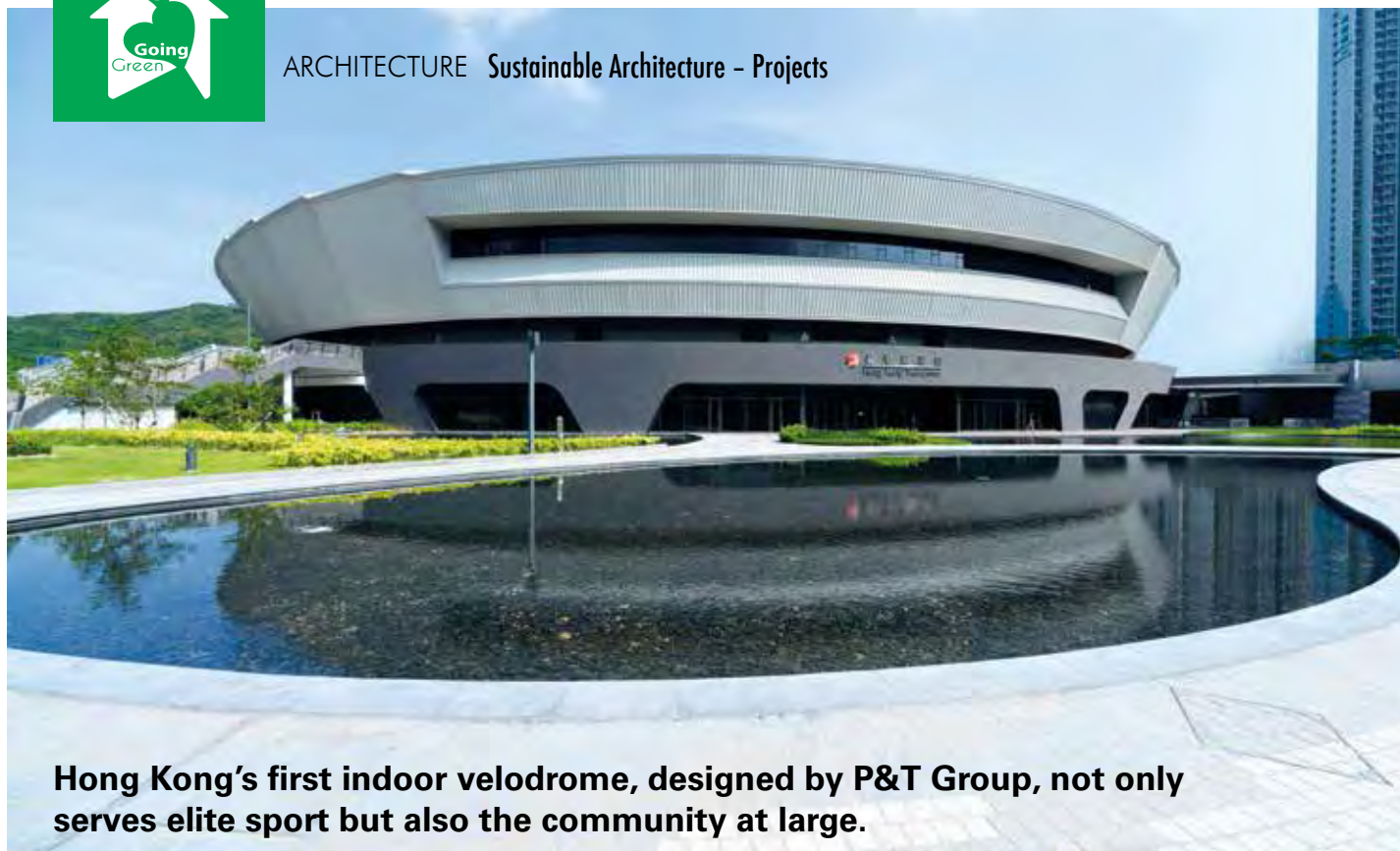


A 1,000 square metres solar photovoltaic rooftop system will produce 305,000 kWh of electricity annually. Photo: © International Renewable Energy Agency (IRENA)

Estidama – a UAE certification system measuring energy, water and carbon efficiency. As the UAE's first Four Pearl structure, IRENA's HQ is one of the most advanced buildings in the country as well as one of the most sustainable of any international organisation worldwide.

- Thanks to passive design and smart energy-management systems, the complex demands 42 percent less energy than global energy-efficiency standards and 64 percent less than typical buildings in Abu Dhabi.
- The complex uses roughly 50 percent less water than typical buildings in Abu Dhabi.
- Thanks to an efficient envelope, the building is twice as airtight as Estidama requires, reducing overall energy use.

- Solar water heaters supply 75 percent of the building's hot water demand.
- The air-conditioning system recovers 75 percent of the energy released through air exhaust, using this to cool incoming fresh air.
- Up to 95 percent of energy generated from lowering elevators is harnessed and reused throughout the building.
- Building construction made use of Abu Dhabi's green supply chain, incorporating low-carbon, locally sourced, sustainable materials including recycled steel and recycled-content aluminum and cement.
- Adjacent, shaded parking spaces include 26 charging stations for electric vehicles.



Hong Kong's first indoor velodrome, designed by P&T Group, not only serves elite sport but also the community at large.

Main entrance of the Hong Kong Velodrome.

Hong Kong's first sustainable indoor velodrome for elite sports

For Hong Kong Cycling Team members and local athletes, the velodrome is a dedicated international standard venue where they can hone their skills and avoid long hours travelling to venues in Mainland China. It is also intended as a catalyst for the training up of more local athletes and to enable them to fully realise their potential. Organised track cycling training courses develop the skills necessary for beginners to safely enjoy the fun of track cycling.

For the general public, especially Tseung Kwan O residents, the velodrome and town park are an active encouragement to greater participation in sport and leisure activities. Residents can make reservations for the multi-purpose arena or other activities room as well as enjoying leisure time within the rich greenery and open spaces of the town park. A cascading landscape deck rises from the town park providing physical connections with the velodrome and existing pedestrian footbridges to facilitate public access.

This new facility aims to place Hong Kong firmly on the map of destinations around the world promoting elite sports. The specialised equipment and facilities for track cycling are of the international standards required for world-class events. Its completion marks Hong Kong's achievement in owning a venue that is well suited to hosting large-scale and high-level track-cycling competitions. Both internally and externally, the development provides a veritable smorgasbord of facilities for both elite athletes and the community. The final result is a development destined to become a new Hong Kong landmark.

Design Concept

The elliptical form and distinctive ribbed roof is inspired by the profile of a bicycle helmet. The roof is designed to appear floating above the park, which reduces the apparent bulk of the building. Convenient access is also allowed at concourse level around the entire perimeter. Whilst the primary function of the building is to provide a training base for the Hong Kong Cycling Team, it is also important to provide diversified recreational and sporting facilities for the general public. The venue boasts a 250-metre indoor cycling track with supporting facilities that meet the highest international standards of the Union Cycliste Internationale designation as a Category 1 indoor velodrome. Additional facilities were carefully planned around this and include a multi-purpose arena, fitness room, table-tennis room, dance room, children's playroom together with restaurant and bicycle pro-shop.



Aerial view of the Hong Kong Velodrome.



Sustainability

The velodrome design incorporates a number of sustainable and environmentally-friendly features. These include a rainwater harvesting system that collects rainwater from the metal roof for irrigation purpose. Rainwater will be stored at a 45 cubic metres harvest tank, which can meet 25 percent of daily irrigation demand.

Photovoltaic panels are installed on the roof and can generate up to 34,000kWhr grid-connected electricity per year. This is equivalent to a reduction of 23,800kg CO₂ generation and a cost saving of about HK\$30,000 on electricity costs per year.

Solar panels are also installed on the roof generating up to 153,000kWhr energy per year or energy for 80 percent of annual hot water consumption - equivalent to a reduction of 107,00kg CO₂ generation and a cost saving of about HK\$140,000 on electricity spending per year.

The heating, ventilating and air-conditioning system is designed to reduce overall energy consumption. High efficiency motors are used for the plumbing equipment, variable air volume system is adopted to reduce air-conditioning energy, AHU system is equipped with energy recovery wheels so as to pre-cool/warm the fresh air.

High efficiency, frictionless chillers were selected, together with an automated building system that continuously monitors the system's performance to entire optimum efficiency. As a result, reductions of up to 30 percent on energy use for a chiller system can be achieved.



Interior view of the Hong Kong Velodrome.



Cycling track inside the Hong Kong Velodrome.



Spectator seat inside the Hong Kong Velodrome.

PROJECT DATA

Project: Hong Kong Velodrome
Location: Tseung Kwan O, Hong Kong
Client: Architectural Services Department & Leisure and Cultural Services Department, HKSAR
Architect: P&T Group
Completion: 2014
Photos: © P&T Group



The look of excellence. Customers will recognize Hyundai's Centers of Excellence from any part of the globe through the Global Dealership Space Identity (GDSI). Image courtesy of Hyundai Motor Company

The new green Hyundai Logistics Center – From vision to revolution

Hundai Asia Resources, Incorporated (HARI), the official distributor of Hyundai vehicles in the Philippines, inaugurated the first-ever “green” logistics centre; a state-of-the-art facility that promises to change the landscape of automotive industry property development in the country. Located in the City of Calamba in Laguna, the Hyundai Logistics Center (HLC) is built to answer the call for sustainable development. HLC paves the way for an eco-friendly work environment, upholds the well-being of employees, and catalyses growth in both the automotive and property development sectors.

One of HARI's values in business is Environment Protection, and the Hyundai Logistics Center is a realisation of this principle. Today, the environment yearns for better care, and HARI seeks to make a positive contribution by becoming an environment steward. With the serious need for green buildings and with capable technology at hand, HARI is bringing in HLC at an opportune time.

HARI has always been engaged in various environmental stewardship programs, but as President and CEO Ma. Fe Perez-Agudo said, there is always something left to do. “We realised that we lacked this one thing: a concrete and unmistakable statement of our commitment as a business and a responsible corporate citizen to responsible innovation. And that is the Hyundai Logistics Center,” she said.

With HLC, HARI sets a pioneering standard reflective of Hyundai's Modern Premium brand identity and its commitment to the national agenda for sustainability. “We are building a case for responsible innovation that will revolutionise the local automotive industry not only with new car models that represent new thinking in green technology but also in green operations,” emphasised Ms Agudo.

Green Revolution

Situated along the Mount Makiling Forest reserve and Tagaytay mountain ridge, HARI's aim for HLC is to deliver efficiency and sustainability, while also bringing tranquility into the workplace.

The 10-hectare site, which previously housed a textile factory, was derelict and dark. The inspiration was to bring light into this darkness, to make old become new again. “One could already imagine the rewards of bringing in air and natural light, as if to bring back to life this giant that had fallen asleep in the forest, in order to create a place that would be a joy to work in,” said Architect Dominic Galicia, historic site conservationist, and lead architect for HLC.

To achieve this, the architects behind HLC employed the principle of adaptive reuse, which emphasises sustainability, economy, and even history. The method considers the past uses of a structure; that a structure's history adds to its unique identity and must be preserved, while enhancing it with a new use in mind. Architect Galicia explained, “It's the most intelligent thing to do because you already have the existing structure. You already have all the energy. All the resources have come in to create the structure, and then with creativity, with design, [it is] harnessed to create a new reality.”

HLC follows the standards of Philippine Green Building Initiative (PGBI), a group of professional development associations formed through the shared concern for the environment. “GREEN, with the three E's, stands for Geared for Resiliency and Energy Efficiency for the Environment,” explained Architect Mel Punsalan, Vice President for Technical of PGBI, on the rating system framework set by PGBI. “GREEN has the highest level at Kamagong; Kamagong is equal to platinum if we're talking with the other rating systems,” he added. As a testament of its commitment to its green design objective,

HLC has received a special certificate from PGBI for having implemented design standards equal to that of Kamagong, the highest distinction for green buildings.

According to the International Finance Corporation, energy consumption of buildings is projected to rise by 90 percent through 2030, further emphasising the need for energy-efficient buildings, and making HARI proud to have a green structure as its new centerpiece.

Last April 28, HARI introduced HLC with “ECO: Experience ComeUnity” as its theme, wherein dealers and VIPs from both the business and government converged to launch this breakthrough facility.

Eco as can be

“HLC is a paragon. It’s leading the way for businesses because this is going to be a model,” said Architect Mel Punsalan. HLC adheres to the guideline of PGBI for sustainable development, which includes energy-efficiency, sustainability, water- and energy-efficiency, and occupant well-being.

HLC saves energy with its various features in lighting and ventilation. The facility uses only LED lighting fixtures, which reduces energy consumption up to 52.2 percent. Plus, some areas like the Warehouse uses light monitors to capture natural light and use of artificial lighting during daytime. A number of solar panels are also installed in some areas of HLC, with more to be developed in future plans.

HLC also has its own water facility to cut on consumption. This facility enables HARI to reuse water from the car preparation areas, and also collect rainwater for use on siphoning, irrigation, or other uses. It also treats wastewater to reduce harmful chemicals that may harm the environment.

No trees were cut in constructing the HLC. Existing trees are incorporated to the design, while existing walls, trusses, and roads are all kept and refurbished. Materials used are also high-quality to minimise replacement. Access to ventilation in the indoor spaces of HLC is also made optimal for a top quality air exchange within. The materials have zero or reduced volatile organic compound, giving the occupants a pristine working environment.

To maximise its potential, the landscape architects of Espina, Perez-Espina and Associates tactically used the features of the Hyundai Logistics Center to fill it with greenery. First is through the *roof gardens*. These gardens reclaim the land that is occupied by the building footprint, and brings more insulation to the buildings, reducing temperature in the area by up to 5°C. The architects will also use the low maintenance, native grass Cogon in this garden. They also plan to re-use tires as containers of the said grass.

“Our inspiration for HLC landscape is the beautiful expanse of land around the site,” affirmed Architect Mary Ann Arañas-Espina, Founding Member of the Green Architecture Movement, and lead architect for HLC’s landscape design. “So we took the inspiration of the openness with the minimalist approach to the architecture to create a kind of tranquil landscape that we needed to partner with an industrial location; the kind of sense of relaxation that they can only get from the gardens,” she added.

HLC also houses a *chapel garden*, which provides an outdoor room of tranquility amidst the hustle and bustle of the busy facility. Its design capitalises on the existing tall walls. These walls were vegetated to bring more greenery. The space also gives a sense of awe, an experience that corresponds to the chapel.



The Car Carrier Plaza is the designated drop-off point of Hyundai vehicles coming from the Batangas port. Image courtesy of Hyundai Asia Resources, Inc.



The Parts Warehouse provides ideal storage conditions and easy access to genuine Hyundai parts and accessories. Image courtesy of Hyundai Asia Resources, Inc.



Image courtesy of Hyundai Asia Resources, Inc.

In the same way, with limited horizontal spaces, other walls were used for greening. The *green walls* in and around the stockyard are vegetated with vines, including flowers. The architects envisioned the green walls to create the harmony between the Hyundai Logistics Center and Mount Makiling.

The Hyundai Logistics Center is the new home for all Hyundai cars, and it features innovative facilities to take care of a Hyundai vehicle. As Arch. Galicia envisioned, when a car enters the HLC, it goes through a journey. By the end of this journey, the Hyundai car is commenced – ready for the road ahead.

With HLC, HARI seeks to set the standard for green architecture, especially among the country’s automakers and distributors. Ms Agudo said: “HLC is Hyundai’s flagship contribution to the national agenda for sustainability.”



Photo: © The Red Carnation Hotel Collection

The Rubens Hotel has the largest green wall in London

London has produced the largest green wall in The Rubens at the Palace Hotel in Victoria. Standing at a height of 21 metres, the green wall was designed by Gary Grant of the Green Roof Consultancy Ltd to reduce urban flooding.

Standing at 350 square metres with over 10,000 ferns, herbaceous plants and 16 tons of soil and reaching over 21 metres high, the green wall has become a ‘must-see’ feature in London.

Opened in 2013, the green wall is packed with over 20 seasonal plant species including buttercups, crocuses, strawberries, spring bulbs and winter geraniums. The flowers have been chosen to ensure the wall is ‘in-bloom’ all year round, attracting wildlife such as birds, butterflies and bees, and the permanent feature will provide a vibrant focal point for the local area. The living wall has become one of London’s most visually impactful and colourful vertical gardens, brightening the popular tourist walk from Victoria station to the Royal residence.

The ground-breaking green project came to light following a Green Infrastructure Audit, a mapping process that sought to identify new locations for green space in Victoria that was carried out by the Victoria Business Improvement District (Victoria BID), the body representing over 250 businesses in the Victoria area including The Rubens at the Palace Hotel. As a result of the audit, the hotel commissioned concept designs for the wall in recognition of the environmental benefits the wall will have for Victoria.

The wall’s unique design enables it to capture rainwater from the roof of the building in dedicated storage tanks. A key environmental challenge in Victoria is the risk of flooding during periods of heavy rain, due to the low absorbency of urban surfaces. According to the Environment Agency, there are now around 534,000 properties in London on the Thames floodplain, and one in four in London are at risk of flooding.

Water collected by the tanks is channelled slowly through the wall, nourishing plant life and helping to reduce the risk



Photo: © The Red Carnation Hotel Collection

of surface water flooding in the area by storing up to 10,000 litres at any time. The project has received support from the Mayor of London, Boris Johnson, through his Greening the BIDs programme (co-ordinated by the regeneration agency Cross River Partnership).

In addition, the wall improves the air quality in the area, deaden noise and help to keep the hotel cooler in the summer and warmer in the winter. The vegetation can trap microscopic pollutants known as particulate matter (PM10s), high levels of which have been shown to cause respiratory illnesses.

The wall was designed by Gary Grant of the Green Roof Consultancy Ltd (www.greenroofconsultancy.com) and installed and maintained by TreeBox Ltd (www.treebox.co.uk).

Jonathan Raggett, Managing Director of Red Carnation Hotels, of which the Rubens at the Palace is a part of, said: "We're excited to be unveiling the Living Wall on the side of the Rubens at the Palace. It was a project we bought in to from the very beginning and thanks to the belief and investment of our owners, it's not only been brought to fruition but significantly enhanced from the original concept stage. We take the issue of sustainable tourism very seriously across the entire Red Carnation Hotel collection, and this wall will minimise the hotel's impact on the environment and also improve the air quality and aesthetic in this part of London."

Ruth Duston, CEO of Victoria BID, said: "While green infrastructure inevitably improves the aesthetics of the area it also has a substantial positive impact on the long-term environmental sustainability of an area. The Rubens at the Palace Hotel has demonstrated a huge commitment to the delivery of a sustainable agenda, their appetite to engage and lead on such an iconic project really showcases the greening

agenda overseen by Victoria BID to deliver a model of best practice for London."

Matthew Pencharz, the Mayor's Advisor for Environment and Energy, said: "London's abundance of trees, parks, gardens and increasing numbers of living roofs and walls not only makes the city a more attractive place to live and work, but also boosts the local economy, improves air quality and can increase resilience to extreme weather. So the Mayor is encouraging even more green initiatives, just like this fantastic living wall in Victoria, to make sure London can continue to compete, not only as the greenest city in Europe, but as the best big city on earth."

Armando Raish, managing director of Treebox, said: "Due to the variety of plants used in its construction, we expect the living wall at the Rubens at the Palace to significantly increase the number and variety of bugs and bees in this part of Victoria, helping to promote biodiversity and return nature to this urban environment. The wall will also help improve the respiratory health of the people who live and visit Victoria by absorbing pollutants, an important feature of the wall given the mounting evidence that shows just how harmful particulate matter can be to human health."

Cllr Ed Argar, Westminster City Council's Cabinet Member for City Management, Transportation and the Environment said: "We welcome this vibrant, attractive and green addition to the streets of Victoria. Not only will the living wall prove a lively talking point, but with sustainability more important than ever this wall shows that good design and improving our urban environment can go hand in hand with being practical and useful. The Victoria BID and Rubens deserve recognition for this forward-thinking scheme."



THE GREEN DEMEANOR OF WARSAW

The vertical garden, covering front and side elevations, is a tool which allows to integrate the building with its green context. The FNP headquarters has become an element of the landscape in a very common sense. The green face of the building blurs the boundaries between architecture and nature.

The architecture of the building is created by a collision of textures. The leafy vertical garden, softening the building edges, is contrasted with the smoothness of surfaces finished with light grey concrete panels. The green wall, naturally three-dimensional, is enriching the elevation with its depth. This three-dimensional effect is constantly changing over time. Due to the natural vegetation of the plants and the cycles of the year the face of the building will also be constantly changing.

The vertical garden, taking into account its geographic location, is treated as experimental. During the course of its exploitation, the bio-diversity of the wall may change due to the seeds brought by birds or wind. The designed vegetation optimum should be reached in 2016.

Function

An existing, multifamily housing building has been converted into an office building to house the new headquarters of the



The FAAB Architektura team

Foundation of Polish Science. The FNP headquarters consists of one underground level and four above ground levels. The parking lot, technical rooms and archives were placed below ground at level minus 1. The ground level is composed of reception area, conference rooms, multifunctional spaces and offices. Office spaces have also been placed on the above ground levels.



Historical background

The building is located in Wierzbno, a part of the Mokotów district which is one of Warsaw's central neighborhoods. The district was converted from farmland into town in the 1930's. It stands among the dispersed residential villas nestled into the green. Originally built as low-rise housing in 1933, it suffered serious mutilation by air bombing during WWII. Due to the bombing it lost most of the front façade and parts of the ceilings on all levels. What remained was destroyed by fire. After the war, due to its dilapidated condition, the building was initially condemned to be destroyed. However, due to the significant destruction of the city (72 percent of residential buildings in Warsaw were lost as a result of the war) the demolition decision was revoked and the building was to be restored. Restoration works were carried out in

a poor technical manner due to the lack of availability of quality materials. The building's original appearance was not restored.

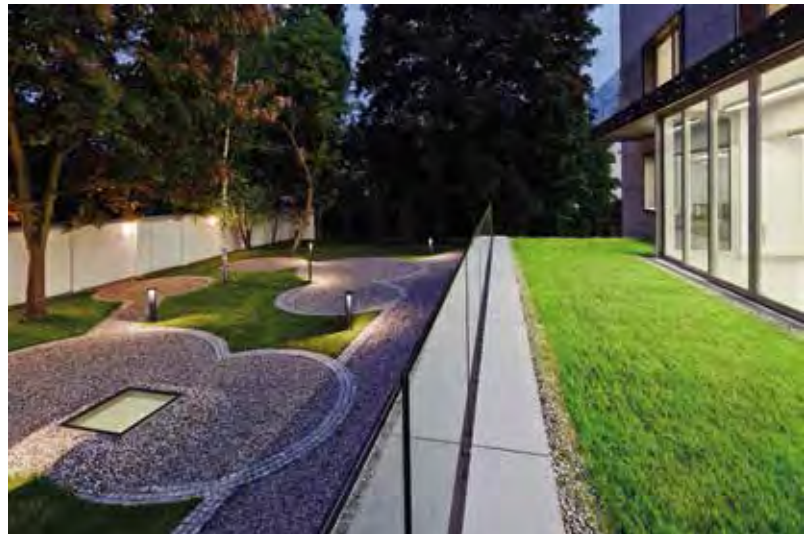
Preservation

The building is under the protection of the Warsaw Preservation Office, regarding massing of the building and the layout of windows. The proportion of the attic wall mass to the rest of the front elevation is also the subject of interest of the Preservation Office. The terms of conditions for construction, issued by the municipal office, did not allow the enlargement of the building footprint. These same conditions also dictated the coordination of the new design solution with the existing character of the building, especially regarding to the rhythm and symmetry of the elevations.

Structural assessment

"...cracked walls will fall by its own weight." "...the street front of the building destroyed with the (air) bomb, the rest of the building, roof and the 2nd level burnt down". Inspector J.Maliszewski, 17.08.1945, regarding the present FNP Headquarters building on 20/22 Krasickiego St.

The building structure demanded an extensive scope of stabilization and reinforcement including the foundations, ceilings and bearing walls. All the external wall reparations, carried out just after the WWII needed to be revamped. All of the building corners were reinforced from the outside – with the special system of steel clasps – to the full wall height. The original prefabricated terrazzo runs needed to be strengthened with the steel elements.



Affiliation with town

The removal of the existing fence in the building front yard helped to enlarge the public space of the street and incorporate the backyard garden with the surroundings. The FNP building is the only example alongside the 900 metres long Krasickiego Street of a building plot that is not separated with a physical barrier (fence) from the fabric of the town. The perforation through the ground floor, beginning with the main entrance and ending with the backyard garden, establishes an additional visual link between the street and garden view.

Corset tiles and the staircase

The preservation of the original staircase décor is in fact preserving a very characteristic design element of Warsaw architecture of the 1920's & 1930's. The cantilevered and prefabricated steps made of the green terrazzo are enriched by the landings which are filled with tiny, colorful and shape specific ceramic tiles known as "corset" tiles. Floorings finished with corset tiles can be found in the buildings of this era almost anywhere in Europe, including Amsterdam, Paris and Brussels. Popularity of the corset tiles led to the commonness of the application in Warsaw buildings. Nevertheless, the patterns varied greatly, due to the ambition and skills of the local craftsmen. That is why each of the still existing patterns can be described as unique.

The refurbished staircase is marked with a simple, modern railing made of black painted steel and transparent glass. The roses of brass, acquired from the original décor, mask the points where the railing's studs met the steps. The modern railing, especially the elements placed under the stair's runs, stabilize the structure. The "corset" tiles on the staircase are the building's original from 1933.

Interior illumination

The internal atrium, which carves out the "light well" to all the above ground levels, opens up the building and allows in natural light. The atrium, the ground level perforation, the windows and skylights together provide access to natural light for 96 percent of the internal space, this including offices, corridors and common areas. The ground level and underground parking lot (equipped with overhead skylights),

reached the highest possible ratio of 100 percent access to the natural light.

Energy

The building is equipped with devices having low energy consumption. The electrical systems have been enriched with elements that manage usage of electrical power in real time. These solutions have lowered the building's electrical demand and its impact on the municipal network in a substantial way.

Pro-ecological identity

The green wall is one of the elements which creates the pro-ecological identity of the building. It helps to improve the energy balance and creates a beneficial microclimate inside the building. The vertical garden, applied onto the front and side elevations, gives 260 square metres of green surface area to the elevations. It is the only one, external garden in Poland and in this part of Europe.

Within the vertical garden 20 different species of plants have been included. Some of them are to create a green background all year, while others will bloom during the warmer seasons. The plants with the decorative red fruits will add a colour accent also during the winter seasons. Since the placement of the plants was consulted with the architects, the manifestation of a geometric pattern should reveal itself at the end of the third year of the vegetation cycle – by September 2016.

The plants are supplied with water and necessary nutrients by a special irrigation system supported with a set of sensors located onto the surface of the panels. Based on the information collected the wall is automatically irrigated and fertilized. This process is controlled in real time and can be steered on-line.

A unique mat – made of a material structure similar to that of mineral wool – is the base for the modules of the green wall. In this case, the mat is the supplement of the soil responsible for giving the plants the appropriate support. It also protects the roots of the plants from exposure to the changing and harsh weather conditions, which is essential in the climatic region in which the green wall has been installed. The lightweight modules are mounted to the steel substructure which makes



the maintenance of the vertical garden system a relatively easy task. The plants are placed in the specially designed pockets which helps to exchange them if necessary.

The green wall modules had to be mounted with precision to achieve the desired holistic pattern. Each of the modules was marked with the exact position of its location on the wall. The substructure also needed to be built with special attention. Mainly, the slope of the wall needed to secure that the proper flow of the water will be sustained. Too large of a deviation could cause some plants to not receive any water at all while others could get an overabundance.

The vertical garden, taking into account its geographic location, is treated as experimental. During the course of its exploitation, the bio-diversity of the wall may change due to the seeds brought by birds or wind. The designed optimum of the vegetation of the wall should be reached in 2016.

Rainwater management

The biologically active surface, supporting the retention of the rain water, covers almost 67 percent of the given site. Together with the vertical garden, the green area covers 82 percent of the surface of the given site. The rain water collected from the roof and pavements is directed into the underground retention basin. The rain water is then used to water the green elevation. This solution helps to reduce to an absolute minimum the amount of the grey water dumped into the municipal rain network.

Project summary

The intent of the project was to preserve of the character of the 1933 dilapidated multi-family house, which had been seriously mutilated by air bombing during WWII, while converting it into an environmentally friendly and modern office space.

Simultaneously, precious architectural and historically significant elements were safeguarded alongside adhering to the restraints postulated by the Warsaw Preservation Office in regards to building mass and window layout.

The building's location, inside a sparse subdivision, established in 1930's, influenced the multilayered integration of the project within the green context and public space. The investment strove to reduce its impact on the municipal infrastructure and the natural environment.

Liquidation of the fence in front of the building helped to enlarge the public space of the street and incorporate the backyard garden with it. The addition of an internal atrium and perforation through the ground level, beginning with the main entrance, established a visual link between the outside and inside, between the street and the garden.

The integrating tool to connect the building to its green context is the successful application of the first in the region external vertical garden onto both front and side elevations. The rain water collected into the retention basin irrigates the vertical garden and eliminates the demand for the municipal network. An 82 percent of the relatively small town plot, taking into account the vertical garden, is covered with surfaces allowing natural water retention.

Access to natural light was given to 96 percent of the above ground levels space. The ground level and underground parking lot (overhead skylights), reached the highest possible ratio –100 percent of those spaces has access to the natural light.

Preservation of the original internal staircase, including the green terrazzo steps and landings filled with tiny, colorful "corset" ceramic tiles (nearing extinction) recalls the atmosphere of similar buildings of the era located in Paris, Amsterdam and Brussels.

PROJECT DATA

Project: Foundation for Polish Science Headquarters

Location: Poland, Masovian voivodeship, Mokotów district of the city of Warsaw, 20/22 Krasickiego Street, Warsaw

Commission: FAAB Architektura awarded first place in national competition

Architecture & coordination: FAAB Architektura Adam Biało-brzeski | Adam Figurski

Architects: Adam Biało-brzeski, Adam Figurski, Maria Messina

Construction: KBii

Sanitary: Sinap

Electrical: Bema-projekt

General contractor: Doraco Construction Corporation

Vertical green system supplier: Semper Green Vertical Systems, The Netherlands

Category: office building

Subcategory: reconstruction, modernisation, expansion.

Total area: 2,180 square metres

Volume: 7,090 cubic metres

Site area: 1,592 square metres

Area of vertical green: 260 square metres

Number of floors: Four above ground levels, one below ground level

Design: 2009-2012

Construction: 2012-2014

Photos by: Bartłomiej Senkowski © FAAB Architektura



Photo: © EcoWorld

EcoSky – An eco-friendly lifestyle hub

EcoSky is strategically located in the vibrant Kuala Lumpur suburb of Taman Wahyu. This integrated mixed-use development has been designed as a 360o lifestyle hub for that vibrant, upward mobile community and has been awarded the Green Mark Award. GreenA Consultants was the lead consultant on this project and provides advisory and consultation services in areas of sustainability and the achievement of Singapore BCA Green Mark, LEED, Green Globe and Malaysia Green Building Index Certification.

The Centre is the green heart of EcoSky. Created for the community, this beautiful landscaped space combines gardens, cascading water features and reflective pools, recreational facilities and F&B offerings, making it the perfect place to spend quality time whatever your mood, whatever the occasion. And when you make your home at EcoSky, the world be at your doorstep. Inspired by EcoWorld's 360o Living philosophy, EcoSky offers a complete lifestyle experience for the discerning.

EcoSky's retail promenade, accommodates an extensive range of shopping, dining, and entertainment choices with over 100 units of retail shops and EcoSky's high rise residential triple towers which comprise of well designed units and exclusive facilities such as a 50 metre lap pool, fun island pool and water play area for the children, a garden lounge and a penthouse club for socialising and entertainment will cover the following green features:

Natural Ventilation

Designed to promote natural ventilation and daylight in staircases, lift lobbies, corridors as well as toilets not only reduces energy consumption, but improves air quality as well.

Rainwater harvesting and Water Savings

Making use of valuable resources, the conceptualization of the rainwater harvesting system will assist in water conservation as the rainwater captured at the harvesting tank on each tower would be used for landscape irrigation. The installation of water efficient fittings would also assist in water conservation tremendously.

Horticulture Compost bins

These holding units will be used to contain horticulture waste generated onsite such as fallen leaves and dry grass to be used as fertilizer for the landscape within the complex. Low concrete usage index (CUI) In order to achieve optimal use of concrete for building components, the architectural and structural plan layout is designed to bring about a low concrete usage index.

Going Public to reduce your carbon emission

Residents are also encouraged to choose greener modes of transportations with the provision of sheltered walkways to link residents to public transportation.

EcoSky is currently under construction and it is expected to be completed at the end of 2016.

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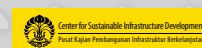
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Interview with Terri Wills

Chief Executive Officer, World Green Building Council

Q: Congratulations on becoming the new CEO of the World Green Building Council (WorldGBC). How do you feel about your appointment?

> I feel excited about our potential! In the early days, we were building green because we knew it was the right thing to do for the environment and the climate. Now, that is ever more the case – but also we have much more knowledge and evidence about how green buildings provide far more benefits to individuals, to society, and the economy. Our recent work on Better Places for People highlights this – for example, an improvement in air quality of just 11 percent can improve employee productivity by the same amount, and simply having a window in your office can help you to get 46 more minutes of sleep each night.

I'm also honoured to be working with the passionate and dedicated individuals that populate the green building community. They are all true leaders and visionaries within their countries.

Furthermore, I see a tremendous opportunity for us ahead at COP21, when countries will come together to hopefully sign a treaty to reduce greenhouse gas emissions as much as needed to keep global temperature increase within two degrees. Buildings currently are responsible for 30 percent of global CO2 emissions, and countries will be looking to organisations like ours to support them in creating strategies and policies to reduce these emissions.

Really, how many jobs are there where you get to help save the world?

Q: What brought you to the WorldGBC? Tell us a bit about your background and work?

> Prior to WorldGBC, I was with the C40 Cities Climate Leadership Group, where I led the C40 networks, which facilitated dialogue, cooperation, and information exchange amongst city officials in mega-cities. In implementing the networks, we saw that cities' climate actions were bolder, more impactful, and implemented faster with less resources if they worked together. The networks have now had direct impact on policy in over half of C40's member cities, impacting a population of 165 million people.

My work at C40 has provided valuable lessons that I will transfer to my new role. I feel we need to better focus on what our individual GBCs need in order to achieve significant impact in their countries, and then structure dialogues, cooperation,

projects and programmes to deliver support in these areas. The power of an organisation like WorldGBC – just like C40 – is that we have incredible members around the world. Working together, they can achieve tremendous change.

Going further back, before C40, I worked in a variety of different climate change related roles, including at the Clinton Climate Initiative. But my original background was actually in media, and I worked for a number of years at the British Broadcasting Corporation. I am really passionate about how we at WorldGBC and in the green building movement can better tell the story of what we do and our potential, and I'll definitely draw on my experience working in the media to do this.

Q: What do you see as WorldGBC's role in the global sustainability movement?

> Ultimately, WorldGBC's mission is to enable a strong network of Green Building Councils around the world to 'green' building, locally and globally, through market transformation.

The world is beginning to realise the many benefits of green building. However, we need to make this message louder, and with our global network of 100 green building councils, WorldGBC is uniquely placed to amplify this message and increase awareness of the need for, and advantages of, sustainable construction. Working through GBCs on the ground in their local countries, and working also through our combined global initiatives, we can unite the industry and empower our GBCs to effect real change.

Q: What new directions do you intend to take as the new CEO of WorldGBC?

> To allow us to forge a strong network of councils that have the agency to deliver real transformation in the construction arena, we must really listen to every GBC and meet their needs, and this will be a priority for me going forward.

But we can't just listen – we also have to support and deliver impact in the areas that GBCs consider important. We'll be ramping up our Regional Networks and providing more support for value-added projects, to help GBCs replicate the tremendous success of our Europe Regional Network. We will also enhance our approach to global projects, such as the successful Better Place for People, which are particularly valuable for established GBCs as they make a powerful business case for the value of green buildings.

As well as providing enhanced support to our members,



we'll be shifting our focus outward and stepping up to tell the world about green buildings and what they can mean for a better future. We're bringing on board a Marketing and Communications Manager to help us tell the success stories of our network, and amplify our collective message that the world needs green buildings. So you can expect the WorldGBC and our member councils to become more visible and influential.

Our plans include having a greatly increased presence at this year's COP, where we're working closely with the French government and other partners on plans for a Buildings Day, combined with an ambitious campaign to bring the story of green buildings to the world.

Q: What kind of future do you see for green buildings in Southeast Asia?

> With high population density, strong urban concentration

and a challenging climate, the move to buildings that are sustainable and that enhance quality of life is particularly important in Southeast Asia. But the future for the region is a bright one, precisely because its countries are so readily embracing green building.

Many Southeast Asian cities are leading the way in implementing not just green buildings, but green communities and green cities as well. Policy at the local and international level is supporting this trend, and will enable it to continue. The high calibre of entries in our 2014 Asia Pacific Leadership Awards give testament to this.

Many of our most active and fast-growing GBCs are located in the region, and our Asia Pacific Network is strengthening and becoming a powerful force for collective action. I look forward to seeing how the region continues to green its future, and I'm sure the rest of the world will be watching Southeast Asia's example, too.

Interview with Mr Chia Ngiang Hong President, Singapore Green Building Council



Q: What is the current status of green buildings in Singapore?

> Currently, we have almost 2300 Green Mark certified buildings occupying approximately 70 million square metres of gross floor area. This is equivalent to about 27 percent of total building space in Singapore, and we are well on track to attain the target of 80 percent by 2030.

Q: What types of projects are leading the way in green building and construction?

> Property developers and owners have been and are increasingly cognizant about the cost savings they are able to glean from going green. Some of these organisations put green building on the forefront of their endeavours, encouraging efficient design and environmentally-friendly features in their building portfolios as well as promoting sustainable practices among their tenants and occupants.

Commercial buildings lead the way in green building but there is also a deep appreciation for building green in residential developments. In particular, as the building and construction sector is labour intensive, there is a strong need for transformational capabilities to achieve a quantum leap in productivity. For instance, City Developments Limited

(CDL), Nanyang Technology University (NTU) and Overseas Union Enterprise (OUE) are piloting the use of an advanced construction method called Prefabricated Pre-finished Volumetric Construction (PPVC).

In PPVC, complete flats or modules with internal finishes, fixtures and fittings are manufactured in factories and then transported to site for installation in a Lego-like manner. Besides potentially increasing productivity by up to 50 percent, dust and noise pollution as well as accidents can be minimised as more activities are done off-site.

In the case of CDL, some 5,000 modules will be used to construct its latest Executive Condominium, The Brownstone, in Canberra Drive, Sembawang. This is likely the world's largest application of PPVC for a large-scale residential project. For NTU and OUE, PPVC is adopted for building a student hostel and the extension of the Crowne Plaza Hotel at Changi Airport respectively.

Q: What are the major drivers and barriers to green building design in Singapore?

> In Singapore, the major driver for green building is the Green Mark Scheme, the national green building rating tool administered by the Building and Construction Authority



(BCA). Through the efforts of government and the industry, the profile and awareness of green buildings have been rising steadily. SGBC works very closely with BCA to actively support the Green Mark Scheme and the development of green buildings.

One barrier to green building in Singapore is public awareness: the occupants and tenants who live, work and play in green buildings. Although the public's mindset to green building is slowly changing, environmental performance is not something that comes to mind immediately when people are selecting a home, office or recreational space, thereby necessitating the need for greater communication efforts tailored to both occupants and the man-on-the-street.

In BCA's 3rd Green Building Masterplan, launched in September 2014, one of the key priorities is to engage tenants to manage and reduce their energy consumption and carbon footprint. After all, in Singapore, tenants account for around 50 percent of electricity consumption in commercial buildings. With collaborative and collective effort across the value chain, including end-users, this holistic approach will help create a future-ready built environment for Singapore.

Q: In what ways is the local government promoting 'green' design, construction and development in Singapore?

> Recognising the need to raise the profile of green buildings in Singapore, BCA has embarked on various outreach efforts to increase awareness and knowledge of the importance of sustainability in the built environment. For the building and construction industry, the annual Singapore Green Building Week gathers all the top minds to share the latest in green building design and technologies. For the public, the recent inaugural Build it Green (BiG) Day Out 2015 has helped to generate interest in and publicity for green building. SGBC is a key partner to BCA for these events that further our shared green cause.

Q: What will be the focus of the green building industry in Singapore over the next three years?

> Much has been achieved in the greening of new buildings and the greater challenge lies in greening existing buildings. The focus in the coming years is likely to be on the existing building stock and close partnerships will become increasingly important as we work together to raise the environmental performance of buildings whilst maintaining ongoing building functions and amenities. It is useful to note that incentive schemes are available to support building owners and tenants with the initial costs of going green, for example, the Green Mark Incentive Scheme (GMIS). This will go some way in assisting building and business owners with their sustainability objectives.



Interview with Melissa Merryweather

**Chair, Vietnam Green Building Council;
Director, Green Consult-Asia & Vietnam
Representative, Green Cities Fund**

Q: What is the current status of green buildings in Vietnam?

> Awareness is improving in the construction industry but there is a long way to go. The Vietnam Green Building Council was established in 2007 and we introduced the LOTUS certification system in 2010. In the last five years, around 32 buildings have been certified LEED, LOTUS or Green Mark and a few recently with EDGE. This is in the context of around 700 significant buildings being built right now just in Ho Chi Minh City.

Q: What types of projects are leading the way in green building and construction?

> Surprisingly, its factories, hands-down. This is because

global manufacturers in Vietnam have already established goals and reporting mechanisms and they expect sustainable and efficient operation. In the rest of the market, it's the high-end "luxury" buildings that want an extra "gold level" seal of approval.

Q: What are the major drivers and barriers to green building design in Vietnam?

> Drivers: Interestingly there is very little cynical "get me LEED, I don't care how". Most owners want the branding advantage, but about 60-70 percent also seek greater efficiency. Some owners are also worried about future government regulations about energy efficiency and a few are very concerned about limitation affecting future energy supply in Vietnam.



Barriers: Key leaders in the industry trumpeted some very misleading statistics right at the beginning of the “green wave”, mainly that green buildings would add 30 percent in cost to normal construction costs, which most sustainability experts know to be untrue. Here, as elsewhere, significant improvements can be made with added costs between 1 percent and 5 percent with reasonable payback. Unfortunately, the sound-bite stuck and it has been very difficult to dislodge it.

We also suffer from poor technical understanding of passive and energy-efficient design; owners and architects strongly favor floor-to-ceiling glazing yet it is the wrong building model for any location in Vietnam.

Q: In what ways is the local government promoting ‘green’ design, construction and development in Vietnam?

> Progress has been slow. Only now are there signs that investors will be rewarded with “faster-track approvals” if their buildings are targeting green, but it is unclear on what basis projects will be able to claim the status. Government has

given little encouragement to organisations promoting green building and no targets have been set for reducing energy and water use in buildings. VGBC hopes to work in partnership with the government; with the current speed of building now is the time to implement the single cheapest and easiest way to reduce future energy demands – we don’t want to waste this chance.

Q: What will be the focus of the green building industry in Vietnam over the next three years?

> We’ve shown in Vietnam that buildings can be built sustainably with little extra cost and at significant benefit to the owners, that green buildings are better planned and better managed, and that owners are provided with useful documentation. Having shown this at the very top end of the market, we now need to move to the mass-market, the smaller “Grade B” buildings, locally-owned factories and even single-family homes. Besides LOTUS, EDGE has been launched in Vietnam and between LOTUS and EDGE we have the potential to reach out to most of this market. We have built up momentum, and I’m confident that we can do it.

Interview with Sanwar A. Sunny

Founder and Executive Director,
Bangladesh Green Building Council



Q: What is the current status of green buildings in Bangladesh?

> The current trend of adoption of Green Building Technologies in Bangladesh is salient, but slow-paced in growth. In the commercial sector, a lot more factories (usually textile) and industrial buildings are opting for LEED certification, and the public sector has also taken steps to push forth the tenets of Green Building in the Bangladesh National Building Code (BNBC) in collaboration with industry and academy.

Q: What types of projects are leading the way in green building and construction?

> The Garments industry has been a critical early-adopter of green buildings in the nation over the last few years. As you know, tragic events in building collapses in this area, has channeled global attention to this even further. This has affected trade and investor relations greatly, and certification is one way to assuage the concerns of

all. Although the majority of the buildings are residential buildings, commercial buildings, therefore are definitely leading the way.

Q: What are the major drivers and barriers to green building design in Bangladesh?

> The real estate companies, which mostly construct residential buildings, which makes up the majority, primarily seek to maximise utility in the form of sales and profits. So instead of going for innovative technologies such as AC heat recovery, rainwater harvesting and solar power, they bypass these measures as these would be added costs and extra space, space that they could rather sell in this high demand market. This is because for them, there is no incentive to integrate these during the construction phase at all. As a result, a change in conventional business models, with added regulatory support is key in the short run to drive it further and remove the barriers.

Q: In what ways is the local government promoting 'green' design, construction and development in Bangladesh?

> As mentioned earlier, policy and monitoring support is the governments main role in promoting these techniques and frameworks. They can hold builders accountable or responsible and affect behavioral change in that way. They could also aide in ancillary support such as maintaining a public database of resource-efficient fixtures or consultants/contractor contacts, as currently the industry suffers from informational asymmetry in the "how-to"s of green building and design.

Q: What will be the focus of the green building industry in Bangladesh over the next three years?

> Like any developing nation, Bangladesh is also fast developing. And hence, with it, carbon intensity. More people are living in urbanised areas, have access to equipment, devices and fixtures that draw a lot of grid power. As a relatively hot area, the need for water and AC is at an all time high. The next decade is very crucial to these nations, including China and India, who are dwarfing some developed nations in terms of GHG emissions. Bangladesh similarly needs to learn lessons from the west and plan for the future, instead of trying to retrofit buildings years down the road where it would be costly and unfeasible. For this plan to be appropriate, drivers and barriers would need to be coherently identified and dealt with swiftly to make sure our transition onto the future is both clean, economic and sustainable for our future generations.



Interview with Romilly Madew

Chief Executive Officer, Green Building Council of Australia

Q: What is the current status of green buildings in Australia?

> In some markets, we've made a great deal of progress. A quarter of all office space in CBD markets is now Green Star certified, for example, and most university campuses can claim at least one Green Star building. We have more than 1,000 projects either certified or registered to achieve Green Star ratings.

Australia's property industry has moved well beyond simply certifying buildings, and the first five Green Star – Communities certifications have been awarded in the last year. These projects include university masterplans and large residential developments with their own postcodes.

In addition, we are seeing a dramatic increase in the number of companies using the Green Star – Performance rating tool to measure the operational performance of existing buildings. We are working with a number of members to rate their entire portfolios, so they can meet international reporting requirements, and demonstrate leadership in sustainable building operations.

For example, Australand now has Australia's largest portfolio of Green Star certified space – 1.3 million square metres in total – after securing the first ever Green Star – Performance portfolio rating for 54 commercial and industrial properties. The 12 commercial and 42 industrial properties achieved average 3 Star ratings representing 'good practice'.

Q: What types of projects are leading the way in green building and construction?

> I'm inspired by Australian retail giant Coles, which recently achieved the first Green Star rating for a supermarket. Coles worked with us to develop a 'supermarket of the future' and has set a new benchmark for sustainable supermarket design in Australia. The Coles Hallam store has 50 percent more fresh air compared to minimum standards, through high-performance heating, ventilation and air-conditioning systems. The supermarket has achieved a 15 percent reduction in greenhouse gas emissions, with highly efficient chillers and heat reclaimed from refrigeration cases used to supply heating to other parts of the supermarket. Also, Coles achieved a 70 percent reduction in water consumption, compared with traditional supermarkets, from a range of water-efficiency measures, including water-efficient fixtures and fittings, and 150,000 litre capacity water tanks.

I'm also inspired by the work of the Victorian Government, which recently worked with us to achieve Green Star ratings for five train stations in Melbourne. The upgrades to Footscray, West Footscray and Sunshine railway stations and the new railway stations in Wyndham Vale and Tarneit have all received 4 Star Green Star ratings – making them the first Green Star-rated railway stations in Australia. Extensive natural light reduces the train stations' reliance on electric lighting, while



more than 100 solar panels help to provide power and heat water in each station. Energy-efficient LED lighting in car parks, forecourts, uncovered patron areas, and many internal areas, improve safety. Sensors automatically switch off or reduce the use of lighting and air-conditioning systems when they are not required. Each train station uses energy and water meters to monitor consumption. Water-efficient taps, urinals and toilets reduce the reliance on potable water, while a rainwater harvesting system collects rainwater run-off from the roof which is used to flush station toilets and wash platforms. Low water-use and native plant species have been planted in the garden beds around the station.

The results are impressive. For example, West Footscray railway station produces 40 percent less greenhouse gas emissions than a standard station design, uses 60 percent less water and, in the middle of summer, its maximum electrical demand is 30 percent lower.

Q: What are the major drivers and barriers to green building design in Australia?

> There are a few key drivers, particularly in the commercial sector. Certainly, the evidence is clear that green buildings deliver consistently higher returns on investment compared their non-green counterparts. The latest Property Council/IPD Australian Green Property Index has found that Green Star-rated CBD office assets delivered a total annualised return of 10 percent, outperforming the CBD office market by 100 basis points.

Green Star buildings also have a competitive edge and can help to attract prospective tenants. Colliers International's Office Tenant Survey has found that 95 percent of Australian tenants want to be in a green building, up from 75 percent two years earlier. 'Green space' is one of the top four attributes tenants look for – along with bike racks, childcare facilities and a gym.

Of course, the environmental benefits are also a driver. Our Value of Green Star: report from 2013 found that, on average, Green Star-certified buildings use 66 percent less electricity than average Australian buildings, produce 62 percent fewer greenhouse gas emissions and use 51 percent less potable water.

While the business case for green building in the commercial arena is firmly established, our challenge is to translate that to the residential market. While location and price remain the biggest considerations for anyone purchasing a new home, smart buyers are starting to look at green ratings to decide whether a home will be a sustainable long-term investment.

Q: In what ways is the local government promoting 'green' design, construction and development in Australia?

> We have a three point advocacy plan to encourage governments around Australia (at the federal, state and local levels) to certify new and existing buildings using Green Star, encourage industry to move beyond standard practice and create better communities.

We are finding that many local governments are leading by example – and have the bricks-and-mortar demonstrations to prove it.

Wollongong City Council in New South Wales, for example, achieved Australia's first 5 Star Green Star – Performance rating

for an existing building. The rating provides the people of Wollongong with independent verification that their building stacks up against some of the newest green icons around the country – and that they have an efficient, productive and healthy community asset.

Similarly, the City of Gosnells' in Perth recently attained Australia's first 6 Star Green Star – Public Building Design v1 rating. The Mills Park facility features a new community hall and function centre for 300, commercial kitchen and café, meeting rooms and activity spaces, an indoor play space for children's parties, a clubroom and changing rooms for sporting groups, as well as office space for staff. Incorporating a range of outdoor recreation areas, the facility will connect local residents, protect the environment and engage the community for decades to come.

In Australia, we are increasingly seeing local governments influencing building decisions made in their communities. Leading councils recognise they have a responsibility to invest in assets that meet the needs of their communities not just today, but for decades to come, and they are turning to the Green Star rating system to help them.

Q: What will be the focus of the green building industry in Australia over the next three years?

> Australians are demanding more transparency and accountability – and companies are responding accordingly. The leaders in the property industry are now rating their buildings – and indeed their entire portfolios – as a matter of course.

For example, the 2014 Global Real Estate Sustainability Benchmark (GRESB) analysed data from 637 listed property companies and private equity real estate funds, covering 56,000 buildings with an aggregate value of USD \$2.1 trillion, finding "green building certification programmes have become institutionalised in the real estate market, with over 34,000 commercial buildings certified across the globe." GRESB recognises Australia as the "green leader" across all markets.

Green bonds are also encouraging investors to consider potential assets on the basis of their long-term sustainable returns. When Stockland, one of Australia's largest property developers, launched a €300 million green bond in 2014, the market took notice. The proceeds of this green bond will be invested in green building projects that achieve a minimum 4 Star Green Star rating.

As I mentioned earlier, the leaders in the industry – namely Lendlease, Australand and Stockland – are achieving Green Star ratings for their entire portfolios.

Increasingly, both small and large companies have moved beyond regulation, and are reacting to the signals set by the market leaders. If you want to do business with the leaders, then you must comply with the sustainability measurements they have in place.

Take Lendlease's work on supply chain engagement, for example. Lendlease's T2 office development at Barangaroo South, which achieved a 6 Star Green Star rating representing 'world leadership' in sustainable design, was awarded Green Star 'Innovation' points for a framework that will change the way the entire supply chain operates. This framework will influence what producers make, how they make it, who they sell to and how they market. In this context, sustainability is a risk management tool that ensures companies don't get cut out of the market.



Interview with Tony Lee Luen Len

Founding Chairperson, Green Building Council of Mauritius

Q: What is the current status of green buildings in Mauritius?

> There has been a major improvement in the awareness regarding Green buildings. There is only one certified green building, but there are several buildings that can be qualified as green buildings. However the market has a long way to go, specially to make green buildings close to a standard, like in some countries.

Q: What types of projects are leading the way in green building and construction?

> We would have liked to say that public sector projects are leading the way. It is not the case. However, Government initiatives have been a helpful.

The first project is all the work on energy efficiency and energy conservation in buildings. Unfortunately the building codes prepared in 2011 are currently being reviewed again and have not been promulgated. However, during the consultancy work, and with the awareness campaigns, we can see a change in the market. Buildings are designed more efficiently in respect of energy.

The second event, is the announcement in the last budget for a Smart City Scheme, whereby projects will have fiscal and non-fiscal incentives to develop projects. The regulations are due to come out in the coming weeks. The Smart City Scheme will definitely give the needed impetus to green building and construction. Prior to the announcement, it is worth noting that there are developers who have already engaged in developing sustainably. The first registered BREEAM Communities project in the southern hemisphere is in Mauritius.

As to the types of projects, there are no specific project type that distinguishes itself from the others.

Q: What are the major drivers and barriers to green building design in Mauritius?

> The major driver in Mauritius is mainly corporate policy. Some companies have objectives that do not allow them to do any other way than to design sustainably. There is also the coming sustainability index on the Mauritius Stock Exchange. Some companies are already doing the Global Reporting Initiative (GRI) reporting. Similarly there are individuals that are ecologically conscious and want their project to be green.

Market differentiation comes second. Some projects are designed with green elements to provide the developer with a competitive advantage.

One other driver that is on the rise, is market pressure. For hotels, there is a fear that clients will start preferring green hotels. For industry, clients are requesting that the suppliers prove their green credentials.

The main barrier is the human nature of resisting change. Often, the issue is that the team shall rather stick doing things the same way, the design they know, the process they know. This is the reason why several projects registered to be certified, drop out before the projects are built. This is linked to the lack of knowledge. Generally there is a lack of knowledge what green buildings are, but more often the problem is the lack of knowledge of the various construction details or technologies. An example is one will not specify a green roof, because they do not know how it works and what type of issues they can be plagued with in future. Green building professionals are also not numerous.

Another barrier is the availability of products and technologies, and more importantly their costs. With the green building market being in its infancy and because of the other barriers, there is a lack of demand for such products and technologies. On the flipside, this has caused designers to think first on the low-tech opportunities, which is a good thing.

The cost barrier is exacerbated because the standard of construction is low in Mauritius. The market has been requesting incentives to reduce the first costs. To date the public sector has not had any policies in place to incentivise green building design. Hopefully the Smart City Scheme shall respond to this market need.

Q: In what ways is the local government promoting 'green' design, construction and development in Mauritius?

> It cannot be said that the Government has been actively promoting 'green' design, construction and development in Mauritius. There has been the energy efficiency and energy conservation programme, which to date has not been successfully complemented. The Smart City Scheme is the first real initiative and opportunity. It should be noted that the Government has developed a green building rating tool (Brilliant Pearl) a few years ago, and the appointed



consultants had proposed a strategy and an action plan. However these have not been implemented.

Q: What will be the focus of the green building industry in Mauritius over the next three years?

> The focus of the green building industry over the next three years will invariably be around the Smart City Scheme. Although the scheme is specific to neighbourhood/city-scale development, the requirements and the incentives

will promote green building design. We shall see better availability of products and technologies. The professionals will be forced to step up to the market demand. Operations will be an important component. The energy efficiency and energy conservation building code shall hopefully be implemented in 2016 at the same time as the energy audit schemes etc. The focus will be first and foremost on energy efficient buildings. We are expecting to see more certified green projects.

Interview with Alex Cutler

Chief Executive, New Zealand Green Building Council



Q: What is the current status of green buildings in New Zealand?

> In New Zealand's commercial sector, green building is increasingly moving into the mainstream. Now it's less likely to be perceived as something achievable only for prestigious corporate addresses. Awareness is also growing that green principles don't necessarily add cost when approached in an integrated way at the project's outset. This has been slow to percolate to all layers of the profession, however, so New Zealand does lag behind other OECD countries in terms of uptake.

We have a number of rating tools available for people to use to design and construct more sustainable buildings. Green Star is the most commonly used tool in the non-residential market and Homestar covers the residential market.

Q: What types of projects are leading the way in green building and construction?

> We have some iconic projects that hold their own on the world stage. The Geyser Building in Parnell, Auckland was New Zealand's first 6 Green Star building (denoting world leadership) – this office features a naturally ventilated double-skin façade. The Christchurch Civic Building (Te Hononga) was the first to attain a 6 Green Star rating at Design, Built and Interior stages: this upgrade of an old New Zealand Post building features a world-leading trigeneration system.

Last year, Te Mirumiru in Kawakawa, our first commercial earth-bank building and first 6 Green Star Education building, won the World GBC's Asia/Pacific

award for sustainable design (among other awards). This unique childcare centre embodies social and environmental sustainability; the building is integrated into the landscape and pays homage to the tribe's customs and history, and its innovative insulation and waterproofing mean the centre stores heat when needed and remains cool in hotter weather. Many new schools are being built sustainably, and the government provides extra capital funding for schools to achieve this.

Of course, Green Star isn't the only game in town – the Tuhoe tribe's Te Uru Taumatua was New Zealand's first building designed to the Living Building Challenge, and is a remarkable example of sustainable construction in Te Urewera National Park.

Homestar is NZGBC's tool for residential properties, and this year we've seen developers achieve top-tier Homestar ratings (on the 1-10 scale). In May, a Papamoa home achieved New Zealand's first 10 Homestar Design rating, and is aiming to also achieve a 10 Homestar Built rating; among its many features are a photovoltaic energy system and solar hot water, a state-of-the-art system that controls when appliances switch on, and a smart piping system that captures passive heat to warm the home. In August, a house in Christchurch's Church Square achieved New Zealand's first 10 Homestar Built rating thanks to a high-performance thermal envelope, a solar wall ventilation system, and innovative hydronic underfloor heating.

The Zero Energy House is another notable project. An Auckland-based engineering couple designed and built their own zero-energy sustainable home, and freely share their processes, costs and experiences at www.zeroenergyhouse.co.nz.



Q: What are the major drivers and barriers to green building design in New Zealand?

> In the residential market, the key driver comes from local authorities including sustainability requirements for new developments in their district plans. Unfortunately, a large proportion of New Zealand's existing housing stock is substandard and poorly insulated. Consumer awareness is slowly improving as people begin to understand what makes a warm and sustainable home, but many homes require substantial work.

In the non-residential sector, there are pockets of brilliance as already indicated. The wider-spread reality is that green building was off the government's agenda for many years, and the building and construction sector has been tightly focused on seismic issues as a result of the Christchurch earthquakes. But the seedlings of change are growing rapidly and green building seems to be flourishing once again, as international interest in the New Zealand market appears from Singapore and China.

Q: In what ways is the local government promoting 'green' design, construction and development in New Zealand?

> Local government has become significantly more engaged

in recent years. Councils have begun to include sustainability objectives in their district plans. Auckland Council is leading the way through their urban design guidelines, eco-design advisers for residential homes, and a more acute focus on urban planning and quality urban design.

These types of initiatives are not yet widespread across New Zealand, but local government is rapidly realising that master planning is vital if they want to create liveable communities to carry us into the future.

Q: What will be the focus of the green building industry in New Zealand over the next three years?

> NZGBC aims to nurture new exemplar projects, by giving assistance and making connections, and continue to publicise the buildings that have already achieved ratings. The green building industry needs to achieve broader penetration into the mass market, not just best practice – so it becomes a standard way of designing and building, matching New Zealand's 'clean, green' image.

New Zealand needs to play catch-up. The opportunity is that because we are a small and innovative market, we could leapfrog other countries and rapidly adopt new technologies. The question is whether New Zealand has the political and economic will to do so.



Interview with Christopher C. de la Cruz
Chief Executive Officer, Philippine Green Building Council

Q: What is the current status of green buildings in Philippines?

> Much of the debate at present is in the area of policy development. We see interest in green building certification to increase, however at present demand remains low. But with local governments increasingly mandating green, we see there will be an upward trend in green building certification. BERDE certification is continuously recognised as a policy and regulations support tool. With local governments including green certification in public mandates, people would be compelled to go green.

Recently (June 2015), the Department of Public Works and Highways (DPWH), the department delegated to craft the implementing rules and regulations for the National Green Building Code, released the National Green Building Code outlining mandatory minimum levels of performance

for various performance indicators for buildings. This recent develop would spur local governments to respond by updating their local building ordinances to comply with new building regulations.

Q: What types of projects are leading the way in green building and construction

> Interest for green building remains high in the commercial and residential buildings sector. Lowering OPEX is critical for businesses to remain competitive and homeowners are now more aware of various issues associated with climate change, energy use, water use, and other resource conservation related issues.

Building retrofits, regardless of occupancy types are also becoming popular. I personally hope this trend on building retrofits remain. There are more existing than new



buildings, addressing existing buildings is more crucial in ensuring sustainability in the property sector.

Q: What are the major drivers and barriers to green building design in Philippines?

> The Philippines is the most expensive source of energy in Asia. A significant share of a business' operating budget is for energy use and businesses, to remain competitive are compelled to respond by going green.

Policy dialogue in several key cities needs to be accelerated. Comprising of 7,100 islands with a very diverse economic, social and environmental landscape, developing a one-size-fits-all policy for Philippine cities would be difficult.

Q: In what ways is the local government promoting 'green' design, construction and development in Philippines?

> Local governments promote green by legislating green building mandates outlined with incentives. Various levels of certified green building ratings are being required for residential, commercial and industrial applications. Local governments are also putting in place green city development frameworks to serve as a roadmap in moving forward with their green agenda. Several local governments are mandating that all government building operating within their jurisdiction to go green. Among the Philippine cities

involved in this endeavour are: Quezon City, Mandaluyong City, Mandaue City and Pasig City. Several more local governments are also in various stages of development on legislating green.

Q: What will be the focus of the green building industry in Philippines over the next three years?

> In a recent conducted by the PHILGBC, we identified that establishing partnerships between the academic community and industry is critical in moving forward. In the past several years, numerous researches were conducted, and much of this information is languishing on library shelves and currently serves no particular purpose. Industry can leverage on this new studies to green businesses more effectively and efficiently.

Green campuses are going to be promoted more. It facilitates experiential learning and it enables future leaders to be more aware of green building benefits. About 1/3 of a student's life is spent in schools and campuses. Promoting student safety, comfort and learning is key in promoting green campus uptake.

Health and wellness as an outcome of green building needs additional push. Businesses are paying significant amounts for healthcare services. Businesses need to be more people centric. Taking care of our people is the best way to enable them to be more productive.

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Treetop walkway in the Masoala Hall at Zoo Zürich

Text & photos courtesy of Jakob AG





Zürich's zoo built a treetop walkway to commemorate the 10th anniversary of the Masoala Hall. It allows visitors to observe the inhabitants of the rainforest canopy at eye level. The walkways and the two towers (10 and 18 metres high) are enclosed with Jakob's stainless steel Webnet fillings. The exterior sides of the towers are configured with Webnet planters. The assembly work was performed under difficult circumstances amid the flora and fauna in the tropical climate that prevails in the hall.

For more information, visit www.jakob.com.

PROJECT DATA

Project : Treetop walkway in the Masoala Hall, Zoo Zürich

Location: Zurich, Switzerland

Architects : Vogt Landscape Architects, Zürich

Jakob products: AISI 316 stainless steel Webnet netting:

- Webnet rope Ø 1.5 mm
- Mesh aperture for the towers 100 mm
- Mesh aperture for railings and planters 40 mm





Window openings are dotted over the facade in an accordion-like design. The colour nuances are based on the works of painter Gustav Klimt.

The City Campus of University of Technology Sydney (UTS) – In a class of its own

The City Campus of University of Technology Sydney (UTS) has been expanded through the addition of a new building. Forming an annex to the existing Science Building and built in association with Durbach Block Jagers and BVN Architecture, have created a new home on Thomas Street for the Faculty of Science and Graduate School of Health. "Executive Project Manager Marc Treble says the building has been "purpose-built for research". A dramatic feature is the new building's undulating façade, made possible by using the StoVentec R Rainscreen Cladding System from Sto, and featuring a multitude of colour-framed windows that evoke the organic form of a tree grove. Designed in collaboration with the Faculty of Science and Graduate School of Health, Treble says the ethos of the building was simple: "This was going to be more than just a building; we were building a temple, and the religion of this temple is research. We know that in the future research done in this building will touch your family or your life in some way, and that's a fact."

The requirements placed on the new UTS building in Sydney were complex: in addition to a highly technical spatial programme, its prominent position in the centre of the university grounds on "Alumni Green", the only free greenspace in the entire university complex, also needed to be considered and included in the equation. Durbach Block Jagers and BVN Architecture came up with a solution that is as clever as it is optically impressive. On the southern side of the courtyard, the architects designed a bright, vividly undulating and simultaneously inclined rendered facade structured with an abundance of slot-shaped windows. A distinctive feature sees the windows framed in projecting steel frames with reveals painted in various shades of green, yellow and



The tiered construction allows direct sunlight to enter the open area inside the block even in winter.



blue. The result is a fluctuating, dynamic facade that conjures up images of tree branches dancing in the wind. The colourfully set window openings continue on the west and north facades facing the street, while the facade undulation is reduced to a minimum at this point and is positioned right on the passageway between Thomas Street and the courtyard. At ground floor level, the design encompasses a generously glazed arcade on three sides, with the slotted facade that is characteristic to the overall design first evident on the upper floors.

The building is tiered in terms of height so the open area inside the complex is not excessively shaded as a result of the low sun during winter: while the street side has five storeys, the courtyard side has only four. The total of 13,800 square metres of floor space is not only distributed over the five storeys, but also over three subterranean levels. Along with Australia's largest scientific lecture room (*The SuperLab*) with seating for 220 people, these encompass a variety of laboratories, some of which are equipped with special research facilities such as a vacuum chamber, cleanroom and combustion chamber. The first underground level also incorporates a large auditorium and an area for the medical professions. Located

on the entrance level are a cafe and the Graduate School of Health wing, with the upper floors accommodating office workstations and smaller laboratories. At the top of the building the architects housed the service installation rooms. All of the levels are interconnected by the partly sculptured stairway system; while the functional areas are linked on all floors by communal spaces for students and general gathering zones. In this way, the areas in the existing Science Building, to which the new building is annexed, have also been meaningfully connected.

To counteract the lack of natural light in the subterranean lecture rooms, the architects have chosen strong colours for the walls, floors and ceilings in these areas as well as generous, and to some extent highly unusual lighting installations. In contrast, the use of colour is more subtle on the upper floors where, in addition to the coloured window reveals inside the buildings, the focus primarily lies on individual pieces of furniture placed for accentuation. Particularly striking is the design of the vertical access arteries, which boast sweeping walls, cleverly placed overhead lighting and reflective surfaces such as mosaic tiles that not only guide the way through the building, but present constantly changing visual perspectives.

Despite all the ingenuity of the

design and high level of functionality, the ecological aspects have certainly not been neglected: the roof area above the fourth floor has been designed as a green roof. The StoVentec R, a rainscreen cladding system has been used on 97 percent of the façade. The flexible carrier board is made of recycled glass which allows for a three dimensional design with a seamless smooth render finish. "This was one of the first StoVentec R installations in Australia, and it has been a challenging façade job but could not have been a simpler product to install," says Joshua Andersen Managing Director at Eurcon. "The system fixes to the building in much the same way as other Sto products we're familiar with, so we had no problems installing it." The air supply for the ventilation system is pre-conditioned via a labyrinth system in the underground library area. As a consequence, the building has been awarded a six stars design rating by the Australian Green Star rating system for sustainable building.

For more information, contact Sto SEA at tel (+65) 6453 3080, fax (+65) 6453 3543, e-mail info.sg@sto.com or visit www.sto-sea.com.

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Waterfront-inspired mall opens in Qingdao

MixC Mall, one of China's newest malls opened in Qingdao on 30 April 2015. The interior of the mall, designed by Benoy, offers a truly integrated experience, which unites retail and entertainment for the city.

Occupying an area of 450,000 square metres, Qingdao's MixC Mall has established an exciting landmark in the country's northeast. Integrated into the China Resources Centre, the wider mixed-use development is a prominent commercial addition for the city. The scheme is also a vital component of the City Crossing development, the major landmark building group in Qingdao.

Benoy, the global studio of Architects, Masterplanners, Interior and Graphic Designers, was appointed by China Resources Land (CRL) as the Interior Designer for the developer's most significant retail scheme to date. "We are proud to deliver CRL's new flagship for their high-end retail brand. As the sector continues to evolve, Benoy is excited to be at the forefront of designing the heart of these major mixed-use schemes. MixC Mall in Qingdao is a truly integrated experience which unites Retail and Entertainment for the city," commented Craig Menzies, Director at Benoy.

Covering seven levels and three underground levels, the retail-led podium has one of the most extensive programmes for shopping centres in the country; bringing together Retail, Food and Beverage, Entertainment, Education and Culture. The development features a roof garden and sunken plazas, an Olympic-standard ice skating rink, a dedicated children's area and the first SEGA indoor theme park in China.

Benoy's Interior Design drew inspiration from Qingdao's waterfront landscape with the interior spaces shaped by undulating, wave-like forms. The curved floor pattern, feature ceilings and main atrium have all embodied elements of the ocean to give striking focal points throughout the design.

"Qingdao has been described as one of China's most liveable cities and so our design aimed to connect visitors with the natural landscape. We celebrated the mall's proximity to the outdoors through the use of natural stone, timbers, skylights and glass curtain walls," explained Emily WS Wong, Benoy Senior Associate Director and Project Design Leader.

Located in Qingdao's well-established commercial centre, the scheme provides the benefits of being a Transit Oriented Development, with seamless connectivity to two metro lines. Attracted to the commercial advantages of the scheme's location and wider integration, over 85 percent of the development's retail units were rented by 2013, two years prior to the mall's opening.

PROJECT DATA

Project: MixC Mall

Location: Qingdao, Shandong Province, China

Developer: China Resources Land

Interior Design: Benoy Ltd

Architect: Callison

Site Area: 135,000 square metres

GFA: 450,000 square metres

Opening Date: 30 April 2015

All images: Photography by Brian Zhang for Benoy





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New splash park at Singapore Sports Hub wins the hearts of children

Playpoint (Singapore) Pte Ltd, together with Empex Watertoys® supplied and installed a range of interactive water features for Splash-N-Surf park at the new Singapore Sports Hub.



Located on level 3 of the Singapore Sports Hub, the Empex outdoor facility has been transformed into a paradise of exciting and interactive water features for children to aged 12.

Comprising of a central Aquadeck with swaying palms is the centerpiece of the installation. This structure has a large fibreglass slide, a tube slide, a triple rail slide and a preschool slide offering a total of five different slide experiences. The cantilever deck on the structure has interactive watershooters that can aim a soft jet of water at those below.

Surrounding the Aquadeck play structure is the Aquawizz, an interactive water feature from the Empex Aquanetics line of products. A hand wheel can be turned to create three different water effects. An Aquastream provides a gentle water curtain as you walk through and the Aquafountain sends down several streams of water on the frolicking children below.

To include features for the younger children, a Baby Bungee provides a moulded seat for babes in arms, giving young moms and dads a place to safely place their infants away from the more boisterous. Preschool children can play on the Aquadome, a veritable mountain for toddlers which supplies an array of interactive laminar jets.

The full array of colourful water features has been a great addition to an already wonderful outdoor entertainment experience. The Empex line of products is available in Singapore through Playpoint (Singapore) Pte Ltd.

For further information, contact the company at tel (+65) 6398 1558, fax (+65) 6398 1559, e-mail info@playpoint.com.sg or visit www.playpoint.asia.



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Splash pads go by various names like spray parks, splash zones, water parks, aqua playgrounds, etc. They are found in commercial and residential applications. Splash pads, virtually unknown a decade ago, have moved to the mainstream having captured the imagination of architects, developers and municipalities as a viable low-cost, both in construction & operations, alternative to swimming pools.

What is a splash-pad?

It is simply an area with a non-slip surface with in-ground and above ground water features which are able to shower, spray, rain, mist, and shoot streams of water to create an inviting venue for recreational water play in nearly any park, backyard or neighbourhood.

For more information on Water Splash Inc, visit www.watersplashnet.com.



Zero depth splash park, animal and nature theme installation in South of Turkey by Water Splash Inc.



Zero depth splash park, candy concept installation in South of Turkey by Water Splash Inc.



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The Growing Adoption of Flexible Sprinkler Systems in Fire Protection



Text by John Stempo, Group Leader of Global Regulatory Compliance at Victaulic Company

About the author

John Stempo is Group Leader of Global Regulatory Compliance at Victaulic Company. He holds a Bachelor's of Science in Mechanical Engineering from Lehigh University, and has 10 years of experience with product development and regulatory testing and approvals in the Fire Safety industry. He is currently serving as Victaulic's representative on the US Technical Advisory Group to ISO TC21/SC5, the committee responsible for developing international standards for water-based fire sprinkler systems.

Invented before the turn of the 20th century, flexible metal hoses have been utilised in a wide range of industries and applications, but only recently have they experienced significant growth within the Fire Sprinkler industry. The pioneering inspiration behind the original concept of a metal hose – providing flexible, leak-tight, reliable and corrosion-resistant conveyance of fluid – is as relevant today as it was over 100 years ago, particularly when considering the life safety and property protection aspects that modern fire sprinkler systems are expected to provide. Beginning in the 1980s, the first flexible sprinkler hoses were introduced in Japan. Arising from a need to accommodate seismic movement and absorb the damaging stresses at joints and other components in the system induced by large and rapid displacements, flexible hoses were used to connect fire sprinklers to their supply lines in lieu of traditional threaded steel pipe. Since then, the inherent mechanical benefits, together with ease and speed of installation, have driven a significant surge in the popularity and use of these products. This has resulted in the adoption, specification and installation of flexible sprinkler hoses in fire sprinkler systems globally.

“Why should I use flexible sprinkler hoses? I’ve always used hard-pipe.”

Mark Twain once wrote, “the less there is to justify a [tradition], the harder it is to get rid of it.” There’s usually quite a bit of truth to what Mr Twain writes, but in the case of flexible sprinkler hoses, considered by many to be non-traditional technology compared to hard-pipe, it is widely off-the-mark. The adoption rate of flexible sprinkler hoses over traditional, hard pipe arm-overs has steadily increased over the past several years and will continue as the installation and performance benefits are fully realised. While the reasons for the rapid increase in popularity have focused on the labour savings and markedly improved project completion rates, there are also several critical performance and safety benefits flexible sprinkler hoses provide over traditional hard pipe.

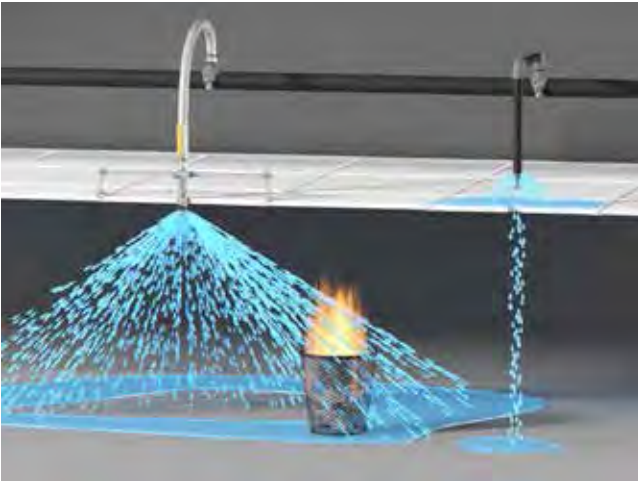
Foundations settle and ceilings can shift and sag over time. This presents a problem to the threaded hard pipe arm-over, specifically with respect to the sprinkler position in relation to the ceiling surface. By code, hard piping is required to be anchored to the building structure separate from the ceiling structure. Because of this de-coupling between the pipe and ceiling, the sprinkler elevation relative to the finished ceiling surface cannot always be guaranteed to remain constant. Under an extreme “sagging” condition of the



ceiling surface, a sprinkler can become excessively recessed above the ceiling surface over time, potentially to an installed condition considered to be outside its agency Listing or Approval.

What this really means is that in the event of a fire, the sprinkler's operational response time and spray pattern characteristics would be severely impacted, thereby allowing the fire to grow unchecked in the affected area. In contrast, a flexible sprinkler hose is required (by code, its listings and installation instructions) to be securely attached with an anchoring bracket to the ceiling's structural elements, such as suspended “T-grid” ceiling channels or wood/metal joists or studs. This positive bracket attachment to the ceiling structure ensures the elevation of the sprinkler in relation to the ceiling surface remains consistent over time. The inherent “adjustability” of the flexible hose accommodates the expansion, contraction, and settlement of the ceiling structure, preserving the designed operational response and water distribution characteristics of the sprinkler.

Additionally, due to their inherent properties and required installation designs, flexible sprinkler hoses provide a greater level of performance in seismic events than hard pipe. In a 2011 report by the US Federal Emergency Management Agency, FEMA E-74: *Reducing the Risks of Nonstructural Earthquake Damage – A Practical Guide*, it was noted that fire sprinklers, attached to hard piping, can often be damaged during a seismic event. Because of the de-coupling of the hard pipe and ceiling structure, the seismic forces on these systems

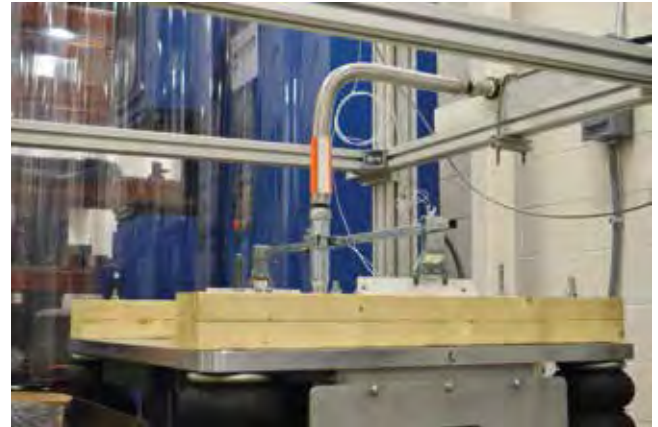


exert differing accelerations, result in collisions, and ultimately induce severe damage compromising the fire sprinkler system's post-seismic performance capability. In the FEMA report, one of the recommendations to bolster seismic performance is to use flexible sprinkler hoses because they help reduce the likelihood of damage to fire sprinklers and ceilings. Further supporting this recommendation, several recent revisions to NFPA 13: *Standard for the Installation of Sprinkler Systems*, recognise the seismic capability of flexible sprinkler hoses, allowing their use in lieu of providing large clearances around sprinkler ceiling penetrations.

Regulatory Testing and Approvals

Over the past decade, industry-leading independent approval agencies worldwide have developed standards governing the performance and manufacturing requirements of flexible sprinkler hoses and their anchoring brackets. While each of these standards are somewhat different in test methodologies, flexible sprinkler hoses with UL, FM, VdS, LPCB and CCCF¹ Listings and Approvals, have met some of the most rigorous testing protocols required of a fire sprinkler system product. With an average of 16 distinct performance tests between them, the requirements in these standards [UL 2443: *Flexible Sprinkler Hose with Fittings for Fire Protection Service*, FM CL-1637: *Approval Standard for Flexible Sprinkler Hose With Threaded End Fittings*, LPS 1261: *Requirements for Testing Flexible Hoses for Sprinkler Systems* and GB 5136-16: *Flexible Sprinkler Hose with Fittings*] include accelerated corrosion tests, high pressure activation and flow tests, long-term heat aging tests, hydrostatic pressure tests including water hammer, fatigue flexibility tests, low temperature tests, and an extensive series of vibration tests, among others.

During initial type-testing of a design being evaluated for agency approval, each model of flexible sprinkler hose and its anchoring bracket is subjected to a series of controlled vibrations at varying frequencies and displacements. Connected to a branch-pipe and anchored to simulated ceiling grid structures, the flexible sprinkler hose assembly is subjected to a total of 90 hours of vibration cycles in each three-dimensional axis from 18 to 37 Hertz and at a maximum displacement of about 1/8 inch. Following the vibrational fatigue condition, the hose assembly must pass hydrostatic pressure tests to multiple times the rated working pressure without leakage. Additionally, approved flexible sprinkler hoses are subjected to cyclical fatigue tests, "U-bending" a hose at its minimum allowable bend radius upwards of 50,000 times, and again must pass hydrostatic pressure tests without leakage at several times its rated working pressure.



To meet additional requirements established by the regulatory agencies, all manufacturers are required to conduct factory pressure tests on 100 percent of their flexible sprinkler hose production. These tests are intended to ensure leak-tight performance at a pressure of up to twice its rating. Also, random samples are required to be taken at periodic intervals to perform additional required quality checks, such as hydrostatic burst testing, elongation under hydrostatic pressure, and dimensional checks. At the manufacturer's discretion, this may also include random testing of chemistry and micro-hardness of the tube and braiding to ensure it meets the required level of material quality and process consistency.

Similar to any listed or approved fire protection product, the regulatory agencies conduct periodic audits at each manufacturer's production facility(ies). Agency auditors will check records of the mandatory production testing, compare product drawings with actual production parts, verify the listing or approval mark is applied correctly, and conduct an overall survey of the manufacturing process. All of this activity is designed to ensure flexible sprinkler hoses and anchoring brackets are consistently produced to the manufacturer's specifications and continuously meet the performance levels defined by the agency's standards.

Conclusion

Today, there are a wide range of flexible sprinkler hose models, coupled with an equally large selection of brackets, fittings and other accessories, available for a broad range of building and construction types, system designs and water delivery requirements. Flexible sprinkler hoses not only install faster than hard-pipe, but more importantly they are able to accommodate ceiling shifts and sagging over time, ensuring sprinklers remain at their original installed elevation, in addition to providing superior performance over hard-piping in a seismic event. When manufactured under robust quality systems, subject to periodic audits, and carrying global product approvals, flexible sprinkler hoses are able to help ensure sprinkler systems remain reliably in service and ready to provide their rated fire suppression capability in any critical event. As building owners, insurance underwriters, regulatory agencies and authorities-having-jurisdiction all require an increasingly high level of performance, safety and reliability of a fire sprinkler system throughout its life, these products have become an easy choice in meeting all of these requirements.

¹ Underwriters Laboratories, Factory Mutual, Vertrauen durch Sicherheit [Germany], Loss Prevention Certification Board [UK], and China Certification Center for Fire Products.



22-24 Oct 2015
Myanmar Event Park
Yangon, Myanmar

Myanmar Build & Decor 2015 returns for its second edition

The second edition of Myanmar Build & Decor, one of the best sources for building material and decor, will be held from 22-24 October 2015 at the Myanmar Event Park in Yangon. The show will present over 160 exhibition brands and companies with increased visitorship of 4,000 targeted industry visitors.

A truly building and construction dedicated event, Myanmar Build & Decor 2015 is well supported by:

- Republic of the Union of Myanmar Federation of Chambers of Commerce and Industry (UFMCCI)
- Myanmar Associateship of Government Technical Institute Society (Myanmar A.G.T.I. Society)
- Myanmar Engineering Society (MES)
- Myanmar Construction Entrepreneurs Association (MCEA)

This year, in line with the exhibition Myanmar Associateship of Government Technical Institute Society (Myanmar A.G.T.I. Society) will be conducting two and a half days seminar on "The New era of Myanmar's Building & Decoration", which is one of the key highlights of Myanmar Build & Decor 2015. In addition, a business matching service will be provided for overseas exhibitors who are looking for local partners or dealers in Myanmar.

Commenting on the show, Mr Sompong Jaengjetsada, Sales and Marketing Manager of SCG Cement-Building Material Co., Ltd. – Myanmar, one of the largest building materials player in Thailand and ASEAN said: "We had huge success from exhibiting in the Myanmar Build & Decor 2014. At SCG booth, we also received excellent response from visitors who were mainly key decision makers and influencers. SCG products were better known to the market from this exhibition."

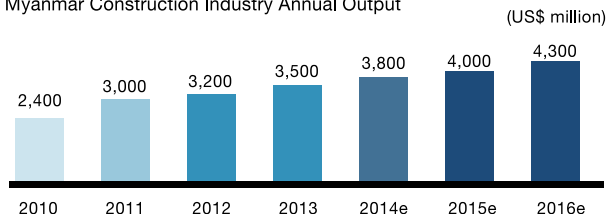


Myanmar Build & Decor 2014 showcased over 100 brands and companies and attracted 2,970 targeted visitors to the show. Top visitors were Contractors & Engineers, Architects & Interior Designers, Distributors and Developers.

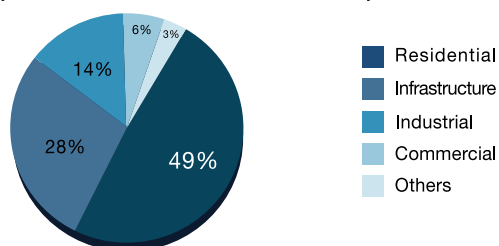
Myanmar Build & Decor is organized by ICVeX, the subsidiary company of Index Creative Village PCL. **For more information, tel (+66) 2 713 3033, fax (+66) 2 713 3034, email info@icvex.com or visit www.myanmarbuilddecor.com.**

Myanmar - A Promising Market for Building Materials, Interior, Furniture & Décor

Myanmar Construction Industry Annual Output



Myanmar Construction - 2013 Contribution by Sectors



Source: New Crossroad Asia

- Myanmar construction industry is growing at an exponential rate with a CAGR of 20%. Residential sector contributed to 49% of the market at value of about USD 1.5 Billion.
- Trend of building industry in Myanmar changed from just functional to more design and décor since late year 2013. More designed and more modernized buildings, hotels and restaurants are commonly seen especially in Yangon nowadays.



22-24 October 2015

Myanmar Event Park I Yangon, Myanmar



We connect you to building & construction business in **MYANMAR**
www.myanmarbuilddecor.com

More information : ICVeX Company Limited | Tel : +662-713-3033 | Fax : +662-713-3034 | Email : info@icvex.com

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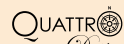
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BIOCLIMATIC ENVELOPE FOR TROPICAL CLIMATES | BIOCLIMATIC SOLUTIONS

Passive cooling strategies

Passive cooling is a building design approach that focuses on heat gain control and heat dissipation in a building in order to improve the indoor thermal comfort with low or nil energy consumption. This approach works either by preventing heat from entering the interior (heat gain prevention) or by removing heat from the building (natural cooling). Natural cooling utilises on-site energy, available from the natural environment, combined with the architectural design of building components, for example bioclimatic envelope, rather than mechanical systems to dissipate heat. The bioclimatic envelope is part of the building envelope applied on the external walls for hygrothermal protection. Making an analogy with the human body a building without a bioclimatic envelope is like the body without the skin.

Passive cooling covers all natural processes and techniques of heat dissipation and modulation without the use of energy. The techniques for passive cooling can be grouped in two main categories:

- **Modulation and heat dissipation techniques** allow the building to store and dissipate heat gain through the transfer of heat from heat sinks to the climate. While high thermal mass materials work best in hot-dry or temperate climates where there is a significant change in temperature between night and day in the tropics can be detrimental. The cooler night temperatures flush out the heat stored in thermal mass during the day, and the cool stored in the mass over night is released into the building during the day.
- **Preventative techniques** that aims to provide protection and/or prevention of external and internal heat gains. Warm nights in the tropics mean that heat is not flushed from the thermal mass and instead radiates back into the building. Use of high thermal mass construction materials is therefore generally not recommended in the tropics. If high thermal mass materials are used for the external walls, then they should be well insulated externally with a bioclimatic envelope to avoid heat gain and to reduce heat transfer.

CLIMASKIN

CLIMASKIN is the bioclimatic envelope system to protect the external walls from hot and humid weather. As *preventative technique* it is the most important building element for buildings in areas with very high humidity like tropical climates. CLIMASKIN is designed as a ready-to-mix plaster with the characteristics of a breathable skin, which interacts with the external or internal environment.

CLIMASKIN has three important functions:

1. Control Element – hygrothermal protection
2. Weather Protection – mould resistant
3. Aesthetics – improves the building looks

CLIMASKIN is a cost-efficient investment that offers excellent performance and economical value for new constructions as well for retrofit projects (Bioclimatic retrofit). Certified with the Singapore Green Building Council, CLIMASKIN is a Green Product that is made from 98 percent sustainable natural occurring inorganic components, specifically recycled glass, eco-friendly, zero VOC, antibacterial, non-combustible material. The use and the disposal of CLIMASKIN produce 100 percent recyclable non-toxic waste.

Main technical features of CLIMASKIN

- 1) Water resistant – provides continuous hydro protection
- 2) Thermal resistant – provides continuous thermal protection without thermal bridges
- 3) Fire resistant – Non-combustible – Class A1
- 4) Antibacterial – Alkaline product: prevents mould and algae formation
- 5) Hygro functional – 'Breathable': allows a building to eliminate moisture from masonry and walls
- 6) Sustainable – manufactured from inorganic materials so it does not decay in time

CLIMASKIN is available in Singapore from ISO SMART Pte Ltd. For more information, visit www.bioclimaticsolutions.com.





CARPET TILE | EC.GROUP

The Wilderness collection, part of the ecm modular carpet tile offering from ec.group, with over 70 colours and striking patterns, demonstrates how ec.group lives out its mission to be the boutique carpet brand of choice for architects, designers and carpet buyers. Add to this the innovative ecycle approach to environmental sensitivity, Wilderness is an exceptional product with outstanding performance characteristics such as:

- Excellent acoustic and noise reduction properties
- Ultra hardwearing
- Thermal efficiency
- Breathability
- Certified low VOC

The brilliance in the design of the Wilderness range is evident in the commitment to environmental care whilst simultaneously designing for performance. The high performance product attributes of the carpet have been achieved using 100 percent recycled pile fibre and 90 percent recycled backing in a product that is 100 percent recyclable at the end of its life.

Architects and designers love the range of colours and patterns available to them in the Wilderness range. The Wilderness range, designed in modular colour and pattern groupings, make this range of carpet tiles perfect for mixing and matching.

The base palette of 24 solid-colour carpet-tiles can form the foundation of the floor design. These block colours can then be overlaid with the fine grain Tree textures of Oak or Jacaranda, the distressed grooves of Bark Grapeseed or Silvergum, playful collections of Leaf Laurel or Maple, or the subtle Stick designs of Dogwood and Willow.

Adelaide based family owned boutique carpet manufacturer ec.group won a prestigious Good Design Award from Good Design Australia for its Wilderness collection of carpet tiles. "We are proud and delighted to be awarded this prize," said Mr Alan Tran, Marketing, ec.group. "This puts our name among many prestigious names in the Australian business and design communities. It is greatly appreciated as recognition of the commitment of all of our team to design, innovation and colour," he added.

For more information, visit www.ec-group.com.au.



An installation of the ecm modular Wilderness Collection carpet tiles (Palette range shown here) by ec.group.

COATING SYSTEMS FOR INTERIOR & EXTERIOR | SAN MARCO PAINTS (ASIA)



The environmental friendly paint market has grown and evolved and San Marco Paints (Asia) is proud to be part of it.

San Marco Paints (Asia) is the exclusive Southeast Asian hub of Colorificio San Marco S.p.A., a leading Italian manufacturer of coating systems for interior and exterior use. San Marco Paints (Asia) Pte Ltd is headquartered in Singapore and started operations in January 2010. San Marco (Asia) offer a wide range of finishes, from high performance facade systems to unique interior special effect paints.

San Marco paints (Asia) are premium conventional paints offering good coverage, vibrant colours, durability, and longevity without harmful odours, chemicals or added solvents. San Marco Paints offer large painted colour cards and/or small sample pots, a low-waste way to test the colour in your space.

For more than 60 years, Colorificio San Marco moved its paint to a water-based formula, significantly reducing the solvents in its products to low and zero VOC. San Marco Paints also has bacteriostatic paints; polysiloxane based low emission of VOC for indoor and outdoor use.

Have you ever wondered walking on the road and smelling heavy odour of paints coated over metals? Those are solvent-based paints, sometimes referred to as "oil-based" or "alkyd" paints, contain a significantly higher level of organic solvents than water-based paints. These solvents are responsible for the strong odour noticeable in buildings that have been freshly painted. They are also potentially hazardous for both human health and for the environment which is why San Marco concerted efforts to reduce or remove their presence in paints without negatively impacting on paint performance. The company came out with a product called 'unimarc', which carries a water based line for metals and even high temperature resistant products, and at the same time environment-friendly. This 'unimarc' line also carries decorative coatings for external with low emission of VOC.

San Marco Paints Asia embarked on the green building journey as a commitment to the environment. San Marco Asia being a member of Singapore Green Building Council has its products ITALA, COLORFIS and BETONCOVER listed under Singapore Green Building Product with the compliance of SS 150:1998, SS 345:1990 and SS 579:2012. San Marco Paints Asia strives hard in compliance of SS 150:1998, SS 345:1990 and SS 579:2012. San Marco Paints Asia strives hard in greening Singapore's built environment.

For more information, visit www.sanmarcoasia.com.



DEDICATED OUTDOOR AIR SYSTEM | BRY-AIR DRI

Bry-Air DRI is a global provider of components & systems for Energy Recovery, Indoor Air Quality (IAQ), Fresh Air Treatment, Evaporative Cooling, Desiccant Dehumidification & Green Buildings.

Recently, Bry-Air DRI's R&D has resulted in the development of the ULTIMA DOAS (Dedicated Outdoor Air System) which allows designers to provide ultimate fresh air ventilation as a single source responsibility.

DOAS a dual wheel system with enthalpy wheel and passive desiccant wheel, has been established as an excellent choice for treating outdoor air. It removes all the latent load being brought in by the outside air at the source and supplies fresh air at a dew point lower than room condition, to take care of the internal latent load as well. DOAS system is an excellent choice to address IAQ (Indoor Air Quality), Humidity Control concerns and help buildings become green. DOAS, the Dedicated Outdoor Air System allows designers to provide ultimate low dew point fresh air ventilation as a single source responsibility. ASHRAE Standard 62 recommends inflow of large quantity of fresh air for improved Ventilation, IEQ (Indoor Environment Quality) and to achieve LEED points.

However, controlling both temperature and humidity of fresh air is a challenge! Designers, worldwide, are increasingly adopting the Divide & Conquer (D&Q) approach. In the D&Q approach the fresh air load and the room internal latent load is handled by the Fresh Air Unit (DOAS) where in it is decoupled from the internal sensible load. The sensible load is handled through a parallel unit/system, which can either be Chilled Beams/FCUs, etc.

The new Bry-Air DRI Ultima DOAS is a unitized Fresh Air Management System integrated through a unique configuration of EcoFresh Heat Wheel, a cooling coil and the innovative G3MA "Passive" desiccant dehumidification wheel (patent pending) and a proprietary controlled embedded logic in the DRISMA EMS.

Path breaking innovation for Desiccant Dehumidification without energy usage

The unique G3MA "Passive" Desiccant Dehumidification Wheel (patent pending) has the ability to be regenerated with 50 percent RH of room return air allowing for substantial moisture removal through dehumidification of the saturated (100 percent RH) fresh air being supplied to the room. This is intelligently controlled by the DRISMA



ULTIMA DOAS

EMS. (Energy Management System) to regulate speed optimization for different load conditions and different outside conditions.

- High performance in situ synthesized desiccant
- Fully water washable
- 100 percent non-flammable
- Removes moisture from a saturated air stream without heat thermal regeneration
- Unique seal arrangement ensures nearly zero carryover/leakage between the two air streams
- No washing away of desiccant on continued exposure to saturated wet air.

Ultimate DOAS System ideal for:

- Office Spaces / IT Offices/Data Centres
- Hotels / Hospitality/Convention Centres
- Hospitals / Health Care Facilities
- Commercial Spaces / Malls
- Substantial Green Building LEED Points for
- Energy saving
- Improved IEQ
- Innovative new technology

Bry-Air DRI Ultima DOAS has been awarded the Singapore Green Building Council (SGBC) Product Approval Certificate.

The system is available from Bry-Air (Malaysia) Sdn Bhd. For more information, visit www.bryair.com.my.

WAVE-SHAPED ACOUSTIC PANEL | TROLDTEKT

Troldtekt® wave is a new wave-shaped acoustic panel designed to give ceiling or wall surfaces a sculptural, three-dimensional look. The panel is part of the Troldtekt® acoustic series, which is made from the natural materials wood and cement. It is Cradle to Cradle-certified in the silver category and has the same outstanding acoustic, fire-protective and indoor climate properties as Troldtekt®'s classic acoustic panels. Each panel measures 2000 x 600 mm and is supplied natural as well as in Troldtekt's standard colours.

Just a few days after the official launch of Troldtekt® wave, the wave-shaped acoustic panel has won the Green Product Award. The award, which was presented on 8 June 2015 in Berlin, recognises sustainable and innovative design. Troldtekt® wave has also been nominated for the German Design Award 2016 and the DETAIL Produktpreis 2015.

For more information, visit www.troldtekt.com.



Troldtekt® wave-shaped acoustic panel.
Photo: © Troldtekt

ENERGY CONSERVATION SOLUTIONS

BARGHEST BUILDING PERFORMANCE (BBP)

Barghest Building Performance (BBP) offers energy conservation solutions that help buildings operate their existing equipment optimally and thereby achieve long term measureable and sustainable energy saving. BBP provides solutions without upfront cost to clients and is paid through the savings achieved over the long term.

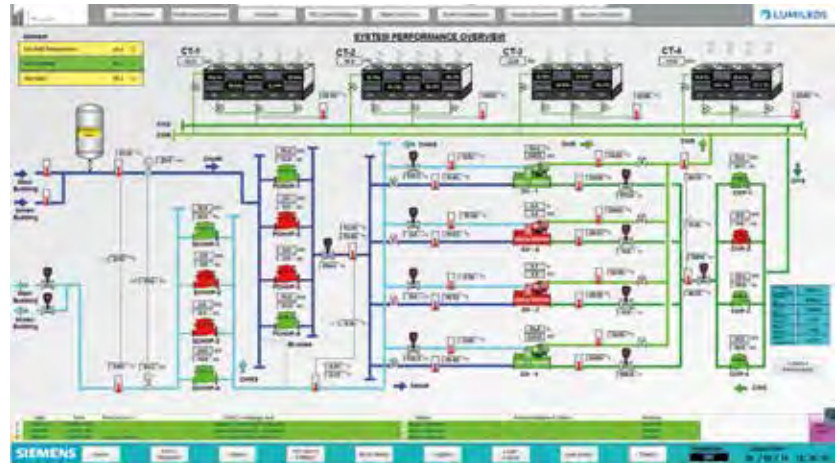
Besides a primary focus on air conditioning systems, BBP offers a range of other energy efficiency related services including support in Green Mark Certification process. BBP team members have been involved in numerous energy efficiency projects, helping clients to reach their energy efficiency and Green Mark certification goals.

Recently, BBP supplied and installed its optimisation solution to the manufacturing plant of Lumileds Singapore (formerly known as Philips Lumileds Singapore). As a result of the optimisation solution and other energy efficiency efforts by Lumileds Singapore, the company's plant in Singapore became the first manufacturing plant awarded the Green Mark Platinum for Existing Building by the Building and Construction Authority (BCA).

The optimisation solution supplied and installed by BBP involved introducing minute level adjustment of pumps and cooling tower fans to deliver the needed cooling in the most energy efficient manner. It also involved introducing meters and instrumentation in line with BCA Green Mark requirement for effective measurement and verification. The newly installed system also includes features of remote monitoring, auto reporting and alarms for improved day-to-day operation. Projected chiller plant room energy savings amounted to 3,510,562 kWh or in monetary terms, S\$702,112 in energy costs per year.

Although the Green Mark Platinum award is a milestone for Lumileds Singapore plant, Lumileds and BBP teams are continuing their ongoing efforts of improving operations and reducing environmental impact. The next planned project is to undertake an evaluation of the plant and office Air Handling Unit (AHU) system with the goal of further reducing energy consumption.

For further information, visit www.bbp.sg.



Screen shot of the BBP optimisation solution installed at Lumileds Singapore's manufacturing plant.

RESILIENT FLOORING

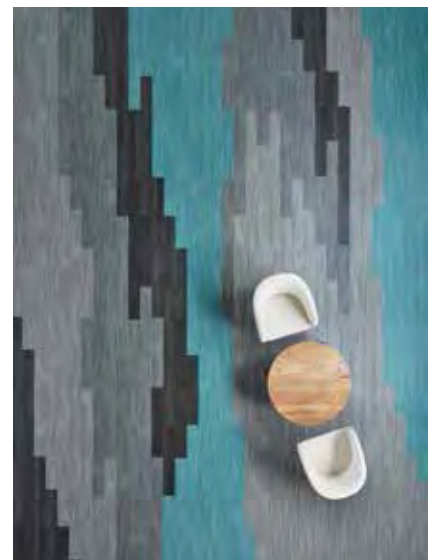
SHAW CONTRACT GROUP

Shaw Contract Group has announced a new innovation in resilient flooring with the introduction of EcoWorx resilient. Designed with future lifecycles in mind, EcoWorx resilient is Cradle to CradleCM v3.1 Bronze certified and offers a high performance vinyl alternative for commercial resilient flooring applications.

A sustainable resilient flooring solution, these products are phthalate- and PVC-free and offer guaranteed reclamation and recycling at end of life. Engineered to withstand the demands of intense-use environments, EcoWorx resilient features a wear layer to protect against scratches, scuffs and stains, and products are backed with lifetime warranties.

EcoWorx resilient products will be available later this year. Select styles were showcased at The NeoCon World's Trade Fair in Chicago from June 15-17, 2015.

For more information, visit www.shawhardsurface.com.



This installation of EcoWorx Resilient Tile features Adapt and Sustain, both 6x36 (15.2cmx91.4cm). These products will be available winter 2015.



WOOD PRODUCTS | **KEBONY**

Kebony is a Norwegian company offering a sustainable alternative to endangered tropical hardwood and environmentally damaging toxic-treated wood. Its technology has been engineered to enhance non-durable wood species to give them similar characteristics to the best performing woods. Kebony wood provides architects and specifiers with a product that is unrivalled in its performance, delivering aesthetic value and durability.

Fully compliant with EU Timber Legislation, the Kebony's patented technology is an environmentally friendly process whereby sustainably-sourced wood species are impregnated with a liquid mixture based on furfuryl alcohol, produced from agricultural crop waste. With the addition of heat the furfuryl polymer is permanently grafted into the wood cell wall resulting in greatly improved durability and dimensional stability making it strong and resistant to biological decay and harsh weather conditions without the need for expensive and environmentally-damaging chemical treatments.



Kebony's GoBoat fleet at Copenhagen.



Kebony decking at the Hunter's Point South Waterfront Park in New York.

With a growing network of international distributors, Kebony has set its sights on redefining standards in the treated-timber industry and championing new possibilities for wood as a sustainable construction material. It has an impressive portfolio of international, high-profile architectural and design projects, including a luxury treehouse, recently unveiled at the Ideal Home Show; Hunter's Point South Waterfront, a decked expanse of waterside boardwalk in New York; and Goboat, a fleet of sustainable picnic boats in Copenhagen.

With these projects and a growing collection of awards and commendations, Kebony has earned international acclaim. Looking to the future, Kebony plans to develop licensing packages for its unique technology, to build a world-leading materials brand based on innovation, pioneering technology and manufacturing excellence.

For more information, visit www.kebony.com.

LEATHER | **GREEN HIDES**

Venus is a top grain leather, combining old world traditions with modern finishing techniques providing a rich transparent finish and smooth silky hand. Natural characteristics enhance the inherent beauty of this elegant and sophisticated leather. Venus is suitable for both public and private environments.

Venus is processed using low emission mineral tanning formulas which are environmentally respectful. The hides are retanned in aged oak drums using vegetable agents, natural fat liquors and oils along with dyes that ensure the leather is properly through dyed. Complies with the strict regulations of the EU environmental normative CE2000/53. Natural colour variations may occur even within the same dye lot.

For more information, visit www.greenhides.com.



Venus



BENETTIMOSS NATURAL STABILIZED LICHEN | BENETTI STONE PHILOSOPHY

Made of a natural stabilized lichen, BenettiMOSS can fit into any kind of environment. It is ready to be installed and can be easily shaped, giving you the chance to create perfect maintenance-free green walls in a very short time, obtaining an extraordinary scenic effect.

Besides home spaces, BenettiMOSS is ideal for commercial spaces, wellness areas, offices and hotels. Its modern and green look, together with its strong aesthetic impact, make BenettiMOSS a successful tool for business and communication.

Features of BenettiMOSS

- 100% natural stabilized lichen
- Collected without any damage to vegetation
- Processed with non-toxic substances
- No bacterial load
- Does not attract insect
- Needs 40% minimum humidity rate to be properly maintained which is the ideal rate for your well-being
- Maintenance-free
- Does not grow, does not need to be pruned nor watered
- Does not need sunlight
- Certified fireproof
- Long lasting
- No maintenance expenses over time
- No electrostatic charge
- Does not attract dust
- Allows extreme designing flexibility and freedom
- Customizable design
- BenettiMOSS is for interiors only



BenettiMOSS installed at the Concorde Asset Management office in Budapest.
Project team: Upper Studio – Arch. Samogyi Gabor.
Photo: © BenettiMOSS

BenettiMOSS must not be watered or exposed to direct sunlight. BenettiMOSS is manufactured by Benetti Stone Philosophy. For more information, visit www.benettistone.com.

BAMBOO ARCHITECTURAL PANELS | SMITH & FONG CO

PlybooSound is a line of bamboo architectural panels with sound-dampening technology. Manufactured by Smith & Fong Co., producer of Plyboo® bamboo architectural plywood and flooring products, PlybooSound panels are developed with the same eye for design that inspired both the company's Reveal and Linear Line Collections of carved bamboo panels.

Available in eight different patterns and colours, PlybooSound incorporates Smith & Fong's proprietary QuietWall™ sound dampening system, which provides a Noise Reduction Coefficient (NRC) of 0.50 on average. Panels are produced with the company's RealCore™ technology, which ensures the highest quality standard.

PlybooSound is made from FSC 100 percent-Certified bamboo, which is also rapidly renewable and manufactured formaldehyde-free. Sheet sizes are 4'x8' x 3/4" thick and available prefinished or unfinished in Amber or Natural colours. The line is designed in San Francisco and fabricated in the USA from domestic and foreign components.

PlybooSound panels can contribute toward three different USGBC LEED credits (MRc6 Rapidly Renewable Materials; MRc7 Certified Wood IEQ4.4 Low-Emitting Materials, Composite Wood). PlybooSound panels are Class C fire-resistant (Class B available custom order), and California Section 01350- and CARB Phase II emissions-compatible or better. Panels are also available in a 10' length as a special order.

For more information, visit <http://plyboo.com>.

Available in eight different patterns and colours, PlybooSound incorporates Smith & Fong's proprietary QuietWall™ sound dampening system. Photo: © Smith & Fong Co



GREENWALL 2.0 | ACOUSTIC FACTORY

Headquartered in The Netherlands, Acoustic Factory designs acoustic products in an innovative way and with a good dose of enthusiasm and passion. The company has developed a new sustainable and modular moss wall called 'Greenwall 2.0'.

At the moment, the acoustics market is filled with non-sense, polluting materials and cold technical solutions. Therefore, the company designed the Greenwall 2.0, a sustainable and modular moss wall which combines a proven acoustic value with natural aesthetics.

The innovation lies in the combination of elements and the universal way of applying it to every thinkable interior and/or space. Greenwall 2.0 is more than just a product, it is an interior solution which makes every space, such as lounge and office, naturally happy.

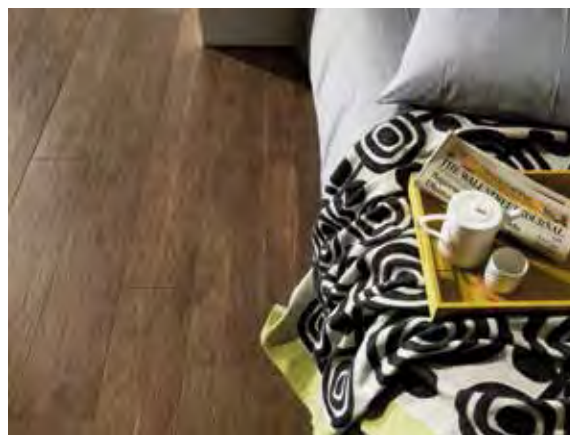
For more information, visit www.acousticfactory.com.



CERAMIC TILES | LEA CERAMICHE



The Biorecover Collection – Golden Flame. Photo: © Lea Ceramiche



The Biorecover Collection – Old Walnut. Photo: © Lea Ceramiche

The Biorecover collection from Lea Ceramiche is an interpretation of recycled wood. The collection involves a careful study to creatively interpret recycled wooden floors, interior walls and to create contemporary ceramic tiles with a vintage flavour. The wear caused by time and the traces left on the wood are recreated by the structure of the tile, the grain and colour variations of the surfaces. Biorecover is available in three colours (warm cream, golden flame and old walnut) and two sizes; the long 20x180cm plank amplifies spaces and can be installed by itself or combined with the shorter 20x121.5cm module.

For more information, visit www.ceramichelea.it.



The Biorecover Collection – Warm Cream. Photo: © Lea Ceramiche

SCANDIA MOSS | TERARIA CO LTD

Scandia Moss is a functional wall finish and décor material. Scandia Moss is Cladonia Stellaris removed from its natural habitat and preserved using natural minerals to achieve a dormant state. Eco-friendly, maintenance-free and functional, Scandia Moss interior products are carefully assembled by hand.

Features of Scandia Moss:

- Organic – 100 percent Cladonia Stellaris
- Fire Safe: NS – EN ISO 11925-2
- Acoustic Insulation: KS F 2805
- Deodorization & Air Purification: JEM 1467
- Maintenance Free: Water not required

Scandia Moss SM Panel Interior wall finishes are suitable for most building applications as an internal decor element in either horizontal or vertical applications in low to high humidity environments. It is constructed using a 40T thickness aluminum as base and weighs 700 grams. Available in 12 colours, the SM Panel is fire safe, deodorizes and removes harmful substances. It also provides acoustic insulation, adding function and benefits to any interior.

It can also be custom made. Any design comprised of a particular pattern can be accomplished without the need to increase the panel size. Any design, no matter the scale, can be accomplished with the standard 300mm x 300mm Scandia Moss SM Panel. The issue of uniformity is not a concern, and the gap between the panels are difficult to spot due to the Cladonia Stellaris overlapping each other. This is an example of a custom design done using 90 panels, each numbered to complete a large puzzle.

Scandia Moss SM Panels can be easily implemented into various interior, architectural and decorative ideas. Creativity in design through Scandia Moss is unsurpassed, allowing designers to implement and easily create designs without the need for further maintenance.

Scandia Moss is manufactured and marketed by Teraria Co Ltd, located in Gyeonggi-Do in South Korea. **For more information, visit www.scandiamoss.com.**



Jamsil Station Underground Public Square in Seoul, a project by Scandia Moss.

CASCADIA FIBERGLASS THERMAL SPACER | CASCADIA

The Cascadia Clip® is a cladding support system for exterior insulated walls. It separates steel girts from the back-up wall and allows the insulation value to be fully realised. This eliminates degradation of insulation value that occurs with traditional steel girts and clips.

Low-conductivity fiberglass material reduces thermal bridging. This greatly improves the effective thermal performance of the insulation.

Since the effective R-value is extremely efficient compared to any other cladding support assembly, a much thinner wall will accomplish the same or better results.

While fiberglass is combustible, the clip functions within non-combustible wall assemblies as a minor combustible component, in accordance with Article 3.1.5.2 of the Model National Building Code. The clip is enclosed within the non-combustible insulation and the fasteners attach the cladding directly to the structure. Fire protection and building code professionals support the clip as a minor combustible component, in compliance with the building code.

The Building and Safety Standards Branch of the BC Ministry of Energy and Mines confirmed that the Cascadia Clip® is a minor combustible component, acceptable for use in non-combustible construction.

Cascadia Clips® received an award from the Vancouver Regional Construction Association (VRCA) in 2011 in the category of Sustainability and Innovation. **For more information, visit www.cascadiawindows.com.**



The Cascadia Clip® cladding support system. Photos: © Paul Grdina

WOOD VENEERS | **NETZACH WOOD VENEERS PTE LTD**

Netzach Wood Veneers Pte Ltd is a supplier of premium veneers with business presence in Singapore, Malaysia and Indonesia. The company believes that wood veneers are aesthetically pleasing, stable, cost-effective and sourced in an environmentally responsible manner. Despite the traditional perception, wood veneers open a kaleidoscope of designs to keep in pace with current design trends.

Netzach's natural veneers are sourced from the United States, Europe and locations indigenous to the type of wood. To ensure that customers get the best, quality checks are conducted at every step, from acquisition till the products are to be delivered to its clients. Whether you are looking for a contemporary or classic look, Netzach's wide array of veneer options will add timeless appeal and natural beauty to your design aspirations.

Netzach also offers engineered veneers, which are made from Ayous timber veneers. Engineered veneers have consistent grains and colour tones as compared to natural variations in natural veneers. It promotes uniformity and is cost effective for large-scale projects without compromising the aesthetic demands.

As a responsible corporate citizen, Netzach Wood Veneers believes in acquiring wood veneers in an environmentally responsible manner. Its engineered veneers are certified as Green Label products and a selection of its natural veneers is certified under the recognised and established forestry standards, which promote responsible management of forests internationally.

For more information, contact Netzach at tel (+65) 6555 7679, email enquiry@netzach.com.sg or visit the website www.netzach.com.sg.



RECYCLED SURFACING MATERIAL | COVERINGSETC

As our natural resources become more and more scarce, COVERINGSETC provides a solution by recycling materials that can be used for modern home and corporate design projects. Bio-Glass®, developed by COVERINGSETC, is an attractive surfacing material manufactured in Europe from post-consumer glass: recycled wine bottles, beer bottles, water bottles and stemware.

Glass is 100 percent recyclable and can be recycled indefinitely, in fact it is even more energy efficient to reuse glass than to create it from its raw materials.

There are millions of new bottles being created every day worldwide and you can play your part by incorporating Bio Glass into your home or project.

Launched 2007, 100 percent upcycled glass sheets made from beer, wine and water bottles gathered from recycling centres. Bio-Glass® can be used for countertops, partitions, facades and other decorative surfaces. Made of 100 percent recycled and recyclable glass with no colourants or additives.

COVERINGSETC is a member of the United States Green Building Council (USGBC), and is committed to seeking out interesting and exciting new environmentally friendly materials and solutions for projects adhering to sustainable design and bio-architecture.

For more information, visit www.coveringsetc.com.



BioGlass, Topaz Blue



BioGlass, Heineken Recycled Glass Bottles

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Regardless of where we live and work in the world, all of us have a responsibility to protect our environment. We need to take care of our planet and preserve its beauty, strength and natural resources for our future generations.

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is dedicated to bringing you the latest developments and news relating to sustainable architecture, green building technology and eco-friendly building products. If you would like to share your green building projects and green products with our readers, please send us your materials for our consideration.

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DOOR CLOSERS | GOOD CREDIT CORPORATION

Good Credit Corporation (GCC) has dedicated huge efforts in glass hardware and system development since 1981. GCC provides variety of great solutions for users to create wide, fresh, and comfortable spaces. The company's product range covers from houses, office buildings, restaurants, hotels to department stores, and GCC always supply brilliant solutions for any spaces with great user experiences. In the coming five years, GCC expects to see more hydraulic door closers to be used in every door panel. To help the architect's elegant design and to ensure safety, GCC door closers undergo very strict tests before they are released in the market.

GCC Concealed Overhead Door Closer ODC-960 is specially designed for the hotel room entrance. The loading capacity is up to 80 kilograms with the door width 1,100 mm to meet the hotel demand in every country.

Furthermore, GCC Heavy Duty Cam system double action floor spring GTS-750 & GTS-800 can take the door weight 150 kilograms and 300 kilograms. The GTS-800 closing force is adjustable from 25~54Nm.



GCC concealed overhead door closer cam action ODC-960



GCC heavy duty cam system double action floor spring GTS-750 & GTS-800

For more information, e-mail gcctw@ms7.hinet.net or visit www.gccintw.com.tw.

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CONCEALED SLIDING DOOR SYSTEM | SLIDE & HIDE SYSTEM (S) PTE LTD

SLIDEHIDE is a factory prefabricated 3-D steel casing that integrates with a self-supporting tracking system to hide or conceal a sliding door inside the wall, thereby giving you an illusion that there isn't any door. SLIDEHIDE is the perfect solution in overcoming a tight space room layout design.

The patented 3-D casing is designed to replace a 100mm thick brickwall or a dry wall construction. Plastering, waterproofing material and wall tiles (if any) covering the adjacent wall will also cover the casing. Electrical switches/cables and water pipes can be fixed directly onto the casing surface and these fixtures can be embedded inside the finishes.

Designed and manufactured by a Singapore-based company since 1995, SLIDE & HIDE System (S) Pte Ltd is a leading manufacturer of SLIDEHIDE, a concealed sliding door system.

Over the years, the brand SLIDEHIDE had become well accepted by the real estate industry as a top-quality concealed sliding door system. SLIDEHIDE had been installed in Singapore, Malaysia, China, Japan, Dubai, Sri Lanka and other Asian countries.

SLIDE & HIDE System (S) Pte Ltd offers developers, architects and interior designers a wide range of SLIDEHIDE models to choose from for both wet and dry wall construction method, thus, allowing SLIDEHIDE to be widely used in applications ranging from bathroom, kitchen, walk-in wardrobe, lift lobby, etc.

With so many benefits and advantages, SLIDEHIDE offers a practical and affordable tight space solution for all residential, hotel and commercial projects.



For more information, please contact the company at tel (+65) 6369 9988, fax (+65) 6369 9977 or email enquiry@slidehide.com.sg. You can also visit the website www.slidehide.com.sg.



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CERAMIC TILES | NATIONAL TILES PTE LTD

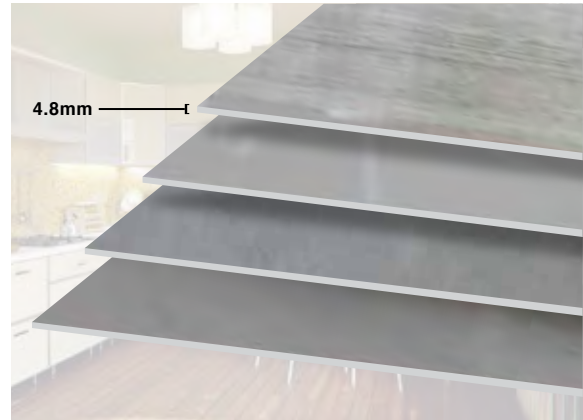
National Tiles Pte Ltd, a leading supplier of ceramic tile, mosaic, marble, granite, vanity top, faucet and sanitaryware in Singapore, has launched a new collection of thin tiles and thick tiles.

Thin tiles

Thin tiles are steadily growing in popularity in many parts of the world, due to their format and mechanical properties. Thin tiles can be used in exhibition building, amusement park, MRT, airport, tunnels, external wall, shopping mall, hotel & office building, and also for house decoration.

Advantages of thin tiles

- They weigh less than the regular, thick tile. This means that thin tiles put less weight on the structures of buildings.
- Just like conventional thick tile, thin tile is strong, durable, hygienic and easy to maintain.
- In terms of installation, thin tiles can be easily installed on concrete floors in new projects as well as in refurbishment projects over existing tiles.
- Thin tiles have a thickness of only 4.8mm and tile size can be up to 1200x3600mm.
- Besides being strong and lightweight, thin tiles are environmentally friendly. This is because thin tiles are produced using less raw materials and less energy, which benefits the environment.
- Available in multiple colours.
- Water absorption is <0.1 percent
- Wear resistance
- Pollution resistance
- Crack resistance
- Resistance to chemical corrosion
- Thermal shock resistance
- Frost resistance
- Breaking strength of 747 N



Thick Tiles

Thick tiles are versatile: they are lighter than cement-based concrete and natural stone, offering great load-bearing capacity and resistance to breakage, while enabling them to be installed indoors and outdoors.

Benefits of thick tiles

- Aesthetically pleasing
- Durable
- Anti-slip
- Resistant to weather and heavy loads
- Thick tiles have a thickness of 20mm.
- Design possibilities are endless. The tiles can even be custom-made according to the client's requirements.
- Available in multiple colours.
- Stronger than stone.

Project references

The company's thick tiles have been used in several projects around the world such as Palace of Justice in Republic of San Marino; Coconuts Disco in Rimini, Italy; City Centre in Sofia, Bulgaria; Cadelach Hotel in Ravine Lake, Italy; The Xian Grand Resort in Rhodes, Greece; Irene Mall Village in Pretoria, South Africa; and Jumeirah Golf Estate in Dubai, UAE.

For more information, contact National Tiles Pte Ltd at tel (+65) 6898 4330, fax (+65) 6898 4339, e-mail nationaltiles@singnet.com.sg or visit www.nationaltiles.com.sg.



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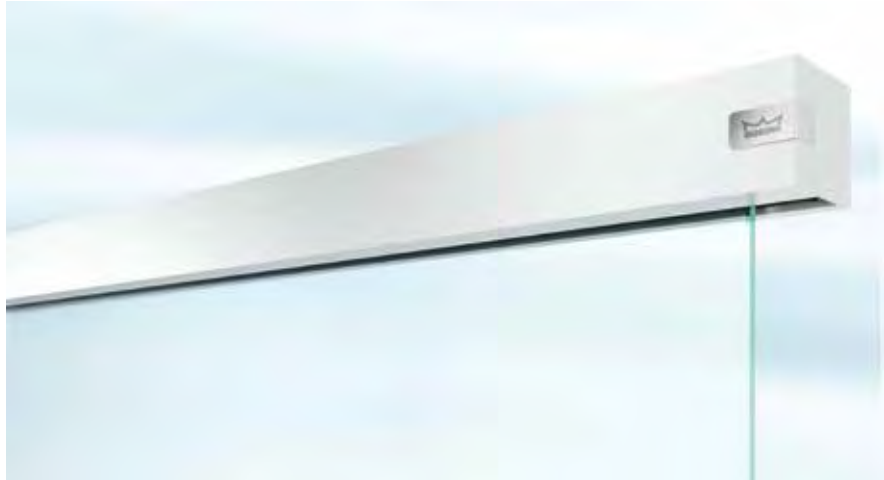
Website: www.hunterdouglas.asia

MULTI-FUNCTIONAL MANUAL SLIDING DOOR SYSTEM | DORMA

DORMA will be launching MUTO in September/October 2015 – a manual sliding door system featuring self-closing action and stand-alone concealed locking mechanism.



Self-closing



Glass panel



Damping DORMOTION



Status indicator



Concealed locking

High convenience attractively packaged

Externally, MUTO offers enhanced allure through its elegant, compact design, while internally it provides a wealth of functions ensuring users hassle-free operation – from a mechanical self-closing function to DORMOTION damping for whisper-quiet operation. The invisibly integrated lock is particularly easy to operate, while the status indicator ensures simple security monitoring.

Practical: Many extras can be retrofitted as and when required.

Design freedom

The new manual sliding doors from MUTO open up creative scope and new perspectives, ensuring transparency and flexibility with space-saving, elegant and quiet solutions. Ideal for the living room, between the kitchen and the dining area, separating the bedroom and bathroom, in restaurants and cafés or in office applications.

It's even suitable for your walk-in wardrobe. The possibilities are almost endless.



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MUTO options for tailored solutions:

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- Suitable for laminated safety glass.
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For more information, email cheekeong.chan@dorma.com or visit www.dorma.com.sg.



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Based on IEC 60479-1 Standard "Effects of Current on Human Beings and Live-Stock", small electrical currents up to 8mA (equivalent to current flowing through a 1-watt light bulb), could affect the muscle functionality of a child and makes it difficult to let go of conductive parts. The potential for electric shock increases when there is a reduction in body resistance, for example, wet or weak body conditions.

The new ABB Extra Safety 13A socket outlet with 10mA SRCD is developed to achieve utmost safety and reliability. It protects you against direct and indirect contact against earth faults. It switches off the electricity in a fraction of a second if you get an electric shock, providing extra safety and peace of mind for your loved ones.



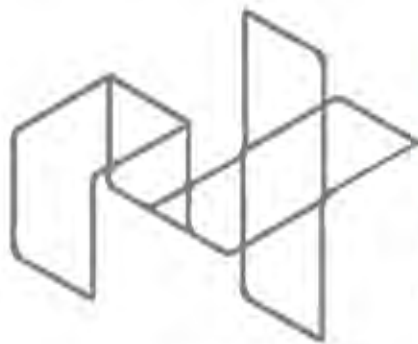
Applications of the ABB Extra Safety 13A socket outlet with 10mA SRCD include:

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ABB Extra Safety 13A socket outlet with 10mA SRCD is available in Singapore through ABB Pte Ltd. For more information, visit <http://new.abb.com/low-voltage>.

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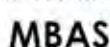
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