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## editor's note



**H**ello readers, it is time for another issue of *Southeast Asia Building*. Hope you are well and enjoying the year, so far! The September/October issue is our annual green issue and as always we will profile a number of building projects with sustainable design concepts.

Going green in construction is still a hot trend in many countries today. Environmentally friendly design and materials can now be seen in almost every new home or construction. This is partly due to mandatory green building regulations and financial incentives, which drive building owners to go green. Moving forward, green building trends are expected to continue around the globe and achieve greater success.

In the interior design section, we look at retail store projects. These days, there is a strong desire to use themes, strong & playful colours and unique materials in retail designs to make the interiors more inviting, functional and aesthetically pleasing to shoppers.

The landscaping section looks at the popularity of water play equipment. With the myriad of water play equipment options available such as splash pads, spray parks and interactive water play features, there is now never a dull moment for adults, kids and their parents.

Hope you enjoy reading this issue! If you have any comments, share it with me at [seab@tradelinkmedia.com.sg](mailto:seab@tradelinkmedia.com.sg).

### NEXT ISSUE THEMES

- Architecture – Theme Parks
- Interior – Religious
- Landscaping – Water Features

*Amita Natveelal*

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## Thailand Lighting Fair 2016 sets another milestone as a leading trade fair on lighting technology, design and solution in ASEAN

*Thailand Lighting Fair 2016 (THLF 2016), which is hosted by Thailand's Provincial Electricity Authority (PEA), powered by Messe Frankfurt and organised by The Exhibiz, set another milestone as an important marketplace for lighting technology, design and solutions in ASEAN. In its second edition, THLF 2016 which ran under the main theme 'Smart Lights. Smart Life.' was the meeting place for 350 world class exhibiting companies and brands and over 10,000 trade visitors from across the region.*



**Bangkok, Thailand** – Provincial Electricity Authority (Thailand), Messe Frankfurt and The Exhibiz Co., Ltd. revealed their satisfaction for the second consecutive year of collaboration on 'Thailand Lighting Fair 2016,' which took place on 1-3 September 2016 at BITEC, Bangkok, Thailand. The show, which is powered by Messe Frankfurt, has been well recognised as a lighting trade show that combined innovative lighting solutions from upstream services to downstream supplies under one roof. Running under the theme: 'Smart Lights. Smart Life,' a wide array of innovative lighting technologies were made available by more than 350 leading lighting companies from around the globe to serve over 10,000 trade visitors across Southeast Asia region.



With its Smart concept, Thailand Lighting Fair 2016 featured series interesting Smart Zones. Smart Business – a premiere regional hub for lighting business networking and matching platform; Smart Living – a premier showcase zone for lighting product, technology and innovation for living and lifestyle purposes including design showcases combining 'Design + Function' by well-known Thai lighting designers; Smart Solutions – a centerstage for energy-efficiency lighting and smart lighting technologies for commercial and industrial purposes.

Another highlight at THLF 2016 was 'Lighting Design Showcase,' whereby Thailand's talent lighting designers displayed their 'Design + Function' ideas, 'Decorative Lighting Zone,' and series of seminars and workshops under compelling topics including SOLAR energy, City lighting / Urban lighting, Trends of Intelligent Lighting Technology Development, LED Intelligent Lighting Solutions, Global Lighting Trends 2016, and etc.

Both exhibitors and visitors voiced their satisfaction of the show and are looking forward for Thailand Lighting Fair 2017.

For more information on THLF 2017, tel (+66) 2 664 6499 ext. 200, 201, 209, 2010; fax (+66) 2 664 6477; email [info@thailandlightingfair.com](mailto:info@thailandlightingfair.com) or visit [www.thailandlightingfair.com](http://www.thailandlightingfair.com).



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## Aurecon invests in strengthening its Philippines operations

**Sydney, Australia** – As part of its ongoing growth strategy in Asia, global engineering advisory company Aurecon has appointed Mohit Kumar as Aurecon's Country Manager in the Philippines.

In his role, Mohit will be responsible for leading the strategic growth of Aurecon's business in the Philippines, which includes establishing a business unit in the capital city of Manila. He will also work closely with clients in the growth markets of Indonesia, Philippines and broader Asia region to ensure ongoing support for their growth objectives.

"We are very pleased to welcome Mohit to Aurecon. His appointment is the first step of a strategic plan to establish a stronger presence in this country. He brings to the table extensive management and technical experience, especially in the Asian infrastructure space, which will benefit our clients' businesses in the Philippines as well as in Asia regionally," said Paul Lombard, Managing Director – Middle East & Asia at Aurecon.

Mohit has over 22 years of experience in the engineering industry, having worked extensively across several market segments including buildings, civil and transport infrastructure, water and environment, as well as international development. Prior to joining Aurecon, he was Director of Operations (Malaysia & Indonesia) and Country Manager (Malaysia) at Jacobs Engineering. There, he led a business unit of professional, technical and support staff in Malaysia and Indonesia. He has also worked at Sinclair Knight Merz and the Asian Development Bank. Mohit holds a Bachelor of Engineering in Civil Engineering from the Delhi College of Engineering, University of Delhi, India, and a Masters of Engineering from the Asian Institute of Technology, Bangkok, Thailand.

Speaking about his appointment, Mohit said: "Asia remains in a growth sweet spot in spite of prevailing global headwinds. I am very excited at the prospect of combining my experience and understanding of the region with Aurecon's global expertise to help solve our clients' most complex problems."



Mohit Kumar

## John Curran Architects designs Vanke Plaza Fuzhou like a nested neighbourhood

**Shanghai, China** – Vanke Plaza Fuzhou departs from the defensive gated community model that has proliferated across China, opting instead to be part of City Life. John Curran Architects' Vanke Plaza Fuzhou is a neighbourhood nested in its City.

Bai Ma Park & River forms a wonderful green heart where the everyday life of Fuzhou City is played out. Summer 2015 marked completion of the first phase of Vanke Plaza Fuzhou. A Vision to create a lively neighbourhood of pedestrian streets, opening up to coalesce with the surrounding Park, River, Market & Living Communities.

The completed first phase is organised along a 'cultural spine', opening into a series of public spaces programmed with art, music & dance performance. As connector, the neighbourhood presents a lively landscape for citizens to percolate from the Park through to the University, Schools, Hospital & Children's Nursery serving the wider community on the other side.

This regenerated neighbourhood brings together a rich mix of ingredients in one place – Work, Living, Entertainment & Culture, to set a new high standard for living in Fuzhou City. Children play in safe, stimulating & green spaces. Parents can find a place to live, affordable for middle income families, overlooking the majestic Bai Ma Park, with views of Fuzhou mountains encircling the city on the horizon.

Glistening towers add a new spectacle on the skyline - Bright, Efficient & Fun. After six years in the making, this "Walkable City District" is on course to receive China's 3 Green Star Rating for sustainability.

John Curran commented: "HOUSING THE WORLD was the theme of MIPIIM, held recently in Cannes. As an extension of this conversation, we observe in China a direct link between local prosperity and sustainable living. Like many other 2nd tier cities across China, Fuzhou citizens have enjoyed a recent prosperity - a society raised above a daily plight to simply survive. This has liberated people to turn their attention to their ecology - in caring about the water purity of rivers flowing through their city and in efforts to create open and greener neighbourhoods, such as Vanke Plaza."



View overlooking Vanke Plaza & Bai Ma Park.  
Photography: Ms Li



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## International Chapter Architecture Awards – 2016 winners announced



**International Chapter Award for Public Architecture – National Gallery Singapore by studioMilou & CPG Consultants. Photo by Fernando Javier**



**International Chapter Award for Public Architecture – Australian Pavilion Venice by Denton Corker Marshall. Photo by John Gollings**

**Sydney, Australia** – Australian architects working on projects abroad have been celebrated at the Australian Institute of Architects' International Chapter Architecture Awards.

National President Ken Maher announced the seven awards and one commendation at an event in London on Thursday 9 June 2016, chosen from a field of 16 entries across five categories.

In announcing the winners, Maher noted the size, scale and location of the projects and congratulated Australian architects on their considerable contributions to projects beyond Australian shores.

'Asia has been a significant growth area for Australian practices in recent years and it is exciting to see the variety of works emerging, including some of immense scale. This is a testament to the talent and creativity of Australian architects in an increasingly international and competitive design arena.'

Of particular note is the National Gallery Singapore by studioMilou Singapore with CPG Consultants, which is one of Southeast Asia's largest modern art institutions. The jury praised the 'masterful interventions [which] allow the elegant and powerful original colonial spaces a new and sophisticated life whilst still preserving their historical character'.

Another winner was the Australian Pavilion in Venice by Denton Corker Marshall which debuted at last year's Art Biennale and is host to Australia's Exhibition, The Pool, at the 15th International Architecture Biennale on now until 27 November.

Projects that received an International Chapter Award will now vie for the Jørn Utzon Award for International Architecture at the National Architecture Awards announced in November.

Full list of winners:

### Public Architecture

**International Chapter Award** – National Gallery Singapore by studioMilou Singapore with CPG Consultants

**International Chapter Award** – Australian Pavilion, Venice by Denton Corker Marshall

**International Chapter Commendation** – World Maritime University, Tornhuset by Terroir Pty Ltd & Kim Utzon Architecture

### Commercial Architecture

**International Chapter Award** – China Mobile Office Suzhou by JPW

**International Chapter Award** – Lalu Hotel Qingdao by Kerry Hill Architects

### Interior Architecture

**International Chapter Award** – Lalu Hotel Qingdao by Kerry Hill Architects

### Residential Architecture – Houses

**International Chapter Award** – Vanuatu by Troppo Architects

### Small Project Architecture

**International Chapter Award** – Australian Memorial Wellington by Tonkin Zulaika Greer with Paul Rolfe Architects



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## Bhartiya City first phase reaches structural milestone



Photo: © Broadway Malyan

**Mumbai, India** – A sustainably driven smart city development in India has reached a significant milestone with the topping out of the first phase of the development. Bhartiya City is a 126 acre site located in Bengaluru. The masterplan comprises eight precincts, which will mix residential, public, commercial, leisure and retail zones supported by a range of infrastructure including schools, hospitals and transport links.

International consultant Broadway Malyan has been working with developer Bhartiya Urban to translate its vision to deliver an inspirational city development into an effective masterplan aimed at creating a clear sense of place and improved quality of life for people.

The firm was appointed to deliver the concept residential design for District 1, which comprises interconnected towers offering 2,400 residential units. A variety of configurations have been provided ranging from one to three bedrooms.

These buildings will be complemented by a range of community facilities including a resident's clubhouse and sporting facilities such as tennis and basketball courts and a jogging track. A shopping mall, convenience stores, spa, two swimming pools and extensive park and gardens will be delivered in the second phase of the scheme.

This phase will also see the inclusion of an entertainment and leisure tower on the corner of the site, which will add further amenities including a signature restaurant.

Ankit Kamboj, associate at Broadway Malyan, said: "Each tower is connected by a sky garden at the 17th floor which will enable the residents to move between the different buildings and share community spaces."

"This, along with the central park, provides a large amount of green space; nearly 70 percent of Bhartiya City is dedicated to public realm. This thinking has even been taken to the design objectives for the roads; tree-lined avenues are core to the plans and provide a barrier to traffic improving safety, health and wellbeing," he added.

Broadway Malyan has also designed Districts 2 and 3, which form the city centre. This includes the architectural concept and schematic design, retail interior design, landscape design and public realm strategy.

The two precincts comprise 460,000 square metres of mixed-use development, featuring six office towers, three hotels, a convention centre, shopping centre with a mix of retail styles, food courts, cafes and restaurants, cinema, park and major landscaped areas, as well as Celebration Square; a public performance area with capacity for 5,000 people. A major factor of the design is the integration of public spaces. Walkways and cycle paths will seamlessly link the various elements of the scheme and a pedestrianised grand promenade will include fountains and green spaces, creating a destination within the development.

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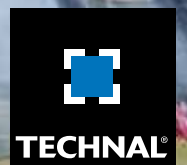
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## Faithful+Gould wins contract to deliver new IKEA store in Johor Bahru

**Singapore** – Faithful+Gould has been awarded Project Management Consultancy to deliver a new IKEA store at Tebrau, Johor Bahru for Ikano. Set to open by the end of 2017, this will be the first store in the southern region of Malaysia.

Faithful+Gould's team of project managers, construction managers, HSE specialists, commercial managers, design managers, specialist schedulers, and the architectural design review team will be working closely with Ikano to deliver the development according to their operational needs and requirements.

Rick Hancock, Faithful+Gould's SEA Director, said: "This is a fantastic win for Faithful+Gould and a testament to the trust Ikano have put in our integrated project management expertise. With the addition of this prominent IKEA development to our projects portfolio, we have solidified our position to further infiltrate the Malaysia market and broader retail sector in Asia-Pacific, and more importantly, look forward to our continued growth with Ikano."



**Rick Hancock,**  
Faithful+Gould's SEA Director.  
Photo: © Faithful+Gould

## Nakheel Mall rises at the heart of Palm Jumeirah

**Dubai, UAE** – Nakheel Mall, the AED1.2 billion, 4.5 million square foot retail, dining and entertainment destination by Nakheel, is taking shape at the heart of Palm Jumeirah, with construction approaching 50 percent completion, the Dubai developer announced recently.

The mall's three underground parking levels, with 4,000 spaces, are nearly complete, with the overall superstructure due to be finished in third quarter of this year. Work is also on track on the mall's VIP entrance and rooftop features, which include two fountains and two waterfalls plunging as far as 65 feet into the mall, said Nakheel.

The new centrepiece of Dubai's world-famous Palm Jumeirah, Nakheel Mall will have five retail levels with 350 shops,

restaurants and leisure attractions spread across 1.2 million square feet of leasable space. It is one of several new retail, residential and hospitality developments under construction by Nakheel.

Nearly 60 percent of shop space at Nakheel Mall has been booked, with Waitrose, Vox Cinemas, Adidas, Breitling, French Connection and Montblanc just some of the big names on board. There will also be a fine dining roof plaza offering panoramic views of Palm Jumeirah, Arabian Gulf and the Dubai skyline.

Alongside Nakheel Mall will be The Palm Tower – Nakheel's new, five-star, 52-storey hotel and residential complex – for which a separate construction contract was awarded last year. A St Regis hotel will occupy the first 18 floors, with 504 luxury residences above. Due for completion in 2018, the tower will also boast a trio of rooftop attractions, with one of the world's highest infinity pools on the 50th floor, a 51st floor restaurant and a viewing deck, 220 metres above ground, on level 52.



Photo courtesy of Nakheel



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## Tanya Cox joins World Green Building Council board

**Sydney, Australia** – Green Building Council of Australia's (GBCA's) chair, Tanya Cox, has been appointed to the board of the World Green Building Council (WorldGBC).

Ms Cox has more than 20 years' experience as an executive and non-executive director on a wide range of boards, and was the chief operating officer of the \$17.6 billion DEXUS Property Group for more than a decade.

The WorldGBC's CEO Terri Wills said the depth of Ms Cox's commercial experience, along with her sharp business acumen and strong governance background will add extra depth to an already powerful board.

"As chair of the Green Building Council of Australia, Tanya is driving an ambitious strategy which aims to expand the Council's influence and impact. Her commitment, expertise and strong leadership, which has contributed to Australia's status as a world leader in green building, has been recognised with this appointment to our Board of Directors," said Ms Wills.

Australia's property industry has been named the 'global green leader' for five consecutive years, according to the annual Global Real Estate Sustainability Benchmark (GRESB), and Australian companies frequently top the table in the Dow Jones Sustainability Index. More than 1,070 building projects around Australia have achieved Green Star ratings, and 30 percent of the nation's office space is Green Star certified.

"As momentum for change grows following the COP21 Climate Change pact, the global property and construction sector has an unrivalled opportunity to show leadership and act with purpose," said Ms Cox.

"Our industry understands this imperative – but it needs a loud voice on the global stage to tell our story, and to bring the hundreds of thousands of individuals and companies together on the journey. I'm honoured and excited to be part of this global movement working together towards a zero carbon future," she added.



Tanya Cox. Photo: © Green Building Council of Australia

## Qatar Investment Authority to acquire landmark Asia Square Tower from BlackRock



**Hong Kong** – Qatar Investment Authority (QIA) has reached an agreement with a subsidiary of a fund advised by BlackRock to acquire Asia Square Tower 1 in Singapore at approximately S\$3.4 billion (US\$2.45 billion). This marks the largest single-tower real estate transaction in Asia Pacific to date, and the second largest single-tower real estate transaction globally.\*

Asia Square Tower 1, an award-winning landmark office building, offers 43-storeys of space totaling over 1.25 million square feet of net lettable area. This property has received the US Green Building Council's Leadership in Energy & Environment Core & Shell (LEED-CS) Platinum certification, which remains the highest accolade for environmental sustainability, and boasts column-free floor space of up to 35,000 square feet. Citibank has been the anchor tenant since the building's completion in 2011. Together with Asia Square Tower 2, the complex is a world-class integrated development located in Singapore's Marina Bay business and financial district.

John Saunders, Head of APAC for BlackRock Real Estate, commented, "We are proud to have developed Asia Square from the ground up after the land acquisition in Marina Bay, and leased the property to an excellent tenant base. This premier office project is testament to BlackRock's strong capability in real estate development and management to meet the needs of tenants and investors seeking core assets. We are very pleased with the sale, and look forward to working closely with Qatar Investment Authority to maintain the pre-eminent status of Asia Square."

JLL and CBRE are joint sole advisors for this transaction for BlackRock.

\* Data as compiled by JLL since 2004



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## Winner of Archifest 2016 Pavilion Design Competition announced

**Singapore** – The Singapore Institute of Architects (SIA) has picked DP Architects' entry "RGB Pavilion" as the winning design for Archifest 2016 Pavilion Design Competition 2016.

The RGB Pavilion, a temporary structure and 'pop-up' event space, is designed to inspire visitors to rethink architecture and engage in conversations about our urban environment. It will be built on the grounds of Raffles Place Park and it will be open to the public from 23 September to 9 October 2016.

Celebrating its 10th year in 2016, Archifest's theme for this year 'Exhale' seeks to challenge the rapidity and density of activities that define our pace of life, weigh in on the state of Singapore's built environment and breathe new life into it. The winning design as well as two merit awards were chosen out of 25 submissions received, anonymously selected by a distinguished panel of four jury members representing Singapore Institute of Architects (SIA), Singapore Institute of Landscape Architects (SILA) and International Federation of Landscape Architects (IFLA).

Professor Richard Ho, chairman of the jury panel and Chair of Archifest 2016 Organising Committee said, "As with all architectural competitions organised by SIA, anonymity of the submissions were maintained. The quality of the submissions was high and many of the entries were very interesting, taking the issue of sustainability and recycling very seriously. Although the design quality of the pavilion and its expression of the theme 'Exhale' are foremost in our minds, we felt that the ability to execute and build it within such a tight budget and limited timeframe are important too.

After extensive interviews of the shortlisted submissions, the winner was declared. We look forward with eager anticipation for the Pavilion to be realised."

The winning design is selected to offer a respite from hectic city life and impressed the jury with its smart approach with zero waste. Composed entirely of construction site materials - safety netting suspended on a frame of steel scaffolding - the gigantic technicolour urban sculpture plays on the interaction of multiple primary colour layers that overlap to create a playful psychedelic pavilion.

"DP Architects is thrilled and honoured to be a part of this milestone year - the 10th anniversary of Archifest. Our firm was founded with the belief in enriching the human experience and spirit, it is thus befitting that this year's Archifest theme 'Exhale' also embodies this same ethos - of breathing new life into the city's public spaces in order to refresh and uplift its inhabitants," said Mr Chin Thoe Chong, Director, DP Architects.

"With RGB Pavilion, we envisaged an immense entity - a softly vibrant, luminous, quietly animated yet ethereal form that fills the space and draws people into itself. The pavilion's character is built on nuance and mutability, it plays on the effect of primary colours which blend into secondary colours, colours that fade, shift, saturate and interact as one moves in and around the space with the sole purpose of making its visitors come alive," added Mr Chin.

The two-week long Archifest 2016 festival will be anchored at the Pavilion, featuring exhibitions, conversations, Architours and other fringe events.

**For more information, visit [www.archifest.sg](http://www.archifest.sg).**



RGB Pavilion by DP Architects. Photo: © DP Architects



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## Playpoint (Singapore) launches new fitness equipment for cross training



Photo: © Playpoint (Singapore) Pte Ltd

**Singapore** – Playpoint (Singapore) Pte Ltd, a leading supplier of playground equipment, launched a new range of fitness equipment aimed at providing a cross training experience for users.

Called the “KOMPAN Cross System”, the outdoor fitness equipment comprises of several exercising products, which gives users plenty of options for workout. “The Cross System allows the user to train the different parts of the body. Due to the various exercise stations, people can either train individually or in a group,” said Mr Jason Sim, Managing Director, Playpoint (Singapore) Pte Ltd.



Photo: © Playpoint (Singapore) Pte Ltd



Photo: © Playpoint (Singapore) Pte Ltd

The KOMPAN Cross System provides a comfortable, convenient and fun way to stay fit and maintain a healthy lifestyle. It can be used by the disabled and anyone aged 15 years and above.

The KOMPAN Cross System is made of strong, durable and high quality materials, which gives it a sturdy and modern appearance. For example, the unique Magnetic Bells in the Cross System provide safe and functional free weight training in the outdoors. The weights can be moved freely and are equipped with a magnetic breaking system that prevents the weights from dropping to the surface and slows down the falls to a reduced pace. Other noteworthy features include a Polyurea coating which is highly durable against wear and tear. It also offers isolation and gives users an outstanding grip during their workout.

The KOMPAN Cross System was officially launched at the National Design Centre on 1 July 2016 in the presence of landscape architects, consultants, architects and specifiers.

**For more information, contact Playpoint (Singapore) Pte Ltd at tel +65 6398 1558 or email [info@playpoint.com.sg](mailto:info@playpoint.com.sg).**

## EFS Facilities Services acquires UAE based security services firm SecurePlus

**Dubai, UAE** – EFS Facilities Services, a regional leader in delivering integrated facilities management services across the Middle East, Africa, South Asia and Turkey, announced the acquisition of SecurePlus, a UAE-based security services provider established in 2005. The acquisition follows the recent launch of EFS' managed security services division, which caters to addressing the security services needs for a wide range of clients across public and private sectors, institutions, large scale facilities, hospitals, banks, multinational corporations, five star hotels, shopping complexes, residential communities and commercial properties. Tariq Chauhan, Group Chief Executive Officer for EFS Facilities Services Group, stated: "We are pleased to announce the acquisition of SecurePlus and welcome its addition to the EFS Facilities Services family that firmly positions us as a one stop solution for comprehensive Integrated Facilities Management (IFM) requirements. Secureplus provides a complete range of security solutions spanning man-guarding, CCTV operations, security consultancy, patrolling, lifeguard services in addition to value added services such as valet and cash-in-transit, with an established clientele of prestigious firms in Dubai.



**Tariq Chauhan, Group Chief Executive Officer for EFS Facilities Services Group.**

The SecurePlus acquisition integrates the provision of security services as part of the self-delivered service offerings of EFS Group in line with our strategic vision to provide a truly integrated facilities management services to our clients. The strategy of EFS Group is to expand the operations of Secureplus across UAE as part of the first phase and to later introduce security services operations in other lucrative key markets as a new business sector complementing EFS' existing IFM operations. EFS will enhance Secureplus' service offering to establish itself as a premium service provider of man guarding and industrial security services, in addition to other ancillary services such as cash in transit and technology surveillance amongst others." As part of the acquisition, EFS Facilities Services has appointed a new management team to manage SecurePlus with proven credentials in operational management and core security systems globally. The new management team will be supported by EFS' shared services team to deliver professional world class security services to clients.

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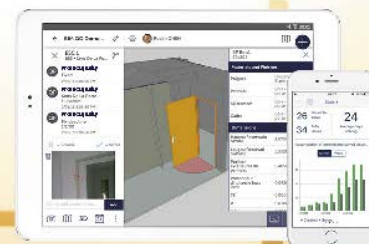
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## 13th Guangzhou Electrical Building Technology sets new visitor record

**Guangzhou, China** – The Guangzhou Electrical Building Technology (GEBT) successfully concluded its 13th edition with record attendance. The 2016 fair hosted over 200 exhibitors (2015: 298) from 9-12 June 2016 at the China Import and Export Fair Complex in Guangzhou. Running concurrently with the Guangzhou International Lighting Exhibition (GILE), the two fairs welcomed 145,080 visitors (2015: 135,990) from 137 countries and regions, more than a six percent increase from last year. GEBT 2016 successfully gathered influential intelligent building and smart home standards organisations. The aim was to facilitate market communication and integration between different standards and systems. Along with their members, these organisations demonstrated their strengths and latest technologies.

The ZigBee Member Group China was one of the exhibitors that drew considerable attention from professional visitors. The group introduced its ZigBee 3.0 standard at the fair. This standard enables communication and interoperability among devices for smart homes and connected lighting. Moreover, it gives businesses and consumers access to innovative products and services that will seamlessly work together to enhance everyday life. Dr Wilma Su, Chair of the group, exclaimed: "A large amount of our target customers came to our booth, including manufacturers, distributors, system integrators and end-users. The tremendous results we achieved not only shows the strong market demand for ZigBee standards and products, but also reflects GEBT's industry influence. We plan to have a bigger booth next year to better showcase the alliance's latest technologies."

Mr Qiang Peng, Large Division Manager at Zhongshan Shidun Electric



Photo: © Messe Frankfurt / Guangzhou Electrical Building Technology

Appliance Co Ltd, shared equal praise for the show. He noted: "We displayed our arbitrary point switches. At the fair, we saw huge market potential for our switches and sockets. I was very satisfied with visitor flow as we met customers from both lighting and hardware industries. We gained considerable market insights from distributors and end-users that are definitely beneficial to our product development. GEBT covers a full spectrum of building electrical industry, and it is a highly effective platform for us."

### Concurrent events widely praised for promoting technical and business exchange

In order to provide added value to fair attendees, the show organisers cooperated with influential industry associations to hold 10 seminars, covering nearly 50 topics. The events were divided into three categories: intelligent building and smart home standards, intelligent buildings, and smart homes and smart hotels.

The Intelligent Engineering Branch of China Exploration and Design Association co-organised the well-attended "Summit on Innovative Intelligent Building Technology Driven by Smart Cities 2016" event. Ms Hu Ping, President of the association, expressed: "GEBT has become such a vital event to the industry that building electrical professionals will not want to miss it. In recent years, lighting technologies have been moving towards more intelligent solutions and many technological breakthroughs are being realised. This trend ultimately helps to boost demand for building electrical technologies. Our summit gathered industry experts and we are very happy with the outcome of the event."

The next edition of Guangzhou Electrical Building Technology is scheduled to take place once again from 9-12 June 2017 at the China Import and Export Fair Complex in Guangzhou.

For more information, visit [www.building.messefrankfurt.com.cn](http://www.building.messefrankfurt.com.cn).

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NEWS

## Otis to supply high-speed elevators to Altair project in Colombo

**Mumbai, India** – Otis has been selected to provide high-speed elevators to the prestigious Altair project in Colombo, Sri Lanka, which when complete, claims to be the tallest residential building in Sri Lanka and will have the country's fastest elevators.

Elevators Private Limited, a JV entity between Otis and Aitken Spence, will install the elevators.

Altair will reach 240 metres – 68 floors – consisting of two towers with one tower leaning against the other.

Indocean Developers (P) Limited, a venture of South City projects (Kolkata) Limited, chose Otis to supply a total of 19 elevators, including Sri Lanka's fastest elevators with a travel speed of 5 metres per second.

Seven out of the 19 units will be supplied from Otis India's Bengaluru factory.



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## BCA partners with schools and industry firms to promote a green built environment

**Singapore** – The Building and Construction Authority (BCA) sealed two new partnerships with schools and industry firms to provide new platforms for more ground-up initiatives to take flight. Senior Minister of State for Home Affairs and National Development, Desmond Lee, witnessed the signing of the two partnership agreements at the launch of Build-it-Green (BiG) Day Out 2016 held at Toa Payoh Hub Atrium on 24 June 2016.

### BCA-Keppel Land Partnership

The partnership between BCA and Keppel Land will pave the way for more self-initiated outreach projects by schools and the corporate sector in promoting sustainability in the built environment.

Mr Ang Wee Gee, CEO of Keppel Land, said: “Keppel Land believes in actively engaging our stakeholders in our sustainability journey. We are delighted to partner BCA to engage educational institutions and corporate organisations to promote greater awareness of the importance of a green building environment. With the adoption of thoughtful innovations and green building technologies, we strive to build a more sustainable future for generations to come.”

It will be a three-year campaign to facilitate the collaboration between schools and corporate organisations and provide funding support for the projects initiated by these school-corporate entities. Each project can receive funding of up to S\$30,000.

### Greenovate Programme

BCA also signed a partnership agreement for the Greenovate Programme together with Singapore Green Building Council (SGBC), Johnson Controls and Republic Polytechnic.

The Greenovate Programme empowers secondary school students to take charge of greening their schools. The programme has been further enhanced to include industry collaborations, test-bedding opportunities and involvement from polytechnic students to have a hand in energy audits.

“Through our collaboration with BCA, SGBC and Johnson Controls in the Greenovate Programme, students from the Diploma in Green Building Energy Management can benefit from authentic, out-of-classroom learning that will complement the curriculum. As part of their final-year project, they will work with secondary schools on energy efficiency audits as they prepare for Green Mark certification in the future. The invaluable experience will put them in good stead when they join the green building energy sector upon graduation,” said Dr Wang Jianguo, Director for School of Engineering, Republic Polytechnic.

Under the Greenovate Programme, students will be guided closely by industry experts and there will also be opportunities for collaborations to test-bed innovative green solutions. The entire programme will last over the course of one year.

“We are glad to receive strong support from schools and private firms in our green building initiatives. It is also encouraging to see more industry partners like Keppel Land, Johnson Controls, and Singapore Green Building Council coming forward to partner us in our public outreach and student engagement programmes. The new partnership is a stepping stone for exciting and innovative ground-up initiatives from the community and we hope that it will spur more building users to take the lead in greening the built environment,” said Dr John Keung, CEO of BCA.



CEO of Building and Construction Authority, Dr John Keung, Senior Minister of State for Home Affairs and National Development, Desmond Lee, and President of Singapore Green Building Council, Mr Chia Ngiang Hong, officially launched the Build-it-Green (BiG) Day Out 2016 event. Photo: © Building and Construction Authority



SMS Desmond Lee witnessing the signing of the BCA-Keppel Land Partnership agreement by BCA's CEO Dr John Keung and Keppel Land Limited's CEO Mr Ang Wee Gee. Photo: © Building and Construction Authority



Top officials from BCA, SGBC, Johnson Controls and Republic Polytechnic signing the Greenovate partnership agreement as witnessed by SMS Desmond Lee. Photo: © Building and Construction Authority

## USGBC partners with Tata Housing to bring 20 million square feet of LEED and WELL Certified Green Homes to India

**Mumbai, India** – The U.S. Green Building Council (USGBC) and its certification body Green Business Certification Inc. (GBCI), announced a strategic partnership agreement with Tata Housing, one of India's fastest growing real estate development companies. The partnership is designed to jumpstart the availability of LEED and WELL certified homes throughout the country and commits to certifying 20 million square feet of residential space to the LEED green building programme and the WELL building standard. "The residential sector in India has a major role to play in enhancing resource efficiency in the coming years," said Mahesh Ramanujam, COO, USGBC and President, GBCI. "The USGBC-GBCI-Tata partnership will directly impact this sector by focusing on implementing LEED in houses slated for construction. Performance management platforms, such as the LEED Dynamic Plaque, are also part of the agreement and will enable USGBC and GBCI to leverage Tata Housing project performance data to inform benchmarks for global green construction best practices. Tata Housing is aiming to implement LEED and the WELL Building Standard. WELL builds upon LEED certification and focuses attention on the health and wellness of building occupants," added Ramanujam.



USGBC GBCI Tata Housing team. Photo: © Mangesh Kamble

The WELL Building Standard builds on LEED and allows for a greater focus on occupant health and wellbeing. WELL addresses aspects such as nourishment, fitness, light and air quality. The agreement was announced at a press event on 9 June 2016, which was held at Tata Housing Headquarters in Mumbai. Speaking earlier at the event, Mr. Brotin Banerjee, MD & CEO – Tata Housing Development Company, said, "We are excited to introduce the WELL Building Standard to Indian real estate, a landmark concept and an imperative in the present scenario. We have always kept sustainable practices at the core of all our offerings and have been pioneers in adopting latest eco-friendly technologies in construction and implementing energy efficient amenities at all of its projects."

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## Thermally modified hardwoods from the USA offer great potential for outdoor applications

*Commercial thermal modification of timber developed in the 1990 is becoming increasingly popular with architects and designers globally as a substitute for tropical timbers and traditionally preserved timber.*



Sir Paul Smith's TMT shed. Photo: © Petr Krejčí Photography

**Singapore** – The American hardwood industry recognises the benefits of thermal modification and thermally modified timber (TMT) was first developed to improve the performance and durability of softwoods, but has more recently been extended to boost the performance of hardwoods. American ash, soft maple, tulipwood and red oak can achieve Class 1 durability, the highest possible rating, equivalent to Teak. The treatment process consists of gradually heating the timber to a temperature between 180-215°C for three to four days, depending on thickness, in an inert atmosphere (no oxygen) to prevent it igniting. This is normally done either in steam or in a vacuum. It permanently alters the wood's chemical and physical properties. This is very different to kiln drying, which only reduces the moisture content of the timber.

Thermal modification reduces the timber moisture content down to 4-6 percent (very low). This has the effect of drastically reducing the equilibrium moisture content, by which the physical structure is changed limiting the ability of the wood to absorb moisture, so products are more dimensionally stable in high humidity. It also destroys the hemicelluloses and carbohydrates in wood, which provide the main food sources for insects and rot-producing fungi, so does not need any surface treatment, painting or pressure treatment. This increase in dimensional stability and decay resistance significantly extends the service life, and has the potential to reduce the maintenance needs of products made from thermally modified hardwoods.

Although the process does use energy to heat the timber, this increased carbon footprint has to be set against the environmental impacts of the various protective treatments that are no longer needed. The process was presented at the American Hardwood Export Council's (AHEC) recent convention in Chongqing and at the SylvaWood show in Shanghai in June. In 2014 AHEC collaborated with fashion icon Sir Paul Smith and Nathalie de Leval as part of 'The Wish List' – an extraordinary collaborative project created by AHEC, Benchmark Furniture and Sir Terence Conran who invited nine other famous commissioners to work with talented, up and coming designers to create "the object they had always wanted". Paul's request was for a garden shed and TMT provided the solution.

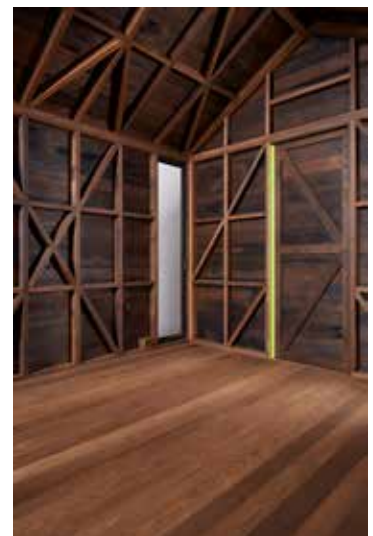


Photo: © Petr Krejčí Photography

## Archetype Group strengthens its sustainability offer through partnership with IFC's edge

**Ho Chi Minh City, Vietnam** – With a greater emphasis increasingly being placed on sustainability throughout Asia, Archetype Group has just signed an agreement to partner with the International Finance Corporation (IFC) on EDGE, a software, standard, and green building certification system for emerging markets.

IFC, which is a member of the World Bank Group that focuses on the private sector, has gained Archetype's support in encouraging clients in the Asia Pacific region to assess their projects with the free EDGE software and achieve certification.

The EDGE software, which claims to be the first of its kind in the world, is an innovation that can be used to determine the financial viability of a green building project at the early design stage. It incorporates numerical checks and balances to ensure that a third party service provider can credibly certify compliance of a project to the EDGE standard, which is at least 20 percent less energy, water, and embodied energy in materials compared to a base case. EDGE is a fast, easy and affordable way to ensure that resource-efficient residential and commercial buildings are available to all.

The collaboration between IFC and Archetype Group aims to accelerate the adoption of green building options and sustainable practices in fast-changing markets throughout Asia Pacific. Furthermore, Archetype has committed to using EDGE to assess at least 30 percent of its total new projects in the next year, with the ambition to reach 80 percent by 2020.

Jean-Francois Chevance, Archetype Group's Group Director of Design, said: "The biggest benefit of this tool is that it is so easy and quick to use. Just through this ease alone, many more people will be exposed to the general values and principles of sustainability in markets where education is key. With EDGE, we have a perfect complement to existing green building certification services." "Archetype's commitment to EDGE demonstrates the potential that can be achieved when the private sector works together towards implementing climate change solutions in emerging markets," said Milagros Rivas Saiz, the Global Head of Cross-Industry Advisory for IFC.



Jean-Francois Chevance.  
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## Hong Kong rolls out the Green Carpet for the ACA17 event



**Hong Kong** – The Hong Kong Institute of Architects (HKIA), the host of the 17th Asian Congress of Architects (ACA17), is getting ready to roll out the carpet for the architectural fraternity worldwide. As a biennial congress, ACA17 is one of the highlights marking the 60th anniversary of the HKIA. 500 delegates from over 19 Asian countries or regions will participate in this architectural event in Asia.

### Breaking the Stalemate between Economy & Environment

#### Our Region

Economic development, alongside with rapid urbanisation and industrialisation, often costs the environment at a loss of natural wealth. The exhausting fossil fuels, the destruction of natural habitats and the spread of global warming are illustrative examples of the environmental damages. The thought of the future depletion of non-renewable energy consumption is simply irritating to human race. Given that the economic growth rate in Asia Pacific is the highest across the globe, the disruption to the lives of many is an alarming signal to the stability of the region.

#### Role of Architects

Architects are the designers, if not the inventors of a city. Not only do they construct space for human activities, but also materialising the snapshot of an epoch. As humanistic as one can imagine, architects embark on a soul-searching journey in building a desirable surrounding for every single human being. Hence, the upcoming congress envisions the collective insights of architects in breaking the stalemate between economy and environment.

#### The Theme

ACA17, themed as 'Growth and Diversity: The Green Age of Asia', seeks to collide the seemingly contradictory concepts of economic development and environmental protection. Having said that, the possibility of incorporating green elements in architecture will be explored. The concept of 'diversity', the co-existence of economic development and environmental sustainability, echoes perfectly to the pursuit of 'Rejuvenation' in the last congress, ACA16. The prerequisite of breathing new life to architectures is always to have the balance maintained.

The economic elements, i.e. architectural practices and corporate social responsibility, and the environmental elements, that is, sustainability, green design and technology, will be discussed in depth in the congress.

#### When and Where?

ACA17, taking place from 25 September to 1 October 2016, will be held in the

Hong Kong Convention and Exhibition Centre (HKCEC). HKCEC, located in Wan Chai North, is a major convention venue in Hong Kong. Built in the central business district of the metropolis, it is connected by covered walkways to nearby hotels and commercial buildings.

#### Meet the distinguished architects!

The congress provides a unique experience of a face-to-face encounter with the world's best architects. The event is honoured to have Mr. Tomohiko Yamanashi, Mr. Robert Greenwood, Mr. Winston Shu and Mr. Bing Thom as the keynote speakers. The panel speakers include Ar. Duangrit Bunnag, Professor Kazuo Iwamura, Mr. Young Kyoong Jeong, Mr. Bryant Lu, Mr. Esa Mohamed, Mr. On Tze Boon, Mr. Stephen Tang, Ms. Ada Fung, Mr. Joseph Kwan, Mr. Ramiz Baig, Mr. Sung Min Kim and Hydr M.I., Architect.

#### Highlights of ACA17

ACA17 seeks to recognise the architectural talents in the form of two awards, the



Mr. Tomohiko Yamanashi. Photo: © ACA17



Mr. Robert Greenwood. Photo: © ACA17



Mr. Winston Shu. Photo: © ACA17



Mr. Bing Thom. Photo: © ACA17

ARCASIA Award for Architecture 2016 and the ARCASIA Student's Architectural Design Competition 2016. While acknowledging exemplary architectural works, the awards aim to sustain an Asian spirit of architects to be bequeathed to the future generations of architects.

In parallel to ACA17, the ARCASIA Student Jamboree 2016 will be held for prospective architectural students across Asia. The variety of programmes provided in the jamboree seeks to widen

the horizons of future architects, as well as to build friendship bonds in the youth architectural circuit.

Other highlights include the ARCASIA Council Meeting, the Friendship Night as well as excursions. Friendship bonds between architects across the region will be formed and fostered in the Friendship Night. Before the delegates depart ACA17, they can tour around the central district with historical landmarks including the St. John's Cathedral, HKSJH's St. Paul's

Church, Government House and Hong Kong Zoological and Botanical Gardens.

#### How to register?

Interested participants to ACA17 are most welcome to apply online at [www.aca17hk.com/registration.html](http://www.aca17hk.com/registration.html) or by phone at +852 2511 6323 to purchase tickets to the congress. The registration lasts for four months, starting from April to August 2016. Early bird registration closes on 30 June 2016.

## CapitaLand wins big at the annual BCA Awards ceremony

**Singapore** – CapitaLand Limited and its properties were accorded a total of 32 awards at the annual Building and Construction Authority (BCA) Awards on 26 May 2016 – a strong affirmation of the company's commitment to sustainability. This was up from 14 awards won by the company last year.

The apex of these was the prestigious BCA Quality Excellence Award – Quality Champion (Platinum), the pinnacle tier of the award and an upgrade from the Gold<sup>PLUS</sup> award that CapitaLand received in 2015. CapitaLand has been named a Quality Champion every year since the award was introduced in 2013.

Among the awards this year, CapitaLand was accorded four Universal Design (UD) Mark Awards, including the pinnacle Platinum award for its premium office development CapitaGreen – the first for a stand-alone office development. With four of the 10 Platinum awards accorded – the most among real estate developers in Singapore – since the UD Mark certification scheme was introduced in 2012, CapitaLand has cemented its position as the industry leader in building inclusive and user-centric developments for all people.

Mr Lim Ming Yan, President & Group CEO of CapitaLand Limited, said: "CapitaLand is honoured to be recognised by BCA with 32 awards for our projects. This is more than double the number of awards we received last year, and is a strong affirmation of our ongoing commitment to deliver high quality green and accessible developments. We are especially pleased to receive the pinnacle BCA Quality Excellence Award – Quality Champion (Platinum) this year. We have continued our record of being the real estate developer with the most UD Mark Platinum awards, and broken new ground by receiving the first ever UD Mark Platinum and Construction Productivity Award – Platinum awards for a stand-alone office building with CapitaGreen."

CapitaLand was also accorded 21 Green Mark Awards (including nine provisional awards) this year, in a testament to the Group's commitment to continue the greening of its properties. Seven awards went to CapitaLand properties in Singapore including the prestigious Green Mark Platinum for JCube, a leisure, fun and edutainment mall in western Singapore which houses the country's only Olympic-size ice rink.

Aside from the UD Mark and Green Mark awards, CapitaLand properties also received accolades for other aspects of building excellence. CapitaGreen received the Construction Productivity Award – Platinum, the first ever Platinum award given out to a commercial development, and the Construction Excellence Award; while Sky Habitat received the Design and Engineering Safety Excellence Award. CapitaGreen received the accolades in recognition of its use of innovative methods and materials in its construction – resulting in it being completed in 36 months instead of the average 40 months it would have taken to complete a building of this scale.

By ensuring that its developments meet or exceed BCA's benchmarks for environmental sustainability, CapitaLand has laid the foundation for its tenants to incorporate similar practices in their own offices in its buildings. As a result, six office premises in CapitaLand properties were awarded the Green Mark Office Interior Award in recognition of their efforts to incorporate environmentally friendly features while still ensuring the comfort and well-being of office occupants. Three – CapitaHub in Capital Tower, CapitaGreen Tenant Service Centre and Six Battery Road Tenant Service Centre – received the pinnacle Platinum award. South32 at CapitaGreen and CBRE at Six Battery Road received the next highest Gold<sup>PLUS</sup> award, while Lloyds Bank at CapitaGreen received the Gold award.



**CapitaHub** – CapitaLand's HQ at Capital Tower, incorporates biophilic design to create a healthier, more conducive work environment by bringing nature into the office. Extensive lush greenery, such as this green wall (above), has been incorporated throughout the office. (Photo credit: CapitaLand)

## Smarter access solutions for your satisfaction

**Ennepetal, Germany** – Dorma and Kaba are becoming dorma+kaba. It is a smart step towards smarter access solutions – a merger that offers many advantages for customers and partners, for their buildings and building projects.

For more than 150 years Dorma and Kaba have stood for security, sustainability and reliability. The merger of these two strong brands has created a new top three company in the global market of access and security solutions.

“We strive to provide our customers with the good feeling of being in the best hands,” said Riet Cadonau, CEO of the dorma+kaba Group.

“The merger of Dorma and Kaba is a result of this goal. The new partners are a very good match. Together as one, we offer a diverse, broad portfolio of products, solutions and services relating to doors and secure access to buildings and rooms. It includes door-locking systems from cylinders or locks all the way to fully connected electronic access solutions, physical access and automatic door systems as well as a comprehensive range of door hinges, fittings, door closers and stoppers, not to mention key blanks and key-cutting machines. This extensive range is complemented by products for time and enterprise data recording, high-security and hotel locks, horizontal sliding walls and movable partitions – all from one single source,” added Reit.

Quality and innovation have always been an important success factor – both for Dorma and for Kaba. dorma+kaba is striving to become the industry leader in innovation, always with the goal to provide reliable access and security solutions. From hotels, shops, sports facilities, airports and hospitals to the home and office, dorma+kaba creates added value for customers, partners and users. All around the world.

“This merger brings together what belongs together,” said Riet. “More than ever before, we are able to satisfy our customers’ needs with everything related to doors and secure access to buildings and rooms from one single source. Our customers’ trust in us is our most valuable asset,” concluded Riet.



**dormakaba** 



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Strong presence with global partners in 130 countries



About 16,000 employees worldwide



Broad offering of products, solutions and services for access to buildings and rooms from a single source

## KONE wins order for twin tower development in Indonesia

**Helsinki, Finland** – KONE, a global leader in the elevator and escalator industry, will equip the two Sopodel Office Tower + Lifestyle buildings under construction in Jakarta's prestigious business district with 41 elevators and escalators.

Built upon 1.7 hectares of land, the twin-towered office and hotel development is situated in a prime location within SCBD Mega Kuningan in Central Jakarta, Indonesia. Developed by PT. Toba Pengembang Sejahtera, Sopodel Office Tower + Lifestyle will be a Grade-A Platinum-rated Green Building property once completed in 2017.

KONE will deliver 26 energy-efficient KONE MiniSpace™ elevators, nine KONE MonoSpace® machine room-less elevators, six KONE TravelMaster™ escalators, and the KONE Hybrid Destination Control System (DCS) to the two towers. In addition, all equipment will be linked using the KONE E-Link™ remote monitoring solution. KONE E-Link™ provides real-time equipment performance status updates and facilitates rapid resolution deployment to ensure operational quality.

"We are honoured and excited to have been selected by PT. Toba Pengembang Sejahtera for this project in Jakarta's prestigious business district," said Neeraj Sharma, Executive Vice President for KONE Asia-Pacific. "With our energy efficient equipment, KONE is playing a part in enabling effective people flow for the development."

The order was booked in the first quarter of 2016.



Photo: © KONE Corporation

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## Two million dollar sustainable construction competition open

*5th International LafargeHolcim Awards seeks smart solutions for cities and the built environment.*

**Zurich, Switzerland** – The LafargeHolcim Awards is one of the most significant global competitions in sustainable design. It seeks leading projects of professionals as well as bold ideas from the Next Generation that combine sustainable construction solutions with architectural excellence. Organised by the LafargeHolcim Foundation for Sustainable Construction, the competition identifies the ideas with the highest potential to tackle today's challenges to increasing urbanisation and to improve quality of life. Projects and concepts from the fields of architecture, landscape architecture, urban design, planning, technology, and civil and materials engineering are eligible to be entered online in the USD 2 million Awards competition; it closes for submissions on 21 March 2017.

The competition's main category is open to architects, planners, engineers, students of related disciplines, project owners, builders and construction firms that showcase sustainable responses to technological, environmental, socioeconomic and cultural issues within contemporary building and construction. Projects must have reached an advanced stage of design, have a high probability of execution, and may not have started construction before 4 July 2016.

Participants up to the age of 30 years of age can also submit visionary concepts and bold ideas in the competition, irrespective of the probability of actual implementation of the project: the Next Generation category specifically seeks "blue-sky" solutions by students and young professionals.

The competition is divided in five geographic regions – each with its own jury of renowned specialists. Projects are evaluated according to the region in which they are to be built, and are measured against the five "target issues" for sustainable construction which look at a project from a holistic perspective and take its entire lifecycle into account. The criteria cover innovation and transferability; ethical standards and social inclusion; resource and environmental performance; economic viability and compatibility; and, contextual and aesthetic impact. The juries are headed by Harry Gugger (for region Europe), Ray Cole (North America), Angelo Bucci (Latin America), Nagwa Sherif (Middle East Africa) and Donald Bates (Asia Pacific).

The winners will be announced at a series of five consecutive Awards ceremonies in the second half of 2017. Winners automatically qualify for the global Awards competition in 2018. Entry in the competition is free and must be made in English using a web-based form to provide information on authorship, a project summary, technical details, as well as project images or illustrations.

**A comprehensive "Step-by-step" guide explains the evaluation criteria in detail and gives instructions on how to prepare an entry at [www.lafargeholcim-awards.org](http://www.lafargeholcim-awards.org).**



Image: © LafargeHolcim Foundation for Sustainable Construction



LafargeHolcim Awards trophies. From left to right: Main Awards, Acknowledgement Prize, and Next Generation Prize. Image: © LafargeHolcim Foundation for Sustainable Construction

## Dhybrid and IBC Solar sign cooperation agreement

**Bad Staffelstein, Germany** – IBC SOLAR AG, a global leader in photovoltaic (PV) systems and energy storage, has signed a cooperation agreement with DHYBRID Power Systems GmbH, an international developer of hybrid applications. Through this cooperation, both partners want to make use of their respective competencies in order to become one of the market-leading providers of diesel-photovoltaic hybrid systems.

Through this agreement signed at Intersolar Europe 2016, both partners confirmed their intention to cooperate in selected markets over a long-term basis. It is their declared goal to achieve the status of being the leading provider of diesel-PV hybrid solutions and services for decentralised, low-emission, reliable and sustainable energy supplies.

The international network of IBC SOLAR Premium Partners plays an essential role in this cooperation. Selected Premium Partners of IBC SOLAR will be specifically trained as experts in diesel-PV hybrid solutions. DHYBRID will be responsible for the technical training and the specific support of particular applications. In the medium-term, both companies want to build up an international network of experts together, which will handle the distribution and installation of hybrid solutions of every size. Another focus of the cooperation will be the development of new application solutions, as well as the elaboration of leasing and financing concepts.



The signing of the cooperation agreement took place during Intersolar 2016 in Munich. From left to right: Benedikt Böhm, CEO DHYBRID; Tobias Reiner, CTO DHYBRID; Thomas Mart, CFO IBC Solar; and Udo Möhrstedt, CEO IBC Solar.

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## WorldGBC launches groundbreaking project to ensure all buildings are “net zero” by 2050

**London, UK** – The World Green Building Council (WorldGBC) has launched a groundbreaking new project which aims to ensure that all buildings are “net zero” by 2050, to help deliver on the ambition of the Paris Agreement and tackle climate change.

The project called “Advancing Net Zero” will see WorldGBC and Green Building Councils in countries with some of the biggest projected growth in building roll out net zero building certification and training so that these highly efficient buildings become commonplace over the next 35 years.



Terri Wills

At least eight Green Building Councils from Australia, Brazil, Canada, Germany, India, Netherlands, South Africa, and Sweden will initially take part in the project, and Architecture 2030, a non-profit organisation working to reduce emissions from buildings, will be Lead Partner to WorldGBC, lending technical expertise to some participants, along with other local and international organisations identified by the GBCs.

The launch of the project converts into action a high-profile commitment from WorldGBC and its 74 Green Building Councils with their 27,000 member companies to reduce CO2 emissions from the buildings sector by 84 gigatonnes by 2050, through net zero buildings and deep renovation, which was made at COP21 in Paris, last December.

Announcing the project at the Business and Climate Summit in London today, Terri Wills, CEO of WorldGBC, said: “The success of our ambitions to keep global warming to within 1.5 to 2 degrees will depend on our ability to advance net zero buildings – those which generate clean energy and produce no net emissions. Net zero buildings will be a defining contribution in our efforts to tackle climate change. Getting down to zero won’t be easy. This will be a long and challenging road but together with the dedication and expertise of our Green Building Councils and partners, we can create a thriving market for highly efficient buildings and make net zero the new normal.”

Under the project, participating Green Building Councils will develop action plans, with an aim to launch a national net zero certification (which could be a stand alone programme or added to existing certification tools such as Green Star) as soon as possible. Alongside these certifications (developed for each GBC’s specific market), each participating GBC will create specific net zero training for green building professionals, and support the development of net zero demonstration projects within their own countries.

### Long-term targets include:

- All new buildings and major renovations should be net zero starting in 2030, meaning no buildings should be built below net zero standards beyond 2030. 100 percent of buildings should be net zero by 2050.
- 75,000 professionals trained on net zero building by 2030, and 300,000 by 2050.
- All Green Building Councils which operate certification schemes, having a net zero tool in place by 2030.

Although the project will initially focus on certification and training, it is hoped that it will also encourage business and governments to adopt ambitious targets on net zero buildings.

Romilly Madew, Chief Executive of the Green Building Council of Australia, an early leader in the development of net zero certification, said: “We have strong and credible evidence that we can reach net zero in our built environment by 2050, while delivering healthier, more productive cities using technologies that exist today. We have the skills, the technology and the knowledge. Now it’s time to take action.”

Edward Mazria, Founder and CEO of Architecture 2030, said: “WorldGBC’s net zero project reflects the monumental transformation underway in the building sector – to a carbon neutral future. With a number of GBCs worldwide beginning to develop net zero certifications, we are witnessing an accelerated global market shift.”



Romilly Madew



Edward Mazria. Photo: © Jamey Stillings 2013

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## Honourable Mention for Type 32 Slimtech by Lea Ceramiche Design by Diego Grandi

**Milan, Italy** – Type 32 Slimtech, the Lea Ceramiche collection designed by Diego Grandi, received the Honourable Mention Award in ADI's 2016 Compasso D'Oro, the historic and most prestigious international recognition for design envisioned by Gio Ponti, which is now at its 24th edition. Out of 300 design products created over the past two years, an international jury chose the best products according to their categories. Type 32, which was selected and received the Honourable Mention, was immediately included in the patrimony of the ADI Compasso D'oro Historic Collection.

Type 32 begins with matter but ultimately transcends it. On slabs of laminated stoneware with a wood effect (from the Slimtech line by Lea Ceramiche, format 20x200cm, 5.5cm thick), Diego

Grandi, the project's designer, surprises with graphics offered in 4 colour variations that allow for infinite combinations and which create an original and unusual variation on decorated flooring.

"I would like to thank ADI for the Honourable Mention given to Type 32, an award that recognises my study of surfaces. And I thank Lea Ceramiche, an attentive mediator which believed in the expressive capability of the design," Diego Grandi, DGO Studio.

In the words of Cesare Cabani, Managing Director of Lea Ceramiche: "Having received the Compasso D'oro Honourable Mention for the Type 32 collection is an enormous source of pride and satisfaction for us. This is an important recognition that inspires us to continue along our journey of innovation and continuous study of surfaces. The attention which we have always dedicated to design content, our deep knowledge of the material, and an unwavering commitment to technological research, have pushed us, through the years, to offer products that unveil all-new stylistic and technological potential. From this point of view, the ADI award makes us proud and is a confirmation of a vision that we believe in and that we will pursue."



Type 32 Slimtech, the Lea Ceramiche collection designed by Diego Grandi. Photo: © Lea Ceramiche

## Astana Expo City 2017, designed by AS+GG, is now under construction

**Chicago, USA** – Astana Expo City 2017, the site of the world's next international exposition, is now under construction in Astana, Kazakhstan. The Expo's master plan and 28 buildings were designed by Adrian Smith + Gordon Gill Architecture (AS+GG) around the designated theme, "Future Energy." The Future Energy concept is aimed at finding ways to achieve qualitative changes in the energy sector, primarily for the development of alternative sources of

energy and transportation. AS+GG was selected as the winner of an international competition that featured 105 entries from all over the world in 2013. Once their conceptual design was completed, AS+GG worked under a design-build contract with IT Engineering, a group consisting of Sembol Construction and Mabetex Group.

Located south of Bayterek Tower and east of Nazarbayev University, Astana Expo City 2017 is positioned

to become a significant new landmark neighborhood development in Astana. The overall goal is to reduce the energy demand of the site to the greatest extent possible by using both passive and active strategies. The master plan and architecture were primarily determined by site-specific indicators such as solar and wind orientation, weather conditions, and the cultural context. The design team executed a series of studies with the goal of minimising the

site's energy-use while maximising its energy-harvesting potential and comfort levels. A significant part of the energy consumed by the expo community will be provided from renewable sources.

"We worked closely with the client and the governments in Astana and Kazakhstan to develop urban planning and design guidelines that in many instances challenged the established standards, obsolete codes, and regulations," said AS+GG Partner Adrian D. Smith, FAIA. "Through creativity, patience, and compromise we were able to successfully procure and implement a plan for a sustainable community that will be capable of catalyzing city development in a totally new way," he added.

Strategies incorporated into the building design include high-performance glazing that will maximise

solar heat gain in winter while providing shading in summer; energy piles that will reduce energy demand and exposed thermal mass that will provide temperature modulation within the buildings during both summer and winter; 100 percent of rainfall from a 100-year storm event will be managed on site; and 90 percent of waste generated on-site will be diverted from a landfill.

Astana Expo City's exposition phase will run from June 10-September 10, 2017, while a secondary, post-exposition legacy phase will convert the site into an office and innovation park with additional residential developments that will attract international companies and entrepreneurs.

When completed, the legacy development will be one of the most sustainably built in the world. The

design calls for 100 percent of the post-expo non-potable water demand to be provided by the on-site water reclamation facility and 24 percent of the post-expo electrical demand to be met from on-site BIPV energy systems. As designed, the total post-expo grid energy demand is 49 percent less than an ASHRAE 90.1 2010 Baseline, while the office buildings will use 22-40 percent less energy than ASHRAE 90.1:2010 Baseline. Overall grid energy reduction is 59 percent.

Other key areas that add to the efficient legacy transformation include developing expo parking areas into residential neighbourhoods; integrating exhibition buildings into a first-class office complex; orienting the site for dedicated pedestrian and bike lanes; and creating dozens of public transportation links to the rest of Astana.

## Oppenheim Architecture receives Architizer A+ Award



Destination Spa + Resort is set within an ethereal landscape at the edge of desert and sea. Photo: © Luxigon

**New York, USA** – Oppenheim Architecture, the award-winning architecture, interior design and planning firm, is honoured to have received the Jury Winner award for Destination Spa and Resort at the Architizer A+ Award gala in May 2016. With entries from over 100 countries, the Architizer A+ Award jury selects one Jury Winner in each award category.

In an ethereal landscape at the edge of desert and sea, this new resort and spa is framed within the founding principles of one of the most timeless and influential civilisations. The monumental architecture of the past celebrated the dead and the heavens above; this architecture celebrates the wonderful possibilities of life on this earth. Constructed with the land of

the land, the symbiosis between building and terrain results in an embrace of natural resources and the universe at large.

Oppenheim's solution equalises the power on site by establishing a balance of elemental mass, and a composition of bold and simple forms. There is interplay of solid and void, with a reduction and clarification towards a silent monumentality, where the elements of land, water and sky converge. Designing with the most primitive as well as the latest construction techniques and materials from the most advanced scientific study Oppenheim has pushed the illusion just within limits of reality. A vibrant dialogue between built form and landscape, inspired by, and in awe of the power of the desert.

## CTBUH unveils 2016 Tall Building Award recipients

**Chicago, Illinois, USA** – The Council on Tall Buildings and Urban Habitat (CTBUH) has announced the winners and finalists for the CTBUH 2016 Tall Building Awards. This year saw some of the most forward-looking entries yet, with 132 submissions vying for recognition.

This year's winners and finalists have set a new bar for the annual awards programme, with many employing inventive solutions that respond to demanding site constraints and prerogatives related to sustainability, seismicity, wind forces, mixed functionality, and a vibrant urban habitat. Others achieve unrivaled iconicity, while introducing groundbreaking structural solutions and spatial arrangements at height.

Award recipients have been recognised across seven categories: Best Tall Building Awards – Regional (Americas, Asia & Australasia, Europe and Middle East & Africa), Urban Habitat Award, Innovation Award, Performance Award, and 10 Year Award. Additionally, the Council awards two Lifetime Achievements awards. The recipients of the Lynn S. Beedle Lifetime Achievement Award, and the Fazlur R. Khan Lifetime Achievement Medal will be announced at a later date.

All award winners will be recognised at the CTBUH 15th Annual Awards Symposium, which will take place at the Illinois Institute of Technology, Chicago, on 3 November 2016. The symposium will be followed by the Awards Ceremony & Dinner in the iconic Crown Hall. At the event, the four regional Best Tall Building winners will compete for the title of Best Tall Building Worldwide, as determined by the Awards Jury on the night.

### CTBUH Tall Building Awards – Winner and Finalists

#### **Best Tall Building – Americas**

##### Winner

- VIA 57 West

##### Finalists

- 432 Park Avenue  
- The Tower at PNC Plaza  
- Torre Reforma

#### **Best Tall Building – Asia & Australasia**

##### Winner

- Shanghai Tower

##### Finalists

- Beach Road  
- Beijing Greenland Dawangjing Tower  
- Jiangxi Nanchang Greenland Central Plaza  
- Shinsegae International

#### **Best Tall Building – Europe**

##### Winner

- The White Walls

##### Finalists

- Allianz Tower, Istanbul  
- Allianz Tower, Milan  
- ECB – European Central Bank  
- Grattacielo Intesa Sanpaolo Torino

#### **Best Tall Building – Middle East & Africa**

##### Winner

- The Cube

##### Finalists

- Iris Bay

#### **Urban Habitat Award**

##### Winner

- Wuhan Tiandi Site A

##### Finalists

- One Shenzhen Bay (Phase 1)  
- SkyHabitat  
- SkyVille @ Dawson  
- Toranomom Hills

#### **10 Year Award**

##### Winner

- Hearst Tower

#### **Innovation Award**

##### Winner

- Pin-Fuse

##### Finalists

- Hi-res CFD Studies for Pedestrian Comfort  
- The Brunkeberg System  
- Vertical Slots in Tall Buildings

#### **Performance Award**

##### Winner

- TAIPEI 101



VIA 57 West. Photo: © Nic Lehoux



Shanghai Tower. Photo: © Connie Zhou



The White Walls. Photo: © Yiorgis Yerolymbos, Courtesy of Nice Day Developments



The Cube. Photo: © Matthijs van Ron



Wuhan Tiandi Site A. Photo: © Shui On Land



Hearst Tower. Photo: © Hearst Corporation



Pin-Huse. Photo: © SOM



TAIPEI 10. Photo: © Taipei Financial

## Qatar Green Building Council announces second annual conference



The inaugural Green Building Conference in 2015 saw 500 leading experts discussing Qatar's vision behind sustainability and green building. Photo: © Qatar Green Building Council

**Doha, Qatar** – Following the success of last year's event, Qatar Green Building Council (QGBC) has announced its second annual conference, which will take place at the Qatar National Convention Centre (QNCC) from 13-15 November 2016.

Aiming to tackle some of the key environmental and social sustainability topics and challenges faced worldwide, the Qatar Green Building Conference 2016 will focus on three overarching themes: 'Future Sustainable Cities', 'Green Business is Good Business' and 'Sustainability as a Lifestyle'.

Engineer Meshal Al Shamari, QGBC Director, said: "Our inaugural conference was a remarkable success, it saw over 500 leading experts discuss Qatar's vision behind sustainability and green building. The 2016 edition of the conference will highlight and explore feasible ways to translate the nation's sustainability vision into action. This year's programme also offers a unique opportunity for delegates to study and debate the impact of sustainability in people's everyday lives under the 'Sustainability as a Lifestyle' theme."



## Qatar Green Building Council to launch Qatar Sustainability Week 2016

**Q**atar Green Building Council (QGBC) is set to launch the first edition of Qatar Sustainability Week 2016. The event will take place from 13 to 17 November 2016 and aims to further engage the community in a wide range of sustainability-oriented activities.

The week-long QGBC initiative will serve as a unique platform to promote the nation's sustainability vision as well as community engagement with relevant stakeholders. The event will showcase the efforts of Qatar's public and private sectors, providing the support, coordination and expert advice needed to unite under an overarching umbrella to achieve the nation's sustainable development goals.

Coinciding with the 22nd Conference of the Parties (COP 22) to the United Nations Framework Convention on Climate Change (UNFCCC), the event will highlight Qatar's potential, commitment, and contributions to mitigate global climate change.

Engineer Meshal Al Shamari, QGBC Director, said: "The State of Qatar has undertaken numerous initiatives to achieve the nation's environmental protection and sustainable development goals. Qatar Sustainability Week will provide an opportunity for various stakeholders to showcase their innovative and practical solutions to the environmental challenges facing Qatar and the wider region. It will also assist in achieving the global sustainability goals outlined in the Qatar National Vision 2030."

"The effectiveness of the event will be determined by the active participation of the various stakeholders from both the private and public sectors. We look forward to welcoming widespread participation," added Eng Al Shamari.

Additionally, to initiate community engagement in Qatar Sustainability Week 2016, QGBC is launching the 'Qatar Sustainability Week Logo Design Competition'. **For more information, or to enter, visit [www.qatargbc.org](http://www.qatargbc.org).**

## Tai Lee Siang becomes Chair of the World Green Building Council's Board of Directors

**Singapore** – Mr Tai Lee Siang, Honorary Advisor on the board of the Singapore Green Building Council (SGBC), has been appointed Chair of the World Green Building Council's (WorldGBC) Board of Directors – an influential group of global leaders on green building and sustainability in the building and construction industry.

Mr Tai, a past president of the SGBC, was appointed Chair of the Board for his leadership in the green building movement and dedication to improving the sustainability of buildings, both in Singapore and at the global level. He is the first Asian Chair of the WorldGBC Board since its formation in 2002.

As SGBC's second president from 2011 to 2013, Mr Tai established SGBC's Singapore Green Building Services (SGBS) certification scheme and formed strategic partnerships for the Singapore Green Building Product (SGBP) labelling scheme. These schemes have grown tremendously over the years and have helped the industry to make greener, more informed decisions regarding building design and material selection for buildings. As a prominent figure in the local green building circuit, Mr Tai also actively contributes to many green building conversations through his speaking engagements.

Terri Wills, CEO of the WorldGBC, said: "Lee Siang has been a true champion of sustainability, and has worked tirelessly to transform the industry and position green building as one of the most effective solutions to climate change. It is this commitment, expertise and strong leadership that have earned him his place as the new Chair of our Board of Directors. Together with our fellow Directors, I look forward to working with Lee Siang further as we seek to create a world in which greener buildings lead to a better quality of life for everyone, everywhere."

"I am honoured to be able to contribute towards a more sustainable global built environment. Although green building as a movement has advanced significantly in recent years, there is still much to be done and can only be done with the collective effort of the entire industry. I look forward to collaborating closer with our friends and partners to create better places for people all over the world," said Mr Tai Lee Siang.



**Mr Tai Lee Siang.**  
Photo: © Singapore Green Building Council

## The 13th consecutive APT course concludes successfully

**Colombo, Sri Lanka** – The 13th consecutive APT course was conducted by the Green Building Council of Sri Lanka (GBCSL) on 29th and 30th April, 6th and 7th May, 2016 at Hector Kobbekaduwa Agrarian Research and Training Institute, Colombo 07, Sri Lanka.

The course was proceeded with a ceremonious inauguration with participation of former Major General L.B.R Markgracing the event as the Guest of Honour and Prof. Ranjith Dissanayake, the Executive Vice Chairman of the Green Building Council of Sri Lanka.

The highly structured course format included:

1. 4 days of lectures
2. A conceptual (group) building design project
3. A field visit to an exemplary green building with a Rating by GBCSL
4. Guided Independent Studies
5. Final written (open book) examination



**Prof. Ranjith Dissanayake conducting a lecture at the APT course.**

More than 40 construction industry professionals (Engineers, Architects, Quantity Surveyors, etc.), University Academics and Environmental Management experts were trained at the course.

One of new Green Associate Professional commented: "I was told that we are late to reverse all the damage we have done to our mother earth. But I guess it's 'Better late than never'. The most important thing I learnt from the training was that we should protect the world and we shouldn't take the nature for granted."

According to GBCSL, the training session was a massive success.

## EmiratesGBC marks stronger participatory role in World Green Building Council

**Dubai, UAE** – Emirates Green Building Council (EmiratesGBC), an independent forum aimed at conserving the environment by strengthening and promoting green building practices, has further strengthened its participatory role in setting the global agenda for sustainable built environments.

This was underlined with Habiba Al Marashi, EmiratesGBC co-founder, board member and treasurer, being appointed to the Membership Committee of the World Green Building Council (WorldGBC), a network of national green building councils in more than 100 countries, making it the world's largest international organisation influencing the green building marketplace.

Saeed Al Abbar, Chairman of EmiratesGBC, already serves as a Board Director of WorldGBC since 2015, taking on the mantle from Adnan Sharafi, former chairman, who had been on the role from 2013 to 2015. Dr. Sadek Owainati, co-founder of EmiratesGBC, had earlier represented EmiratesGBC on the WorldGBC Membership Committee.

EmiratesGBC is the world's eighth Green Building Council and has been a member of WorldGBC since its inception in 2006. It is also a member of the WorldGBC Established GBC Network, which was founded to link all the different GBCs across the world to share best practices and initiate global projects that help to strengthen energy and water use efficiency in the building sector and support environmental stewardship.

Over the years, it has played an instrumental role in supporting WorldGBC to set up the Middle East and North Africa (MENA) GBC Network to drive sustained dialogue and action that promote built environment sustainability across the region.

Since the establishment of the MENA Network in 2010, EmiratesGBC has been a part of its Steering Committee and takes concerted action to bring together all regional GBCs and initiate concrete action

in various areas including the development of green buildings, retrofitting and green building innovation.

This is highlighted in the EmiratesGBC Awards, which will be presented from next year under its rebranded identity, the MENA Green Building Awards. The 2017 Awards will be supported by WorldGBC with other regional GBCs as partners.

Saeed Al Abbar said: "The appointment of Habiba Al Marashi, a leader in shaping a sustainable environment in the Arab world, to this important committee in the WorldGBC highlights the strong role that EmiratesGBC plays in leading the dialogue and tangible action to promote sustainable built environments globally. With two key positions in the WorldGBC, we present the advances that the UAE and the MENA region have accomplished in promoting green building practices. Our significant achievements in promoting a culture of sustainable built environments serve as an inspiration and referral point for several other GBCs."

"As the first GBC in the region, we have set the template for strengthening a culture of green building practices through our various activities that bring together all the stakeholders in the construction industry supply chain. We also encourage a culture of localised innovation in green buildings and in promoting youth talent – both central to securing a green future for our coming generations. Since our inception, we have set clear industry standards and guidelines and we will continue to champion best practices in sustainable built environments," he added.

Habiba Al Marashi said: "This is indeed a great honour to represent our nation at the WorldGBC. It presents the opportunity to work with committed green building experts across the world and to share our learnings and experiences. It is important more than ever before to focus our energies on promoting sustainable development, accelerate initiatives to boost energy and water efficiency, and

reduce the global carbon footprint.

"With the building sector being the main source of greenhouse gas emission, taking concerted action at a global level is imperative. We are confident that our participation in WorldGBC's deliberations will help us all to achieve the green vision of the leadership of our beloved country," added Habiba.

Over the years, EmiratesGBC has actively promoted industry best practices that help support the 'green vision' announced by regional governments. In the UAE, it supports the goals of environmental and building sustainability identified in the UAE Vision 2021 and the 'green economy for sustainable development' vision announced by HH Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President & Prime Minister and Ruler of Dubai.

With the number corporate members more than doubling from 2006 to now, EmiratesGBC organises a full-breadth of activities to engage experts in the construction industry supply chain. Its Advisory Committee has government representatives, as of 2015, to ensure that its goals are aligned with the national development agenda.

Milestones of EmiratesGBC include the launch of the Energy Efficiency Programme and the 'Technical Guidelines for Retrofitting Existing Buildings,' aimed to serve as a guide for UAE industry professionals and building end-users. It also launched the Energy Efficiency Online database, publicly accessible through the EmiratesGBC website, to facilitate building retrofit projects by streamlining the energy efficiency market in the UAE.

EmiratesGBC regularly organises Focus Day and networking sessions to support the industry and other stakeholders in strengthening their awareness as well as promoting the practical implementation of best practices that will help save energy and water while promoting environmental sustainability.

Do you have Green Building Council news for us?

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# The IKEA

## Bayonne-Ametzondo Store

Bonding PVC floors in a new store inaugurated by the Swedish furniture brand.

Located on the outskirts of the city of Bayonne in the dynamic Atlantic Pyrenees Region, the new IKEA store expects to receive around eight million clients a year. Before choosing this area for the new store, in-depth market research studies were carried out that took into consideration various criteria. The most important was the surrounding road network and access to the store: situated at the crossroads between the A63 and A64 motorways, the IKEA Bayonne-Ametzondo store is directly connected to the surrounding roads network and has a large carpark with 1,200 parking spaces.

The second criterion concerned the various target groups of clients, with the inhabitants in the area divided into groups based on average age, the number of couples, families with children and families without children. The catchment area has around one million inhabitants and the store is also expecting to attract the inhabitants of Landes department and Béarn province, as well as other clients from as far afield as the Basque Country and the Spanish Navarra region.

The final criterion was the size of the store itself, which are generally between 20,000 and 35,000 square metres. In this case, the management chose to display their almost 9,000 articles inside the store over a total floor space of 22,000 square metres, divided into 46 different areas with furniture and accessory items from the Swedish company.



Photo on the left and above: The IKEA Bayonne-Ametzondo store has 22,000 square metres of sales areas.

This new store is particularly important for IKEA. In fact, for the first time in the history of this Swedish giant, this IKEA store is fully integrated with a shopping centre. The shopping centre covers an area of 76,000 square metres and, apart from IKEA, there are another 75 shops and a Carrefour hypermarket.

### Protection and treatment for the concrete

The building site was broken in 2014 and, because it is located in a seismic zone and on a floodplain, the first work to be carried out was to protect it from damp and to install special foundations. In the car-park and warehouse areas, 25,000 vertical drains were also installed to help accelerate the consolidation process of the clayey ground before starting the building work. The building itself sits directly on a foundation slab supported by 352 foundation piles driven to a depth of between 35 metres and 50 metres into the ground. In total, 45,000 cubic metres of poured concrete were used for this site, along with 22,000 square metres of roofing, 3,500 tonnes of steel and 18,000 square metres of facades. As far as the work below ground level and the construction of the warehouse were concerned, the contractor GTM BATIMENT AQUITAINE decided to use Mapei products to treat and protect the concrete.

A survey had revealed the presence of cracks in some of the concrete elements which needed to be repaired. To seal the cracks wider than 5 mm, the surfaces were cleaned to remove all the dust and then they were repaired by filling them with EPORIP TURBO polyester resin, which is ideal for sealing cracks in screeds. EPORIP TURBO hardens very quickly (in around 20 minutes) and is usually employed to seal cracks in screeds, or is mixed with clean dry sand to make mortar for minor repairs. ADESILEX PG1 two-component, rapid-setting thixotropic adhesive, a specific product for structural bonds, was used to complete the work.

To anchor metal framework in place the contractor used MAPEFILL F high performance grout, which is used to anchor and seal metallic structures. MAPEGROUT SV FIBER hi-flow, steel fibre-reinforced compensated-shrinkage, quick-setting and hardening, high-ductility cementitious mortar was recommended for repairing the expansion joints and lastly, around 300 square metres of surfaces were treated with MAPECRETE LI HARDENER treatment in liquid form made from lithium silicate. Thanks to the consolidating effect of this

product, it penetrates into the porosity of the concrete and its surface is made more resistant.

### Brand identity for the flooring

The flooring contractor Atlantic Revêtements also chose to use Mapei products to prepare the substrates and to bond the LVT (Luxury Vinyl Tiles) floor covering, the latest evolution in vinyl flooring. In this case, the client and the designer chose this type of flooring for the restaurant, the company canteen and for the Swedish shop.

The first step was to apply ECO PRIM T, a solvent-free acrylic primer with a very low emission level of volatile organic compounds (VOC), which improves the bonding of smoothing agents on both absorbent and non-absorbent substrates.

Before laying the LVT flooring, the surfaces were smoothed over to make them perfectly flat with MAPESOL 3, a self-levelling and smoothing compound for layers from 3 to 10 mm thick. This product is manufactured and distributed on the French market by Mapei France.

The LVT flooring chosen for the 440 seat restaurant, the company canteen and the Swedish shop has an antique oak effect finish. IKEA is planning on making LVT with this particular effect the theme for all their restaurants and in areas where Swedish products are sold. This material looks just like real wood, as in this case, or real stone, but has all the advantages of vinyl flooring: easy to install and maintain, soundproofing properties, resistant and long-lasting.

To bond the flooring (a total of 2,000 square metres), Mapei Technical Services recommended ULTRABOND ECO V4 SP multipurpose, acrylic adhesive in water dispersion with a long open time and very low emission level of VOC, particularly suitable for LVT flooring.

### Reducing the footprint of a project

In common with Mapei, IKEA is also committed to reducing their impact on the environment and, for this new project, one of their requirements for the new store was to obtain the internationally recognised certification BREEAM (Building Research Establishment Environmental Assessment Method).

This voluntary protocol was established in the United Kingdom to assess the environmental performance of buildings.



LVT covering was used for the floors of the restaurant in the Swedish shop and was installed with ULTRABOND ECO V4 SP adhesive.



In the Swedish shop LVT floorings were bonded with ULTRABOND ECO V4 SP, after priming the substrates with ECO PRIM T and smoothing with MAPESOL 3.

Various environmental factors are taken into consideration and points are awarded to calculate the award: Pass, Good, Very Good (the one IKEA Centres aim for), Excellent or Outstanding.

IKEA Bayonne-Ametzondo benefits from numerous innovative and eco-friendly features and installations such as rainwater capture, LED lighting, zenithal illumination (light is channelled into a building through openings, cupolas and skylights on the roof), heating and air-conditioning from heat pumps and proper waste separation and collection.

The products used for the IKEA store in Bayonne were not chosen by accident and the client was directly involved to make sure all the products used complied with their eco-sustainable specifications. In particular, ECO PRIM T, MAPESOL 3 and ULTRABOND ECO V4 SP are certified EC1 Plus by GEV, a German association that checks the VOC emissions of flooring products.



For more information, email [mapei@mapei.com.sg](mailto:mapei@mapei.com.sg).

Article source: *Mapei & Vous* no. 43, the in-house magazine published by Mapei France; and IKEA and the companies GTM and Atlantique Revêtements.

#### Mapei Products

Sealing cracks: Adesilex PG1, Eporip Turbo, Mapecrete LI Hardener

Anchoring: Mapefill F

Sealing expansion joints: Mapegrout SV Fiber

Preparing floor substrates: Eco Prim T, Mapesol 3\*

Bonding LVT floors: Ultrabond Eco V4 SP

\* This product is manufactured and distributed in the French market by Mapei France.

#### PROJECT DATA

**Project:** IKEA Store

**Location:** Bayonne, France

**Period of Construction:** 2014-2015

**Year of the Mapei Intervention:** 2015

**Intervention by Mapei:** supplying products for preparing, repairing and smoothing substrates, sealing joints, anchoring works, and bonding LVT floors in the restaurant and Swedish shop

**Design:** Enia Architectes

**Client:** IKEA Développement SAS

**Main Contractor:** Egis, GTM BATIMENT AQUITAINE

**Flooring Contractor:** Atlantique Revêtements

**Mapei Co-ordinators:** Eric Bougues and Christophe Souveraine, Mapei France

**Photos:** Stephan Amelinck and Atlantique Revêtements

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## CAPITAGREEN – ONE OF SINGAPORE’S GREENEST OFFICE BUILDINGS

CapitaGreen, the landmark premium office development in Singapore’s Central Business District (CBD) officially opened on 9 September 2015.

Completed in December 2014, CapitaGreen is a 242-metre, 40-storey premium Grade A office building, jointly developed by CapitaLand, CapitaLand Commercial Trust and Mitsubishi Estate Asia.

Through the use of innovative construction technologies, ‘design-and-build’ methods and streamlined work processes, CapitaGreen was completed in 36 months, compared to the industry average of 40-42 months it would take to complete a building of this scale. With its striking green façade and rooftop wind scoop which contributes to cooling the building naturally, CapitaGreen’s sustainable design makes it one of the greenest office buildings in the CBD.

Pritzker Laureate Toyo Ito designed CapitaGreen to resemble a plant growing towards the sky. Breaking away from conventional office building design, the lush greenery that envelops the building creates a sustainable office environment that is connected with nature.

Over half of its perimeter façade is covered by living plants, resulting in a 55 percent green ratio. Its innovative double-skin façade is made up of an outer layer of frameless glass and an inner envelope of double-glazed full-height glass. Between these two layers of glass are planter boxes filled with scrubs and ground-covers. The double-skin façade not only reduces solar heat gain in the building by up to 26 percent, it also serves as a greenhouse for the plants to flourish. Rainwater is harvested to irrigate the plants in the building.

CapitaGreen boasts large, column-

free floor plates of 22,000 square feet and high raised floor-to-ceiling height of 3.2 metres.

Lush greenery adorns the sky terraces on levels 5, 14 and 26, as well as the rooftop sky forest on level 40. These spaces bring the outdoors indoors, offering tenants quiet respite from the bustling city. The crown of the building is marked by a distinctive red and white sculptural petalled wind scoop which takes advantage of the prevailing wind direction to draw in cooler, cleaner air from the higher altitude and directs it to the office floors after going through the air-conditioning handling units. On levels 38-39 is Gravity, a members-only lifestyle concept gym. Located on the rooftop is Artemis, a Mediterranean restaurant where diners can savour stunning views of Marina Bay while enjoying fresh, sustainably-sourced produce.



### Awards & Accolades

- BCA Construction Productivity Award – Platinum
- BCA Construction Excellence Award
- BCA Universal Design Mark Platinum Award
- BCA Green Mark Office Interior Platinum Award – CapitaGreen Tenant Service Centre
- Best Office & Business Development Bronze Award *MIPIM Asia Awards*
- BCA Building Information Modelling Platinum Award (Project Category)
- Best Tall Building Award for the Asia and Australasia Region 2015 *Council on Tall Buildings and Urban Habitat, US*
- BCA Green Mark Platinum Award

CapitaGreen boasts large, column-free floor plates of 22,000 square feet and high raised floor-to-ceiling height of 3.2 metres. Photo: © CapitaLand



CAPITA GREEN

138 Market Street

Pritzker Laureate Toyo Ito designed CapitaGreen to resemble a plant growing towards the sky. Photo: © CapitaLand



The height of the concierge counter in CapitaGreen is lowered to cater to wheelchair users. Photo: © CapitaLand

### Art works

Enhancing the aesthetics of its surroundings is another tenet of CapitaGreen's design philosophy. An expansive lobby, which greets visitors and tenants, boasts a triple-height ceiling and handcrafted Kakiotoshi (earth plaster) feature walls. Sculptures by world-renowned artists are tastefully integrated throughout and around the development to enhance the surroundings and air way-finding.

### Universal design

CapitaGreen incorporates seamless design within the building's gross floor area of about 880,000 square feet to help the hearing, visually, and mobility-impaired move more easily within the building. The height of the concierge counter is lowered to cater to wheelchair users and a Hearing Induction Loop System facilitates clearer conversations with customers with hearing aids. Lift doors are programmed to remain open longer for the benefit of mobility-impaired visitors.

Other features include barrier-free access to and within the building, clear and visually-captivating way-finding signs, lifts with features to aid mobility-impaired visitors, and English Braille / tactile indicators at the start and end of the stairway, leading to the pedestrian underpass. CapitaGreen also includes family-friendly features such as nursing rooms and changing stations in men's and women's washrooms, as well as elder-friendly facilities such as grab bars at relevant areas.



English Braille / tactile indicators at the start and end of the stairway, from CapitaGreen to the pedestrian underpass in the CapitaGreen. Photo: © CapitaLand

### PROJECT DATA

**Project:** CapitaGreen

**Location:** 138 Market Street, Singapore

**Developers:**

- CapitaLand Limited (50 percent)
- CapitaLand Commercial trust (40 percent)
- Mitsubishi Estate Asia (10 percent)

**Concept Architect:** Toyo Ito & Associates Architects

**Project Architect:** RSP Architects Planners & Engineers (Pte) Ltd

**Main Contractor:** Takenaka Corporation

**Net Lettable Area:** 703,000 square feet

**Completion:** December 2014



The crown of the CapitaGreen building is marked by a distinctive red and white sculptural petalled wind scoop. Photo: © CapitaLand

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Designed by TIERRA, the inspiration for The Orchid was from the orchid flower. Photo: © Shangri-La Hotel Singapore

## *Luxury meets sustainability at the Shangri-La Hotel, Singapore*

Shangri-La Hotel, Singapore has launched “The Orchid”, a seven-metre tall open-air orchid greenhouse sculpture nestled amidst the hotel’s 15-acre estate. The launch was to celebrate the hotel’s 45th anniversary in Singapore.

**A**lso known as Singapore’s “second Botanical Gardens”, The Orchid was designed to enhance the gardens and to showcase the beauty of orchids – Singapore’s national flower - as they vary through the different seasons in the year. Over 600 orchids are on display per collection. The Orchid’s seasonal collections reflect the changes and milestones that will continue to take place at Shangri-La Hotel, Singapore for decades to come.

For the official opening collection “A Floral Art Piece”, 33 orchid varieties in six different colours have been selected to create a stunning visual effect. With a colour palette of yellow, orange, pink, red, blue and white, guests enjoy a living installation of orchids stretching along The Orchid’s inner walls and reaching up to the sky.

### **Inspiration for The Orchid**

Designed by TIERRA, the inspiration for The Orchid was from the orchid flower, as a form of beauty and exotic delight, which serves as the point of inspiration for the distinctive new structure located in the central garden of hotel. This intricately-constructed wooden pavilion is a replacement for a flower pavilion that once stood on the grounds.

The Orchid’s design by TIERRA is not only intended to house its treasures within, but to become the very expression of the treasures through its organic and softly-twisting form. The structure takes root and merges with the petal-like adjoining gardens and the surrounding landscape.



The path to The Orchid. Photo: © Shangri-La Hotel Singapore

Seen as a sculpture more than architecture, The Orchid inspires with its artistic charm and finds greater purpose through its use as an educational tool, or as an inspirational setting for intimate events.

### The Orchid's Construction

The Orchid's distinctive structure was built by Venturer. To achieve the design brief, 51 unique larch wood ribs and six steel rings went into forming the foundation for the structure. Highly-prized as a building material for high-end yachts, each larch timber rib is uniquely curved and deliberately off-axis to create the impression of a blooming flower. The ribs were fixed to internal steel rings set at one-metre centres and made from galvanized steel; the rings are then restrained by diagonal internal steel tension cables to reinforce the foundation. Larch wood was purposefully selected to allow for a beautiful patina to develop over time.

The gardens are also home to more than 200 Japanese koi, which reside in ponds filled by the tumbling waterfalls. Garden highlights include heliconia and ginger plots, tropical fruit trees, a 35-year-old African Tulip tree as well as an old Abiu tree planted by singer John Denver.



Diner De Fleurs at The Orchid. Photo: © Shangri-La Hotel Singapore



# Serrata Apartments

– An award-winning green home

Photo: © SMR Design

*TECHNAL Safetyline Jalousie Louvre Windows offer aesthetics and safety to the residents of Serrata Apartments in Melbourne, Australia.*

**S**errata Apartments, located in Victor Harbour, Docklands, is an edge, design focused apartment development only moments from Collins Street and Melbourne's CBD. The 15 level residential building with 144 apartments has been recognised with two architecture awards and the highest green star rating from the Green Building Council of Australia.

The building incorporates a range of sustainable features including the installation of smart meters in all apartments, low-e glazing double glazed windows to reduce the use of heaters & air conditioners, and a rainwater tank is used for garden irrigation and toilet flushing.

Amongst the sustainability features are TECHNAL Safetyline Jalousie Louvre Windows, which are installed in the corridors to achieve maximum cross-flow ventilation.

The louvre windows are automated and integrated with the Building Management System and feature rain sensors that automatically close the louvres in rain and then open again when weather conditions improve. The ventilation reduces energy consumption and operating costs whilst providing fresh air and natural light to the corridors.



Photo: © SMR Design



Photo: © SMR Design



Photo: © SMR Design

From a design and practical perspective, the windows appear in a continuous unit up the side of the building, meeting all balustrade codes, adding aesthetic appeal and safety to the overall development. The Technal Aluminium company engaged for this project was SMR Design Australia.

For more information, visit [www.technal-int.com](http://www.technal-int.com).



Hotel reception area. Photo: © Abode Hotels

# The Abode Hotel Woden bags green accolades

**T**he Abode Hotel Woden has become the first hotel in Australia to be awarded a rating under the prestigious Green Star certification system by the Green Building Council of Australia (GBCA), said the hotel.

Green Star is an internationally-recognised sustainability rating system for the design, construction, and operation of buildings, fitouts and communities.

The 4 Star Green Star rating achieved by the Abode Hotel Woden builds on its 4.5 NABERS rating.

Formerly Juliana House, the building was home to a number of government departments and commercial organisations but was vacant for a number of years before it was purchased by GEOCON and transformed into a contemporary 152 apartment hotel.

“Our decision to do an adaptive re-use rather than knock-down rebuild meant we were on the sustainable path from the very beginning with this project. We wanted to see how far we could take that, so we decided to work towards achieving Green Star certification,” said GEOCON Managing Director Nick Georgalis.

“It was a challenging proposition because we were new to



Executive studio room. Photo: © Abode Hotels

the Green Star process and at the time there was no rating tool for rating hotels. So, we worked closely with the Green Building Council of Australia and our sustainability engineers Northrop Consulting Engineers to develop tools relevant for a hotel.

“Because this was an adaptive re-use we were constrained around some of the environmental efficiencies we could achieve, such as optimising the façade, but we nonetheless delivered a standout result which demonstrates best-practice in sustainability,” he added.

“Achieving Australia’s first Green Star rating for a hotel is no small achievement, and Geocon has showed tremendous commitment to sustainability during this ambitious project,” said the GBCA’s Chief Executive Officer Romilly Madew.

“We know that the average Green Star-rated building consumes 66 per cent less energy, emits 62 per cent fewer greenhouse gases and uses 51 per cent less water than business-as-usual buildings. But this story isn’t just about the benefits for the environment. This Green Star rating provides the positive proof that Abode Woden is efficient to operate, a comfortable place to stay and work, and a better long-term asset,” concluded Ms Madew.

# Compact designs for every occasion

Text and photos by OBO Bettermann South East Asia Pte. Ltd.

**M**odern building engineering has to fulfil all kinds of requirements. That certainly goes for electrical installations beneath the floor. They have to be functional, but the visible parts have to be attractively designed so that they blend in perfectly with interior architecture. This is often a challenge for technical planners and fitters faced with choosing suitable underfloor systems.

## Functional requirements

The functional requirements that underfloor systems have to meet vary, depending on the area of use, and are governed by the standard EN 50085-2-2. Floor boxes and floor sockets are especially crucial because they form the interface between the underfloor system and the user, and they have to fulfil a variety of needs depending on where they are installed. In private residential buildings, offices and seminar rooms, users need to be able to access sockets, data ports and multimedia elements easily. But in public areas, such as foyers, shopping centres and museums, it is often necessary to protect installed equipment against unauthorised access.

Floors that are subject to heavy traffic, for example car dealerships, exhibition areas, airport foyers and train station concourses, require underfloor systems that can withstand high loads. Other selection criteria involve the quality of flooring and the way the floor is cleaned. Is it a screed floor or a system floor? Is the flooring cleaned with water or is it cleaned dry?

## Focusing on design

In modern interiors, expectations about how underfloor systems should look are often high: floor sockets have to be as small as possible and blend discreetly into the floor. People want high-grade finishes, ideally ones that match the flooring. The aim is to create a harmonious visual space unencumbered by underfloor systems.

## Planning underfloor systems

When planning underfloor systems, technical planners and fitters often have to take demanding functional and design requirements into consideration. Very careful thought can be required to find the appropriate underfloor system for the building project at hand.

## Easy to configure: GES R2 floor sockets

To make work easier for technical planners, Ackermann made by OBO developed a range of design-oriented and functional floor sockets that keep planning work within reasonable limits: GES R2 round floor sockets combine function and design. With diameters of just 140 mm, they are especially small and yet can accommodate two sockets and, optionally, up to two data technology elements. They are also easy to configure due to their modular structure. Each product consists of a maximum of three components: when used in system flooring, the floor socket consists only of an installation box and a cover, while in screed flooring, a screed box is also required. The installation box can be ordered either pre-equipped or empty, so that it can be fitted out with installed equipment such as sockets and multimedia elements as required. The installation box and screed box match all of the available cover versions – so you don't have to spend a lot of time matching things up. The cover is the only part of the floor socket that can be seen from the outside. It is available in a number of different finishes, allowing it to fulfil different visual and functional requirements:

- Three cover versions made of die-cast zinc: hinged cover with cord outlet, tube cover and blanking lid in four high-quality surface finishes – chrome, nickel, antique brass and antique copper.
- Two cover versions made of plastic: hinged cover with cord outlet and blanking lid in iron grey or graphite black.

Technical planners and fitters can configure GES R2 floor sockets easily to meet the expectations of their customers and the requirements of different building projects. Their high-quality metallic finishes blend seamlessly into



Compact GES R2 floor sockets blend harmoniously into modern interior architecture.



GES R2 floor sockets with die-cast zinc covers are also suitable for areas subject to heavy traffic, such as car dealerships.



In screed floors, the GES R2 floor socket is fitted in a screed box.



The hinged cover with cord outlet and the blanking lid are available in die-cast zinc and plastic. There is also a tube cover made of die-cast zinc.



Four high-quality surface finishes are available for all of the die-cast zinc covers: nickel, aged brass, chrome and aged copper.



Upgrading fine flooring: GES R2 floor socket made of die-cast zinc in aged copper finish.



The GES R2 floor socket with tube cover is even suitable for wet-cleaned floors when open, in compliance with EN 50085-2-2.



The GES R2 plastic floor socket is ideal for all carpeted floors.

high-end interior architecture. Instead of disturbing the overall look of the room, GES R2 metal floor sockets actually upgrade the look of fine floors. For carpeted floors, GES R2 plastic floor sockets are the right choice. Regardless of which cover version is used, all of the GES R2 floor sockets take up very little space because they measure only 140 mm across.

In addition to all the different design options, GES R2 floor sockets offer a range of benefits at a functional level, all within a compact space. All of the versions with metal covers have been awarded VDE certification for the IP66 protection category when closed. When their covers are closed, the electrical equipment inside is protected reliably against strong jets of water. GES R2 floor sockets with metal covers are the ideal solution for floors in public areas such as foyers and shopping malls which are machine-cleaned using water. The metal cover with tube body is even suitable for wet-cleaned floors when open, in compliance with EN 50085-2-2. Furthermore, all of the metal versions can withstand loads of up to 20 kN when closed.

OBO Bettermann SEA is participating in the BEX Asia exhibition in September 2016 in Singapore. Together with the Green labelled cable tray system, OBO Bettermann will present a wide range of electrical installation devices and products, including

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- Underfloor System

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# The importance of proper wooden floor care for cleaner indoor air quality

*Text and photos by Bona.*

**A** major new report about the adverse health effects caused by air pollution states consumers should consider reducing the use of products and materials that release high levels of VOCs (volatile organic compounds). The report, that concluded around 40,000 people die each year due to the effects of air pollution, attracted widespread media coverage when it was published by the Royal College of Physicians last month.

VOCs and other chemicals contained in household cleaning products were listed as a source of indoor air pollution. By choosing 'low emission' products, consumers can therefore reduce their exposure to air pollutants in the home and lessen possible adverse health effects. The possible health consequences of exposure to indoor air pollutants include asthma, chronic obstructive pulmonary disease (COPD), respiratory irritation,

effects on the heart and cancer, as well

as non-specific symptoms such as headache, tiredness and loss of concentration. Women in the early stages of pregnancy, babies, young children and the elderly are most at risk.

The extensive publicity attached to the report means informed consumers will be searching for products that they can trust not to pollute the air in their homes. One option for cleaning product retailers is to stock a range of products that are certified by GREENGUARD as 'low emission' and that carry the organisation's distinctive green logo. The UL Environment's GREENGUARD Certification programme helps manufacturers create and buyers identify interior products and materials that have low chemical emissions. All certified products must meet stringent emissions standards based on established chemical exposure criteria. GREENGUARD Certification is recognised and accepted by sustainable building programmes and building codes around the world. Additionally, the GREENGUARD Product Guide

serves as a free online tool for finding certified low-emitting products for offices, hospitals, schools and homes.

All Bona's cleaning and maintenance products for wood and hard floors are GREENGUARD certified as low emission products. The range includes cleaners for wood, stone, tile and laminate floors as well as polishes and refreshers. The company's innovative Spray Mop also offers a quick and easy way of applying the cleaner which is highly effective and safe for use on all types of hard floor.

Bona has been producing professional wood floor treatments in Sweden since 1919 and, in the 1970s, pioneered the development of safe, water based treatments to replace harmful solvent formulations.

There is plenty of useful advice about wood floor care at [www.bona.com](http://www.bona.com) plus more information about choosing low emission products and GREENGUARD. A full range of POS and display materials is available for retailers.

**For more information, contact Bona Far East & Pacific Pte Ltd at tel (+65) 6377 1158, email [info.apac@bona.com](mailto:info.apac@bona.com) or visit [www.bona.com](http://www.bona.com).**



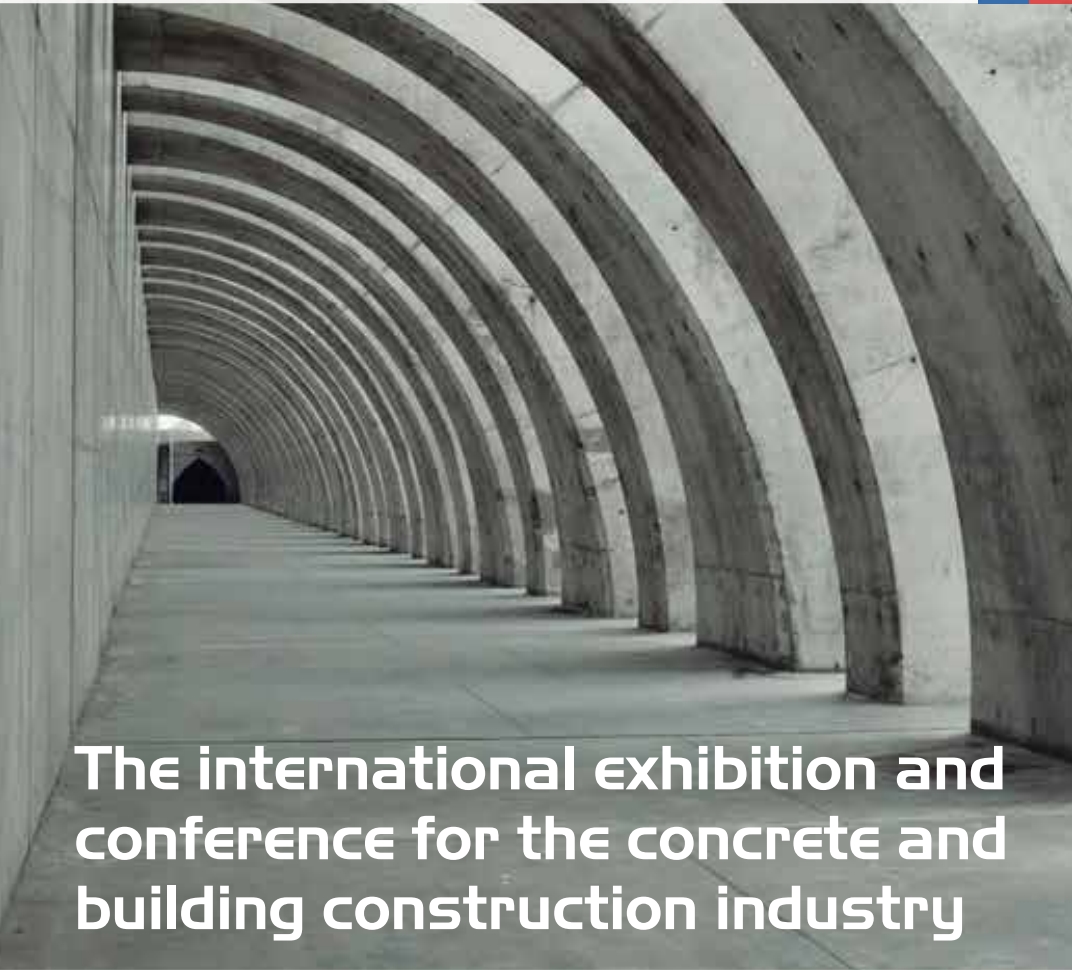


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# Nanyang Technological University scores high marks in sustainable design

**T**he Nanyang Technological University (NTU) in Singapore has become the first recipient of the Green Mark Platinum Star Champion award by the Building and Construction Authority (BCA) – the highest accolade in Singapore for outstanding commitment to sustainable design.

NTU is winner of a record number of 51 Green Mark Platinum awards, the national benchmark for the design, construction and operation of high performance green buildings. Collectively, the 51 award-winning buildings generate about 39,000 MWh of energy savings, which can power more than 8,000 4-room HDB flats for a year.

NTU Provost, Professor Freddy Boey, who received the award at the BCA Awards Ceremony 2016 from Singapore's National Development Minister, Mr Lawrence Wong, said: "This Platinum Star Champion award is a recognition of what we can do for the environment and a testament of NTU's commitment towards sustainability. NTU's research success in sustainability, and the accolades received from Singapore as well as around the world, show that our actions are delivering real results. It also demonstrates the dedication of our professors, staff and students to environmental stewardship."

This year, NTU won 37 BCA Green Mark Platinum awards. Amongst the winning projects are the Clinical Sciences Building located at the Novena Campus and the upcoming Academic Building North.

When fully completed, the Academic Block North will sport a host of eco features. Besides eco-friendly LED lighting, it is designed to take advantage of its natural surroundings such as harnessing the natural winds for good ventilation and shade especially around the open areas.

The Academic Block North buildings are also fitted with a demand-driven ventilation system so everyone can enjoy optimal ventilation which also maximises energy savings.

The Clinical Sciences Building at NTU's Novena campus is another prime example of green building technologies, with

energy-efficient and other eco-friendly features.

Housing state-of-the-art learning spaces and research facilities, the building sports high performance glass windows, which maximise daylight yet attract less heat; energy-efficient air-conditioning and recycling facilities.

## **Sustainability at the core the NTU campus**

Sustainability is a key focus at NTU, from the physical campus, to its research and also in the curriculum.

Under NTU's EcoCampus initiative, the entire 200-hectare campus is being transformed into a living testbed for green technologies and innovations, with a target to reduce energy and water usage by 35 percent by 2020.

All first-year NTU undergraduates take a compulsory module in environmental science with a focus on Asia. NTU faculty includes experts in energy, biodiversity, engineering, earth sciences and the human dimensions of sustainability.

Professor Freddy Boey said: "Sustainability is a core value of the university, with our students exposed to environmental issues and global developmental challenges from their freshman year. NTU also has bold plans to become one of the most environmentally friendly university campuses in the world. NTU has been on a rapid drive to green all its new buildings as well as retrofitting existing ones to higher BCA Green Mark standards."

## **Pioneer in green construction and technologies**

NTU has pioneered a variety of green construction techniques and applications.

For example, The Hive, which won the Green Mark Platinum Award in 2013, has a unique ventilation system that is more sustainable than conventional air conditioning with no fans needed for air distribution. In addition, the openings between pods are designed for natural ventilation to the atrium, corridors, staircases, and lift lobbies.



Photos above: NTU's upcoming Academic Block North will be a host to a variety of eco features such as energy-efficient air-conditioning and recycling facilities, high performance glass windows which maximise daylight and mitigate heat gain, and the building complex is designed to maximise wind flow and shade.  
Photos: © NTU Singapore

NTU's upcoming 20-storey Clinical Sciences Building at the Novena Campus not only comes complete with state-of-the-art learning spaces and advanced research facilities, it has high performance glass windows which maximise daylight and yet mitigate heat gain, energy-efficient air-conditioning and recycling facilities.  
Photo: © NTU Singapore



NTU's upcoming student hostels at North Hill and Nanyang Crescent are claimed to be the first public high-rise buildings using Prefabricated Volumetric Construction (PPVC), a groundbreaking eco-friendly technology.

PPVC significantly reduces energy usage in construction. Traditionally, the construction site is where materials are measured, cut and assembled. With prefabricated construction, the site is simply a location for final assembly of major components. This shortens the time needed to construct the NTU building by about four months – resulting in 40 percent savings in on-site manpower.

NTU's new Sports Hall will be the first in Southeast Asia to have a continuous wave-like timber roof arching over 70 metres. Cross-laminated as well as glue-laminated timber are used and they are just as strong and fire-resistant as steel and concrete. As the building process also involves assembling prefabricated parts, construction is sped up, further cutting labour costs.



# Green features for the new Ngee Ann Polytechnic Block 22



Floor plates and landscaping adopt a sinuous terracing language, creating a continuous verandah around the building's perimeter. Photo: © DP Architects



The student service office and the student lounge are elevated from the lawn, allowing a direct visual connection to the landscape and activities.  
Photo: © DP Architects

**B**lock 22 at Ngee Ann Polytechnic is a four-storey building situated next to an existing sports hall at Ngee Ann Polytechnic in Singapore. Designed by DP Architects, with landscaping done by DP Green, environmental sustainable design (ESD) consultancy services by DP Sustainable Design and interiors by DP Design, the development consists of a food court on the first storey, an indoor sports hall on the second storey, an office on the third storey and two levels of student lounges at the third and fourth storeys. The architects sought to provide common outdoor spaces that could be shared between the existing and the new sports hall, such as a lawn, plaza and rooftop tennis court for outdoor sports and activities.

Certified Green Mark Platinum, the highest rating for sustainable buildings by the Building and Construction Authority of Singapore (BCA), Ngee Ann Polytechnic Block 22 enjoys reduced environmental impact, efficient use of key resources such as energy and water, lower operational and maintenance costs and enhanced occupant productivity and health due to good indoor environmental quality.

Employing a sinuous terracing language for its floor plates and landscaping proposal, a continuous verandah was created around the building perimeter that provides shade to the floors below. Terracing landscape planters within the sunken courtyards are lushly planted in vibrant red, purple and pink flowering trees and shrubs. The terracing profile for the floor

plates – as the feature of the building envelope design – allows the corridor spaces to be naturally ventilated with sufficient daylight. The vibrancy of the landscaping is reflected internally as well, with the student service office, student lounge, seminar rooms, discussion pods and a food court furnished by DP Design. Colourful sofas and armchairs pepper the interiors, creating a cheery and inviting ambience for discussions and study groups. Visible from Clementi Road and the Pan-Island Expressway (PIE), the western façade features a bold red entrance wall that serves as a visual anchor for the campus.

The orientation of the development is restricted by the site boundary. The placement of the spaces for different programmes is carefully planned so that each of these spaces will benefit from sufficient daylight and ventilation, especially the common areas such as circulation space. This development is located at the north-western part of the overall campus, linking the sports facilities at the north to the classrooms and lecture theatres towards the south and east.

The food court is anchored at the first storey, providing direct access for students from the adjacent blocks. Due to the site's terrain, the first storey is located in a semi-sunken position from the main access road. Hence, by providing open-to-sky plazas, sufficient sunlight is able to filter into the dining area. At the second storey, the indoor sports hall – The Box – at approximately 2,000 square metres accommodates sports practice, competitions and exams. The Box is located towards



The architects sought to provide common outdoor spaces that could be shared between the existing and the new sports hall. Photo: © DP Architects

the west of the development and was designed to block out the western sun, while allowing sunlight into the indoor courts through a series of high-level windows with aluminium sun-shading devices designed at the north and south façades. The Box was designed to allow for cross-ventilation with operable walls that can open up to the outside during normal days and remain air-conditioned during the examination period.

The staff office is situated at the third storey, facing the east and the lawn. The student lounge, which consists of two floors, is situated at the third and fourth storeys facing the north-east and the lawn. The student service office and the student lounge areas are elevated from the lawn and allow a direct visual connection to the landscape and students' outdoor activities.

The objective of the development was to function as the connection point to the adjacent lecture theatre blocks by providing gathering spaces such as the food court, plazas and the student activity spaces through the expansion of the sports facilities of the campus.

**Summary of key green features:**

- Estimated energy savings: 551,175 kWh/yr
- Estimated water savings: 17,321.44 m<sup>3</sup>/yr
- ETTV: 35.4W/m<sup>2</sup>
- High performance glass to achieve ETTV - 35.4 W/m<sup>2</sup>
- High efficient water-cooled air-conditioning system with system efficiency of 0.57kW/tonne
- Low face velocity air-conditioning units to improve energy savings
- Solar heat recovery for hot water heating
- Large implementation of LED & T5 fittings
- Day lighting with Photocell Sensors



Aluminium sun-shading devices designed at the north and south façades of the indoor sports hall, The Box. Photo: © DP Architects



The indoor sports hall was designed to block out the western sun, while allowing light in through a series of high-level windows. Photo: © DP Architects

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# BABYLON HOTEL AT THE NAMAN RETREAT RESORT

**B**esides the main linking road between Danang city and Hoi An old town, Naman retreat resort, a qualified coastal resort is located 16 kilometres away from Danang international airport. The concept of resort is providing physical and mental treatment for the long stay guests by the nature friendly environment and healthy activities such as spa, yoga, beach sports and so on. To achieve a perfect atmosphere that enable the guests a maximum body and mind purification and relaxation, the resort was designed by harmonious mix of greenery, natural stone and bamboo. The first phase of the project site was 3.4 hectares between a road and beach. To accommodate guests with abundant green landscaping area with diversity of space and privacy, three types of accommodation: Beach villas, Bungalows and Hotel building are prepared.

## The Babylon

The multi-storey hotel building, named the Babylon having a façade combines concrete louvres with greenery interspersed, is visually interesting landmark from direction of the sea coast. The green layer provides visual barrier that creates the separation from the road to enhance the privacy of the resort. The finishing material keeping its natural appearance of its base, achieves effeminacy and harmony with the surrounding nature.





The building consists of three floors with 32 rooms. The layout is arranged in an L-shape embracing the swimming pool. Balconies overlooking the pool attract to water activities while still remain discreet and allow a private relaxation behind the green facade. The pool is both opened and discreet which is suitable for guests who enjoy relaxing in semi-private atmosphere that is totally immersed in the wonderful nature.

### Heat-resistant façade with green layer

The perimeter of the building is covered by a system of vertical concrete louvres with green vines which reduces direct sun shining while allowing the wind flow. For heat-resistant which minimises thermal radiation in hot season in the tropical climate, the façade is working as a buffer space allowing plants to grow. 5x15cm precast concrete louvre with wooden texture achieved from of formwork is utilising the natural colour of material to provide closeness with nature.

### Plants are present everywhere

The greenery has been planted in each and every space of the resort; it contributes to bringing nature into resort's landscape. When guests approach the Babylon, they may feel like diving into a tropical nature through the green facade and corridor. Even from the bathroom, it is possible to capture plants through their balcony.

The green façade consists of combination of trees and vines such as: *Quisqualis indica* climbing along the concrete louvre, *Vernonia elliptica*, *Spathiphyllum wallisii* and *Aglaia duperreana* are planted along the corridors and balconies. The combination creates diversity of the vertical landscape.



### PROJECT DATA

**Project:** The Babylon at the Naman Retreat Resort  
**Location:** Truong Sa Road, Ngu Hanh Son District, Danang, Vietnam  
**Client:** Thanh Do Investment Development and Construction JSC.  
**Architect Firm:** Vo Trong Nghia Architects  
**Principal Architect:** Vo Trong Nghia  
**Design Team:** Nguyen Viet Hung  
**Master plan of Naman Retreat Resort:** Vo Trong Nghia Architects  
**Contractor:** Thanh Quan JSC.  
**Program:** Resort Hotel  
**Site Area:** 1,517 square metres  
**Gross Floor Area:** 2,480 square metres  
**Status:** Built in March 2015  
**Photographs:** Hiroyuki Oki

# Spotlight on Outdoor and Industrial Lighting

**HKTDC Hong Kong International Outdoor and Tech Light Expo** is launched this year. To test market demand, the organiser, the Hong Kong Trade Development Council, hosted the World of Outdoor Lighting & Lighting Accessories in 2015. The event featured more than 170 exhibitors and attracted more than 11,000 buyers in 2015, including Colinter from France, Crompton Greaves Ltd. from India, EpiCentre K from Ukraine, Hesham ElSewedy Trading from Saudi Arabia, Menfor Sp. z o.o. from Poland, Mite 10 from New Zealand, Plantir from Russia, Tokyo Interior Corporation from Japan, Zoomlux Lighting LLC from the UAE, as well as OBI Group Sourcing HK Ltd and REWE Far East Ltd from Hong Kong.

## Timing is Ideal, Advantages are Clear

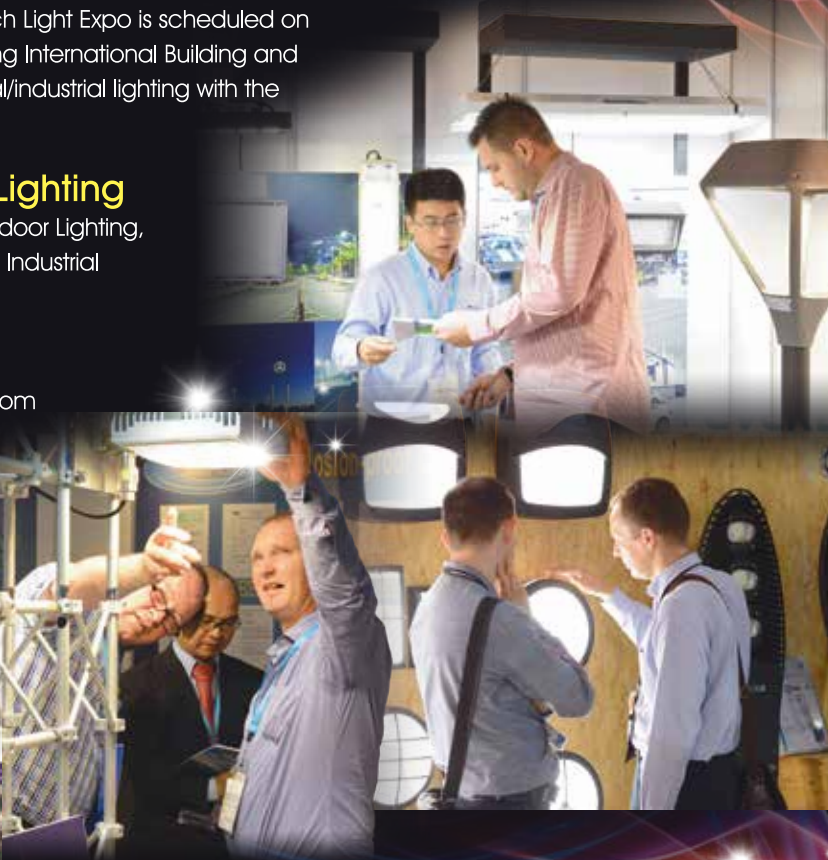
The first edition of Hong Kong International Outdoor and Tech Light Expo is scheduled on 26-29 Oct 2016 at AsiaWorld-Expo. It parallels the Hong Kong International Building and Hardware Fair to leverage the strong synergy of commercial/industrial lighting with the building and construction sector.

## Exclusively for Outdoor and Industrial Lighting

The Expo is tightly focused. Major exhibit categories are Outdoor Lighting, Lighting Accessories, Parts & Components, Professional and Industrial Lighting, and Advertising Lighting.

## Creating Points of Contact

Participants will be able to meet socially with counterparts from around the world at a Networking Reception. They will also be able to exchange information and gather intelligence at seminars.



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## Concurrent fairs expand sourcing

Several concurrent events add value to participation in Hong Kong International Outdoor and Tech Light Expo 2016.

**HKTDC Hong Kong International Lighting Fair (Autumn Edition)**, 27-30 Oct, is on at Hong Kong Convention and Exhibition Centre. It is Asia's leading event of this kind for the autumn sourcing season.

**HKTDC Hong Kong International Building and Hardware Fair**, 26-29 Oct, takes place at AsiaWorld-Expo, creating a useful synergy.

**Eco Expo Asia**, 26-29 Oct, also at AsiaWorld-Expo, has a focus on green solutions.



# Song Saa Private Island





## Song Saa Private Island is an award-winning sustainable luxury hotel in Cambodia.

In the warm sapphire waters of the Gulf of Thailand, Cambodia's islands nestle like dazzling natural jewels. Song Saa Private Island lies secluded in this magnificent seascape, just 35 minutes by boat from the port of Sihanoukville. Most of the islands remain undeveloped – deserted oases of virgin rainforests, tropical reefs and glistening white beaches.

The overall design of the resort was born of the respect the developer of the island has for the local environment and people, which is evident in the care the developer has taken to minimise the impact of its designs on land and marine ecosystems and on the communities.

The effect the developer wanted to create for its guests was one of peace and tranquility, where they could stop, breathe and rejuvenate in one of Southeast Asia's most beautiful seascapes. Harmony, sustainability and world-class luxury are the core principles that underpin the designs of Song Saa Private Island.

Natural materials create a sense of synergy with the sea, the rainforests and the local culture. Everywhere you look there are references to the colours and textures of Cambodia's traditional fishing villages with their pitched roofs and open plan living spaces. Once inside, the expansive ocean-view, jungle of over-water villas guests find recycled timber from disused fishing boats, furniture made from driftwood collected from local beaches and coves, and floors made from timber salvaged from old factories, warehouses and demolition yards around Cambodia and Thailand. But importantly, they find every luxury waiting for them. Huge beds dressed with Plo linen, over-sized baths, Wi-Fi and fully stocked bar fridges, outdoor showers beside private decks and pools. Bespoke hand-crafted furniture made by local artisans adds a uniqueness to each villa. Song Saa's raft of environmental initiatives complement its social responsibility programme, focused on sustainable economic opportunities and education.

### Reduce, Reuse, Recycle

The owners of the resort ensures that all resort activities use wood, glass and/or recyclable paper for any food and drink packaging, and there are no non-recyclable materials used. This includes plastic straws (they use organic bamboo), Styrofoam boxes (they use bamboo baskets) and plastic water bottles (they used self-filtered water in glass bottles), as common examples.

### Water

The resort's efficient waste water management scheme involves recycling and filtering all waste water produced by guests; this grey water is then filtered and used by the landscaping and engineering teams. Song Saa also offers filtered drinking water on tap, which is consumed from washable, recyclable plastic cups by staff, and reusable glass bottles by guests. In addition, to reduce fresh water usage, all of the pools within the resort are 50 percent filled with salt water and 50 percent fresh water.

### Waste

The resort also recycles organic waste by providing it as compost to local communities. This can significantly reduce impacts on water quality – less nutrient run-off into the marine environment – in addition to providing a sustainable source of nutrients for local farming communities.

### Electrical/Energy Consumption

Training of all new team members involves information on how to reduce energy wastage – for example turning off all lights, air-conditioning and other electrical equipment when not in use, in villas, personal accommodation and office spaces. Heads of Department check their office spaces at the end of every day to ensure all electrical equipment is powered down. The engineering department use meters to monitor all electrical usage on the resort, with the concept of quantitatively minimising use where possible.





### **Sustainable interior details**

Wherever possible, the resort has used recycled local materials to avoid contributing to deforestation and to minimise the carbon footprint of its designs. All artwork and objects in the villas as well as communal buildings are sourced from provincial markets or made by local artists in Cambodia and Thailand. In addition to reducing its carbon footprint, this also helps to promote local artisans in the area and encourage sustainable livelihoods.

#### Recycled fishing boats

The resort has used timber from recycled fishing boats that had been discarded and left in local estuaries. The resort was careful to ensure the local villagers were paid properly for the old boats, and by taking them out of the fresh water estuaries, the resort was able to reduce local pollution of these important waterways from old paint leaking into the rivers.

#### Lighting

Only LED lights are used in the villas to maximise energy efficiency.

#### Local sandstone

Toe sandstone used in the wall is from the island and was obtained during the construction of the resort's hill top villas. Sandstone was used as cladding and so avoided the carbon footprint associated with shipping it to the island.

#### Recycled floors

All of the timber used in the flooring was sourced from old factories, houses, demolition yards around Cambodia and Thailand.

#### Energy-efficient roofing

The thatched roofs are just decoration. They are made to look like traditional grass roofs but underneath them the resort has placed sheeting and insulation that makes the villas extremely thermally efficient with no leakage from the air-conditioning.

#### Energy-efficient walls

Toe villas look like traditional fishing shacks from the outside but the resort has put in double brick cavity walls, which were clad in recycled timber sourced from old local fishing shacks. This was done to increase thermal efficiency and prevent leakage from the air-conditioning, while also keeping the villas cool and dry during the wet season.

#### Made to last

All soft furnishings are of extremely high quality and made so that they won't fade in the sun. These are also stain proof and utilise quick dry foam so that replacement is after 10 years, not one to two years like most hotel fabrics.

#### Local tiles

The tiles used in the swimming pools were quarried locally from a site just across from the island on the mainland, not shipped in from overseas and so having a very small carbon footprint.

*All photos: © Song Saa Private Island*



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# Fairwater Park

– A former private golf course transformed into a Greenstar community

**M**cGregor Coxall worked with developer Frasers Property (formerly Australand) to develop a landscape master plan for a proposed residential housing development on a 38.5 hectares site, formally known as the Ashlar Golf Course.

The site is located in Blacktown in close proximity to the CBD and at the confluence of two large-scale engineered drainage systems. Vegetation on the site consists of a unique ecological system of retained endemic tree species. Australand engaged McGregor Coxall with the specific aim of utilising the company's holistic approach to water sensitive urban design and site response.

Working in collaboration with a number of specialised consultants McGregor Coxall developed a design response that de-engineers the drainage systems so that they become a key component of the proposed new communities identity and open space network. This strategy is realised through the establishment of two major water based parklands, which are interconnected through an activated linear wetland environmental corridor that promotes wildlife movement.

The site has achieved a 6 Star Green Star – Communities rating from the Green Building Council of Australia (GBCA) to position it as one of the country's most progressive environmentally friendly developments. The achievement means Fairwater is claimed to be the first project in New South Wales to be awarded a 6 Star Green Star – Communities rating – the highest possible recognition.



Photo: © Simon Wood

From its conception, Fairwater has been synonymous with sustainability. The community's green credentials encompass everything from geothermal heating and cooling, to a strong materials and waste recycling focus and thoughtfully designed open spaces that promote healthy, active lifestyles.

Other environmental initiatives at Fairwater include a riparian regeneration program that converted an old concrete lined drainage channel into a natural riparian creek line, a grey water system for use in toilets, laundry and irrigation, as well as a low solar reflectivity roof colour scheme on homes.



Photo: © Simon Wood



# Sustainable clubhouse for the Rio 2016 Olympic Games golf course



*Construction on Sede do Campo de Golfe Olímpico, the clubhouse for the Rio 2016 Olympic Games golf course has completed. Designed by Pedro Évora and Pedro Rivera of Brazilian architecture studio Rua Arquitetos, the clubhouse features a membrane roof that captures rainwater and provides shade.*

## **The veranda as a guideline**

Golf is a sport of precision and balance, and the architects of this project believe the same goes for its architecture. The outdoor practice, among the exuberance of natural elements, inspires the creation of spaces which are close to the landscape, well lit, wide, ventilated and in direct contact with the course. It is also a sport where players socialise before, during and after the game, reinforcing the importance of the clubhouse's architecture.





For the Olympic clubhouse, the architects chose to design a building organised like a comfortable veranda, dissolving the limits between the landscape, the building, and the users. For this purpose, the architects initially created a plaza, which articulates the course with the programmatic volumes around it. It was then roofed by a large cover which shelters and shadows, producing a pleasant ambience. The proposal also utilises traditional Brazilian architectural elements like parasols, “brise-soleis” and “cobogós”, in order to create comfort and appease the spaces between interior and exterior. The attention to these intermediate spaces is therefore an inseparable part of the architectural design.

### Site approach

The placement of the ensemble which constitutes the clubhouse follows a few main premises: its close and direct relationship to the course and driving range; the fragmentation of the volumes in favour of landscape views, the mitigation of the construction’s impact over the soil and local vegetation; the disposition of architecture through circulation axes and around the plaza.

From the entrance a generous inclined pathway heads towards the golf course, with a privileged view. Through this path we implemented successively the gym, restrooms and locker rooms, Pro-Shop and reception, culminating in the plaza which leans onto the course from one side and houses the administrative headquarters and social areas. Above it, the translucent roof captures rainwater and provides shade. An internal garden acts as an extension of the surrounding landscape, which can also be appreciated from the roof garden above the restaurant, accessible through a ramp.

The usual flux of the players, consisting mainly of the course scheduling in the Pro-Shop store, a stop by the changing rooms and return to the bar after the game, was granted special attention in the project’s development.

The headquarters of the Brazilian Golf Confederation was implemented adjacent to the golf course, in the northern part of the terrain, so as to maintain a certain independence from the other areas of the clubhouse.

The service areas were designed around a patio for the operation of machinery and course maintenance, in accordance to the efficiency guidelines provided.

The clubhouse of Rio de Janeiro Golf Club affirms itself through a generous architecture, bright, open and welcoming to current and future practitioners of the sport.



### PROJECT DATA

**Project:** Sede do Campo de Golfe Olímpico  
**Location:** Barra da Tijuca, Rio de Janeiro  
**Architecture:** RUA Arquitetos, Pedro Évora e Pedro Rivera  
**General contractor:** RJZ Cyrela  
**Project management:** Roberto Boettger Costa (RUA Arquitetos)  
**Built Area:** 6,400 square metres  
**Construction start date:** 2014  
**Completion date:** 2015  
**Photos:** Leonardo Finotti



# Vietnam Green Building Market: Potential and Opportunities



**Text by Vu Hong Phong, Project Manager,  
Vietnam Green Building Council**

**G**reen is not only a colour representing nature and ecology, but also a new term of building development trend over the world. Introduced first time at 1990, then became popular in 2002 with establishment of World Green Building Council, green building has changed significantly the whole construction industry. Started from 2007 until now, green building market in Vietnam is still in its first steps of development.

As of late 2015, the number of project certified (registered projects not count) was modestly 27 (including 13 LEED projects, 08 LOTUS projects, 03 Green Mark projects, 01 CTX project and 02 projects with double LEED-LOTUS certification). This figure is extremely low compared to 2100+ projects in Singapore (BCA Green Mark) or 750+ projects in Australia (GBC Australia Green Star), due to the particularity of local context in Vietnam, but it promises a huge potential for the next years in term of development.

Previously, the top reasons for constructing a green building came mainly from Corporate Social Responsibility programme of the company, a high recognition in the market and a lower operation cost (Big C Vietnam, Taekwang Vina, Intel Corporation, Coca-Cola, and

Pou Chen Corporation). That explained why most of the green building owners are foreigner companies, with a clear vision of green building benefits. Additionally, some constraints were also persistent and refrained the development of green buildings in Vietnam. Lack of stakeholder awareness, essentially wrong perception of green building cost and sustainability concept was one of the crucial cause. Investors used to think that green buildings require 20-30 percent additional cost to initial investment, or marketing of “greenwashing” projects with unclear information about resources efficiency, occupant wellness and impact on environment. Moreover, benchmark and mandatory building codes was not effectively implemented, resulting a little impacts on the market and construction industry. Professional and building practitioners did not possess enough experience, skills and understanding of green building design approach, making green building design and construction hard to be implemented.

However, things are being changed, “market demand” and “client attraction” are taking place now as most important

reasons to go for green, as demonstrated by announcement of the first LEED & LOTUS registered Residential projects in Vietnam – the *Diamond Lotus Riverside* and *Diamond Lotus Lakeview* (Phuc Khang Corporation, a local real estate developer). The Vietnamese government has authorised selling houses to foreigners since July 2015, these projects target middle and high income buyer groups, largely foreigners who seek a long term residence in HCMC. The *President Place* in HCMC (a LEED Gold office building, certified in 2012) has exploited its advantage of green buildings certification to achieve nearly 80 percent of occupancy rate within one year after completed, with well-known multinational corporations like Microsoft, Starbuck, Sony ... as lessees. With a clear vision about green building benefits in business, REE Land (a member of REE Corporation, local company) has decided to enter into green building market with *E-Town Central*, a grade A office building in HCMC. The 55 million USD project is pursuing LEED Gold Certification and is expected to be complete in early 2017.



**Etown Central in Ho Chi Minh City, Vietnam. Image courtesy of Archetype Group**



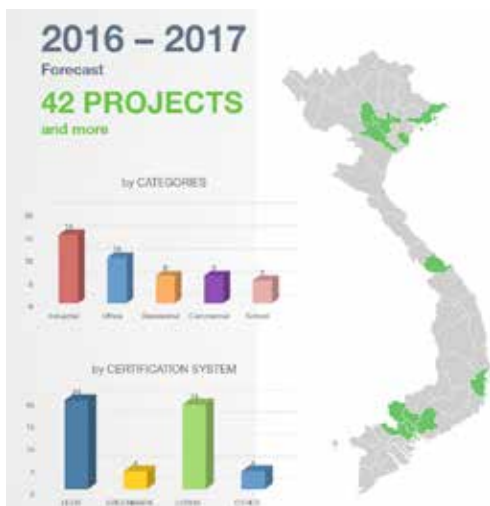
Vietnam industry sector, especially food, garment and electronics are promising with high amount of FDI and numerous FTAs, thus there are no reason to skip green movement in factories and industrial manufacturing facilities. In order to easily export their products and target to new and high requirement markets (North American, ASEAN Community, European countries), some companies have determined on “greening” their factories *Bel Greenfield ASEAN*, *Deutsche Bekleidungswerke Ltd Factory Long An* and establishing the resource efficient production chain, proving their commitment to the sustainability and environmental friendly products.

3rd quarter 2017.

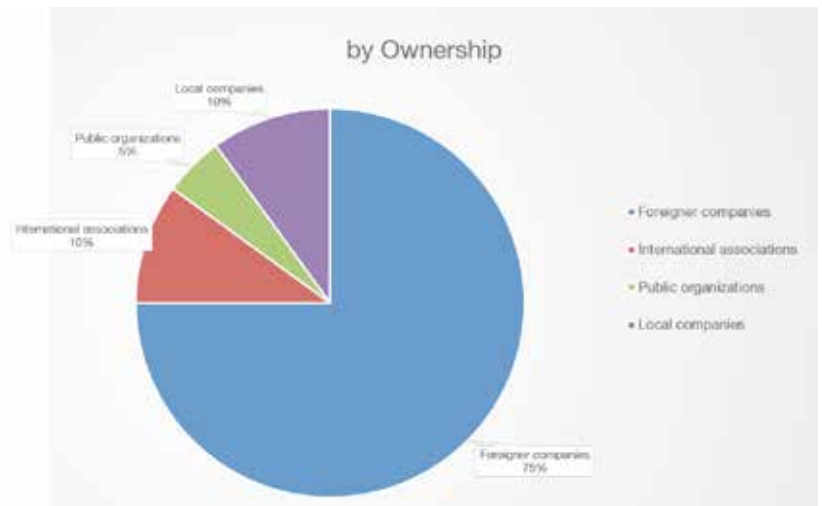
In contradiction to “the myth of costly green buildings”, the real upfront cost of green building varies only from 1 percent up to 5 percent, depending on the certification level and the initial cost of investment. Based on a studies of green building projects in Vietnam, average increase is 1.8 percent – 2 percent in general. Additional costs are mainly consist of in-depth design & studies, green building certification consultancy and appropriate equipment, materials. At present, green building products and services are widely available in Vietnam and in the Southeast Asia region, and become more and more popular with improvement in green



**Vietnam Securities Depository Centre in Hanoi, Vietnam. Image courtesy of TT-Associates**



**Chart 1: Green building project repartition in Vietnam. (forecast for 2016-2017 period)**



**Chart 2: Green building project repartition by Ownership. (forecast for 2016-2017 period.)**

Even green building development is started quite long time ago, but public sector has just introduced its first sign for green building recently. The first project is the *VietinBank Tower*, a complex 68-storey-tower of a state-own bank – the Vietnam Joint Stock Commercial Bank for Industry and Trade. The 300 million USD project targets double certification of LEED Gold and LOTUS Gold. Completion date of new headquarter of the bank is expected at 2018. The Vietnam Ministry of Finance is the second public authority which adapts for green with new *Vietnam Securities Depository Center (VSD)*. The 18-storey-office building is pursuing LOTUS Non-Residential rating system, design team and owner seek for a Silver level certificate after the completion in

building awareness of the local market. Efforts from the government and local authorities are also recognised, with activities on national level training about National Technical Regulation on Energy Efficiency Buildings (QCVN 09:2013/BXD) or Bonus on land-use ratio for Environmental friendly buildings in Ho Chi Minh city. Furthermore, construction industry and real estate sector stakeholders will soon benefit from “Green buildings financing”, a programme in development by IFC-World Bank to promote green building and energy efficiency building in Vietnam.

Green building numbers forecast to reach over 50 projects during 2016-2017 period, with additional certification scheme like DGNB (German), HQE (France)

and G-SEED (Korean), but LEED and LOTUS remain as major certification systems in the country. Vietnam green building market now covers also single family dwellings, creating opportunities for individuals and home owners to participate in the green movement, since launching of LOTUS Homes in early 2016 by the VGBC. Thanks to positive changes and efforts of construction industry stakeholders, construction market in Vietnam can expect plentiful opportunities to “turn green”, leading by a strong cooperation between government, academia and private sector. Green building is stated as inevitable trend, profitable for business, people and environment, thus there are no excuses for NOT to go GREEN now.



Photo: © Aesop

## Aesop's new store in Singapore reflects a nutmeg plantation

Aesop recently announced the opening of a new Snøhetta designed signature store in Singapore. Situated just off the bustling thoroughfare of Orchard Road, Aesop ION opened on 12 May 2016.

**T**he interiors commemorate Orchard Road's original incarnation as a nutmeg plantation. Inspired by its obscured past and underground location, Snøhetta created an upside-down forest using a sensitive assemblage of materials, colours and forms.

A dark ceiling references the orchard floor, complemented by sisal carpet in the same rich tone. Thin timber battens hang from the ceiling, forming walls that curve throughout the space like three trunks in a grove. Selected central battens are suspended with horizontal 'branches' fixed to the stems acting as product displays. Exposed walls are pink, reminiscent of the color of mace, the other spice harvested from the nutmeg fruit.

A connection with the nearby Aesop Raffles City is established through the use of brass in functional elements such as the sales counter and sink – the metal's luster enhanced by overhead lighting.



Photo: © Aesop



Photo: © Aesop



Photo: © Aesop



# HANGZHOU ZHONGSHUGE

## – A haven for book lovers



**A**fter years of growth, Hangzhou Zhongshuge is always adhering to its initial desire to emerge as the most beautiful bookstore for readers, and constantly strives to work on the most culturally artistic bookstore, from learning how to walk, to live, to brave or to persevere.

Walking on the central axis of the forest zone and walking through a doorway as guided by the lights to the border of light and shade, one transits from the lightness to the profound main hall of Zhongshuge – an oncoming quiet reading corridor.



Here, the entire bookshelf extends endlessly to the side. The darker and lighter-coloured shelves are orderly advanced or retreated, as changing mountains or unattainable ladders or fortitude upright spines to silently convey the power of knowledge to us. The chandeliers floating in the ceiling mirror softens the entire space like a firefly. People under the lights, recollect the aromatic coffee or mediate in the world of books.

Cross the corridor is the stair reading area. The circular skylight pours down from the ceiling mirror, and the encircling bookshelves look like the swirling lamp belt. Here is a theatre to unfold an outstanding drama, and the characters are book lovers sitting on the soft couch or standing beside the bookshelves. In the stair study, people can read or hold the reading party for book lovers to site around.

In the Hangzhou Zhongshuge, there is a children pavilion, which is a book playground. The designer arts bookshelves as playground facilities including merry-go-round, roller coaster, hot air balloons and pirate ships to give children a happy reading experience as if playing in the playground, while the floor of galaxy maps not only inspires the imagination of children and also interestingly educates them about the knowledge of galaxy.

The famous British novelist Somerset Maugham once said, to acquire the habit of reading is to construct for yourself a refuge from almost all the miseries of life. Hangzhou store of Zhongshuge blends the definitions of books into every space by upholding the usual respect for books and knowledge, and infuses the minds of readers with the sacred books by way of design. In today's distracting and harassing context, you still can find a place to rest your soul.



#### PROJECT DATA

**Project:** Hangzhou Zhongshuge

**Area:** 1000 square metres

**Client:** Shanghai Zhongshu Industrial Co., LTD

**Interior Designer:** XL Muse International Architectural Firm

**Chief author:** Li Xiang

**Co-authors:** Liu Huan, Fan Chen, Zhang Xiao, Tong Nina

**Photography:** Shao Feng

**Design period:** August 2015 to October 2015

**Construction time:** October 2015 to April 2016

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# ASTRALPOOL water play makes big splash in the world

**W**ater play is a unique activity for children and provides opportunities for extended learning. ASTRALPOOL water play is one of the leading companies in the global market of water play.

In addition to the Spanish market, ASTRALPOOL water play has been engaged in the leisure and entertainment market for more than 25 years. The company's vision is to provide the best customer, through its innovative and successful projects that it has created in Spain.

For example, ASTRALPOOL water play has implemented a new space of aquatic leisure in the Hotel Insotel Tarida Beach Resort in Ibiza, which is composed of unique playground water area with a Splashpark and a wide range of different slides.



## All kinds of water play options

ASTRALPOOL water play offers all kinds of water play options: water slides, water play for swimming pools, children's water parks, wave ball, custom made water park, splashparks, the water bubble, and so on. The company carries out the design and installation of "Turnkey" water play facilities, has a strong engineering and technical team which projects and develops the ideas proposed by the customer. The main goal of the company is to interpret the client's ideas and to find the best solutions for each project. Thus, all projects developed by ASTRALPOOL water play, stand out for its individuality, which makes it unique in its kind.





In accordance with the philosophy of the company, ASTRALPOOL water play has three principle concepts:

**(1) Empathy** - The company's team makes your difference, this is because its projects begin by taking your business aims on board and end with a creative proposal that adds value to your services and sets you apart from the competition.

**(2) Customisation** - Your space inspires ASTRALPOOL. Creativity is synonymous with innovation in the world of entertainment. ASTRALPOOL water play is backed up by a multidisciplinary team, who absorbs each client's culture and reproduces it through play. ASTRALPOOL water play manages to make every project unique.

**(3) Enjoyment** - Ready for fun? The world is crying out for proposals that are different and unique. This is why ASTRALPOOL water play is so interested in generating experiences and new ways of enjoying ourselves together.

ASTRALPOOL water play understands play as the best way for children to learn and put safety at the heart of the company's work.



ASTRALPOOL water play is available in Singapore from Fluidra Singapore Pte Ltd. For more information, tel (+65) 6382 0130, fax (+65) 6382 0136, email [info@fluidra.sg](mailto:info@fluidra.sg) or visit [www.fluidra.sg](http://www.fluidra.sg). Besides Singapore, the company also has offices in Selangor (Malaysia), Samutprakarn (Thailand), Jakarta Selatan (Indonesia), Ho Chi Minh City (Vietnam), and Shanghai (China).



## SAFRA Punggol creates sea-themed water playground

**F**ounded in 1972, SAFRA runs a network of clubs designed as the “go-to destination for all social, recreational, sports and educational facilities” for NSMen (those in Singapore’s National Service) and their families. In 2016, SAFRA opened its latest club, SAFRA Punggol, located in northeastern Singapore. A key attraction for SAFRA Punggol’s is the nation’s first indoor water playground.

According to SAFRA, “Inspired by its location, the club will host fun water related activities for the whole family. Part of its land even has a natural slope towards the waterway. The club would truly be ‘Where Fun Flows.’”

The goal for the new facility is to build a clubhouse that can cater to NSMen’s lifestyle needs, and that means

developing attractions for young families. Other clubs offer swimming pools and SAFRA’s own brand of indoor playgrounds, known as Kidz Amaze, in Jurong and Toa Payoh are both dry indoor playgrounds. SAFRA realised that the Kidz Amaze at SAFRA Punggol needed to offer something different and exciting, something that gives guests and their families, especially those with children between the ages 18 months to 13 years, something they cannot experience elsewhere in Singapore – an indoor water playground. The 18 months to 13 year demographic is an important one for SAFRA Punggol since other SAFRA clubs, like at Jurong caters to older kids with challenges of an 18-metre slide, and Toa Payoh has an infant area.



### CT-Art Creation and Vortex provide waterpark solutions

A key element to the Kidz Amaze at SAFRA Punggol is the design: The profile, the safety aspect, the developmental aspect in young kids, the engagement factor/ bonding opportunities & repeat visitors to the facility.

To help design the new space, SAFRA turned to CT Art Creation and Vortex Aquatics for the waterpark solutions. SAFRA worked with Vortex and CT Art Creation to bring alive its theme of the "Enchanting Deep Sea", through design and planning of the facility from the entrance to the service counter, to washrooms, shower areas, party rooms and the main playground.

Using the theme, the Enchanting Deep Sea, SAFRA Punggol planned for the design for Kidz Amaze to offer a safe environment for wet play and ensure no matter the weather so that kids and families can still enjoy water play, which is very popular among families in Singapore.

According to Sharmila Vijayakanathan, Assistant Director for Education Services: "Education is an important part of SAFRA clubs, and Kidz Amaze values Purposeful Play and is known as 'A Playground with a Difference.' Our play elements are carefully chosen by Early Childhood experts who chart the necessary skills for various developmental milestones for young children. We are strong believers of family bonding as well and choose equipment where parents can be active participants in play with their children."

Kidz Amaze in SAFRA Punggol is aimed at enhancing family play experiences and we envision this facility to engage in "learning through play."

"Using the theme and play elements we hope to instil good moral values through stories from the deep sea," said Sharmila.

As part of the design process, SAFRA asked children and parents for feedback on what they would love to have at Kidz Amaze Punggol. SAFRA took a user-centric approach to its planning and selection. SAFRA then looked at its desired outcome for family bonding and safe play for kids and selected play elements that promote the above desired outcomes.

#### SAFRA Punggol installed:

- A multi-level Elevation™; a play structure with eight different play decks, multiple water features and five slides, including two tube slides and a family slide suitable for all ages.

- A themed Splashpad® with eight different features with a range of water effects to keep the fun and interest level high for all users.

SAFRA selected Vortex because: "Vortex equipment is known for its safety features and that was our priority. They were able to design and reconstruct certain elements to our requirements like family slides," said Sharmila.

Another important consideration is Vortex's water-conservation features. "We wanted to aim for a Green Mark certification in the playground and most features supported the initiative for being eco-friendly. We looked at everything, from selection of tiles to materials used in the play elements and fixtures," added Sharmila.

For more information, contact CT-Art Creation at tel (+65) 6762 9891, fax (+65) 6762 7980, email sales@ctart.com.sg or visit the websites [www.ctart.com.sg](http://www.ctart.com.sg) or [www.vortex-intl.com](http://www.vortex-intl.com).

All photos: © CT-Art Creation





Rendering of Cirque. Image: © Playpoint (Singapore) Pte Ltd

## Cirque – A New Product Collection from Waterplay

Waterplay® Solutions presents Cirque, a theatrical collection of play features designed to create an aquatic spectacular for all ages to enjoy.

**W**aterplay® presents Cirque, a collection of water features that bring the magic and mischief of the circus tent to the aquatic play pad. With interactive functions built throughout the line, this new collection puts waterplayers in the spotlight.

“The concept was to create a fun-filled space where kids get to direct the play, making features perform spectacular water effects that promote interaction and collaboration,” said Jill White, President of Waterplay. Cirque introduces waterplayers to a curious cast of props, full of tricks that push, spin, and twist water to acrobatic heights. Take aim with the Cannonball but watch out for the dumping bucket that will give you a sneaky splash, push down on the Boingo to send water flying into the air, or hide inside the Parasol’s magnificent rain curtain.

Designed by Markus Ehring, world-renowned public designer, the Cirque collection combines playful shapes with majestic colours to create a fun-filled adventure for the whole family. From the looping Aqua-Knot, to the small but mighty Djembe, these features turn any space into an aquatic spectacular.

Designed to marvel, delight, and surprise, Cirque is now available to the global market.

### About Waterplay

Waterplay is committed to making the world a better place by offering innovative aquatic play solutions to the global community. Waterplay’s full suite of products includes freestanding aquatic play solutions designed to splash and spray, activity towers, architecturally-inspired urban water features, and water management solutions. A great addition to aquatic facilities, community spaces, holiday parks, hotels and resorts, housing developments, water parks, and attraction facilities.

Cirque is available in Singapore from Playpoint (Singapore) Pte Ltd. For more information, tel (+65) 6398 1558, fax (+65) 6398 1559, or email [info@playpoint.com.sg](mailto:info@playpoint.com.sg). You can also visit [www.playpoint.asia](http://www.playpoint.asia) and [www.waterplay.com](http://www.waterplay.com) for further details.

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# ARENA THUN

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**S**tockhorn Arena, formerly known as Arena Thun, is a football stadium in Thun, Switzerland. It has a capacity of 10,000 spectators and opened in 2011. Jakob AG was proud to be associated with this prestigious project.

The Arena Thun is a special atmospheric arena with a unique Alpine panorama. This sports facility is more than just a soccer stadium. It is also suitable for cultural events and other functions. Several products from Jakob were specified in the project.

#### PROJECT DATA

**Project:** Arena Thun

**Location:** Thun, Switzerland

**Owner:** Arena Thun AG

#### Jakob-Products:

**Entrance area:** Webnet rope  $\varnothing$  2.0 mm, mesh aperture 60 mm, tensioned inside welded frames.

**Sector partitions:** Webnet rope  $\varnothing$  2.0 mm, mesh aperture 100 mm, with shackles in the suspension ropes  $\varnothing$  8.0 mm.

**Grandstand railing:** Webnet rope  $\varnothing$  1.5 mm, mesh aperture 40 mm, tensioned along railing tube and suspension rope  $\varnothing$  6.0 mm.

**Staircases:** Webnet rope  $\varnothing$  1.5 mm, mesh aperture 50 mm, tensioned along suspension rope  $\varnothing$  8.0 mm.

**Photos:** © Jakob AG

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# Mechanical Piping Systems: Keeping Your Structure Safe and Maintainable

Text by Dave Hudson, Senior Engineer – Victaulic

**P**iping systems in structures both large and small will nearly always require some degree of system maintenance. The efficiency and life of pumps can be reduced greatly by floating debris in the system, and boilers, water heaters and pressure reducing valves in larger buildings are all subject to wear and tear, increasing maintenance obligations. Erosion can happen over time in bearings and impellers, requiring pump maintenance. In addition, a piping system would need maintenance or replacement if the lines become corrupt. These concerns are easily addressed in piping systems which have been installed with grooved mechanical pipe joining products, as these products are inherently easier to work with compared to other joining methods during maintenance activities.

Periodic inspections, physical changes or expansion to the piping system as well as unscheduled repairs are three of the most common types of piping system maintenance. Periodic inspections ensure that the system is intact and that water softeners, filters and water heaters are operating at maximum efficiency. Physical changes are performed to adjust existing installations, replace old piping or expand an existing system. Unscheduled repairs are the most time sensitive because they usually need to be done immediately and often require a system shut-down.

Grooved mechanical pipe joining systems offer many maintenance benefits, including the ability to reduce unscheduled maintenance time due to ease of disassembly and reinstallation, as well as improvements in safety, system reliability and reduction of system fatigue. A quick look at the details of a grooved mechanical coupling reveals how grooved mechanical piping systems make piping system maintenance faster, easier and safer than other joining methods.



## Grooved mechanical joints

A grooved mechanical pipe joint is comprised of four elements: the grooved pipe, the gasket, the coupling housings and the nuts and bolts. The groove is made by cold forming or machining a groove into the end of a pipe. A gasket, encompassed by the coupling housing, is wrapped around two pipe ends, and the key sections of the coupling housing engage the grooves that are cold formed into the pipe. The bolts are then tightened with a socket wrench or impact wrench. In the installed state, the coupling housing encases the gasket and engages the grooves around the circumference of the pipe to create a leak-tight seal in a self-restrained pipe joint.

Grooved pipe joints can employ one of two basic coupling styles: flexible and rigid. Flexible couplings allow a limited amount of linear and angular movement, while rigid couplings create a rigid joint and do not allow movement, similar to a flanged or welded joint. There are benefits to both the rigid and flexible styles. A rigid coupling can be used wherever immobility in the pipe joint is needed. Flexible couplings are designed to accommodate piping expansion, contraction and deflection, and thus are ideal as joints around equipment connections, for changes in piping direction and in the building of expansion/seismic joints.

Grooved mechanical systems are available in a broad range of sizes for a wide variety of piping applications, however they are most widely used in fire protection, HVAC and plumbing applications including potable water systems, storm water systems, roof drain systems, vacuum plumbing systems and rain, waste and vent systems. Grooved copper systems are most commonly used for joining domestic water systems in 2-8"/50-200mm sized copper tubing, however grooved stainless steel systems offer an alternative to copper in many applications.

## Safety

One of the many maintenance benefits of grooved piping is the increased safety during installation and maintenance, decreasing the risks to the contractor and building occupants.

Grooved mechanical piping systems are safer than other pipe joining methods. They enable contractors to assemble piping flame-free within the facility, eliminating the fire hazards typically associated with soldering and brazing. Those methods, like



welding, are rife with hazards, including fire risk, electric shock, and exposure to compressed gases and toxic fumes. They also require personal protection for the eyes, hands, feet and body. Welding, soldering and brazing also involve many time-consuming steps to join pipes correctly, and require a fire watch during these procedures. This can slow the schedule and increase costs.

Because no flame, arc or gases are required to join a pipe with grooved couplings, the grooved system does not require additional man-hours or job site preparation and does not introduce toxic fumes to the facility.

Safety on the jobsite is always important; however, it becomes even more critical during maintenance projects in buildings such as hospitals and schools, which often must remain open and operational during maintenance.

### Ease of maintenance

Among the most important benefits of grooved mechanical piping systems is the reduction and ease of maintenance. The design of grooved systems allows for less routine and scheduled maintenance. The C-shaped cross section seal on the gasket is very durable and can handle significant compressive and cyclical loading. Workers can pressurise and depressurize a system repeatedly for many years without fatiguing the rubber. In addition, grooved flexible couplings allow the pipe to move or vibrate within the coupling which reduces the transmission of noise and vibration from equipment, thereby eliminating the need for rubber bellows or braided flex connectors, which are known to require periodic replacement and can be costly. The grooved flexible coupling attenuates noise without wearing out the gasket.

If maintenance is needed, grooved mechanical systems enable quicker and easier access than other pipe joining methods. The grooved system reduces rework by 10-15 percent over soldering and brazing. A coupling provides a union at every joint, which allows easier access to the system as well as the flexibility to expand or reroute the system. To remove the coupling, the worker simply loosens the nuts and bolts and removes the coupling housings and gasket—no torch, saw or flame is required. Once the job is complete, the coupling can be reassembled on the grooved end of a pipe, valve or fitting.

The assembly and disassembly of grooved systems is much easier and therefore requires less labor. It also eliminates the need for complete system shutdown because it does not require torches and therefore the system doesn't need to be completely drained and dried. This makes it easier for the building to return to full operating capacity quickly and does not disrupt occupants in the building. Serviceability in tight spaces is also easier and more time efficient with grooved systems because grooved couplings allow a full 360 degree rotation of the pipe and system components before tightening so that proper alignment can be achieved.



### Conclusion

Grooved mechanical systems are a safer and easier alternative to maintaining a building's piping systems, making the grooved pipe joining method a viable option for projects that would require regular maintenance procedures or where occupants of the building cannot be disrupted for maintenance work. In addition, grooved systems offer ease of access, reduced man hours on the job site and less safety risk.

### About the author

David L. Hudson is a Senior Engineer for Victaulic Company, Inc. He is a practicing mechanical engineer with 30 years of experience. He can be reached at [david.hudson@victaulic.com](mailto:david.hudson@victaulic.com).

# Protection for Steel Reinforcement

*Road salt, rainwater, atmospheric humidity and carbon dioxide can seriously damage reinforced concrete structures. That's why, especially for large infrastructure projects such as bridges, highways and road tunnels, engineers rely on hydrophobic impregnation with silanes. Text by WACKER*

## Damage due to salt and water

Concrete is a highly versatile building material, but it has two arch enemies: chlorides and carbon dioxide. Through atmospheric humidity and precipitation, ocean salts penetrate into the concrete's porous structure. Once the salt has entered the concrete, the continuing capillary absorption of water slowly transports the chlorides into the material's interior. By the time the sodium chloride finally reaches the steel reinforcing rods, it's usually already too late. The steel has started to rust. Since the corrosion products require more space than the original metal, the reinforcing steel expands and, in time, the concrete starts to spall.

## Acid also impacts concrete

Another danger threatens from the air: so-called carbonation. Here, atmospheric humidity and rainwater carry carbon dioxide from the atmosphere into the concrete pores. Carbonic acid forms, which then turns into calcium carbonate. The otherwise alkaline concrete thus becomes increasingly acidic from the outside in. If this process reaches the steel, it loses its corrosion resistance and, in the presence of moisture and oxygen, begins to rust.

While water is important in preparing concrete, it can also be destructive by acting as a carrier medium. The most efficient way of protecting concrete is to drastically reduce water uptake. Without water, steel would no longer corrode even in carbonated concrete.

## Silanes have proven themselves

The water-repellent protective zone created by the hydrophobic impregnation process significantly reduces the uptake of harmful substances. Silanes with long alkyl chains, such as isooctylsilanes, have proven to be the ideal product group here. Silanes outperform rival substance classes in their resistance to UV radiation, thermal stress, aggressive substances and microbiological influences. While they efficiently penetrate into the concrete, they do not fully seal it, but only protect it against external influences. The building material can continue to release water vapor from the inside and so dry out.

To unfold its effect, the process draws on the concrete's material properties, i.e. silanes will form extremely stable bonds with the silicate matrix of the pores and capillary walls. The protective molecules resemble conventional quartz molecules with an additional organic group. This makes the protection particularly durable and the hydrophobic effect lasts for decades.

However, to achieve optimum results, users must observe a number of conditions. Before any restoration work is carried out, it is recommended that an accurate analysis of the structure's condition be conducted by professionals specialising in this area, for example, a civil engineering consultant. The structure is given a detailed examination with magnets and ultrasonic and radar testing to determine the temperature and moisture content of the concrete and the ambient air, the depth of carbonation and compressive strength, as well as the depth of the reinforcing steel. For older concrete structures, the chloride content deep down in the material can also be determined.

## Best protection even under extreme conditions

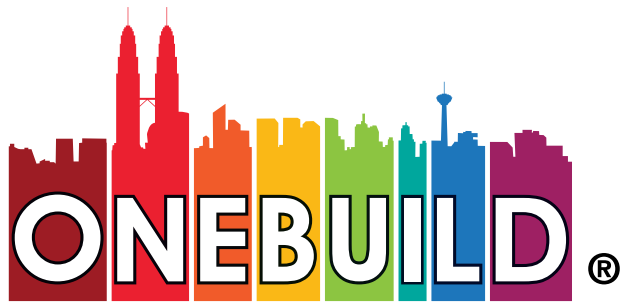
Although the application conditions vary greatly with location and climate, hydrophobic impregnation with silanes is in demand around the world.

Whether roads and highway bridges in Japan, harbour piers in Dubai, tunnels in Europe or dams in China – WACKER's silane treatment protects structures even under extreme loads.

For more information, contact WACKER at tel (+65) 6542-6638, fax (+65) 6542-6632, email [info.singapore@wacker.com](mailto:info.singapore@wacker.com) or visit [www.wacker.com](http://www.wacker.com).



The Dubai Metro network is a fully automated and driverless system running on two lines. SILRES® BS 290 was applied as a primer and as an anti-carbonation top coat. (Photos: WACKER)



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## BuildTech Yangon 2016

Myanmar's Leading Building Technology and Supply Event

26-28 May 2016  
Myanmar Convention Centre  
Yangon, Myanmar

# BuildTech Yangon 2016 addresses needs of Myanmar's growing building and construction sector

The third edition of BuildTech Yangon concluded on 28 May 2016 after three days of trade discussions, commercial engagements and extensive knowledge sharing among some 3,000 trade visitors and business professionals from the Asian region.

Organised by Sphere Exhibits, a subsidiary of Singapore Press Holdings (SPH), and co-organised by the Myanmar Construction Entrepreneurs Association (MCEA), BuildTech Yangon was held from 26 to 28 May 2016 at the Myanmar Convention Centre.

The exhibition was conceptualised specifically to meet the needs of the growing building and construction industry in Myanmar with a focus on the entire value chain for the built environment sector.

H.E Zae Aye Maung, Minister for Rakhine Affairs Ministry and Labour Affairs, Immigration and Manpower Ministry, Government of Yangon Region graced the opening ceremony of BuildTech Yangon 2016.

BuildTech Yangon 2016 saw the signing of a memorandum of understanding between MCEA's Mandalay Chapter and Sphere Exhibits to co-organise the inaugural staging of BuildTech Mandalay later this year. This extended collaboration further reinforced a stronger alliance between the two organisations in their efforts to extend the knowledge building and trade opportunities to industry professionals in Myanmar.

The show hosted about 80 exhibiting companies from Austria, China, Indonesia, Korea, Myanmar, Singapore, Thailand and Vietnam and gathered many industry professionals such as architects,



Photo: BuildTech Yangon 2016 ©Sphere Exhibits Pte Ltd

developers, building and trade agency representatives, investors, manufacturers of machine and building, retailers, security, state-owned company owners, surveyors, trainers and wholesalers.

This year, the event showcased the latest in equipment, machinery and solutions on facilities management (FM), interior finishing and architectural solutions. It also included staple exhibits covering construction machinery, building materials and mechanical engineering solutions to better address the growth and rapid expansion in the areas of infrastructure management.

Mr. UTha Htay, President of Myanmar Construction Entrepreneurs Association (MCEA), said: "We are happy to receive good feedback from both exhibitors and trade visitors. The third edition of BuildTech Yangon delivered a more focused event that was very well received by the attendees. Its newly revamped

platform for the industry, consisting of an extensive product showcase, fruitful networking sessions and specialised seminar programmes, successfully catered to the needs of Myanmar's industry progression in providing right balance for the progression of the building and construction sector in Myanmar."

Mr. Chua Wee Phong, Chairman of Sphere Exhibits Pte Ltd, said: "In line with recent development in Myanmar's fast growing construction sector and opening up of Myanmar's economy to the world, BuildTech Yangon is committed to meet the needs of the infrastructure construction sector in Myanmar. We are pleased that the show is able to facilitate the development of the industry and its professionals in reaping the vast opportunities available, from the rapid development of new roads, buildings, pipelines and electrical grids, as well as the growth of new office spaces and

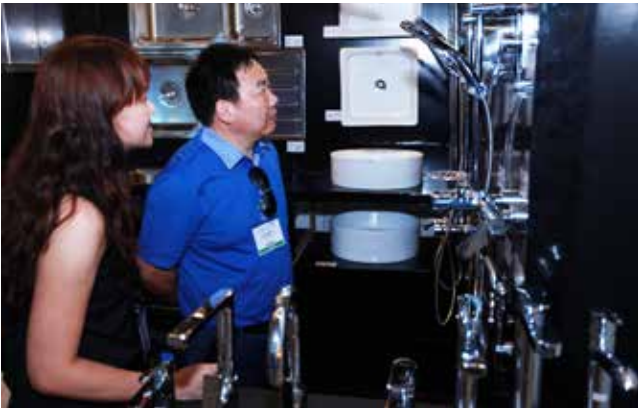


Photo: BuildTech Yangon 2016 @Sphere Exhibits Pte Ltd

housing for expatriates and local nationals.”

With a newly revamped exhibitor profile, BuildTech Yangon 2016 hosted some leading international and regional companies which offered products, services and solutions for four key areas: On-Site construction Machinery and Equipment, Building Materials and Architectural Solutions, Interior Finishing and Facilities Management.

### **Business Seminar Series and Seminars make three-fold increase over previous edition**

The second edition of the three-day Business Seminar Series and two tracked seminars on Workplace Safety and Facilities Management streamlined the knowledge-building and skills upgrading opportunities. These complementary seminars focused on current topics that are relevant to industry

professionals with special emphasis on construction safety, work at heights, as well as fire, safety and disaster management. The seminar focusing on introduction to Facilities Management addressed concerns on sustainability, energy efficiency in green buildings, security and town planning.

The business seminar series received positive feedback from the many delegates who attended the programme. The Seminars, which took place from 26 to 28 May 2016, covered an extensive range of topics from special economic zones, investment outlook in Myanmar, construction law, sustainable and responsible urban design and building management to a comprehensive series on infrastructure management, fire and disaster management.

Noteworthy panel discussions on disaster and safety management as well as a review on environmental management also complemented the business seminar series to some 150 delegates.

### **Industry supporters**

BuildTech Yangon 2016 was supported by the International Facilities Management Association (Singapore Chapter), International Powered Access Federation, Malaysia Heavy Construction Equipment Owners Association, Myanmar Engineering Council, Myanmar Engineering Society, Myanmar Industries Association, Singapore Institute of Building Limited, Vietnam Electronics Industry Association, Vietnam Federation of Civil Engineering Association, World Evergreen Travel & Tours and WSH (Asia).

The fourth edition of BuildTech Yangon is scheduled to take place in May 2017. For more information, visit [www.btyangon.com/en](http://www.btyangon.com/en).

## **Heavy duty coating – TOA-Chugoku Paints Co Ltd**

As a market leader of heavy duty coating, marine paint and container paint in Thailand under the CHUGOKU brand, the company took great pride in participating in the recent BuildTech Yangon 2016 show.

This participation provided the company a huge opportunity for starting its business relationship and connection with various domestic attendants – investors, business owners, sub-contractors and suppliers relevant to construction and industry. Moreover, the company introduced its office branch in Myanmar as well.

“We really appreciated the chance to become a part of BuildTech Yangon 2016, which will help us to build our business fundamental and business growth in the near future,” said Chonnuta S., Asst. Sales Support Manager, TOA-Chugoku Paints Co Ltd.

For more information, visit [www.toa-chugoku.com](http://www.toa-chugoku.com).



Photo: © TOA-Chugoku Paints Co., Ltd

## GoGo Green Pte Ltd

GoGo Green Pte Ltd specialises in providing construction, repair and upgrading works for sports and playground surfaces in Singapore. The company's mission is to maintain a safe, complete and beautiful state of Singapore's sports infrastructure both in schools and public places.

During the 2008 Summer Olympic Games, GoGo Green in China was involved in the planning, consultation and construction of the sports infrastructure. Simultaneously, the company has built a professional management and construction team.

**EPDM Art Rubber Flooring** - Singapore is a tropical country. The strong UV rays from the sun will deface the ground surface over time. This will result in the rubber falling out, discolouration, contraction, cracks and gaps and bad odour. More importantly, we will no longer have colourful playground that we deserve. GoGo Green's SG Glaze for EPDM Art Rubber flooring is the company's specialised technology and could solve all the above-mentioned problems. The company is able to return colours and vibrance to the playgrounds. With EPDM Art Rubber flooring, you can customise (designs and colours) your own playground!

**Artificial turf** is suitable for both indoors and outdoors. Good quality artificial turf is eco friendly and resistant to rainwater and UV rays. As it is low maintenance, it helps to save time and manpower. It also provides visual enjoyment. It lasts up till 10 years without discolouration.



Photo: © GoGo Green Pte Ltd

**SG Elastic Sports Ground** is an upgraded version of acrylic coating and can be used on basketball courts, tennis courts and running tracks. During physical activities, a player has to withstand the impact of gravity, which could easily be 3-5 times his own weight. This might lead to joint injuries in the long run. GoGo Green's product cushions the impact of injuries to ankles / knee joints and in case the player falls down, it reduces the abrasions on the skin.

For more information, visit [www.gogogreen.sg](http://www.gogogreen.sg).

## Singapore Safety Glass Pte Ltd

Through the day, interior spaces will be exposed to the sun at different times and angles. VariShield offers the solution of uneven exposure to the sun by intuitively tinting when heated by direct sunlight, hence eliminating the need for blinds, shades or curtains.

VariShield which allows approximately 50 percent transmission of visible light on cloudy days, at night or even early in the morning, will continuously change the transmission in full sunlight to potentially 10 percent or less, depending on the sunlight angle and intensity. This reduced transmission also reduces the sunlight glare, heat and ultraviolet ray. It offers people a better environment to live, work & study in throughout the day.

The laminated insulated construction provides additional heat insulation which is most effective for warm climates. As VariShield automatically dims when there is direct sunlight, it is most suited for buildings with east and west facings.

VariShield adopts a thermochromic approach. This means that the window use heat (thermo) to cause a "change in tint" (chromic). When not receiving heat from direct sunlight, the window will be in its natural, clear state. When receiving heat from direct sunlight, the heat will cause the window to tint.

The variable light transmission tinting requires only that the glass be heated by direct sunlight; there are no wires, electrodes, power supplies, or control apparatus required. VariShield only needs sunlight to be activated.

VariShield is available in Singapore through Singapore Safety Glass Pte Ltd. For more information, visit [www.ssg.com.sg](http://www.ssg.com.sg).



Comparison of VariShield with normal clear glass. Photo: © SSG

## Polybuilding (S) Pte Ltd

Polybuilding (S) Pte Ltd began operating in 1974 initially as an importer and supplier of Italian Ceramic tiles. Later, the company expanded its business to include the supply and installation of marbles and granites to cater for the growing market demand.

To add value to its business, Polybuilding decided to set up a Singapore factory in 1983, which was used to process the imported semi-finished products into various finishing products such as kitchen tops, vanity tops and anything else which required the cutting and profiling of raw size slabs into the finished cut sizes. The company's full production facilities include machineries for block processing, polishing into various finishes, cutting and doing various profiles. Polybuilding is now fully competent to supply and install of marbles and granites to residential and commercial projects.



Staff of Polybuilding at their booth at BuildTech Yangon 2016.  
Photo: © Polybuilding (S) Pte Ltd

BuildTech Yangon 2016 was Polybuilding's first overseas exhibition. At the exhibition, the company displayed its marbles and granites and showcased its completed projects in Singapore. The company's stones inventory is sourced internationally. Based on its experience, Polybuilding exhibited the types of stones that would be of interest to the Myanmar industry. Towards the end of the exhibition, Polybuilding received many genuine enquiries from the visitors and interest in its projects. Polybuilding looks forward to serving the Myanmar construction industry in the near future.

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

## Apex Fire Systems Pte Ltd

Apex Fire Systems Pte Ltd, a leading distributor, designer and supplier of Fire Protection & Detection Equipment in Singapore, participated in BuildTech Yangon 2016. This was the company's fourth exhibition that it has participated in Yangon since 2013. As a System Integrator for Fire Protection Equipment, Apex showcased the following Fire Suppression Systems at BuildTech Yangon 2016:

1. Kidde FM200 Clean Agent Fire Suppression
2. Masteco FM200 Clean Agent Fire Suppression
3. Pyro-Chem KKII Wet Chemical Kitchen Fire Suppression
4. Ansul Foam Fire Suppression
5. Chemguard Fire Suppression
6. Reliable Sprinklers
7. System Sensor Flow, Supervisory & Pressure Switches
8. Zeta Fire Alarm System

Two Main Fire Suppression Systems were specially highlighted by Apex at BuildTech Yangon 2016. They are:

- A. Masteco FM200 Clean Agent Fire Suppression (Piston Flow) – Extended Piping Distance up to 120m pipe run

Masteco FM200 Clean Agent Fire Suppression (Piston Flow).  
Photo: © Apex Fire Systems Pte Ltd



which is much more superior over standard FM200 system. This was a major draw at this show.

- B. Ansul and Chemguard Foam Fire Suppressions by Tyco was also another interesting product to Fire Safety Personnels who visited Apex's booth at the show. Apex highlighted the transition of the firefighting foam industry from C8 to C6 Fluorochemistry to meet the goals of the US Environmental Protection Agency 2010/2015 PFOA Stewardship Program.



Ansul and Chemguard Foam Fire Suppressions by Tyco.  
Photo: © Apex Fire Systems Pte Ltd

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

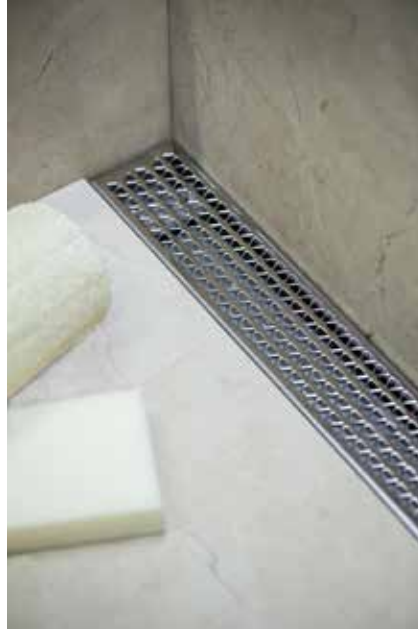


**ECO-FRIENDLY DRAINAGE**

**STORMTECH PTY LTD**



**Architectural grate in the courtyard at the QT Hotel in Bondi . Photo: © Stormtech Pty Ltd**



**Detail of the Mark Newson designer grate in a shower. Photo: © Stormtech Pty Ltd**



**Tile Insert Drain in a commercial shower/change room. Photo: © Stormtech Pty Ltd**

Stormtech Pty Ltd has been at the forefront of drainage innovations for residential and commercial building projects for over a quarter of a century. Their product range includes linear drains, Tile Insert Drains, Square floor wastes, Threshold drains, Vinyl clamps, as well as Special Assemblies and Slot Drains for landscaping applications.

In bathroom applications, the Stormtech system forms a sleek partition between the “dry” area of the bathroom, housing the sink and toilet and the “wet” bath and shower area.

Using a linear drain in the bathroom and shower also allows the use of larger format tiles and floor surfaces in design: the floor is sloping towards one long, narrow grate and channel all on the same plane allowing the removal of hobs, steps and other floor level changes.

For today’s open-air living designs linear drains allow internal and external areas to become level and help create a perfect integration between indoor and outdoor areas. More and more popular is the use of a threshold drain integrated directly in the doortracks, as this application will stop rainwater coming over the threshold and spill on the interior flooring.

Quality drainage systems are key to ensuring water, once used, is conveyed efficiently, effectively and cleanly from the property. Poor drainage can have serious consequences outside the home. Excess water can saturate soil (resulting in plant death and disease), degrade landscaped areas and attract insects or rodents. Prolonged water exposure can even erode concrete and building foundations.

Stormtech’s stylish Slimline grates are all high quality stainless steel manufactured in Australia available in various widths and finishes including luxury wedge-wire, designer grates created by Mark Newson, as well as more affordable perforated designs. The drainage channels are either UPVC or stainless steel available in modular kits, fixed-lengths units or customised lengths with variable outlet positions.

The system connects directly with all standard plumbing fittings and all products have a Watermark Standards Australia International certification. Further with a proud commitment to eco-friendly design, Stormtech says that it was the first drainage manufacturer with Level A GreenTag™ certification – the most respected third-party certification body in Australia for eco-friendly products. The GreenTag™ is recognised as the foremost rating system for top quality green-certified building products.

Since 1989, Stormtech has delivered the highest quality eco-friendly solutions for residential and commercial drainage systems. Stormtech takes a boldly holistic approach to their designs; the WSUD standard is a guiding philosophy in the design, manufacture and installation of all Stormtech products. This ensures not only the highest standards in workmanship, but a commitment to maximising the quality of water discharged via their drainage systems.

For site-specific needs, Stormtech can deliver made-to-measure drainage solutions for any home or any commercial space.

**For more information on Stormtech’s products and its distributors in Asia, contact the company at tel (+61) 2 4423 1989, fax (+61) 2 4423 5552, email [info@stormtech.com.au](mailto:info@stormtech.com.au) or visit [www.stormtech.com.au](http://www.stormtech.com.au).**

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## PREMIER NETWORK ARCHITECTURE SOLUTION | ECTIVISE SOLUTIONS PTE LTD

Ectivise Solutions Pte Ltd is focused on consultancy design, delivery, support and maintenance for IOBAs in Singapore and Asia. Ectivise was founded with the aim of delivering value-added engineering services and solutions to improve energy efficiency and increase CAPEX & OPEX savings for buildings, enterprises and Small Medium Enterprises (SMEs).

### Ectivise infrastructure solutions based on IOBA

Ectivise's ICT backbone solutions for smart applications are based on the company's unique IOBA design. IOBA is Ectivise's premier network architecture solution that spearheaded its foray into the deployment of large-scale GPON solutions in Asia. The design is concise, stable, cost-effective and easily scalable. It improves energy efficiency and reduces carbon footprint for organisations' systems and facilities, while providing superior network experience, for example, ultrafast data transmission.

### Ectivise's Integrated Optical Backbone Architecture (IOBA)

Subsystems such as CCTV, WiFi, access systems, and telephony traditionally require immense amounts of copper wiring and are limited by its reach, especially in large office floor plates.

By deploying an IOBA, the cumbersome chunk of wiring is easily compacted into an optical backbone, effectively extending where you can position your subsystems. IOBAs not only reduces energy consumption, but also frees up precious office space.

With GPON technology, gigabit network performance can now be delivered through IOBA which gives the high bandwidth and scalability that is needed to keep in pace with the increasing demand for data volume from applications and services.

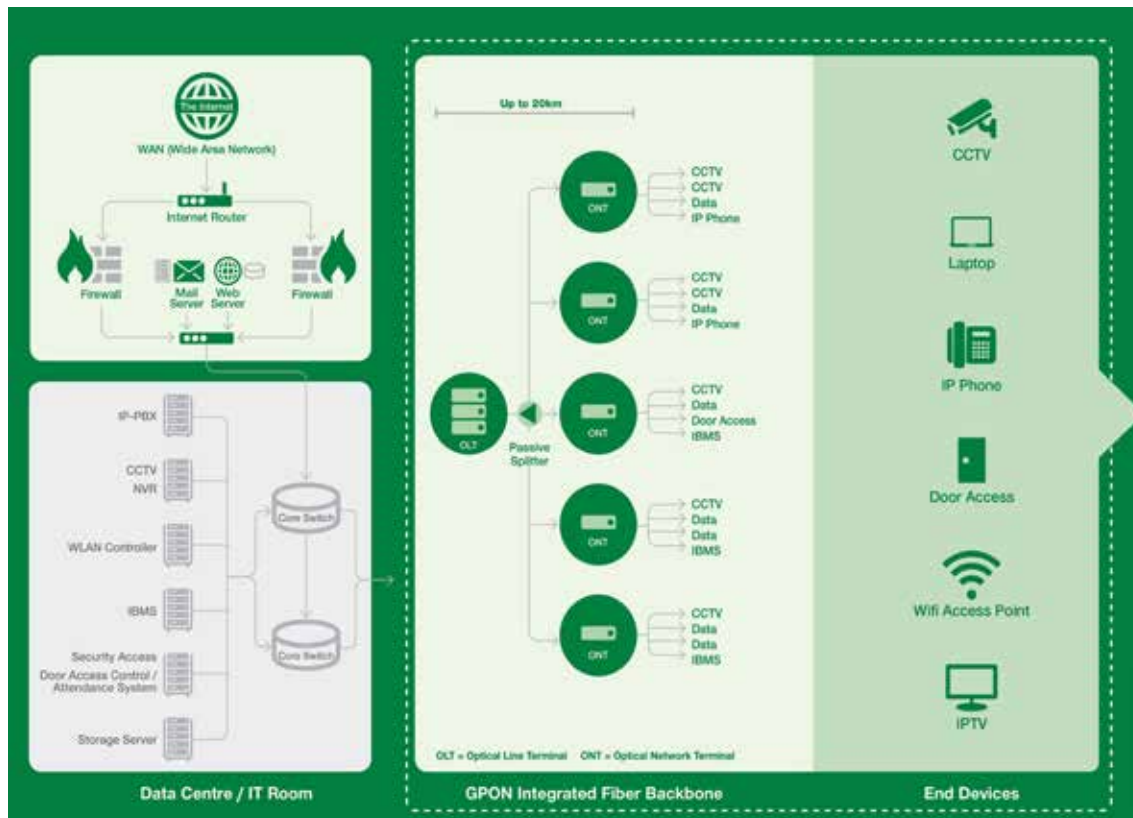
The company's team of solution architects provides an in-depth analysis of your floor plans so guesswork is eliminated and we can immediately establish your network requirements while exploring versatility.

It is this approach and the commitment to energy efficiency that has brought tremendous results.

Gigabit Passive Optical Network (GPON) is a technology that delivers voice, video, and data services over an optical fibre network.

GPON consists of:

1. an Optical Line Terminal (OLT) – the nerve centre of IOBA
2. multiple Optical Network Terminals (ONTs) – the network nodes
3. passive optical fibre and splitters that links the nodes (ONTs) to the nerve centre (OLT)



The eco-friendly integrated optical backbone architecture. Photo: © Ectivise Solutions Pte Ltd

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



# SMART SENSOR NETWORK | ENLIGHTED INC

The most sustainable building is one that is not built. But we know that this is not possible. Therefore, the next best solution is to optimise on the real estate that we build in terms of space utilisation and energy consumption.

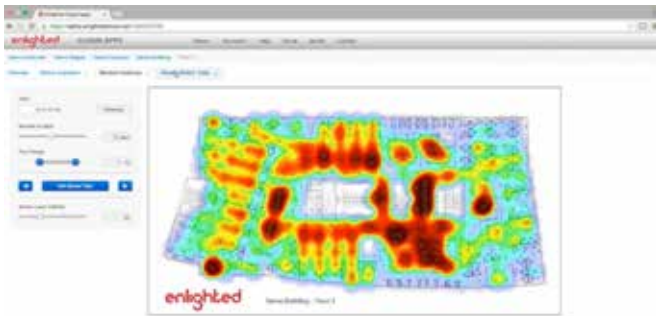
IoT (Internet of Things) adoption in commercial real estate is expanding and growing rapidly. IoT is currently being deployed to help organisations lower their energy consumption and reduce their overall carbon footprint. Intelligent systems can collect information on occupancy, temperature, space utilisation and communicate with existing BMS systems to create an environment that is smart and responsive.

The Enlighted Smart Sensor Network scans the environment 65 times a second and collects data on occupancy, ambient light condition and surrounding temperature. It is a highly intelligent system with microprocessor chips embedded within each sensor, carrying out edge analysis on the data collected.

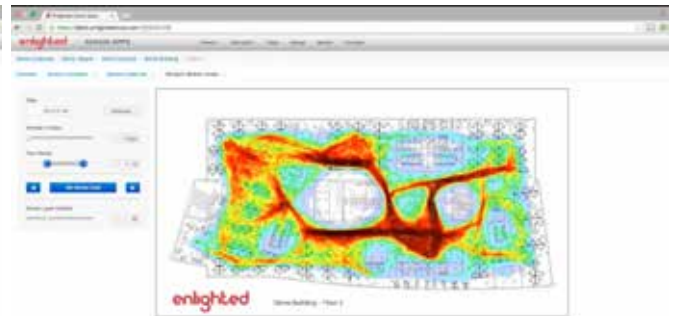
Based on occupancy data collected, the Enlighted Smart Sensor Network provides feedback to the BMS to adjust set-back temperature for each cooling zone, saving as much as 30 percent on air-con bills for the company's customers.

Occupancy information is also used to control lights through auto-dimming features, bringing about savings of 50-90 percent in lighting energy usage. Saving energy by turning on-and-off lights is simple. But the challenge is to save energy when the lights are on. With the trend in offices moving towards creating a conducive lighting environment for employees, the Enlighted Smart Sensor Network is able to control individual lighting fixture to adjust the brightness level at the cubicle level.

Using dual technology coupling of PIR (Passive Infrared) with Ambient Light Sensing, the sensors are able to provide accurate data on occupancy patterns, motion trails, and utilisation maps. Such structured data is invaluable for space planning, fire safety and security purposes.



Enlighted heat maps shows exactly where people spend the most time within a space.



Enlighted motion trails show precise patterns of movement within a space.

The Enlighted Smart Sensor is a Singapore Green Building Product (SGBP) certified green product. Under the new Green Mark 2015 version released by BCA for 'New Developments', the Enlighted Smart Sensor Network can help developers obtain up to 12 green mark points. The Enlighted Smart Sensor Network can also positively help SGX listed companies in their mandatory Sustainability Reporting starting from 2017.

The Enlighted Smart Sensor Network is available in Singapore from Enlighted Sales and Service Pte Ltd.

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



The Enlighted Smart Sensor is a Singapore Green Building Product (SGBP) certified green product.



## NATURAL FIBRE COMPOSITE MATERIAL | BCOMP LTD

ampliTex® - a patented Swiss natural fibre composite material developed by a high-tech start-up Bcomp Ltd is changing the way the world sees flax. From now on, it is not only a textile fabric - flax is being rediscovered in architecture, smart design and industrial applications. It is fully sustainable, light and lower in price, which makes the fabric very amusing for many markets.

Flax offers infinite range of colours and textures so as ability to play with the light and translucency. In order to adapt to basically all design requirements, textile can be dyed in any desired colour, flax itself can be weaved in various different ways, which enables to find the best suited appearance and style. Moreover, flax composites allow the use of transparent patterns, which is perfect for distinct light application ideas.

Bcomp's ampliTex® is a great example of combining flax and chosen matrix to make the newborn material stiff, flexible and ultra light. Hence it becomes incredibly attractive for interior designers so as conceptual developers. ampliTex® not only allows many different ways of exploitation but is also a pleasant material to work with. It is not toxic, neither allergic nor dangerous in any way, flax is nice to touch and easy to deal with. Thus designers are keen on switching from not so eco-friendly materials to the green and beautiful ampliTex®.

The high-tech start-up based in Switzerland - Bcomp specialises in natural and smart high-tech composite materials made entirely of natural fibres. Bcomp not only provides market with smart and sustainable materials but also helps their customers bring ideas to realisation by developing the concepts to the actual products. Two main materials in the Bcomp's production line are European grown flax and the lightest wood in the world - balsa. The company has already gained national and international success and is partnering with many small and big industrial players so as designers, conceptual developers, sports and leisure industries.

For more information, visit [www.bcomp.ch](http://www.bcomp.ch).



One of Bcomp's ampliTex® design application examples - a transparent, multicoloured bar table. Photo: © Bcomp Ltd.



ampliTex® flax is easy to dye, has many different textures and can be made into a translucent material. Photo: © Bcomp Ltd.



## ACOUSTIC CEILING AND WALL PANELS | ASONA LIMITED



Photos © Asona Limited

Manufactured in New Zealand, the Asona Triton, Global Green Tag certified acoustic ceiling and wall panels have been used in a number of 5 star green buildings from new PPP schools to office projects throughout New Zealand.

“We made the commitment to under-go the independent, certified Global Green Tag programme to better support design professionals and NZ building standards,” said Neil Ridgway, Managing Director of Asona Limited. “As a local manufacturer, we are able to tick a lot of boxes from made close to market, high acoustic performance, low VOC’s, high recycled content, low embodied energy to an innovative renew & recycle program to extend the product life cycle,” he added.

The Triton Range is available in a wide range of standard and custom decorative finishes, shapes, sizes, colours, edge wrapped and framed options that meet almost every application from suspended grid and tile ceilings, free hanging cloud and baffle panels, linear beams to direct fix ceiling and wall panels. They are suitable for general office, classrooms, gyms, swimming pools, auditoriums, libraries, retail etc. Triton panels are light weight so low risk in seismic prone areas, non-combustible (Group 1S Fire Rating), easy to handle & install and due to their unique composite construction designed to be easy disassembled and recycled. Recently, the Triton Range was installed at Hobsonville Point Intermediate School in Auckland, New Zealand. Thanks to the product, the school achieved a green Star rating of 5. **For more information, visit [www.asona.co.nz](http://www.asona.co.nz).**

## WOOD-BASED PANEL | PFLEIDERER

Leaving behind an intact environment and quality of life for future generations – is also becoming increasingly important to property owners and developers. They emphasise the need for sustainability, ecological building and healthy, low-emissions building products.

The wood-based panel manufacturer Pfleiderer has a particularly wide range of these in its product portfolio: Starting with products which bear the “Blaue Engel” or are certified to CARB2/EPF-S, to the “Nordic Swan” label and the particularly low-emission category “F Four Star” through to panels which are bonded completely free from formaldehyde – and are therefore especially suitable for Green Building projects. It is not only the products themselves that are sustainable. By primarily using PEFC™ and FSC® license code: FSC-CO011773 certified wood, the Pfleiderer company promotes sustainable, resource-conserving forestry management.

The LEED certification scheme for Green Building projects requires decorative wood-base panels to be bonded without urea-formaldehyde resin. This is the case with Pfleiderer’s “LivingBoard” – even when decoratively faced with selected plain colours and wood reproduction effects. In this way the classic PMDI-bonded ecological building product can also satisfy the highest standards of room climate quality in interior finishes.

However, the strictest requirements for wood-based panels are currently those in Japan. There the non plus ultra is emission class F\*\*\*\* (F Four Star), whose limit lies far below that of emission class E1. Products certified to JIS A 5905 F\*\*\*\* (Japanese Industrial Standard) emit around two thirds less formaldehyde into their surroundings than E1 wood-based panels. In Europe, Pfleiderer is claimed to be the first wood-based panel manufacturer to not only obtain this certificate for its particleboards, regardless of whether they are raw or faced, but also for its medium-density fibreboards (MDF) – and therefore for the complete raw core product range made in-house. **For more information, visit [www.pfleiderer.com](http://www.pfleiderer.com).**



Photo: © Pfleiderer Holzwerkstoffe GmbH

**TOUCH-SENSITIVE CONSTRUCTION MATERIAL | KENNWERT KW GMBH**

TouchCrete™ is a new system of touch-sensitive construction materials based on a cement-bound medium, used in the development of touch sensitive concrete surfaces.

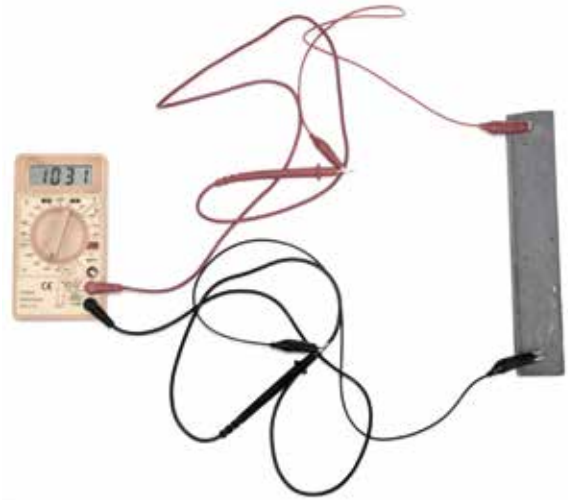
Non-mechanical switches are fully implementable with TouchCrete, and entire wall surfaces can be designed to function as touchpads. The main components of this synthetic material (or sensor-actor system) are a new type of conductive concrete (the sensor) and a signal-processing unit.

The actors in the system can be any components, devices or functional elements of a building's technological systems (light, ventilation, heating, acoustics, data), as well as the controls for household and other electronic devices. Conductive concrete can be used as an information conduit for intuitive gestural control, or as a sensory detection device, for example for the control of highly stressed building elements or of the thermal behaviour and humidity in the context of energy-efficient buildings.

TouchCrete™ adds a sensory component to concrete's positive qualities as a structural material (fire resistance, high strength and durability, variety of construction methods, etc.). Sensitive concrete surfaces (inductive or capacitive sensors) allow touches to be recognised and processed as control commands. With minimal modifications, gestural controls like those used in smartphones and tablets can be implemented in homes, offices and outdoor spaces. Electronically controlled devices can be operated with a simple touch, intuitive swipe or typed command on a concrete surface.

Compliant with German and international standards, TouchCrete™ is cost-effective, durable, environmentally friendly and sustainable: a high-tech, low budget structural product, optimised in terms of its technical, functional and aesthetic qualities, with a wide range of applications in architecture, public space, interior decoration, design, and measurement and control technology. TouchCrete™ can be used for programming interactions and for designing Tangible User Interfaces.

The idea of TouchCrete™ is closely associated with communication, and with information, concerned with space. It promotes the linkage of disparate contexts. Touch-induced changes in the field are detected (depending on required signal resolution) and localised by an appropriately positioned lead in the structural element and then relayed as signals to the signal-processing unit (control unit). This unit is completely programmable in terms of defining requirements. It then transmits control commands to subordinate devices or actors in accordance with its programming. Leads can be placed in the locations best suited to the geometry of the structural element. Similarly, structural form and geometry can be designed to fit the requirements of structural engineers or other specialists. The positioning of the control unit can be determined by structural or other considerations. It is typically installed on the outside of a concrete structural element but can be placed anywhere – including inside the element. It can be integrated into a primary or secondary distribution line, much like a modern dimmer unit.



**Conductive concrete has low voltage potential.**  
Photo: © Klussmann Klooster Taylor



**Conductive concrete allows the user to control light via touch.**  
Photo: © Klussmann Klooster Taylor



**Sequence of conductive concrete in operation.**  
Photo: © Klussmann Klooster Taylor

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



## RADIANT SOLAR SYSTEM | FAISAL JASSIM TRADING CO. LLC.

The advantages of solar power are far-reaching. Although solar power is a relatively new energy source, it may easily become the most important energy source of the future. This is because of the many advantages of solar power:

- Solar power is a renewable resource.
- Primary advantage of solar is that it is non-polluting. Unlike oil, solar power usage does not emit any greenhouse gases, nor does the acquisition of it harm ecosystems through spills or dredging.
- Once solar panels/solar thermal collectors are set up, there are no electrical expenses necessary to power them.
- Solar Cells can last a lifetime and require very little maintenance.



### Close-Coupled Thermosyphon System

This system consists of roof-mounted solar collectors, combined with a horizontally-mounted storage tank located immediately above these collectors. In most solar systems a pump is not required. Heated water rises naturally through the solar collectors and enters the storage tank. When this happens, cooler water at the base of the storage tank is forced out and flows down to the bottom of the collectors. This cycle is continuously repeated while the sun is shining. Most commercially available solar hot water systems employ this cycle, commonly referred to as 'thermosyphon flow'.

### Remote Thermosyphon System (Constant low pressure)

This system works on the same principle as the close-coupled thermosyphon system, except that the storage tank is located within the roof space and supplies hot water by constant rather than mains pressure. The base of the tank must be situated at least 300mm above the collectors.

### Forced Circulation System

With a pumped system, the tank is located below the level of the collectors, usually at the ground level. Water must be therefore pumped from the tank to the collectors and back by a thermostatically controlled pump. This system can be used when the roof structure isn't strong enough to support a close-coupled system. The system is traditionally boosted by off-peak electricity and also available with a gas booster controlled by a timer, which stops the gas burner from operating during sunshine hours.

### Growth of Legionella Bacterias

Solar system smart control panel is managed to increase the water temperature regularly to get rid of the legionella bacteria. In addition that normal heating temperature output from the solar is 60 °C, which is enough to kill the legionella.

### Advantages of Radiant Solar System

- Radiant Solar system is adopted by main manufacturers in Europe since 1974, where it is installed in many European countries. Radiant main factory in Greece is manufacturing for many companies in Europe as OEM.
- Faisal Jassim Trading Co. L.L.C, the exclusive distributor for Radiant in the Gulf region, has a wide experience in solar system with more than 10 years experience in UAE.
- 5 Years warranty is given on the whole system.

Radiant Solar System complies with Istidama resolution on the implementation of green building specifications and standards in the Emirate of Abu Dhabi. Under the new resolution, all owners of residential and commercial buildings and properties in Dubai must comply with internationally recognised environmentally friendly specification. **For more information, visit [www.fjtco.com](http://www.fjtco.com).**



## INNOVATIVE & SUSTAINABLE FURNITURE | PROOFF

PROOFF is an innovative and sustainable focused furniture brand for the workspace, based in Rotterdam, The Netherlands. Currently, the company has ten products in its collection and believes that embracing nature can make a big difference. That is why PROOFF uses the best materials and publishes innovative furniture concepts which can be used and re-used in all kinds of working landscapes. So it only makes sense that 5 out of 10 products are officially certified with the GreenTag GreenRate Level C.

The Global GreenTag is one of the largest product sustainability certification systems in Australia and the world and is based on Life Cycle Assessment. LCA is the process which determines the environmental and health impacts of a product from the sourcing and refining of its raw materials to transport, manufacturing and disposal: the whole life span of the product.

### #001 EarChair by Studio Makkink & Bey | Jurgen Bey

What happens when furniture is designed while keeping in mind the idea that it should behave like a room? When a chair has been designed with a proper height and is built with a rounded aesthetic the result is a well resolved acoustic EarChair that lets you be yourself in your own personal space.



### #002 WorkSofa by Studio Makkink & Bey

The different characteristics of the WorkSofa offer many configurations in which stylish pieces of the puzzle allow for endless varieties of communication to occur. From informal to intimate, the modular WorkSofa has proven itself as an ideal setting for public meetings, presentations, brainstorm sessions and group work – or even a place to have a meeting with oneself.



### #003 PhoneBox by Axia Design

Where does one go in the middle of a busy public space or office to answer a phone call? 'Public but private' is the idea in which the PhoneBox offers a quiet space to settle amidst the 'busying' situations. The unique design of the compact enclosure creates a muffling effect from the outside noise allowing the user not to be disturbed.



### #004 Niche by Axia Design

Niche offers a perfect environment to hold one's meetings in the buzzle of the open office or public space. Form follows function as the sober organic beauty of Niche adapts easily to many different environments. Experience the Niche as you are embraced and the world around you fades away: it allows you the control and the concentration you need. Unequalled acoustic absorption. Optional led lighting and electricity charging point.



Optional led lighting and electricity charging point.

### #005 SitTable by Ben van Berkel | UNStudio

People communicate in a variety of ways. The design for the SitTable understands this and caters to the needs of these divergent varieties. The hybrid form of the SitTable combines a table and a chair into one multifunctional furniture piece, offering a fresh approach to your spatial organisation.



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

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## SCREED FLOORING | ARTIGO S.P.A.

Artigo designs and manufactures high-performance rubber flooring. Recently, the company launched Screed flooring. The Artigo product range has two main lines. They are PLANSYSTEM (includes all floors with smooth or lightly embossed surface) and STUDSYSTEM (includes all floors with relief surface).

The Plansystem Screed has a smooth surface with grainy concrete look. It is available in six different colours: S01 Ivory, S02 Antique, S03 Greige, S04 Haze, S05 Cement, and S06 Charcoal.

Screed comes as a standard in 3mm with PRO coating in rolls of 1.90x10 metres or tiles of 610x610mm.

It is the outcome of a long research and its components are for more than 60 percent natural content and for 10 percent rapidly renewable content.

A solid and thick coating layer is applied in the end to protect the product and ease the maintenance, in order to reduce the use of water and detergents.

As for all ARTIGO products, Screed does not contain PVC, cadmium, formaldehyde, asbestos nor substances that become toxic in case of fire such as chlorine, fluorine, bromine and iodine.

Screed is produced using green energy from solar source and 3 percent of production scraps is recycled in house. When dismantled, it is highly recyclable.

In 2015, Artigo was awarded the prestigious Greenguard and Greenguard Gold certifications which note the sustainable way in which the company performs.

Additionally an Environmental Product Declaration, a comprehensive and internationally harmonised report documenting the ways in which a product affects the environment over its lifetime, has been awarded to several ARTIGO products.

### **Case study: CN Tower specifies Screed flooring**

553,33 metres high, the CN Tower has been a landmark of Toronto's skyline since opening in 1976. Bustling with shops, restaurants and the dazzling "EdgeWalk" experience, where people can actually walk around the spherical pod, hands free, 356 metres from the ground.

Recently, CN Tower adopted Artigo's brand-new Screed flooring for the mezzanine shopping area, for a total surface of more than 2,000 square metres. Artigo's design was inspired by the bright red and white vertical lines that light the tower at night: the company incorporated the same red lines in the floor, made with its own Kayar 074, separating the two Screed nuances (S05 and S04).

Smooth rubber with a painted concrete appearance, Artigo's recently launched Screed is already making its way into some very interesting projects, promoting a new concept of flooring where the human hand plays a decisive role.

Produced by manually spreading and troweling rubber powders on a raw rubber sheet, Artigo calls Screed "a re-humanization of the industrial process", a test of its engineering skills by actually adding purely human, one-of-a-kind gestures to a high-numbers production process.

This "human touch" unevenness is what makes Screed different and unique, making it suitable for many different purposes.

The Artigo products are available in Singapore through Unitrio Trading Pte Ltd.

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





**STONE SEALER | FABER – TILE & STONE CARE**

Hidro Protector MM is an innovative V.O.C. free and water-based stone sealer developed by a leading Italian company Faber - Tile & Stone Care.

Hidro Protector MM, as all the stone sealers developed by Faber, has obtained the TUV SUV PSB certification from Singapore Green Building Council with a rate of "Excellent - 3 tick".

Hidro Protector MM is a high penetrating stone sealer to protect every kind of natural stone, specially designed for sensitive white marbles, thanks to its main feature: Hidro Protector MM is able to penetrate the stone for several millimetres, without creating film so that the breathability of the stone remains. For this reason, Hidro Protector MM could be defined a "Stone Impregnator". Reaching those penetration levels into natural stones means preventing humidity reaction through all the body of the stone, ensuring the total protection of the stone tile.

Avoid the humidity inside the stone means also protecting it from watermarks and from rising salts. Watermarks and rising salts are the result of water evaporation that leaves behind white stains all across the surface of the stone. The very high quality of the protection given by Faber impregnating sealers avoid the water to be absorbed by the stone: in this way the original look of the stone will be preserved across time. Last, but not least, Faber impregnating sealer avoid different type of dirt and staining agents to penetrate the surface, making the stone stain-proof and dirt-proof. Cleaning the surface will be easier and faster thanks to the protection guaranteed by Faber's sealers.

Hidro protector MM, as all the water-based and VOC free Faber impregnating sealer, are one-component, ready to use products. They can be applied both before or after the installation of the stone, by using paint, roll, brush or fleece. The application, depending from the stone type, can be done, before the installation, on all the six sides of the tile (top, then four sides and at last the bottom) or on the five sides (top and four sides), while after the installation the application can be done only on the top face of the tile.

Hidro Protector MM, as others Faber's products, have been used in different prestigious projects, for example The Marina Bay Sands in Singapore; The Reflection Towers in Singapore; The International Finance Center in Hong Kong; The International Airport in Hong Kong, The Grand Lisboa in Macao and many other international architectural projects.

Since 1980s, Faber - Tile and Stone Care has been developing and producing innovative and high performance chemicals for protecting, sealing, polishing, maintaining, cleaning and stain removing on any kind of natural stone or man-made material. Faber is an ISO 9001 and ISO 14001 certified company, and is a member of ISSA, Green Building Council Italy and Green Building Council Singapore.

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



**Hidro Protector MM is an innovative V.O.C. free and water-based stone sealer.**  
Photo: © Faber – Tile & Stone Care

**FURNITURE | ALCAROL**

Forests are the dominant terrestrial ecosystem. Their biomass is the oldest source of renewable energy used since our ancestors learned the secret of fire. Much of this biomass occurs below ground as partially decomposed plant detritus. Its decay is a clear example of the transformative energy of Nature, and it's all around us.

The final stages in the life cycle of a forest tree attracts specialised fungi organisms which attack the wood breaking down the tough lignin layer that protects it. These colonisers open up the resources by making cracks in the tough outer skin and modifying the heartwood so that it can be assimilated by other feeders. Next to arrive are

very important plant and animal species that eat the evolved organic matter. Fungi are in the air. They just await the opportunity to take advantage of the right conditions to grow and transform the organic matter.

Fungi doesn't always grow when a tree dies and neither does it always strike all specie of tree equally either, any chance during the winter months fungi become inactive until the next spring. With the ice melting they begin to operate again using the water and the humidity of the undergrowth.

alcarol walks in the Italian Dolomite forests selecting dead trees and abandoned logs with their native populations of fungi, and cut planks preserving their natural live edges. One of the outstanding effects of the early stages of wood decay is the fungi texture inside the matter of the tree: the fungal growth can create some of the most dramatic and beautiful wood colour changes with regions of discolouration and intricate patterns of amazing dark lines, adding a new dimension to the wood grain.

In April 2016, alcarol launched the new Fungi Collection of furniture. It consists of the following:

- **FUNGI Dining Table** – Beech wood with fungal texture, extra clear resin, burnished steel leg.
- **FUNGI Stool / Side Table** – Apple wood with fungal texture, extra clear resin.
- **FUNGI Console** – Beech wood with fungal texture, extra clear resin, burnished steel leg.
- **FUNGI Screen** – Beech wood with fungi texture, extraclear resin, concealed hinges in burnished brass, with 180° opening angle.



**Fungi Collection. Photo: © alcarol**



**Fungi Dining Table. Photo: © alcarol**



**Fungi Stool / Side Table. Photo: © alcarol**



**Fungi Console. Photo: © alcarol**



**Fungi Screen. Photo: © alcarol**

Dream – Singapore is the exclusive distributor for alcarol products in Singapore. For more information, visit [www.alcarol.com](http://www.alcarol.com) or [www.dream.com.sg](http://www.dream.com.sg).

## SPECIALTY CHEMICALS | EVONIK

The tropical–hot and humid climate in Southeast Asia might affect the facades or even the stability and safety of the buildings. With Evonik's PROTECTOSIL®, it can help to make the buildings last much longer by providing protections from weather, oil and dirt ingress. Most importantly, it helps lower the maintenance costs.

According to the ASHRAE Humidity Standards, the recommended humidity level for buildings is under 60 percent. However for tropical countries, particularly Thailand, the humidity level can be hovering around 90 percent during its summer time. Buildings in the country especially those located by the seaside will have to withstand the effects of high humidity. The formation of moss and algae on the facades of the buildings might cause structural damage, the penetration of water and dissolved salts from the seawater might also lead to cracks and spalling.

#### Case study: Chao Phraya River Crossing Bridge in Thailand

Bridges that built across the seawater are especially threatened by corrosion, the steels will turn rusty when water and salt penetrate into the concrete, which could rapidly undermine the bridge's stability. To increase the service life of the bridge, the Chao Phraya River Crossing Bridge in Thailand had decided to use Evonik's PROTECTOSIL® from the beginning of its construction. PROTECTOSIL® is a unique building protection material that provide protection to the pillars against rain and seawater.

The protection's main element is a waterproof impregnation with PROTECTOSIL® BHN, after applying this specific product onto the bridge's concrete barriers, it will penetrate deeply into the concrete, where it forms a colorless, water-vapor-permeable seal and can effectively prevent water intrusion as well as corrosion into structural elements of the buildings. Acting like a breathable waterproof jacket, this specialty chemical provides protection and creates a dry and healthy climate inside. Besides that, it can also provide abrasion and UV protection which makes it a perfect solution for outdoor concrete located at high traffic areas like the Chao Phraya River Crossing Bridge, where more than 46,800 vehicles are expected to cross over in a daily basis.

Besides protecting the bridge structurally, a separate product, PROTECTOSIL® SC CONCENTRATE has also been applied to keep the surfaces of the bridge clean. Dirt, mold, algae and moss can be removed easily without any residue from PROTECTOSIL®-treated surfaces. Now with PROTECTOSIL® BHN and PROTECTOSIL® SC CONCENTRATE being applied onto the Chao Phraya River Crossing Bridge, the beauty of the bridge is maintained, at the same time, helps to provide a more durable bridge with less structural risks like corrosion. Most importantly, safeguards investment by lowering the repair maintenance costs.

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



The Chao Phraya River Crossing Bridge in Thailand. Photos: © Evonik

## KEMPER HYGIENE SYSTEM | KEMPER

*Mains Cold Water Service Specification: KHS the "Kemper Hygiene System".*

### Legionella background

There is evidence that the temperature of cold water in buildings is increasing due to global warming of mains supply water and cold water systems acting as heat sinks within better insulated buildings. The prevalence of Legionella and other bacterium in cold water distribution systems correlates with this increase in systems water temperature.

Water stagnation in buildings and cold water distribution systems is also a significant contributory factor for proliferation of Legionella bio-film and therefore periodic system flushing must be carried out regardless of whether or not the buildings are occupied.

### Managing the risk

It is essential that designers and responsible persons comply with the existing guidance for managing the risks of Legionella Bacteria. For the UK and countries that refer to British regulations, these are two of the relevant documents:

- (1) "The Approved Code of Practice & Guidance for Legionnaires' disease": The Control of Legionella Bacteria in Water Systems (ACOP L8)
- (2) The Department of Health Technical Memorandum for Water systems: (HTM 04-01): The control of *Legionella*, hygiene, "safe" hot water, cold water and drinking water systems.

Two essential requirements for hygienic cold water installations are.

- the maintenance of proper water temperatures in cold water (max. 20°C)
- the avoidance of stagnation and dead legs.

The temperature requirement is depending on the requirement of avoiding stagnation, as stagnant pipework adopts ambient temperature which is usually above 25°C and below 50°C. As this is the temperature that benefits proliferation of pathogens, the avoidance of stagnation is the key to keep cold water temperatures in a proper range.

### KHS the Engineered System Solution

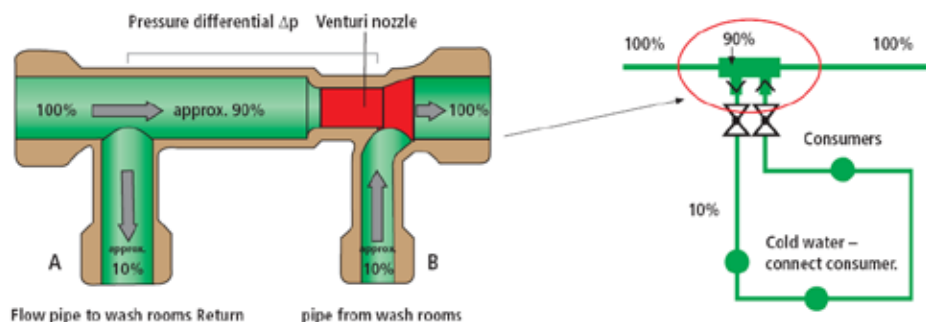
Water stagnation is prevented by the use of KHS Flow Splitter Units which have a Venturi Nozzle designed within the body. KHS Flow Splitters are installed into the cold water system to create circuits of pipework serving washrooms and seldom used points of use. Several circuits are included within a managed zone. When taps or outlets are used, movement of water is created in preceding pipework via the differential pressure action within the Venturi Nozzles, thereby preventing stagnation.

Water installations with chemical disinfection systems are also supported by the effect of the KHS Flow Splitter, as the distribution of the disinfectant is improved.

When there is no constant use at the outlets, water stagnation is also prevented by the use of KHS automatic flushing valves. Automatic flushing valves are installed at the end of Zones and when they are opened, movement is created within all circuits ensuring that bio-film is prevented. Fresh, cool water replaces the tepid water and system temperatures are decreased into the safe zone: 20 °C or below. The flushed water can be led in tanks for non-potable water usage to maximise the efficiency of water consumption.

Automatic Flushing is managed via a KHS Mini-Control System which can be operated via a web-browser. Actuated valves can be opened on a maximum temperature basis of cold water or on a weekly schedule. The control unit is recording all events and data to be able to download, analyse and improve the operation of the water installation.

The Kemper Hygiene System (KHS) gives control over the installation that supplies humans most important nutrient – our drinking water.



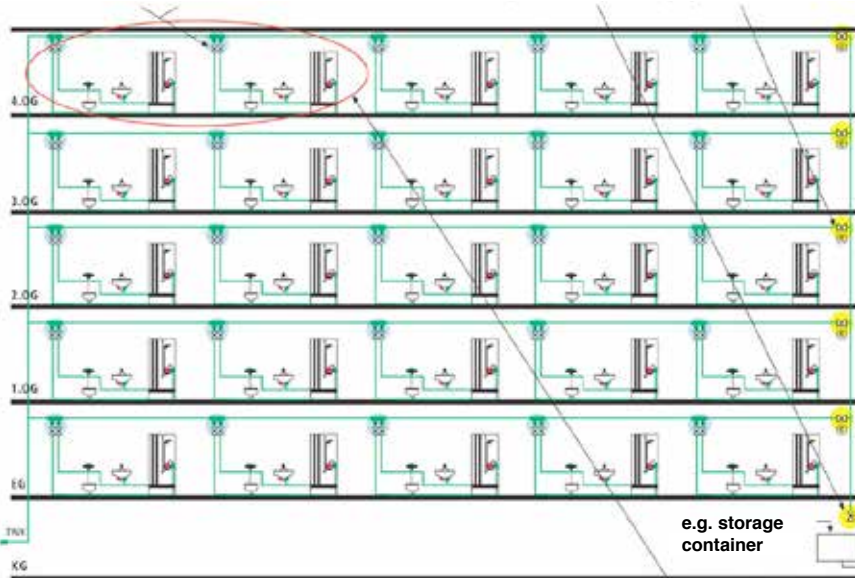
Design concept of the KHS Flow Splitter



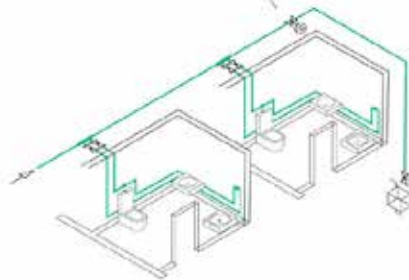
KHS-Venturi flow distributor groups



KHS-VAV plus total flow stop valve with spring-reset servo drive / servo drive



KHS Schematic showing five floor zones.



**KHS Products:**

KHS valves and controls are WRAS, DVGW and TUV SUD PSB approved.

KHS valves are manufactured from gunmetal.



KHS- Flow Splitter Unit with isolating valves & insulating shell Figure 650 02



KHS Control Plus flow and temperature sensor, Figure 138 4G/6G



KHS Mini-Control Unit "Master", Figure 686 02 008



KHS-Zonal Flushing Valve with servo drive Figure 686 00



KHS Temperature Sensor valve Pt 1000 Figure 628 0G



KHS Mini-Control Unit "Slave", Figure 686 02 006



KHS-Flushing Valve with spring-reset servo drive Figure 686 01



KHS Free drain with overflow monitoring Figure 688 00

The Kemper Hygiene System is available in Singapore through Kemper Asia Pacific Trading LLP. For more information, tel (+65) 6503 9039, email rayyang@kemper-metals.sg or visit www.kemper-metals.sg.

## DYSON AIRBLADE™ HAND DRYERS | DYSON

Dyson has developed a new model of hand dryer, which is 35 percent quieter<sup>1</sup> than its original Dyson Airblade V hand dryer.

### A hand dryer for quiet places

In a far-flung washroom, loud hand dryers might not be the end of the world. But for spaces where people work, eat or relax, excessive and invasive noise can be disruptive – compromising not just comfort, but wellbeing too.

So for Dyson's acoustic engineers, the aim was to design a hand dryer that could operate inside the washrooms of sound-sensitive spaces like offices, schools and restaurants – without disturbing those outside.

And just as crucially, without compromising the performance that makes Dyson Airblade™ hand dryers fast to dry hands hygienically with HEPA filtered air.

### Which compromise?

During the development of a hand dryer, manufacturers try to strike a balance between speed, hygiene and noise. But a lack of technology, or engineering expertise, can mean a compromise.

So you may find a hand dryer that's quiet, but because it has to use a weak motor to keep noise levels low, it may not dry hands quickly.

Forcing washroom users to give up and leave with hands still damp – risking the increased spread of bacteria by up to 1,000 times<sup>2</sup>.

Fast hand dryers fare little better. They use bigger motors to improve their dry times, but can generate lots of noise as a result.

But now, with the latest development in Airblade™ technology, Dyson engineers have invented a hand dryer that doesn't have to compromise – on speed, hygiene, or sound.

### How Dyson did it

Reducing sound generated by the Dyson Airblade V hand dryer would require Dyson engineers to design acoustic improvements throughout the machine.

From the motor that powers the hand dryer, to the airflow paths inside it, and the precision-engineered slots where high-speed air exits the machine, each new development contributed to a significant reduction in noise levels – all while maintaining a fast, hygiene dry time at just 12 seconds.

In fact, their work has resulted in a machine that generates 35 percent less noise than the original Dyson Airblade V hand dryer. This is really something to shout about.

For more information, contact the Singapore Dyson office at tel (+65) 6871 5721, email [sales\\_airblade@dyson.com](mailto:sales_airblade@dyson.com) or visit the website [www.dyson.com.sg/hand-dryers.com](http://www.dyson.com.sg/hand-dryers.com).

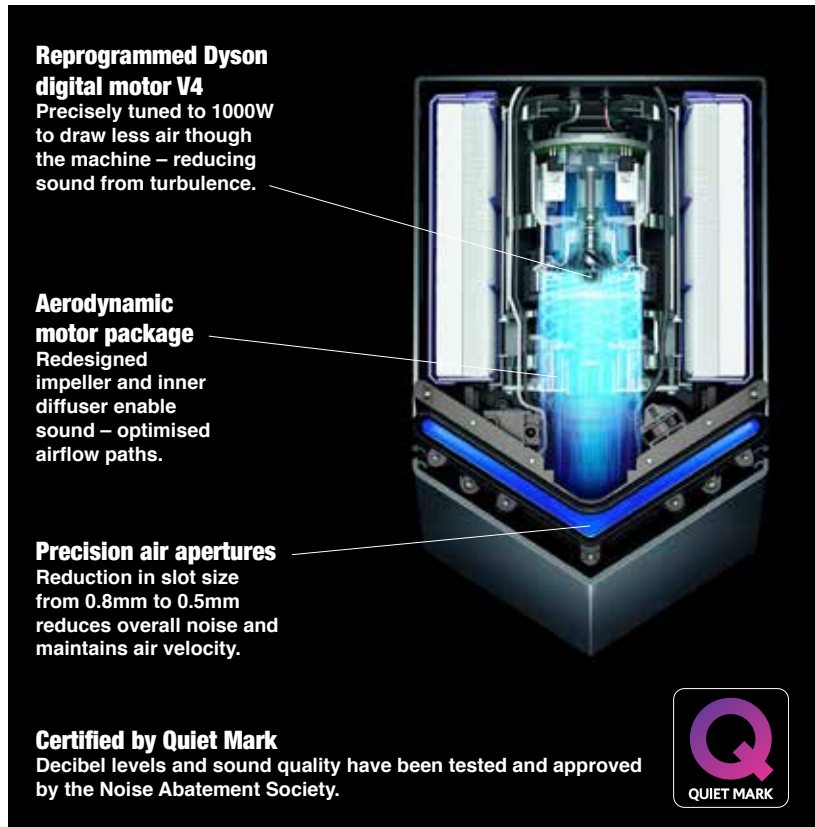


Photo: © Dyson



The new model of hand dryer from Dyson is 35 percent quieter than its original Dyson Airblade V hand dryer. Photo: © Dyson

<sup>1</sup>Loudness reduction compared to the original Airblade V hand dryer.

<sup>2</sup>D. R. PATRICK, G. FINDON and T. E. MILLER: Residual moisture determines the level of touch-contact associated bacterial transfer following hand washing, *Epidemiology. Infect.* (1997), 119, 319±325.

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CONSTRUCTION APP PROVIDER | FINALCAD

FINALCAD, the company providing digital processes and services to the construction industry to change the way we build, is going a step further into smart data by providing two new web applications: GETMYDATA enables users to download their customer data, and FINALBIM provides managers with a real-time overview of their current projects.

GETMYDATA and FINALBIM share the same ambition: to accelerate the construction industry's digital transformation by providing smart solutions both in the field and for project management, through innovative analytics and decision-making tools.

FINALCAD is differentiated for its ability to transform raw data into reliable analytics, whether internal analytics for companies or general interest studies, like those of the FINALCAD Construction Observatory. The generic nature of information processed enables FINALCAD to provide analytics and neutral, objective studies relevant to all industry players. Data neutrality and anonymity are key commitments for FINALCAD; this is explained in greater detail in the "FINALCAD Data Usage Charter". FINALCAD is an independent player striving to change the way we build.

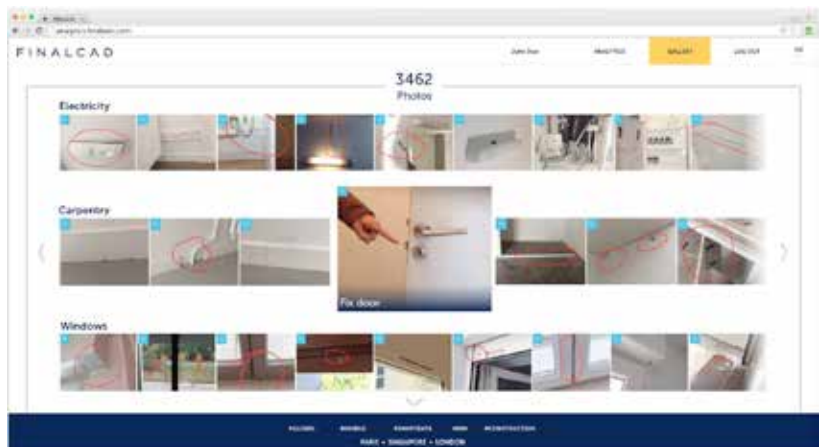
The two new applications use FINALCAD's "DSPP" approach: Distribute (with GETMYDATA), Synthesize (with FINALBIM), Predict and Prescribe (with the FINALCAD mobile app on work sites). GETMYDATA provides information systems managers with a simple, effective solution to retrieve data collected via the FINALCAD application by the company's various internal users. With one click, a user with credentials can access notes, snags, quality controls and an image database through a secured web interface. This data can be downloaded directly in CSV format and integrated into the company's existing big data systems.

While BIM programmes are becoming increasingly more important within construction companies, traditional BIM struggles to enrich with worksite data. With FINALBIM, managers can now monitor their operations' progress with compiled statistics in real time from a web platform. This platform provides an overview of how observations are distributed by trade, a ranking of the most recurring observations (by trade), project process in the form of an interactive site map, and a photo gallery featuring observations collected by FINALCAD users in real time. FINALCAD algorithms harmonize this data in order to generate this instant analysis. FINALBIM is a true decision-making tool designed to connect managers with site operations through a simple, compelling user interface.

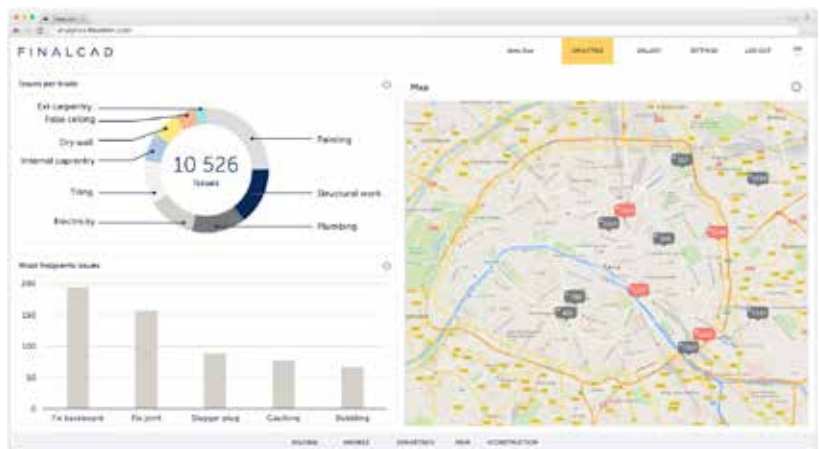
For more information, visit [www.finalcad.com](http://www.finalcad.com).



GETMYDATA. Photo: © FINALCAD



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The new Diamond collection from SICIS goes beyond the traditional shape of the standard chip taking inspiration from the diamond crystal form and brilliance. The rhombus-shaped tesserae opens new possibilities in creating new complex geometrical or floral patterns. In addition, the collection is enriched by three-dimensional inserts made of transparent or opalescent crystal paste that allow more design combinations.

The collection counts more than 60 colours including Sicis gold and silver iconic hues that give to the surfaces a big scenography impact both for modern and for classical spaces.

All the materials have been studied for all the types of settings from interiors to exteriors, floors, walls and ceilings.

The detailed manufacture, made by expert artisans, lead to infinite combinations and customisations that make more refined and emotional all the patterns designed by SICIS to interpret exclusively this collection.

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



The Diamond Mosaic Collection opens up new possibilities in creating new complex geometrical or floral patterns. Photo: © SICIS

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