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**ON THE COVER** Sunlight House in Austria **ARCHITECTURE** Green Lighthouse, a CO2-neutral building in Denmark **INTERIOR** Tseun Wan Adventist Hospital extension building in Hong Kong **LANDSCAPE** Sky Gardens at PARKROYAL on Pickering **SHOW REVIEW** WORLDBEX 2014 **SHOW PREVIEWS** BEX Asia 2014, OneBuild@JB 2014 & Ecobuild Southeast Asia 2014 **PLUS** Interview with Mr Oon Wee Chin, President, Southeast Asia, UTC Building & Industrial Systems



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**On the Cover:** Sunlight House in Austria, one of VELUX's Demonstration Buildings. Photo: © Adam Mörk

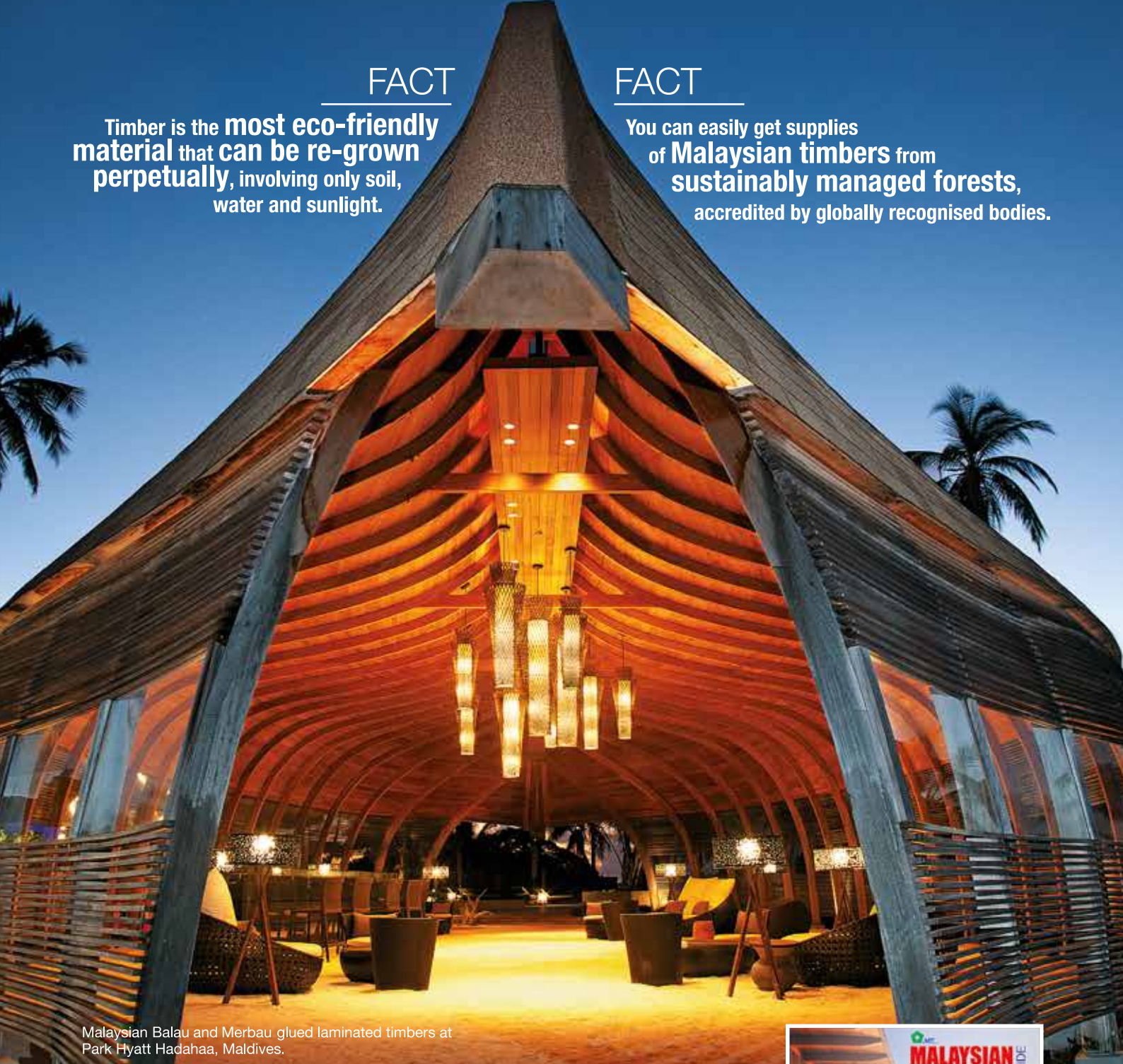
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## editor's note



**W**elcome to the latest issue of *Southeast Asia Building*. In the architecture section, we explore the concept of zero-energy or low-energy buildings and how they contribute to a more eco-friendly built environment. Europe, for example, has one of the highest numbers of zero-energy buildings in the world and the trend is likely to pick up the pace in Asia soon. We feature two sustainable projects by the Velux Group – the Green Lighthouse in Denmark and Sunlight House in Austria.

In the interior design section, we have a feature on Tseun Wan Adventist Hospital extension project in Hong Kong. For this project, dwp devised a set of interior environment principles, based on nature and nurture, to apply to all spaces throughout the building.

In many sustainable building designs, landscaping forms an important part and green roof as a landscape element is becoming more popular than ever before. In Singapore, green roofs have become a “must-have” feature for many new and refurbishment building projects. One good example is the newly opened hotel called the “PARKROYAL on Pickering”. Its hotel-in-a-garden design with lush greenery and skygardens makes it one of the most iconic projects in the heart of the city. Read all about this project on pages 54 to 56.

In addition to these projects, we have packed the magazine with the latest industry news, application features and product stories. We have also published a post show report of WORLDBEX 2014, Philippines’ largest building and construction trade show which was held in Manila in March this year. For those who are travelling to Malaysia to visit the shows OneBuild@JB and Ecobuild Southeast Asia 2014, you may like to read the show previews that we have put together for you.

We hope you enjoy this issue and talk to you soon!

*Amita Natverlal*

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Functions Overview

Facility Overview

DATA Overview

## Benoy masterplans DreamCenter landmark in Shanghai

**Hong Kong** – Benoy has announced its appointment as the Masterplanner behind the recently unveiled DreamCenter in Shanghai.

DreamCenter has been released as the leading element of the 'West Bund Media Port' project; one of the largest cultural investment projects currently undertaken in China. Located along the Huangpu River in Shanghai's Xuhui District, the integrated development is the result of a dynamic collaboration between Lan Kwai Fong Group, DreamWorks Animation and CMC Capital Partners.

With a land area of 152,300 square metres, the masterplan brings together 12 unique art, culture and entertainment venues to ignite inspiration as a cultural hub for the city. Key features include the 'Dream Avenue' Cultural Theatre District; Headquarters of Oriental DreamWorks which will become Asia's top animation production base; Asia's most iconic 500-seat IMAX Cineplex; and the exciting Lan Kwai Fong Entertainment and Lifestyle District. Eight themed outdoor plazas will work to interconnect these core hubs within the development.

"Benoy is extremely thrilled and proud to be involved with the DreamCenter masterplan that shares the vision of the West Bund Media Port. As designers we feel passionately about extending the creative realm and DreamCenter's visionary ideal will have a tremendous impact on the cultural and creative landscape of Shanghai," commented Benoy's Project Director, Brady Siu.

Benoy's dynamic and comprehensive masterplan for DreamCenter has laid the foundation for the eight international and local design firms creating the architectural identity for the scheme. Site work on the scheme spanning 463,000 square metres in GFA will commence in 2014 and be completed for opening in 2017.



Photo: © Benoy Ltd

## Mitsubishi Electric to launch NEXIEZ-LITE elevators in India

**Tokyo, Japan** – Mitsubishi Electric Corporation announced the Indian-market launch of NEXIEZ-LITE, a new lineup in the company's NEXIEZ global series of elevators, for low- and mid-rise residential and office buildings beginning 14 April 2014. Annual sales of 1,000 units are targeted by 2016.

### Main Features

#### Standardized functions and specifications for India

Basic features suitable for low- and mid-rise buildings in India, helping to reduce lead-time while strengthening price competitiveness.

Mitsubishi Emergency Landing Device (MELD)\* and safety functions such as Multi-beam Door Sensor are standard-equipped. Three types of car designs matched to architectural designs and colours suited to Indian tastes.

#### Energy savings

Gearless traction machine using a permanent magnetic motor reduces power consumption by 20 percent compared to inverter-controlled worm traction machines.

LEDs for car lighting reduce power consumption by 75 percent compared to traditional incandescent bulbs.

In India, where the demand for low- and mid-rise residential and office buildings is increasing in line with economic growth and rapidly urbanising cities, the demand for elevators and escalators



Photos: © Mitsubishi Electric Corporation

has been expanding, especially for low-price, safe and comfortable models. Mitsubishi Electric Corporation established Mitsubishi Elevator ETA India Pvt. Ltd. to develop and market elevators and escalators in India in August 2012. The company is now focusing on rapid development of innovative products suited to the needs of Indian customers. Mitsubishi Elevator ETA India will soon launch a lineup of elevators that deliver basic features carefully selected from the platform designs of Mitsubishi Electric's NEXIEZ global series of elevators. By shortening lead-time and reducing costs with these new elevators, the company is confident that it will be able to expand sales in the Indian market.

\*At an exchange rate of 103 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2014



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## MAD's "Chaoyang Park Plaza" breaks ground

**Beijing, China** – As a recent realisation of the concept "Shanshui City," "Chaoyang Park Plaza" has begun construction. It marks another milestone in one of the practices of MAD's design theory. This project pushes the boundary of the urbanisation process in modern cosmopolitan life by creating a dialogue between artificial scenery and natural landscapes.

Chaoyang Park Plaza is located in the central business district (CBD) of Beijing, and is composed of over 120,000 square metres of commercial, office, and residential buildings. The site is on the Southern edge of Chaoyang Park, one of the largest public parks in Beijing. Its proximity to the park will not only create breathtaking views of the city, but will also highly impact the skyline of Beijing. By transforming features of Chinese classical landscape painting, such as lakes, springs, forests, creeks, valleys, and stones, into modern "city landscapes", the urban space creates a balance between high urban density and natural landscape. The forms of the buildings echo what is found in natural landscapes, and re-introduces nature to the urban realm.

Like the tall mountain cliffs and river landscapes of China, a pair of asymmetrical towers creates a dramatic skyline in front of the park. Ridges and valleys define the shape of the exterior glass facade, as if the natural forces of erosion wore down the tower into a few thin lines. Flowing down the facade, the lines emphasise the smoothness of the towers and its verticality. The internal ventilation and filtration system of the ridges draw a natural breeze indoors, which not only improves the interior space but also creates an energy efficient system.

Landscape elements are injected into the interiors of the towers to augment the feeling of nature within an urban framework. The two towers are connected by a tall courtyard lobby with a ceiling height of up to 17 metres. The site and sounds of flowing water make the entire lobby feel like a natural scene from a mountain valley. At the top of the towers, multi-level terraces shaped by the curving forms of the towers are public gardens where people can gaze out over the entire city and look down at the valley scene created by the lower buildings on the site.

Located to the South of the towers, four office buildings are shaped like river stones that have been eroded over a long period. Smooth, round, and each with its own features, they are delicately arranged to allow each other space while also forming an organic whole. Adjacent to the office buildings are two multi-level residential buildings in the Southwest area of the compound. These buildings continue the 'mid-air courtyard' concept, and provide all who live here with the freedom of wandering through a mountain forest.



Photo: © MAD architects

The project was awarded the "Leadership in Energy and Environmental Design (LEED)" Gold certificate by U.S. Green Building Council. Its use of natural lighting, intelligent building, and air purification system make this project stand out from others being built today. The ideal of "nature" is not only embodied in the innovation of green technology, but also in the planning concept. This project transforms the traditional model of buildings in a modern city's central business district. By exploring the symbiotic relationship between modern urban architecture and natural environment, it revives the harmonious co-existence between urban life and nature. It creates a Shanshui city where people can share their individual emotions and a sense of belonging.

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## City of Sydney launches Green Roofs and Walls Policy

**Sydney, Australia** – On 7 April 2014, the City of Sydney released a new Green Roofs and Walls Policy to offer a commitment from the City to work with the community to increase the number of green walls and roofs.

The policy is the first of its kind in Australia and reflects an international trend towards green spaces in urban centres.

Currently the city has around 83 green roofs in place and a further 50 approved for construction. The City has seven green roofs and five green walls of its own, including the rolling green roof meadow at Prince Alfred Park Pool, Surry Hills. The 2,000-square-metre roof is the largest of its kind in Sydney, with more than 35,000 seasonal and native grasses including tufted bluebells, lavender grass and short hair plume grass.

Lord Mayor Clover Moore said incorporating nature into densely populated areas played an important part in creating sustainable cities.

“Green roofs and walls are not only beautiful additions to buildings, they also improve air quality, clean stormwater, provide a natural habitat for biodiversity and reduce power bills and greenhouse gas emissions - and



Green wall at 1 Bligh Street.



Kings Cross GreenWall.

the City is doing everything we can to introduce more of these features into our urban landscape,” said the Lord Mayor.

“We’re seeing many more building owners and residents embracing green roofs and walls with some fantastic examples of these living systems integrated in buildings in the city,” added the Lord Mayor.

Green roofs and walls have been around for decades, but have become increasingly popular in recent years with benefits for buildings including reduced noise pollution, lower energy costs for heating and cooling, and potential higher values for sales and leasing.

Sydney is also home to the world’s tallest vertical garden at Central Park in Ultimo, which spans the 33-storey-high residential complex.

Central Park apartment owner, Kevin Dong, said the stunning 130-metre-high vertical garden was a major reason he chose to invest there.

“It’s increasingly difficult to find a pocket of tranquillity when you want to live in the inner city,” said Mr Dong. “Apartment living suits my age and lifestyle, but then you miss out on having backyard and a touch of nature of your own. Central Park’s beautiful vertical garden solves that problem for me.”

“The green wall is a real talking point among the community here at Central Park. It adds character and life to the buildings and draws city-dwellers closer to nature.”

### Objectives

The objective of this policy is to support an increase in the installation of green roofs and walls in the City of Sydney local government area. Increasing green roof



Vertical garden at Central Park in Ultimo.

and wall numbers will provide multiple benefits including:

- slowing and cleaning stormwater;
- reducing the impacts of the Urban Heat Island effect;
- creating additional space for urban greening, food production and private open space;
- improving air quality;
- improving amenity and liveability of the city;
- increasing the absorption of carbon dioxide;
- increasing habitat to support biodiversity;
- improving building efficiency through heating, cooling and sound insulation;
- improving the efficiency of solar panels; and
- extending roof life.

### Scope

This Policy provides direction for Council in order to promote and foster better understanding and use of green roofs and walls across the residential and commercial sectors in Sydney. The Policy is also intended to support the green roofs and walls industry sector in Sydney.

This policy supports the strategic directions set out in:

- Sustainable Sydney 2030;
- Green Roofs and Walls Strategy;
- Greening Sydney Plan;
- Decentralised Water Master Plan;
- Urban Forest Strategy; and
- Urban Ecology Strategy.



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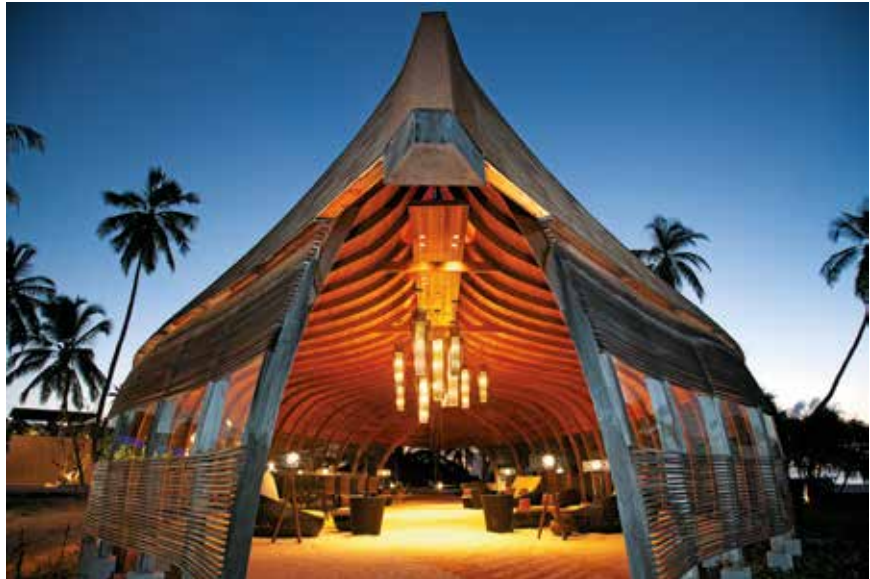


## Malaysian Timbers specified at The Park Hyatt Hadahaa, Maldives

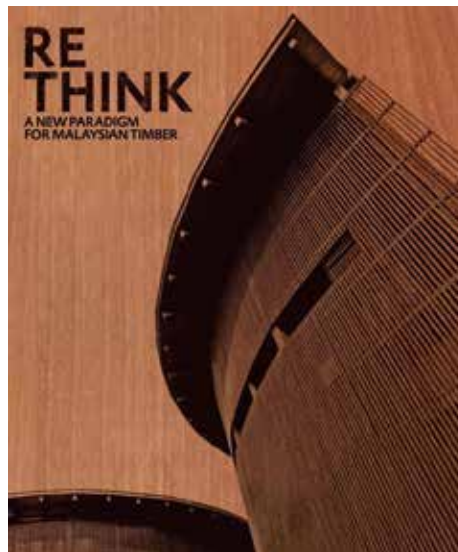
**Kuala Lumpur, Malaysia** – Conceptualised as an enormous upturned *dhoni*, a traditional Maldivian fishing boat, the cathedral-like interior of the Park Hyatt Hadahaa's reception area is formed by curved ribs of laminated Malaysian Merbau and Balau. Anchored to the ground on concrete stumps, these timber columns are merged with the roof trusses to form a Glulam curved ridge beam or the 'hull'. The building was handcrafted by craftsmen in a *dhoni* workshop in the Haa Atoll and then shipped and assembled in Hadahaa. Malaysian Merbau and Balau provide warmth and comfort to the interior, furnished with stylish lighting and all-weather furniture sitting on a floor of nothing but white, powdery sand that the Maldives is famous for.

Merbau and Balau are two species of heavy Malaysian hardwoods that lend themselves very well to outdoor applications. Merbau has a density of 515 – 1,040 kg/m<sup>3</sup> and is also popular for decking, heavy duty columns and outdoor furniture. Balau, on the other hand, is denser at 850 – 1,155 kg/m<sup>3</sup> and is perfectly suitable for all forms of heavy construction.

These and many more Malaysian timber species can be explored through the Malaysian Timber Council's publications, the award-winning coffee-table book *ReThink: A New Paradigm for Malaysian Timber* and the recently published *Malaysian Hardwood Guide*. The former is sold at US\$50 while the latter is available free-of-charge from the Malaysian Timber Council. For further enquiries, e-mail editor\_mhg@mtc.com.my.



Park Hyatt Hadahaa's reception area.



The book cover of *ReThink: A New Paradigm for Malaysian Timber*.



The magazine cover of the *Malaysian Hardwood Guide*.

## ET Solar sets up Australian subsidiary focused on solution business

**Nanjing, China** – ET Solar, a leading smart energy solutions provider, announced the establishment of its new subsidiary ET Solar Australia Pty Ltd ("ET Solar Australia"), a company focused on solution business for Asia-Pacific region customers.

ET Solar Australia is dedicated to addressing end-user needs, with a focus on the commercial and utility market. With strong partners in international technology, local distributors, and installers, ET Solar Australia is providing smart energy solutions for all types of business, including project development, finance and investment, EPC, and operations and maintenance.

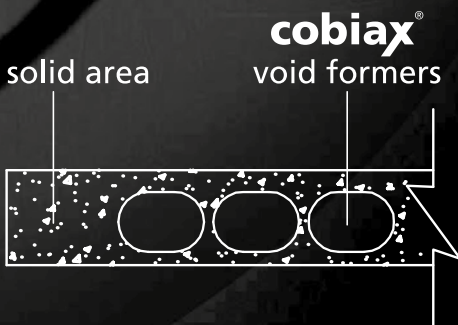
Furthermore, ET Solar Australia will strengthen cooperation with global and Australian financial partners to launch several new financial solutions for energy projects, such as medium and long-term financing and residential leases, to meet the needs of homeowners and maximise our partners' investment while minimising cost and risk.

According to Dennis She, President and CEO of ET Solar, "ET Solar Australia is not only a branch of ET Solar but a smart energy solution centre in Australia with local know-how and service. ET Solar has been providing leading industrial solar energy solutions for not only components manufacturing, but also package services throughout the entire lifecycle of solar power plants. We look forward to cooperating with more project developers, system installers, and investors."



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## Brickworks develops Certified Carbon Neutral Bricks

**Sydney, Australia** – Brickworks Building Products, one of Australia's leading building products manufacturers, has announced the launch of the country's first carbon neutral bricks and pavers under the Federal Government's National Carbon Offset Standard.

The bricks are available nationally under the Daniel Robertson brand and are manufactured by Brickworks' subsidiary Austral Bricks at its Longford plant in Tasmania.

This milestone is the result of an ongoing commitment by Brickworks Building Products to deliver sustainable products and processes and to conserve the country's precious natural resources.

The Australian Government's voluntary Carbon Neutral Programme requires the measurement, auditing and reduction of greenhouse gas emissions and the offset of any remaining emissions.

The carbon neutral certification of the range of pavers and bricks manufactured at Longford is largely achieved by the use of a unique fuel for kiln firing. That fuel is sawdust, a biomass material and a by-product of the local Tasmanian timber industry.

Mr Steven Mouzakis, National Energy and Sustainability Manager, said: "The

use of low emissions biomass, as opposed to fossil fuels, is largely responsible for the Longford plant's low carbon dioxide emissions. Emissions from the biomass are just 215 tonnes per year - about the same as 12 average Australian households.

"In contrast, a conventional natural gas kiln of the same capacity could emit approximately 8,000 tonnes of greenhouse gases," he added.

The certification under the Carbon Neutral Program measures all emissions contributors, such as raw material extraction, onsite transport, product deliveries across Australia and internationally, water usage, packaging, waste and business operations - not just kiln emissions.

"The successful carbon neutral certification has been partly achieved through a rigorous ongoing program of energy efficiency improvements to manufacturing and associated operations," said Mr Mouzakis.

All remaining greenhouse gas emissions are offset by purchasing carbon credits in Tasmanian projects, like tree planting under the Forests Alive Program.

"We are totally committed to conserving our natural resources and becoming a low carbon emitter, while not compromising on the high quality of our products," he added.



Clay bricks are already renowned for their long life and high thermal mass, which makes them a smart choice in an energy efficient building design. Apart from being Carbon Neutral, bricks can also save homeowners up to 25 percent off their electricity bills.

Mr Mouzakis said: "Architects, builders and home owners concerned with reducing their energy usage and carbon footprint should consider using bricks in the Daniel Robertson range. Bricks not only help regulate internal temperatures within a home to make it more comfortable, they are now certified as being good for the environment.

"This is just one more step in Brickworks Building Products journey towards becoming Australia's most sustainable building products manufacturer," he concluded.

## Construction complete on 2014 Incheon Asian Games Main Stadium

**Brisbane, Australia** – The celebration to mark the official end of construction on the main stadium for the 2014 Incheon Asian Games, which begins September 19th was held in Incheon, South Korea on May 7th 2014.

The stadium for the 17th Asian games was designed by the global architects Populous in association with local firm Heerim Architects and Planners and illustrates a new level of sustainable design in stadia in Asia.

The multipurpose stadium will hold 60,000 people during the Games will reduce down to a single sided grandstand for 30,000 afterwards as a People's Park for the city of Incheon.

Legacy and sustainability were the driving factors in designing the stadium in Incheon. Populous Senior Principal Andrew James said: "We wanted to take a fresh look at the way we treat adaptable stadia in Incheon.

"Rather than considering how we could shrink a 60,000 seat stadium, we turned the idea on its head and thought let's build a 30,000 seat stadium and add 30,000 temporary seats. This approach provided multiple advantages. Financially it reduced the building by two thirds meaning there are substantial savings in operational and maintenance costs. Secondly, it meant the permanent seats could be sited in the optimal position for these sports, in this



Incheon Stadium - Asian Games Mode.  
Photo: © Incheon Asian Games + Populous

instance, in the West stand. But the biggest advantage in the design is the freedom it provided in terms of legacy. The plans were always based on a community park, which after the Games, will replace the Eastern stand, forming a traditional stadium hill, with plazas on the north and south ends, providing atmospheric spectator viewing during a match, and a green space for the public to enjoy at all other times."



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## Gardens by the Bay and The Interlace top BCA Universal Design Mark Awards winners' list



Gardens by the Bay. Photo: © Gardens by the Bay

**Singapore** – The Building and Construction Authority (BCA) conferred the Universal Design Mark Award to 31 exemplary projects, up from the 26 given in 2013. Among the 31, Gardens by the Bay and a private residential development The Interlace topped the list as Platinum winners.

Commenting on this year's BCA Universal Design Mark Awards, BCA Chief Executive Officer Dr John Keung said: "We are encouraged by how the built environment sector has responded positively to our introduction of the Universal Design Mark certification scheme. BCA has received 59 applications since the launch in October 2012. This year, 31 projects were considered exemplary in incorporating universal design features. This is an increase from 26 last year and indicates to us that more developers and architects are putting the needs of their users – including the general public – first and thoughtfully when designing their projects."

### Platinum winner: Gardens by the Bay

Gardens by the Bay ("the Gardens"), is one of the largest garden development of its kind in the world, occupying a land area of 54 hectares. It is a unique recreational destination created for all to play in a garden setting in a city.

With seamless integration throughout the development and connectivity to the city, the Gardens has successfully set a benchmark for new generation of garden development within the larger urban context. Before the Gardens opened, BCA and The Gardens jointly conducted a user trial to engage its visitors, including persons with disabilities, to solicit valuable feedback on their Universal Design features.

Dedication to Universal Design extends to all the Gardens' attractions, facilities and services. They are thoughtfully designed to cater to the diverse needs of users of all ages and abilities. The uniquely designed accessible elevated walkways at the Supertree Groove, Flower Dome and Cloud Forest allow unobstructed movement for wheelchair users and mothers with prams.

Likewise, the developer and architects have placed pro-family facilities such as wet and dry play areas designed for different age groups, ample seating, dedicated nursing areas, diaper changing stations, child friendly sanitary fittings and shower area for children at strategic locations. This reinforced the Gardens as an ideal destination for everyone – families with children, the elderly and persons with disabilities.

Orientation in the Gardens is made easy with its intuitive way-finding cues and clear signage. Maps of its facilities are strategically placed throughout the Gardens for its visitors.

### Platinum winner: The Interlace

The Interlace, a private residential development, stands out in its iconic architectural presence. The development boasts a traffic-free

living environment where young children could play and run around safely. There is also a generous provision of communal facilities, landscaping and resting areas that are designed for users of all ages and abilities, so that residents of all ages and abilities to play and exercise together.

Of the Interlace's 1,040 units of varying sizes, about 131 apartment units are designed with ageing-in-place provisions such as "stepless" bathrooms which will benefit more senior residents or wheelchair-bound residents. There are also 16 dual key units – two units linked by an internal door – that promote multi-generation living.

The innovative stacking of the buildings in a hexagonal arrangement maximises the spacing between blocks to allow for more privacy between units. This arrangement also allows the creation of extensive roof gardens and landscaped sky terraces with lush planting and ample seating that serve as attractive and conducive places for social interaction and community bonding.

User-centric design philosophy, applied throughout the development by the developer and architects, is also well-illustrated with the sensitive design considerations. Well-placed sculptures and thematic courtyards form various landmarks and focal points that allow residents and visitors to easily find their way around this large development. Within its premises, there are seven seating areas that can be easily converted for wheelchair users.

The expansive basement car park is also carefully designed and marked with colour zones so that drivers and visitors can find their way to the right block with ease. There are also dedicated footpaths and road crossings that guide residents and visitors to their intended destinations safely and clear of the vehicular traffic. Besides these two Platinum-certified winners, these developments were also given BCA Universal Design Mark Gold<sup>PLUS</sup> certifications (in no order of merit): Cube 8, Mount Elizabeth Novena Hospital and NV Residences.



Interlace. Photo: © CapitaLand Singapore

## Cobix<sup>®</sup>'s green construction technology awarded Singapore Good Design Mark

**Singapore** – In the inaugural Singapore Good Design Mark (SG-MARK) organised by the Design Business Chamber Singapore, Cobix was recognised for their innovative voided concrete slab technology and was among the six winners to be conferred the most prestigious Platinum award out of 80 participating entries.

Cobix<sup>®</sup> is an internationally patented Switzerland concrete slab technology which removes unnecessary deadweight of concrete slabs by positioning recycled plastic void formers within. This helps to reduce concrete volume in the slabs by up to 30 percent without compromising on the structural integrity. The reduction in weight leads to ability to remove beams and drop panels, promoting a clear flat structure, which has a higher construction productivity compared to conventional design. The weight savings of Cobix also has a direct impact in reducing the foundation design of a building.

As a result, architects are now able to design larger and clearer span structures, promoting better user interaction. The reduction in the concrete used in Cobix<sup>®</sup> systems also translates to direct reduction in carbon footprint of a building. According to a study conducted by a German research organisation<sup>1</sup>, every cubic metre of concrete displaced by Cobix<sup>®</sup> reduces approximately 210kg of CO2 emissions, which makes Cobix<sup>®</sup> an ideal option for developers and builders with green focus.

To date, Cobix<sup>®</sup> has been adopted for a wide range of building construction projects in various parts of the world, ranging from hospitals, offices, mixed-use complexes, schools, soccer stadiums, railway stations and many more. It has also been featured in many notable building projects as well, including the Miami Art Museum in USA; the Elbphilharmonie in Hamburg, Germany – touted to be among the top ten concert halls in the world, and the UEFA European Football Association headquarters in Nyon, Switzerland.

Locally Cobix has been in use in a total of 10 projects ranging from high-end condominiums, offices, school and data centre. Some notable local projects include the new SIM Campus extension, the Equinix data centre and the landmark Park Royal Hotel@ Pickering.

<sup>1</sup> "Reduction of CO2 emissions by application of the Cobix Technology" published by Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO Nobelstrasse 12, D-70569 Stuttgart in 2007.

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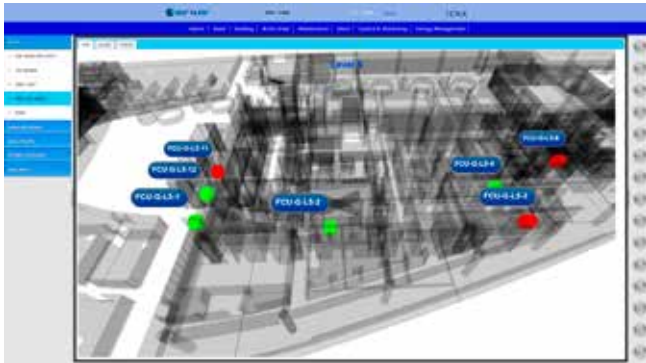



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## CNA adds BIM capability to its flagship SIRIUS system



SIRIUS+ HMI



Chiller overview

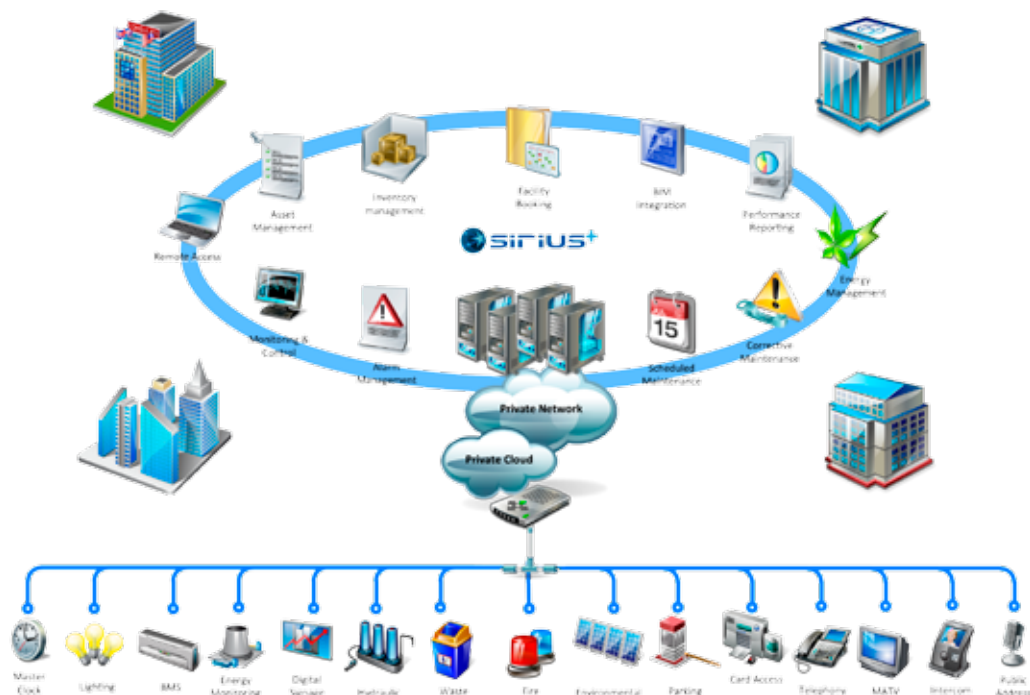
**Singapore** – The Building and Construction Authority of Singapore has identified Building Information Model (BIM) as a key technology to improve productivity and standard of integration across various disciplines across the entire construction value chain. BCA will mandate electronic submissions in BIM format for architectural, structural and M&E plans for building works for regulatory approval by 2015. In line with this directive from BCA, CNA Group Ltd, a leading provider of Systems Integration services to the building industry in Singapore, has incorporated BIM capability to the latest version of its flagship Integrated Building Management System (IBMS) software, SIRIUS+.

SIRIUS+ is a comprehensive suite of integrated control and monitoring software as well as facilities management (FM) software that supports all aspects of operating and maintaining a facility or plant. Unlike conventional systems, SIRIUS+ ties real-time facility or plant control and monitoring functions with corrective and preventive maintenance programs in a single, cohesive application suite. The SIRIUS+ system is able to import information from a BIM database such as Autodesk’s Revit, including 3D graphics of as-built floor plans and equipment layout and use it for human-machine interface (HMI) navigation and real-time visualization of plant or

equipment information. Asset information such as equipment tags, serial numbers, warranties and spares, stored as COBie data, can be exported from the BIM database and imported into the SIRIUS+ asset and maintenance database. The SIRIUS+ BIM interface provides a transparent and productive means of sharing important information within a built environment.

Using the BIM model to create advanced dynamic 3D graphics, the SIRIUS+ system provide system users with a premium user experience with a realistic view of actual operating equipment, environments and workspaces. It provides true-to-life shapes, forms, processes and other operational details that are otherwise not readily available when viewed in traditional 2D graphical representations. 3D models can be instinctively understood, reducing the reliance on human interpretation and visualization skills. The SIRIUS+ dynamic 3D graphics augments operational productivity with user-friendly pictorial navigation within a facility’s environment.

Data imported from the BIM model is also used to augment the Asset Management, Corrective Maintenance, Preventive Maintenance and Facility Reservation modules in SIRIUS+. **For more information, tel (+65) 6511 0082, email sales@cna.com.sg or visit www.cna.com.sg.**



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## Raft foundation laid for Tanjong Pagar Centre

*The raft foundation is believed to be the largest constructed in one single continuous concrete pouring. A total 13,401 cubic metres of concrete was cast in the 42-hour operation or thereabouts.*

**Singapore** – Singapore-listed developer GuocoLand has completed the country's largest raft foundation done in one continuous pour. A total of 13,401 cubic meters of concrete was used in one single pour to create the foundation for Tanjong Pagar Centre, GuocoLand's flagship integrated mixed-use development.

When completed in 2016, Tanjong Pagar Centre will also serve as a gateway to the future waterfront city and bring new life to the Tanjong Pagar precinct. Built on top of Tanjong Pagar MRT station, the 290-metre tall development comprises Grade A offices, Clermont Residence, Singapore's tallest and most luxurious residence, a luxury business hotel, premier retail and F&B space as well as the Urban Park.

To build this mammoth foundation, here is a summary of the effort required:

1. 13,401 cubic metres of concrete was used
2. 103 trucks taking an average of 14 trips each, making a total of 1,489 truck-trips
3. A team of 248 were deployed throughout the construction of the foundation
4. A total of 42 hours taken to complete the foundation between 1.00pm on 3 May 2014 to 7.00am on 5 May 2014.

The raft foundation was completed on 5 May 2014 and was constructed to support the entire 64-storey building, which holds the office, residential as well as part of the retail and F&B components.



13,401 cubic metres of concrete was used. Photo: © GuocoLand



103 trucks taking an average of 14 trips each, making a total of 1,489 truck-trips. Photo: © GuocoLand



248 staff deployed throughout the construction of the foundation. Photo: © GuocoLand



A total of 42 hours taken to complete the foundation between 1.00pm on 3 May 2014 to 7.00am on 5 May 2014. Photo: © GuocoLand

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## Stamford Tyres opens Singapore's largest tyre commercial centre to support regional operations

**Singapore** – On 25 April 2014, Stamford Tyres Corporation Limited (“Stamford Tyres”) opened its new Stamford Tyres Commercial Centre in Jurong, reinforcing its status as Singapore’s largest independent tyre and wheel distributor. The S\$25 million centre which houses a tyre warehouse, truck tyre centre and tyre retreading plant will provide support for its expanding total tyre management businesses in the Southeast Asia region.

Mr Wee Kok Wah, President of Stamford Tyres Corporation Limited said, “With the opening of the Commercial Centre, Stamford Tyres will be able to support the Group’s international exports of proprietary brand tyres and wheels to countries such as Russia, United Kingdom, United Arab Emirates, Canada, Ecuador,



**Ribbon cutting ceremony. Lady in pink and white standing in the middle – Dawn Wee, Executive Vice President, Stamford Tyres Corporation Limited. Gentleman in black and white standing in the middle to the left of Dawn Wee - Mr Wee Kok Wah, President of Stamford Tyres Corporation Limited. Others – long serving staff at Stamford Tyres Corporation Limited.**



**Commercial Centre - Tyre Warehouse.**

and Tanzania. This will certainly benefit the local dealers who will now enjoy greater flexibility in distributing a mix of different types of tyres according to their customers’ needs. In comparison, the previous warehouse offered limited storage capabilities. The redeveloped warehouse optimises land use for our tyre and wheel distribution, truck centre and retread plant operations. In addition, the new warehouse serves as a mixing centre to support the international proprietary brand tyre and wheel distribution operations of the Group. This enables us to shift our mixing warehouse from China to be consolidated in Singapore, allowing us to leverage on Singapore’s strategic advantage as an international entrepreneur.”

With a gross floor area of 22,591 square metres, the Stamford Tyres Commercial Centre also incorporates the Jurong Truck Centre (JTC), which is able to accommodate 6 service bays for trucks and 8 loading/unloading container bays. This will expedite the operational process greatly.

Installed with the highest double-deep racking (12.5 metres) in Singapore, Stamford Tyres can now store over a million tyres of all sizes (600,000 tyres in this new Commercial Centre and 400,000 tyres at its existing premises). Its total pallet space can hold 45,000 pallets. This new Commercial Centre will provide value-added sales and just-in-time distribution support to its network of overseas offices and export customers.

## Autodesk unveils 2015 Suites for Building and Civil Infrastructure Industries

**Singapore** – Autodesk has announced the Autodesk 2015 software portfolio of design, engineering, and construction solutions to help drive a global transformation to Building Information Modeling (BIM). The 2015 Suites for buildings, civil infrastructure, and oil & gas projects offer hundreds of improvements and new capabilities for Autodesk Building Design Suite, Autodesk Infrastructure Design Suite and Autodesk Plant Design Suite. In addition to the Suites enhancements, the Autodesk InfraWorks 360 family of offerings now includes enhanced roads and highways capabilities and new features to help civil engineers to model and visualize more realistic bridge design concepts.

Here are the new features available in all of the 2015 Design Suites

• Productivity and design improvements including:

- An updated, modern interface for Autodesk AutoCAD 2015 and AutoCAD 2015-based products: Helps building designers and civil engineers quickly open new and existing drawings with *New Tab*, visually access drawing content with *Ribbon Galleries*, and easily find tool locations with new *Help Window* functionality

- Integrated 2D & 3D quantification capabilities in Autodesk Navisworks Simulate 2015 and Autodesk Navisworks Manage 2015
- Better integration with the cloud: New one-button access to Autodesk BIM 360 from Autodesk Navisworks Manage 2015, Autodesk Navisworks Simulate 2015, Autodesk Revit 2015, and Autodesk AutoCAD 2015 helps customers collaborate and manage their BIM project workflow and data
- Enhanced point cloud capabilities include improved control over point cloud datasets and enhanced display settings in AutoCAD 2015-based products, as well as Autodesk Navisworks Manage 2015, Autodesk Navisworks Simulate 2015, Autodesk Revit 2015, Autodesk 3ds Max Design 2015, and Autodesk InfraWorks 2015, provide more realistic visualizations and walk-throughs

### Building Design

Autodesk Revit 2015 software\* offers customer requested improvements to help make it easier for architects, and engineers to:

- Apply a hand-drawn, graphic style to models, using the sketchy lines feature
- Include imagery in schedules to better convey graphical information
- Create and manage changes with improved tools to sketch and control revision cloud shapes
- Create more accurate documentation in 3D views using enhanced hidden lines capability

\* Autodesk Revit 2015 software is available in the Premium and Ultimate editions of the Autodesk Building Design Suite 2015, and in the Ultimate edition of the Autodesk Infrastructure Design Suite 2015. Autodesk Revit Structure 2015 software is available in the Premium and Ultimate editions of the Autodesk Plant Design Suite 2015, and in the Premium edition of the Autodesk Infrastructure Design Suite 2015.

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## Bristile revolutionises slate roofing with the Visum3 roof tile

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**Queensland, Australia** – Leading Australian roof tile manufacturer Bristile Roofing has ushered in a new era of roofing products with the Visum3 roof tile, designed to replicate the profile of traditional slate tiles as an affordable alternative for those desiring a shingle roof.

Exclusive to Bristile's premium, European-style terracotta roof tile collection La Escandella Ceramica, the Visum3 features a low profile design with a slim 9mm nose to achieve ultra-flat laying for the ultimate shingle and slate appearance. An innovative, triple cambered design gives each tile the appearance of three traditional plain tiles laid side-by-side, enabling designers, architects and homeowners to easily achieve a slate finish and feel on any project.

Industry-leading manufacturing technology also allows each tile to be coloured individually with realistic "pitting" on the tiles surface, capturing the aesthetic quality of a slate veneer.

Mr Michael Monro, Marketing Manager at Bristile Roofing, said: "Appearing on the roofs of many of Australia's finest civic buildings, churches and federation homes, slate has long been revered as one of the finest roofing materials available and is a long-time favourite in the architectural and building profession. Traditionally, however, a slate roof has been an expensive design option, requiring costly multiple layers of slate and lengthy installation time and this has put it out of reach for many homeowners.

"Using patented, world-first design and innovative manufacturing techniques, the Visum3 captures the beauty and distinct character of slate, in many cases for a portion of its price, making it the perfect alternative for any new build, restoration project or heritage building."

The Visum3 range is available in five stunning monotone and duotone colour options including: Slate, a dark grey tone; Truffle, a mid brown; Russet, a vibrant red terracotta with darker shades; Old England, an earthy terracotta with brown tones and Vermont Grey, a weathered grey shade. This broad colour palette allows



for an extensive range of applications in both traditional heritage settings and modern architectural designs.

Whilst the Visum3 duplicates the classic beauty of natural slate, it offers a number of advantages over this roofing material. Not only is it sold with a colour for life warranty, it is also more durable and lightweight and features a revolutionary interlocking design which eases the installation process and ensures an excellent watertightness. The Visum3 roof tile also offers considerable energy saving benefits thanks to the thermal insulating qualities of terracotta, which manage heat transmission, helping to keep a home cool in summer and warmer in winter. The same mass that contributes to its thermal performance also provides superior sound insulation to reduce unwanted noise from the outside world. Joining together under the Brickworks Building Products group, Bristile Roofing is part of a larger organisation that includes other famous brands such as Austral Bricks, Auswest Timber, Austral Masonry and Austral Precast.

## Phoenix Solar & Mustakbal Clean Tech commission Jordan's largest solar PV plant

**Singapore** – Phoenix Solar Pte Ltd (“Phoenix Solar”), a photovoltaic system integrator and Mustakbal Clean Tech (“Mustakbal”), Jordan’s leading PV installer have completed a 1.028MWp solar photovoltaic (“PV”) plant at the Ma’an Development Area in the Hashemite Kingdom of Jordan.

The solar PV plant is located within the Residential Community adjacent to the King Hussein University, one of the clusters of the Ma’an Development Area and is owned by the Ma’an Development Company (“MDC”), responsible for the development of this special economic zone.

Phoenix Solar and Mustakbal successfully installed 4,032 Trina Solar modules and 56 SMA inverters in an area of 14,000 square metres. The solar plant comprises two 514kWp subsystems, each connected to the LV side of the transformers.

The PV plant will generate approximately 2,000MWh of electricity annually, to meet 100 percent of the student dormitory’s power consumption, turning the Residential Community into Jordan’s first zero-energy dormitory and an excellent showcase for PV technology.

The project, the first MW-scale PV project in Jordan, was completed within schedule and with no disruption to student life at the Residential Community.

The effective combination of skills and experience of Phoenix Solar and Mustakbal delivered the best results in this project and set a great precedent for future project partnerships. “It took well coordinated teamwork to deliver this project on time without compromising on quality or performance,” said Christophe Inglin, Managing Director of Phoenix Solar and “we look forward to many more projects in Jordan with our partner Mustakbal.”

“The installation was completed and commissioned on time, thanks to the outstanding support and partnership with MDC (the owner), The National Energy Research Centre (the project consultant), and our suppliers and implementation partners that were instrumental to the project success resulting in a



The 1.028MWp solar photovoltaic plant at the Ma’an Development Area in the Hashemite Kingdom of Jordan. Photo: © Phoenix Solar Pte Ltd

high quality installation. We are proud to be the first utility scale installer in Jordan,” said Ala Qubain, CEO of Mustakbal.

MDC will benefit from the net-metering regulations introduced through the Jordanian net metering renewable energy law. This will reduce its electricity bills from day one and will result in a payback time of 3 years; showing the clear economic benefits of solar PV in a country with high electricity prices and excellent solar resources.

“The Phoenix/Mustakbal consortium has exceeded our expectations in delivering a high-performance PV solar plant on time and to the highest quality standards,” said Dr. Atef Odibat, Chairman of the Board of MDC.

The Ma’an Development Area is considered a solar hub in Jordan with plans to build over 100MW of PV systems by 2015 through solar purchase agreements.

## Pomeroy Studio scoops green accolades at BCA Awards 2014

**Singapore** – Pomeroy Studio was awarded the Singapore Building and Construction Authority’s (BCA) Green Mark Platinum Award for B house – the first operational carbon negative landed property in Singapore, which is scheduled to commence construction shortly.

The lessons learned from the company’s founder, Jason Pomeroy’s design of the Idea House, (the first zero carbon prototype house in Asia and the recipient of the first Green Mark Platinum Award for an overseas residence in 2011), provided the starting point for the Studio’s design. Though on this occasion, instead of reinterpreting the Malay kampong tradition, they looked



From left to right: Pomeroy Studio Design Team: Yoshi Shimada, Mayank Kaushal, Belinda Young (Owner), Jason Pomeroy and Deepshi Bhogal. Photo: © Pomeroy Studio

towards the indigenous black and white bungalow for inspiration.

The B House, led by Jason Pomeroy and supported by Associate Principal Yoshi Shimada, is a house that pushes the envelope of passive green design to optimise natural light and ventilation and drastically reduces energy and water consumption to the point of being almost zero carbon. But the installation of PV cells to the roof, equating to under 1.5 percent of the building budget, makes it carbon negative – generating more energy than the house occupants can consume. Despite its far-reaching green design, the house is the same cost of average landed bungalows in the vicinity.

Pomeroy Studio's Sustainability Consultant Deepshi Bhogal commented, "We're delighted to see B House receive the recognition it deserves in order to demonstrate to developers and designers that the key to zero carbon design is a return to passive design with

optimized environmental performance." Mayank Kaushal, a certified Green Mark Manager with the Studio who undertook simulation studies on the house added, "The sooner we can de-bunk the myth that its more costly, the sooner we can have a greener built environment."

Jason Pomeroy also received the BCA-SGBC Young Green Advocate of the Year Award for his commitment and services in promoting the green agenda both in Singapore and abroad. Recognised for his passion in bridging the gap between design innovation and research; his recent book, *'The Skycourt and Skygarden: Greening the Urban Habitat'*, his popular architecture travel TV series, *'City Time Traveller'* – in addition to his designs for buildings, cities and landscapes.

"I'm delighted to receive the Young Advocate Award, with a particular emphasis on the young, as it believes that I have a mind and memory of a 76

year old! In all seriousness, I am very grateful to be honoured, which comes timely with the research and project work we are pursuing."

The awards come hot on the heels of the Studio becoming a member of the Singapore Green Building Council. The council has also certified Pomeroy Studio for their Environmental Sustainability Design services as well as their thought leadership in green roof technologies, resulting in Pomeroy becoming a member of its Green Roof Taskforce.

His continued professorship at the University of Nottingham and his research into sustainable tall buildings and vertical urbanism, for which Pomeroy is one of the world's leading experts, has also been joined by a recent appointment to Professor by the University of Venice. The subject matter remains close to his heart, and will be explored in a summer school at the University of Venice this July with Prof Luigi Croce.

## Hilton Worldwide signs management agreement for first Conrad Hotel & Resorts property in India with Conrad Pune

**Delhi, India** – Hilton Worldwide announced the signing of a management agreement with Palm Grove Beach Hotels Pvt. Ltd., a wholly owned subsidiary of the K. Raheja Constructions Group, to open Conrad Pune, the first Conrad Hotels & Resorts branded hotel in India. The launch of Conrad Pune in Maharashtra next year will mark the global luxury brand's entry into the country. Conrad Hotels & Resorts, part of the Hilton Worldwide portfolio of brands, has established a reputation for offering today's contemporary and sophisticated travellers a world of style and intuitive service.

"Conrad Hotels & Resorts has a global portfolio of 23 properties in key gateway cities and resort destinations that offer luxury experiences by offering guests intuitive service, a world of style and infinite connections," said John T. A. Vanderslice, global head, luxury and lifestyle brands, Hilton Worldwide. "Pune is a key gateway destination and we are delighted to establish our brand's presence in India, one of the key strategic growth markets for Hilton Worldwide, starting with this wonderful city."

Staying true to the brand's essence of providing a world of style, while connecting guests with the local experiences surrounding them, Conrad Pune will be an iconic structure towering over Mangaldas Road, strategically located within the central business district of Pune. It will be minutes from the commercial and entertainment hubs in Kalyani Nagar, prime government institutions in Yerwada and premier residential neighbourhoods of Koregaon Park and Bund Garden. Kharadi and Ganeshkind Road will be within eight kilometres of the hotel and the Pune International Airport six kilometres away.

With its foundation in the Art Deco style, the design of Conrad Pune will be characterised by bold geometric shapes,



Conrad Pune – Porch. Photo: © Conrad Pune

dashes of striking colour and hints of lavish ornamentation. Providing the backdrop will be expansive public spaces framed by 43-foot (13-metre) high ceilings and dramatic columns. The hotel will feature 310 luxurious guestrooms with the latest in-room technology and six-fixtured marble baths. Guests at the hotel will have the choice of six contemporary and innovative dining outlets.

The 16,200-square foot (1,510-square metre) meeting and event space at the hotel will include a grand 8,300-square foot (780-square metre) ballroom divisible into three, a break-away function room, spacious pre-function area, four boardrooms as well as a fully equipped 24-hour business centre. Recreational options will include an outdoor swimming pool, fitness centre, luxurious full-service spa and a salon.

## DORMA at nine Brazilian football stadiums

**Ennepetal, Germany** – Starting on June 12, 2014, soccer teams from a total of 32 nations will be vying for the title “Best in the World”. The last two standing are due to contest the final on July 13 in Rio de Janeiro’s remarkable Maracanã Stadium, with the ultimate winner taking that most prestigious of sporting crowns. Meanwhile, access technology fans will note that there is already one major player destined to be present at this auspicious occasion – wearing a crown all of its own: DORMA. In fact, this family company headquartered in Ennepetal, Germany, is represented with its access solutions in nine out of twelve Brazilian football stadiums that have been especially prepared for the summer.

The largest product range has been installed in the Rio de Janeiro arena. Here there are DORMA sliding glass walls in the VIP lounges, together with automatic doors, door closer and emergency exit systems, plus a wide array of glass fittings and accessories – all playing a vital holding role. So there can be no doubt, DORMA is going to be part of the party when the best team in the world of football is finally crowned.

The eight other football arenas featuring DORMA access solutions are in Belo Horizonte, Brasília, Cuiabá, Curitiba, Fortaleza, Natal, Porto Alegre and Salvador da Bahia.

“We are very proud that DORMA is represented at such a large number of sporting venues in Brazil, contributing with our products to the security and convenience of almost three million spectators during this summer’s celebrations,” said DORMA CEO Thomas P. Wagner. “Here we can see real payback for DORMA’s outstanding worldwide reputation and deep-rooted know-how in equipping stadiums and similar facilities. With our locally stationed experts and our global network of architectural consultants, we are able to bring not only innovative products but also holistic solutions into play – as our contribution to the beautiful game,” he added.



Maracanã Stadium in Rio de Janeiro (Copyrights: Fernandes Arquitetos)

DORMA has a long tradition in supplying access solutions for major sporting events. Just recently, DORMA technology was being put through its paces at both the Summer Olympics in London, UK, and the Winter Games in Sochi, Russia, providing access, convenience, safety and security for spectators and sports people alike. And at soccer’s last major European tournament two years ago, several stadiums in the host countries Poland and Ukraine were likewise equipped with DORMA technology.

Moreover, as the stadium in Rio de Janeiro is also the venue for the opening and closing ceremonies of the next Olympics in Rio de Janeiro in two years’ time, DORMA will be a presence at this major sporting event as well.

## SICIS launches new “shop in shop” Singapore

**Milan, Italy** – SICIS, the Art Mosaic Factory, has announced their partnership with GF+A, entitled to be the exclusive distributor of the Italian brand in the Singaporean market with a large, prestigious “shop in shop”.

Located at 24 Mohamed Sultan Road, near the iconic Robertson Quay area in the elegant River Valley area, the space is hosted in a historic Chinese shop house, protected by Singaporean Government for its rich historic, heritage and architecture values.



SICIS shop in shop in Singapore is an elegant presentation of SICIS mosaic collections to meet the requirements of client’s projects in terms of space, purpose and budget available.

Orientele, Skyline, Flower Power, SiciStone, PixAll, Neoglass: SICIS amazing mosaic works adorn the store. Predominant cold, metallic colours in black & white, grey and blue tones characterize the space: different materials were used, from black marble with iridescent hints on the floor, to unique mosaic panels in a shimmering, modern look on walls.

Glass, silver, marble and other precious stones adorn the space with their iridescent and shimmering tesserae even in the bar area.

Mosaic panels depict metropolis skylines, flower compositions and geometric patterns. Abstract or figurative decorations realized using SICIS typical pixilated and artistic technique, the latter realized entirely by hand in Italy where SICIS mosaic masters cut and place every single tessera by hand.

The 100 percent made in Italy SICIS brand consolidates its presence in Singapore with an elegant space and reinforces the bond between Italian culture of luxury mosaic and the ancient, Asian culture of artistic decoration, with the objective of consolidating a company whose name is synonym for quality of mosaic art, in Singapore.

## Nidaplast gains a foothold in the US



New Nidaplast LLC entity in Port Saint Lucie.

**Paris, France** – As preparations get underway for the next JEC Americas in Atlanta, Nidaplast is announcing the 2014 launch of its beachhead for US distribution. It now has offices, warehouses and finishing workshops in Port Saint-Lucie, Florida. The Group, which has been a player in the American Composites market for over 20 years with NidaCore, is now able to offer its entire range of innovative environmental solutions on the US market and, in so doing, is developing its global strategy.

This new entity is in line with the company's globalisation policy, which has gone full steam ahead in 2013 and 2014, mainly thanks to very large-scale international projects in Russia, Czech Republic and Saudi Arabia, for example.

"We are now designing products specifically for international markets and adapt our ranges to comply with current regulations on dimensions, certifications, etc., in the relevant countries. By offering a wide range of polypropylene honeycomb products, we are able to provide genuine solutions tailored to our customers' needs. With just one manufacturing process we can offer many different solutions and applications. To reduce structural weight, for example, we provide sandwich panels and ready-to-use finished sandwich panels with pre-glued skins. But we also provide competitive solutions for underground rainwater storage modules, lightweight backfill solutions and landscaping solutions," explained Claire Ducreux, Head of Marketing and Communications at Nidaplast.

Nidaplast's new subsidiary will enable the company to market its entire range of products, not just those in its composites range but also its landscaping (alveolar panels for ground stabilisation, honeycomb panels used under synthetic grass etc.) and rainwater management solutions (ultra lightweight alveolar modules for temporary underground rainwater storage).

Do you have news for us?

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## Energy efficient buildings technology and services in Asia Pacific will reach nearly \$92 billion in annual market value by 2022, forecasts Navigant Research

**Boulder, Colorado** – Asia Pacific represents a major portion of global real estate, with about 40 percent of the world's building stock. While construction rates have slowed since the financial crash of 2008, the region's buildings sector remains the most dynamic in the world. As such, making buildings more energy efficient has become a top priority in many of the region's fast-growing economies. According to a new report from Navigant Research, the market for energy efficient buildings technology and services in Asia Pacific will grow from \$45.5 billion in annual value in 2013 to \$91.6 billion by 2022.

"While some countries in Asia Pacific lag in many respects behind the building energy efficiency markets in North America and Europe, governments within the region have made significant progress in driving energy efficiency in buildings," said Eric Bloom, principal research analyst with Navigant Research. "The advent of green building design guidelines, the introduction of new energy efficiency technology, and funding strategies to assist



**Eric Bloom**

retrofit projects in commercial buildings are all helping to drive the expansion of this dynamic market," he added.

At the same time, significant barriers exist to the energy efficiency market in the region, according to the report. Navigant

Research estimates that only about 20 to 30 percent of the building stock in developed markets has the critical mass of digital control infrastructure necessary to support advanced building energy management technology – a percentage that is likely even lower in Asia Pacific countries. Digital control infrastructure is particularly lacking in smaller buildings (<100,000 square feet), which represent a significant portion of the building stock in Asia Pacific.

The report, "Energy Efficient Buildings: Asia Pacific", examines the trends for energy efficient building technology and services in the Asia Pacific region. The report covers three main areas of technology – HVAC, energy efficient lighting, and commercial building automation – as well as the energy service company sector. Market forecasts for revenue, broken out by technology, lamp type, segment, and Asia Pacific country, extend through 2022. The report also examines the regulatory issues, market competitiveness, and key industry players related to energy efficient building technology and services in Asia Pacific.

## Radiant ceiling with ECOPHIT® on the rise in the Middle East

*Participants of "Emirates Green Building Council" impressed by new technology.*

**Meitingen, Germany** – In the Middle East, too, radiant ceilings with ECOPHIT® have successfully proven that air conditioning technology can be climate-friendly at temperatures of 50°C (122°F). The first projects in Dubai, such as the Marina Plaza office tower in the new Dubai Marina district, show that radiant ceilings with ECOPHIT® use considerably less electricity and are therefore both more ecological and economical than classic air-based air conditioning systems. Mohamed Alami, Head of Global Marketing & Sales at SGL Lindner, said: "We will implement our market entry strategy consistently in the Middle East. Our first projects have proven that ECOPHIT® supports the ambitious target of the United Arab Emirates for energy-efficient refurbishment of numerous high-rises while simultaneously reducing material and operating costs."

### Presented with the Emirates Green Building Council (EGBC) Award

"And the winner is ... ECOPHIT®" – on December 12, 2013, in Dubai, the SGL Group received the award for best "Green Building Material/Product" for the ECOPHIT® radiant ceiling solution developed by its joint venture SGL Lindner. The prize honours companies for their commitment in the construction and running of "green" buildings. In their explanatory statement, the expert jury emphasised that radiant ceilings with ECOPHIT® simultaneously reduce energy consumption in the building, improve the indoor



**ECOPHIT® was used in Marina Towers, Dubai.**

climate, and reduce energy costs by up to 40 percent.

"The prize from the EGBC makes us very proud, especially as the offering of the prize by high-ranking representatives of the Emirates underlines the importance of innovative and energy-efficient solutions for this region," said Mohamed Alami. "The good reception in Dubai in connection with the prize once again confirms the strength of our radiant ceiling solutions made of natural graphite and encourages us to continue to expand our global contribution to an economical and ecological solution," he added.

## New architecture prize aims to raise stature of Canada

**Ottawa, Ontario, Canada** – The Royal Architectural Institute of Canada (RAIC) Foundation announced the launch of one of the largest architectural prizes in the world - the Moriyama RAIC International Prize.

Distinguished Canadian architect Raymond Moriyama established the prize together with the Foundation. To be awarded every two years, the prize consists of CAD \$100,000 and a sculpture designed by Canadian designer Wei Yew.

“My hope is that this prize will raise not only the stature of the RAIC internationally, but also the stature of Canada, and inspire Canadians and Canadian architects to aspire higher,” said Moriyama, 84.

The prize is open to any architect, firm, or collaboration in the world for an outstanding building or project. It may also be granted to a non-architect for an exceptional contribution to architecture. The winner will be selected through an open, juried competition.

Submissions are due by August 1, 2014. The first award ceremony takes place in Toronto on October 11, 2014.

In addition, three students of Canadian schools of architecture will each receive scholarships of CAD \$5,000. They will be chosen on the basis of a written essay.

The prize reflects Raymond Moriyama’s passion for architecture that has the power to transform society through humanistic values such as social justice, equality, and inclusivity.

“It is not a lifetime achievement award,” he said. “Anybody, young or old could apply and have a chance of winning.” Criteria include design excellence, client satisfaction, and quality of detail.

The idea first came to Moriyama in 1976 while on a three-month walk in the footsteps of Buddha through India and Nepal. More recently, he made a bequest to the RAIC Foundation to create the prize.

Toronto-based Moriyama & Teshima Architects is known for many critically acclaimed projects including the Canadian War Museum in Ottawa and the Canadian Embassy in Tokyo. The Foundation promotes excellence in architecture and exchange between Canadian and international architects, clients, and policy makers. Supported by



**Mr Raymond Moriyama.** Photo: © Moriyama & Teshima Architects

donations, it aims to raise a \$5-million endowment for the prize.

“Raymond Moriyama conducted his practice with a rare degree of humanity and humility,” said Barry Johns, chair of the RAIC Foundation Board of Trustees. “The prize is a testament to his vision and generosity.”

## Herzog & de Meuron selected to design the New Vancouver Art Gallery

**Vancouver, Canada** – The Vancouver Art Gallery has appointed Herzog & de Meuron to design their new building at Larwill park at the southern edge of the Vancouver’s downtown district.

The Herzog & de Meuron team was selected ahead of the other finalists after a selection process initiated in 2013.

The brief calls for an urban proposal for the entire city block, which will house a variety of public and commercial uses in which the 300,000 square feet new Vancouver Art Gallery will become the feature program.



Site of the proposed new Vancouver Art Gallery at 688 Cambie Street, Vancouver, April 2014. Photo: Rachel Topham

## KPF unveils designs for creative offices at Shanghai DreamCenter

**New York City, New York, USA** – International architecture firm Kohn Pedersen Fox Associates (KPF) is pleased to unveil designs for DreamWorks Asia Headquarters, Oriental Dreamworks and creative offices in the new Shanghai DreamCenter, which constitutes one of the most exciting projects in China. Located along the riverside in Xuhui District, the 463,000-square-metre DreamCenter is an integrated cultural and lifestyle landmark that will feature performing arts spaces, creative media spaces, black box and imax theatres, as well as world-class entertainment, fashionable retail areas and premium restaurants and bars.

“Together with the West Bund Media Port, this will become the world’s third great urban centre for entertainment and arts alongside New York’s Broadway and London’s West End,” said DreamWorks Animation CEO Jeffrey Katzenberg.

A collaboration between Hong Kong Lan Kwai Fong Group, DreamWorks Animation and Shanghai China Media Capital, the DreamCenter is the flagship project of Shanghai’s West Bund Media Port, a large-scale development focused on creative and digital media, technology, and cultural industries.

KPF Managing Principal Paul Katz commented, “We’ve watched Shanghai develop into a global city. And now, three visionaries, three of the most influential shapers of global culture in the 21st century are coming together to create its creative hub: Jeffrey Katzenberg, who heads one of the most influential studios in the industry; Allan Zeman, who has made such a huge contribution to Hong Kong, including the development of Lan Kwai Fong in HK and now China, which transformed the culture of public space and demonstrated a new respect for international lifestyle and world-class entertainment; and Li Ruigang, the visionary who has punctuated the evolution of China’s media and entertainment industry. In 20 years, Shanghai has transformed itself from an agrarian-based economy to one of the leading post-industrial economies in Asia. The DreamCenter project will further define Shanghai’s role as a global meeting-place for creative industry, technology, entertainment, and culture.”

Through the revitalization of the hundred-year-old former cement factory and other industrial artifacts into iconic creative live performance venues and F&B facilities, DreamCenter blends together the site’s industrial and cultural history with modern architecture,



Photo: ©Kohn Pedersen Fox (KPF)

offering an unseen experience for the people of Shanghai and international tourists.

KPF’s two-block design represents the creative heart of the master plan – and its largest district. The eastern block is home to a pair of creative office towers, a theatre building and arts building, whose open-air rooftop features a sculpture garden. The western block features a pair of towers (DreamCenter’s tallest), which angle slightly as they rise above this space, framing the views westward towards the DreamCenter and Huangpu Riverfront and creating “sky canyons” that capture the sky by day and emanate light and activity by night. At the base of the tower, the design includes a direct connection to the Shanghai Metro, a shared retail podium, and an elevated pedestrian walkway lined with shops and restaurants that extends eastward to connect the entire development.

Like KPF’s designs for Roppongi Hills in Tokyo, Hudson Yards in New York, and Covent Garden in London, Shanghai DreamCenter will become the great gathering place for the city, bringing together diverse activities, industries, and cultures, and enabling this energy and streetlife to radiate outwards, activating the city.

Construction of the Shanghai DreamCenter will begin this year and is expected to complete in 2017.

## Over 6,000 competition entries highlight global importance of sustainable construction

**Zurich, Switzerland** – The fourth cycle of the USD 2 million International Holcim Awards competition attracted more than 6,000 projects and visions in sustainable construction from 152 countries. The diverse geographic spread of entries and growth in submissions from developing countries confirms the importance of creating a more sustainable built environment. Entries will be screened for compliance before evaluation by independent juries in five regions of the world. The results will be announced at prize-handover events in the last quarter of this year. The Holcim Awards recognises innovative projects and future-oriented concepts, and is conducted in parallel across five regions. The broad range of submissions includes Main category projects at an advanced stage of design and “Next Generation” visions and ideas across architecture, building and civil engineering, landscape, urban design and infrastructure, as well as materials, products and construction technologies. The 6,103 entries registered within the competition period reflect the growing importance of sustainable construction in emerging markets as well as a high awareness of this critical topic among young professionals and university students.

Compared to previous cycles, the largest increase in participation was registered in Africa Middle East and the highest volume of entries came from Asia Pacific. The growing number of submissions in the “Next Generation” category for the first time balances the distribution of entries between the two competition categories. All fully-completed entries will now undergo a formal check by Berlin-based architecture and urban design consultants, [phase eins]. Valid entries will then be presented to an independent jury panel in the region where the project is to be constructed (or where the project was conceptualized for the “Next Generation” category). The results for the region Asia Pacific will be announced on November 14, 2014

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## British Gas wins Workplace Environment of the Year Award

**London, UK** – British Gas, Oxford Business Park has won the Workplace Environment of the Year Award at the inaugural Thames Valley Property Awards. The awards recognise exemplar developments and leading companies and towns within the Thames Valley Region. The sustainable 81,000 square feet fit-out by Scott Brownrigg Interior Design consolidates British Gas employees from three separate sites into a new three-storey building. British Gas aspired to make their building and fit-out an example of energy conservation and environmental best practice as well as providing an inspiring and flexible place to work.

The Scott Brownrigg concept takes the opportunity to promote and represent the four key sources of renewable energy; the floor plate has been divided into four corners, each representing an individual natural energy source, sun, wind, earth and water. Each is illustrated with the use of colour, materiality, furniture and graphics. For example, a lush three-storey living green wall located within the atrium provides a major feature of the building and as well as forming part of the “earth” zone design, it acts as an acoustic buffer. The overall design concept throughout the building is reflected through the use of a dandelion motif; the dandelion represents all the natural energy sources coming together to reflect growth and regeneration.

The building and fit-out achieved BREEAM “Excellent” and an EPC A rating and showcases the renewable energies and technologies that British Gas supplies and promotes. Two plant towers on both the East and West facades house the mechanical services and three biomass boilers, targeted to provide 90 percent of the buildings heating on demand.

Photovoltaic and solar thermal panels have been incorporated onto the roof to produce power and hot water for the building. Scott Brownrigg created the two work floors using a workplace strategy which focuses on “the in-between spaces”. These spaces, which are separate from individuals’ desks and dedicated work zones, provide alternative settings where staff can collaborate and concentrate; all are supported by Wi-Fi, power and refreshments.

The ground floor hosts a business lounge, a variety of meeting rooms and a restaurant for 200 covers. The outside area, adjacent to the restaurant and the terrace on the second floor has also been utilised by adding clusters of seating, creating additional meeting spaces and eating spaces in the warmer months.



A lush three-storey living green wall located within the atrium provides a major feature of the British Gas building. Photo: © Scott Brownrigg

## Registration opens for 2014 American Society of Landscape Architects Annual Meeting & EXPO in Denver

**Washington, D.C., USA** – It is not too early to mark November 21-24 on your calendar. That’s when more than 5,000 landscape architecture professionals and students will gather at the Colorado Convention Center in Denver for the American Society of Landscape Architects (ASLA) Annual Meeting and EXPO.

The early bird registration deadline is June 20. The theme of the meeting – “Resilience” – is inherent to how landscape architects are wired, says ASLA President Mark Focht, FASLA, in his invitation to the meeting. “Landscape architects work with the land and nature, not against it. Our profession and the Society have shown resiliency through the past few difficult years. Much like Colorado’s beloved Aspen groves, which are strengthened by devastating forest fires and survive avalanches, our professional roots are interconnected and we are emerging stronger than ever.”

More than 130 education sessions, field sessions, workshops and general sessions will be offered throughout the meeting, offering attendees the opportunity to earn up to 21 professional development hours under the Landscape Architecture Continuing Education System.

The EXPO will feature nearly 500 exhibitors offering thousands of new products, services, technology applications, and design solutions – all under one roof. For further details, visit <http://www.aslameeting2014.com/>.



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MARCH 2015

## Playpoint launches the SMART Playground™ in Singapore

*Developed by KOMPAN from Denmark, the SMART Playground is the world's first playground with its very own app. Singapore is the first country in Southeast Asia to have this playground.*

**Singapore** – On 29 April 2014, Playpoint (Singapore) Pte Ltd unveiled a new playground equipment called the “SMART Playground™” at Chijmes Hall. The event was attended by more than 100 guests comprising of landscape architects, town council members, industry professionals and students.

The SMART Playground™ combines the physical playground with a digital learning concept based on Hans Christian Andersen's fairy tales like *The Little Mermaid*, *The Ugly Duckling* and *The Tinderbox*.

Through QR codes placed on the playground equipment – or via the Apple or Android store – kids can download the Hans Christian Andersen Play Gate app. When the app is opened, a world of augmented reality appears, adding an extra dimension of characters and stories to the playground.

“This is the world's first playground with its very own app,” said Stig Mose Henriksen, Group Marketing Director for KOMPAN, the company that has developed the interactive SMART Playground™.

Stig gave a presentation of the SMART Playground™ and its features to the audience. “The playground can, of course, be used without a smart device, but the option is there to really take advantage of kids natural love of technology, get them outdoors and create an environment where physical, social and intellectual learning take place,” added Stig, who explained that the app also contains the full version of the fairy tales in e-book format so parents can read the stories aloud. The app has a range of other functions like allowing parents or teachers to enjoy the storytelling e-books and other apps or setting up challenges specific to their child.

According to a 2013 study by the American advocacy group Common Sense Media, the average time spent by children under age eight each day on smart devices has tripled since 2011. This growing tendency was one of the reason's KOMPAN developed the SMART Playground™ concept.



Stig Mose Henriksen



The SMART Playground™ combines the physical playground with a digital learning concept based on Hans Christian Andersen's fairy tales like *The Little Mermaid*, *The Ugly Duckling* and *The Tinderbox*.



Jeanette Fich Jespersen

Also present during the launch was Jeanette Fich Jespersen of the KOMPAN Play Institute. She gave a talk on inclusive play and universal design approach for playgrounds.

“Children living in industrialised countries lead increasingly sedentary lifestyles indoors interacting with technology rather than with peers and adult role models or playing outdoors,” said Jeanette Fich Jespersen of the KOMPAN Play Institute. “This kind of lifestyle impacts children’s physical, social and, not least, communication and language skills – all crucial parts of their development,” she added.

During the launch, Jeanette unveiled the Galaxy Re-boot™ play concept, an enhanced version of the Galaxy™ playground equipment, for teenagers, to be physically active.

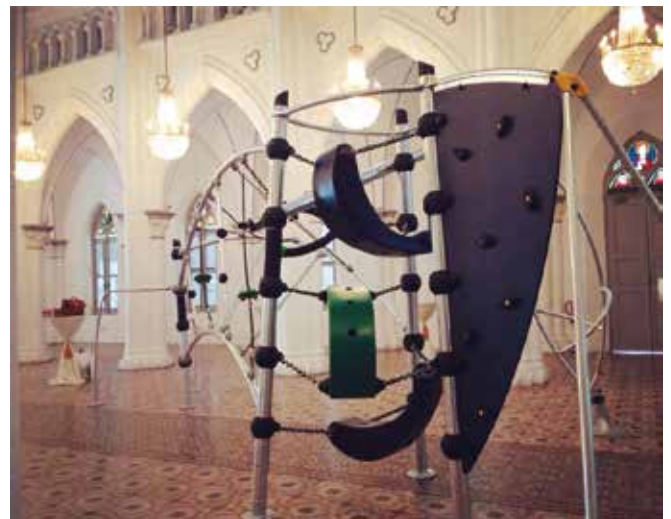
The SMART Playground™ is available in Singapore from Playpoint (Singapore) Pte Ltd. Commenting on the launch, Mr Jason Sim, Managing Director, Playpoint (Singapore) said: “The SMART Playground™ adds a virtual dimension to the physical play structure. It combines both app-based play and outdoor play concept to double the play experience for kids.”



More than 100 guests comprising of landscape architects, town council members, industry professionals and students, attended the event at Chijmes Hall.



The SMART Playground™ was displayed at event.



The Galaxy Re-boot™ playground equipment was unveiled at the event.

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# VELUX's Demonstration Buildings – Low-energy Buildings of the Future

**T**he VELUX Group, a Danish company that specialises in windows and skylights, is one of the strongest brands in the global building industry. VELUX believes that Sustainable Living can make a difference, and should be the beacon towards which architects and developers move to achieve CO<sub>2</sub>-neutral housing in the future. The VELUX Group has devised a strategy to take an active part in developing sustainable buildings. Part of this strategy is Demonstration Buildings. VELUX's demonstration buildings are based on the Active House design principles. The goal is for Active House to become the future design principle of new buildings and renovation, and an attractive solution to respond to the Nearly Zero Energy Building requirement. Here, we feature VELUX's two Demonstration Buildings – the Green Lighthouse in Denmark and Sunlight House in Austria.



Photo: © Adam Mörk

## Sunlighthouse

Sunlighthouse is Austria's first carbon-neutral single-family house. Nestled in a wooded, mountainous region, the home's sloping roof and other exciting architectural elements take full advantage of the sun to ensure maximum daylight and solar energy.

The home's design was the result of a competition between nine up-and-coming Austrian architects, and the winner was Heintroy Architekten. VELUX Austria is monitoring the project along with its partners at Danube University Krems and the Institute for Healthy and Ecological Building (IBO). Sunlighthouse is the recipient of the Austrian State Prize for Environment and Energy Technologies.

The Model Home 2020 experiments comply with the Active House principles where the three main principles of energy, indoor climate and environment are actively integrated in the design of buildings. This Active House radar shows how all parameters within each principle are balanced against each other, enabling the holistic approach and overview to sustainable buildings. It also shows that the Active House parameters depend on active choices within each parameter.

### Dorfstetter family, Sunlighthouse, Austria, built in 2010.

The Dorfstetter's, Yasmin and Ludwig and their two little children, moved into Sunlighthouse in March 2012 to test if the positive-energy design of the house combined with CO<sub>2</sub>-neutrality and ecological materials can be realised. "Sustainable management of natural resources has been a big part of our professional lives for a long time. So we're excited that this experiment also gives



Photo: © Adam Mörk



Photo: © Adam Mörk

us an opportunity to help shape the future of ecological home-building and living in our private lives," said Ludwig Dorfstetter.

The findings that are gained through the experiment will provide insights into how an environmental-friendly solution should be designed to offer its residents a healthy indoor climate and superior liveability, while simultaneously minimising its carbon footprint.

### Follow the building process

Mid-June 2013 VELUX Austria presented the technical and sociological monitoring results from Sunlighthouse to selected energy experts, architects and journalists at a final event in Vienna. The Austrian Dorfstetter family has lived for one year with their two children in the VELUX Sunlighthouse near Vienna.



Photo: © Adam Mörk



Photo: © Adam Mörk

### Partners

The project is supported by scientific partners Danube University Krems and the Institute for Healthy and Ecological Building (IBO) and has already won the Austrian State Prize for Environment and Energy Technologies. The following product partners have also contributed to Sunlighthouse: WindowMaster, VELFAC, Drexel und Weiss, AEG/Electrolux, Admonter, Bauder, E. Egger, Ertex Solar, Gira, Pichler Chemie, Rhein

## Green Lighthouse



Green Lighthouse, the first public CO<sub>2</sub>-neutral building in Denmark, which has been endorsed by the European Commission's Sustainable Energy Europe Campaign as an Official Partner, is the result of the cooperation between the University of Copenhagen, The Danish University and Property Agency, the Municipality of Copenhagen, VELFAC and the VELUX Group joined forces to construct this innovative structure with an ideal balance of energy efficiency, architectural quality, a healthy indoor climate and optimal daylight conditions.

The Green Lighthouse is home to meeting facilities, faculty offices and student services for the University of Copenhagen's Faculty of Science.

### Architectural Concept

Green Lighthouse is an energy-efficient building of great architectural merit, with a high influx of daylight. Inspired by the sundial and the movement of the sun around the building, Green Lighthouse plays on the sun as a source of energy and on its role in science. As sustainable as it is healthy, Green Lighthouse relies on district heating, solar cells, solar heating and cooling, seasonal storage and innovative architecture to create a gorgeous, CO<sub>2</sub>-neutral building.

A round, sculptural building, Green Lighthouse features high ceilings and an open, spacious floorplan. It is designed in a way that reduces energy consumption by 70 percent utilising renewable energy, natural ventilation and light – and with a highly efficient climate envelope. Its circular form ensures the inner atrium is awash in uplifting natural light from the roof's many roof windows. The central space is also crucial in terms of ventilation as fresh air from the façade windows is channelled through the atrium before it leaves through the room's roof windows.

The sun is the building's main energy source, providing passive solar gain, hot water and electricity. Efficient windows minimise the heat loss while maximising passive solar gain. Green Lighthouse's angled roof plays an active role in the building's energy profile. It acts as a power plant, capturing the sun's energy using both solar panels and solar cells.

The façade is made from Swissfiber, a 30 percent glass, 70 percent polymer composite material that is extremely light and strong. In fact, the entire façade weighs only six tonnes. By comparison, a similar solution in tile would have weighed more than 175 tonnes and been considerably thicker.

Every element in Green Lighthouse was chosen for its energy efficiency and for the well-being of those working in and visiting the building. An open, inviting space that is full of natural light, Green Lighthouse certainly stands out amongst the traditional buildings in the neighbourhood.



#### Partners

Green Lighthouse was developed by VELFAC and the VELUX Group in conjunction with the University of Copenhagen, The Danish University and Property Agency, and the city of Copenhagen. The project group also involved Christensen & Co Architects, COWI, Hellerup Byg A/S, Ramboll and Grontmij / Carl Bro. Components were provided by WindowMaster, Faber, Knauf Danogips, Veksø and Rockwool.



For more information, visit [www.velux.com](http://www.velux.com).



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# Interview with Mr Oon Wee Chin

## President, Southeast Asia, UTC Building & Industrial Systems



UTC Building & Industrial Systems (UTC BIS) is a world-leading high-technology building systems provider with a global reach and portfolio comprising industry-leading brands with rich legacies, including Carrier, Otis, Kidde, Edwards and Chubb. In this interview, Mr Oon Wee Chin, President, Southeast Asia, UTC Building & Industrial Systems explains how energy efficient products and building automation technologies are paving the way for zero-energy buildings of the future.

**Q: UTC Building & Industrial Systems was recently formed to promote integrated, high performance buildings that are safer, smarter and sustainable. Can you tell us more about the mission and objectives of the organisation?**

A: UTC Building & Industrial Systems is the world's largest high-technology building systems provider. We are in a unique position with elevator, heating, ventilation, air conditioning and refrigeration (HVACR), fire safety, security and building automation offerings, while also providing installation, service and monitoring. We work with our customers to create integrated, high-performance buildings that are safer, smarter and sustainable.

Smart buildings are those that are designed keeping in mind the customer's exact requirements and are also more efficient, comfortable and secure. We are in a position to enable this by delivering more integrated solutions to our customers and accelerating the next steps of innovation in smart building technologies and sustainable designs.

**Q: Were there any reasons for launching the organisation in late 2013? Was timing a factor?**

A: With increased awareness and demand for advanced building technologies, it was logical that we reshaped and strengthened our organisation to enable the development and delivery of a more integrated and efficient building system and services to building designers, owners and operators.

Advancements in digital control technologies today enable us to integrate and optimise the various systems within a building for energy and operational efficiency. The strategic intent of the formation of UTC Building & Industrial Systems was to bring together our industry-leading brands that had been operating independently in each industry segment.

**Q: As the Southeast Asia President for UTC Building & Industrial Systems, what is your key role and responsibilities?**

A: I oversee the entire operations for UTC Building & Industrial Systems in Southeast Asia. My role includes developing the overall strategy, implementation of tactics and delivery of operations across the region. One of my primary tasks is to ensure that the synergies from the merger of our UTC Climate, Controls & Security and Otis businesses are fully realised throughout the organisation.

**Q: In your view, how do you define a zero-energy building (ZEB)?**

A: In the literal sense of the term, zero-energy buildings refer to buildings with zero net energy consumption. This means that the building must produce at least as much energy on-site as it consumes. However, I believe that the current discussion around green buildings and the race toward zero energy should be expanded beyond a conversation focused solely on saving units of energy to take into

account the quality of the indoor environment and productivity of users in building.

**Q: In many parts of Southeast Asia, zero-energy buildings are still in the conceptual stage. In your opinion, what are the main reasons for this slow uptake of zero-energy buildings?**

A: There are several factors that I would attribute to this:

Low awareness of products and technologies available:

One of the main reasons is that there is a low awareness of the products and technologies available. Designers, building owners and operators may not be aware of the latest solutions available to enable them to work toward low- or zero-energy buildings by substantially reducing the energy consumption of their properties. Further, green is often misperceived as more expensive, when in fact it makes good business sense to be green. Not only do green investments pay for themselves in Singapore and Asia within five to seven years according to a McGraw-Hill report, they also command 7 percent higher cash flow for owners and 13 percent higher premiums at the time of sale according to Nils Kok, professor at Maastricht University.

Subsidised energy costs:

The true costs of energy are often masked by the subsidies government provide. This can result in an underestimation of the true cost of energy and in the long-term, misallocation of resources.

As government energy subsidies are reduced, rising energy costs are encouraging building operators to invest in more energy efficient systems with shorter payback period.

Government policies and enforcement:

Southeast Asian governments have recently started taking positive steps in this direction:

- Singapore has unveiled its goal of making 80 percent of its buildings green by 2030 through its National Green Building Masterplan.
- Petaling Jaya, a key city in Selangor, Malaysia, is aspiring to become an eco-friendly city by 2030. This means that new property projects must now fulfill a list of green criteria before receiving approvals from the city council.
- The Vietnamese government committed to a sustainable development strategy for 2011-2020 that encourages sustainable development through the use of innovative and efficient building technologies and equipment.

**Q: Climate is one of the important factors that shape the design of low- and zero-carbon buildings. What is the approach to the design and commission of zero-energy buildings in Southeast Asia?**

A: Globally, buildings account for about 40 percent of total energy consumption. Within buildings, HVAC systems account for approximately 40 percent of energy use. In Southeast Asia however, the tropical climate means that air conditioning can account for up to 50 to 60 percent of energy consumption. Hence, increasing the efficiency of HVAC systems or reducing the energy consumption from these systems becomes even more critical.

There is an increased awareness of the importance of a holistic building system design, integrating HVAC, security, elevators, fire safety and lighting design with the human activities within the building. This design approach aims to achieve optimal efficiency, minimise waste and make it easier to monitor, maintain and service.



The Otis Gen2® Switch

The new design approach also takes into consideration operating costs throughout the life of the building and recognises the importance of proper monitoring and maintenance to maintain the design performance.

**Q: How important are integrated solutions and smart building technologies in achieving zero-energy buildings?**

A: Integrated solutions and smart building technologies are critical elements in achieving zero-energy buildings. While building architecture is important, a holistic approach to energy efficiency is required to achieve net-zero energy.

Beyond building design, components critical to achieving this include proper operation, constant monitoring, maintenance and enhancement of the building systems.

**Q: What kind of solutions can UTC Building & Industrial Systems provide to design and implement zero-energy buildings in Singapore and the Southeast Asia region?**

A: At UTC Building & Industrial Systems, we believe that buildings will be ecosystems themselves and rest in balance with the natural environment. This begins with increasing the efficiency and reducing the energy consumption of key functions within buildings.

Building automation systems from Automated Logic are able to improve both energy and operational efficiency of buildings.



Pictured left & above: The Tokio Marine Centre, fitted with Carrier's AquaEdge™ 23XRV tri-rotor screw chiller has achieved the best chiller plant system performance in Singapore, said Mr Oon.

Sustainable building operations minimise energy consumption and maximise comfort. Our building automation systems help manage energy use and account for human comfort by efficiently controlling heating, cooling, lighting and other building systems.

Depending on the building design, it is also possible for the system to interface with weather-monitoring stations to detect external conditions, such as temperature, humidity, wind speed, rain intensity and barometric pressure, and use this information to determine when to use natural ventilation versus mechanical cooling.

The Otis Gen2® Switch is a sustainable, small-machine-room elevator that uses an exclusive system of flat, polyurethane-coated steel belts, a technology invented and patented by Otis.

Its innovative, energy-regeneration system is capable of generating electricity when the elevator travels up empty or down loaded and using that energy to recharge its accumulators. This system, together with the Gen2 technology, allows significant savings in the power consumption of the motor.

In the field of HVAC systems, Carrier was founded by Willis Carrier, the inventor of modern air-conditioning. Today, Carrier is a world leader in high-technology heating, air-conditioning and refrigeration solutions for residential, commercial, retail, transport and food service customers.

According to the Building and Construction Authority (BCA), energy-efficient HVAC systems can significantly reduce the overall energy consumption of buildings by up to 16 percent per year. Carrier's AquaEdge™ 23XRV, one of the world's leading efficiency screw chillers, is 44 percent better than the industry standard. It has been installed in prominent green buildings in Asia such as at the ITC Royal Gardenia in Bangalore, which achieved a Leadership in Energy and Environmental Design (LEED®) Platinum rating by the Indian Green Building Council, and the Tokio Marine Centre in Singapore which holds a Green Mark Gold Plus Award from the BCA.

However, there are limitations to increasing the efficiency of all products. As such, it is equally important to innovate and consider how we can recycle waste energy from one process to power another.

A good example would be HVAC heat recovery systems. During cooling, chillers emit a large amount of heat to the ambient air through cooling towers or cooling fans. Heat recovery technology recycles and reuses this heat that would otherwise be wasted. Heat recovery systems can be configured to make use of condensing heat to produce hot water for other uses such as hotel room showers. In this way, the efficiency of the HVAC system can be significantly improved by 10 to 40 percent.

#### **Q: Can you give us some shining examples of nearly zero-energy buildings in Southeast Asia? What is the strategy behind their success?**

A: The Tokio Marine Centre in Singapore combines aesthetic design with operational efficiency. It includes the "exoskeleton" façade design, energy-efficient design of the air-conditioning and mechanical ventilation system, lighting system and elevators and escalators; as well as implementation of water-saving techniques, such as collection of condensate water from the air handling units, rainwater harvesting and extensive use of water-efficient sanitary fittings.

The Tokio Marine Centre, fitted with Carrier's AquaEdge™ 23XRV tri-rotor screw chiller, achieved the best chiller plant system performance in Singapore and, as far as I know, still holds the record today.

For more information on UTC BIS, visit [www.bis.utc.com](http://www.bis.utc.com).



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## The Advantages of Antimicrobial Floors for the Healthcare Sector

**F**or medical facilities the battle against microbial contamination is a constant, 24-hour struggle that takes up a considerable amount of time, energy and resources.

The necessity to stay up to date with the latest technologies and best practises is vital to ensuring a sanitary environment, as failing to properly protect surfaces and equipment from harbouring unwanted microbes could have disastrous, potentially fatal, consequences.

The floor is a prime site for bacterial contamination and needs to be carefully considered. An especially disruptive factor for controlled environments is that personnel's shoes and the wheels of movable objects can easily move contaminants from one area's floor to another. In fact studies have shown that of all the ways that contaminants can transfer, it is people walking across floors





that is the highest re-dispersal factor.

The level of contamination can fluctuate depending on factors such as the working environment, airflow, the facility's design and the effectiveness of the cleaning regime – but any particles that are not immediately removed from the area will settle, with the floor easily

being the biggest available surface.

Antimicrobial flooring is becoming an increasingly popular asset within the hospital sector thanks to its ability to tackle this issue and enhance contamination control measures.

There are several types of antimicrobial flooring available to hospitals, which are typically made using either a polyurethane, epoxy or rubber base. These systems have the chemical, slip and wear resistance characteristics needed to withstand mechanical stress and the on-site demands of medical facilities over an extended period of time.

An agent such as silver, zinc, brass or bronze is incorporated within the flooring material to provide the germ killing properties. Copper is regarded as having the greatest antifungal action whilst silver is commonly considered to have the best antibacterial action, having been proven to be a highly effective bactericide that's capable of eliminating most gram-positive and gram-negative microorganisms, as well as many aerobes, anaerobes and several antibiotic resistant strains.

The polyurethane flooring system Flowfresh from Flowcrete Asia is able to inhibit the growth of up to 99.9 percent of the bacteria that it comes into contact with. This is possible due to the inclusion of Polygiene®, a thermosetting amino compound, which has been locked into the main resin matrix of the flooring material and which continuously, emits

powerful silver ions.

The seamless and non-porous nature of Flowcrete Asia's resin system is ideal for creating a sanitary barrier that aids the removal of dirt and dust. Coving can even be made from Flowfresh to smooth over the gap between floor and wall.

It is important for hospitals to consider the stresses the floor will undergo so that it chooses a solution able to withstand the environment. The main factors to consider are high foot and wheeled traffic, frequent hot water washes and corrosive chemicals.

The resilient nature of Flowfresh's polyurethane formulation is a key asset in the reduction of contaminants. This is because cracked and damaged floors are much harder to clean and can easily become prime sites for microorganisms to colonise. Should a Flowfresh floor undergo a very heavy impact that does crack the surface, the Polygiene® will still work to attack any contaminants that fall within this gap.

The multi-functional, multi-unit reality of modern hospitals means that different areas of the large complex will need different flooring solutions to meet their requirements. Medical facilities can utilise Flowcrete Asia's comprehensive range of hardwearing resin systems to source the right floor finish for every room.

This ability to meet the diverse needs of the healthcare sector was emphasised recently in Beijing, when the Fu Wai Hospital needed a specialist floor that would be able to withstand the unique circumstances of its liquid nitrogen libraries, which included being highly chemical resistant and being able to withstand splashes of nitrogen at extremely low temperatures. To overcome these challenges Flowcrete Asia supplied the self-smoothing epoxy solution Flowshield.

Making sure that each element of the floor, from its specification, installation, added benefits, cleaning and maintenance, are right for each area of a healthcare facility is a significant step towards reducing the risks from unwanted microorganisms. Antimicrobial floors such as Flowfresh can play an important role in this, as it will not only provide a reliable surface for every-day operations, but it will work independently of everything else for 24 hours a day to safeguard the site's hygienic integrity.

**For more information, visit [www.flowcreteasia.com](http://www.flowcreteasia.com).**



# Tseun Wan Adventist Hospital, Hong Kong

Text by Nikki Busuttil, freelance writer

**W**ith a strong reputation for award-winning healthcare design, international architecture and interior design firm dwp | design worldwide partnership were asked to create the interiors for the Tseun Wan Adventist Hospital extension, representing a new building, which once completed will see 477 extra beds. The extension includes approximately 46,000 square metres of space, and the areas designed by dwp include the main entrance, lift lobbies, reception, admissions, an auditorium, a chapel, staff canteen, food court and waiting areas, as well as the prototypes for the three-, two- and one-bedroom in-patient wards, nurses' stations and consultation rooms.

For dwp, hospitals should resemble natural environs, full of energy, life and diversity, to inspire wellness and aid a speedy recovery, since healthcare extends beyond just the physical. For this project, dwp devised a set of interior environment principles, based on nature and nurture, to apply to all spaces throughout the building. From this basis a language of elements, palettes and details was developed, varying in application to different spaces, yet tied together by consistent principles, underlying all the schemes.

"Creating relationships between the various elements and embracing their roles as comprehensive resources for healing, at all levels, can mean that hospitals can aid patients in a faster recovery. It's all about well-being and encouraging a sense of wellness, body, mind and spirit," commented Phillip Young, Regional Managing Director for dwp North Asia, taking an integral role in this challenging project, with Health Pro Management and Tseun Wan Adventist Hospital.

"Patients and their visitors should be inspired by their surroundings, and almost forget why they are there, while staff should feel a sense of pride and motivation," he adds. Allowing patients and visitors to feel at ease within the hospital design can help to reduce stress, research has shown, since stress can negatively impact one's health. dwp strongly believes that this is an important issue to address and every effort should be made to eliminate this factor from design up.



Entrance



Nurse station



Meeting room



Ward visitor waiting area

Using natural materials, for light, open and functional clarity, coupled with visually comforting warm colour tones, dwp generated nurturing and welcoming interiors for patients and visitors, as well as a comforting work environment for all staff members. Longevity of the design was also essential, which was achieved by a sufficiently natural and neutral ambience, to appear clean and fresh. dwp also sought to combine this effect with material resilience and quality, well into the future, so that the interiors have a strong relationship with the very life and fabric of the building.

The primary arrival and public space is the main lobby, where the design principles are deployed methodically, in terms of planning and interior finishes. The lobby has multiple travel axes connecting through the space. To create senses of warmth, clarity and simplicity, visually strong rows of timber beams cross-frame the length of the space, while clean bulkheads float underneath, setting up clear lines of travel. A palette of off-white stones, warm timbers, neutral carpets, highlighted with champagne metal edges and soft shades, appear natural and fresh. This scheme is continued and developed, connecting the lift lobbies, waiting areas and admissions throughout the building.

The outpatient clinics build from this neutrality, with added splashes of colour, providing differing identities and moods. The patient ward floor waiting areas and corridors also continue the neutral base, before leading into a richer variety of themed patient rooms, using soft and natural green, blue and orange tones in compliment. Admissions were designed in an open and comfortable manner to allow for ease of both admittance to the hospital and billing before leaving. The nursery has at the very heart a sense of welcoming to the interiors and of celebration of the arrival of newborn babies.

The food court acts as an extension of the adjacent rooftop landscape. Merging interior and exterior spaces received grey and beige stones, timbers and expressed ceiling soffits, creating a destination experience. The auditorium is a practical and functional space with a clear aesthetic, designed with large events in mind, such as lectures, staff meetings and conferences, while the chapel received a modern, yet elegant, approach, allowing for quiet, private consolation or Sunday sermons.

The hospital extension is currently under construction and fitout will be completed in 2015, ready to take in patients for a brand new wellness experience, at this existing facility, that should set benchmarks for healthcare environment design in Hong Kong, into the future.

## PROJECT DATA

**Project:** Tseun Wan Adventist Hospital

**Location:** Hong Kong

**Design Firm:** dwp | design worldwide partnership

**Size:** 46,353 square metres (public areas, auditorium, canteen/food court, patient/staff areas)

**Completion:** March 2015

**Photos:** dwp | design worldwide partnership



Three-bed ward



Deluxe bed ward



Children's room