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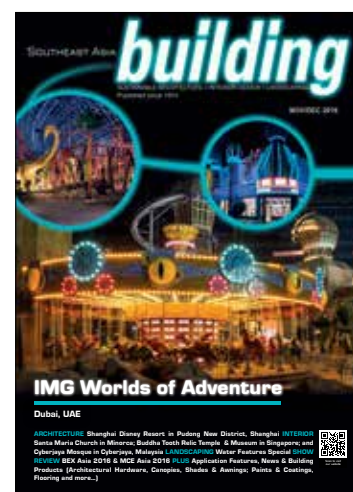
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On the Cover: IMG Worlds of Adventure in Dubai, UAE. Photos courtesy of IMG Worlds

Cover design by Fawzeeah Yamin



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GCC has dedicated huge efforts in glass hardware and system development since 1981. **GCC** also provides variety of great solutions for users to create wide, fresh, and comfortable spaces. The product range cover from houses, office buildings, restaurants, hotels to department stores, etc.

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To provide great living experiences to customers, **GCC** has its QC team to oversee the product with high-standard, and never compromise product quality, safety and endurances of market price competition. **GCC** develops its unique designs and holds patents in many countries. Quality assurance is always the top priority for **GCC** and we hope thorough our effort we can see application for glass hardware and systems in numerous spaces.

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



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editor's note



"Life is like a roller coaster. You can either scream every time there is a bump or you can throw your hands up and enjoy the ride."

This is one of my favourite quotes about life and I believe many of you can resonate with it too each time we see a roller coaster in a theme park. For those who like riding roller coasters and other exciting thrill rides, theme parks provide an endless source of excitement. These days, theme parks are not only getting better but they are also becoming bigger and more impressive. Read about the newly opened Shanghai Disney Resort in Shanghai and IMG Worlds of Adventure in Dubai in this issue.

Our interior design section puts the spotlight on religious buildings. Contemporary churches, mosques, temples and other places of worship are increasingly becoming more sophisticated and are a far cry from their stereotypical structures. Find out what factors are driving the design of religious buildings today.

If you are a fan of water fountains, pools, cascades and waterfalls, then don't miss the theme on water features in the landscaping section. You will find lots of examples of water features to make your landscape design more beautiful.

Finally, we have a roundup of the recently concluded BEX Asia 2016 and MCE Asia 2016 held in September at the Marina Bay Sands Singapore. To know more about the green products launched at the shows, read the show review inside.

The Nov/Dec issue is the final issue of 2016 and we hope you've enjoyed reading every issue of the magazine as much as we had enjoyed putting it together. If you have any comments, email me at seab@tradelinkmedia.com.sg.

NEXT ISSUE THEMES

- Architecture – Transportation
- Interior – Office
- Landscaping – Outdoor Fitness Equipment

Amita Natveelal

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CDL and SEAS launch new academy for sustainable practices

Singapore – On 5 August 2016, City Developments Limited (CDL) and Sustainable Energy Association of Singapore (SEAS) launched the Singapore Sustainability Academy (SSA), which aims to promote a low-carbon economy, resource efficiency and sustainable practices among businesses, the community and the youth.

Officially launched by Dr Amy Khor, Senior Minister of State, Ministry of the Environment and Water Resources (MEWR), the SSA is the first major People, Public and Private (3P) ground-up initiative in support of the national goals to tackle climate change. The initiative is supported by MEWR, the National Environment Agency, the Urban Redevelopment Authority and the Building and Construction Authority.

To be located at the roof terrace of CDL's City Square Mall, SSA will cost about \$2 million to build. The 4,300 square feet academy will house two classrooms (which can accommodate up to 60 people combined), a veranda, an office and an exhibition gallery. Jointly designed by CDL and ONG&ONG Pte Limited, and built by Woh Hup (Private) Limited, the SSA will be the first in Singapore to have its construction materials, Cross Laminated Timber (CLT) and Glued Laminated Timber (Glulam) verified by the Nature's Barcode™ system as coming from responsible sources. This entails scientific tests like DNA analysis, to reduce the risk that the wood comes from illegal logging.

When completed in March 2017, the SSA will be a zero-energy building featuring solar technology with more than 3,200 square feet of photovoltaic



From right to left: Mr Grant Kelley, CEO of CDL, Dr Amy Khor, Senior Minister of State, Ministry of the Environment and Water Resources and Mr Edwin Khew, Chairman of SEAS unveiling the model of the Singapore Sustainability Academy. Photo: © CDL

panels and monitors to track real-time energy generation and consumption. The made-in-Singapore solar panels which are designed and built by REC are expected to generate an annual energy yield of over 60,000 kilowatt hours (kWh). This is more than the SSA's estimated annual energy consumption of about 50,000 kWh. There will also be an automation control and energy monitoring system that adapts lighting and air-conditioning to situations, providing maximum energy savings while maintaining full comfort.

The focus areas of the SSA will include advancing sustainability through advocacy, building capacity and collaboration, education and training, information and resource as well as user engagement. SEAS, operating from the new SSA, will continue to work with local industry and business as well as key initiatives

with the Asian Development Bank and International Enterprise Singapore, to provide policy makers in the region with insights and share experiences on policy, technology and project financing in the areas of energy efficiency, renewable energy and energy access. It will invite senior policy and decision makers to share on these subjects and explore other crucial sustainability topics pertaining to the banking, power, building and infrastructure sectors. The SSA will also look into offering a suite of education and mentorship programmes for students from tertiary educational institutions, focussing on energy efficiency, solar power, climate change, and sustainability. It will further forge partnerships with relevant educational institutions to provide high quality and practical education to build knowledge capacity, foster understanding and promote adoption of sustainability.



CDL and SEAS galvanised 11 other like-minded partners, who are leaders in their own fields of expertise, to jointly develop the SSA. Photo: © CDL



Located at the roof terrace of CDL's City Square Mall, the SSA is a zero energy building that will feature extensive solar technology and track real-time energy generation and consumption. Photo: © CDL



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Arup selected as vision partner for development of Singapore's Smart Urban Habitat Masterplan

Singapore – Led by NCS, Arup is one of the vision partners working with the Housing & Development Board of Singapore (HDB) to develop the Smart Urban Habitat Masterplan (SUHMP). The SUHMP aims to enhance sustainability, liveability, efficiency and safety in HDB town estates through the use of digital technology.

This project builds on one of the six key domains from the 'Smart Nation Programme' - "Smart Urban Habitat" and is expected to impact more than 80 percent of Singapore's population who currently live in public housing. The NCS-led partnership comprising of AECOM Singapore, Arup Singapore, and Samsung SDS Asia Pacific will be identifying and recommending a series of 'Smart Initiatives' with which HDB can consider for deployment into HDB towns. These initiatives can include a variety of estate enhancing services such as smart community services and implementation of gamification tools to engage residents and foster closer community living.

During the initial phase of the SUHMP consultancy, Arup and the partners will help define the vision, goals and strategies of the SUHMP through various working sessions and workshops with HDB as well as various government agencies. The masterplan will outline how HDB can harness technology to improve the quality of life for the community and establish a framework of technological initiatives within the estates.

"With more than a decade of expertise in the smart cities space, Arup has witnessed and been a part of using technology to transform and elevate urban living. We are excited to embark on this project with the Housing & Development Board, and to help Singapore further its ambition to become a smart nation," said Volker Buscher, Global Digital Leader, Arup.

"Singapore has constantly been at the forefront of smart city development, and there is no better environment suited to embrace the use of technology in homes. In partnership with the Housing Development Board, we hope to co-create smart solutions that will better the quality of life for Singaporeans," said Chintan Raveshia, Cities and Transit Development Leader Singapore, Arup.



HDB-NCS contract signing ceremony on the development of Smart Urban Habitat Masterplan and Smart Hub on 11 July 2016. From left to right: Dr Johnny Wong, Group Director, Building and Research Institute, Dr Cheong Koon Hean, CEO, Housing & Development Board, Mr Lawrence Wong, Minister for National Development, Ms Chua Sock Koong, Group CEO, Singtel, Mr Chia Wee Boon, CEO, NCS and Mr Ferry Chung, Vice President, Smart & Safe Cities Centre of Excellence, NCS

Photo: © HDB/NCS

NH Seek named chairman of the Asia Pacific region for ULI

Hong Kong – Dr. Ngee Huat Seek, chairman of Global Logistic Properties Limited and former president of GIC Real Estate Pte. Ltd., has been named chairman of the Asia Pacific region for the Urban Land Institute (ULI).

Seek, a pioneering global real estate investor and widely renowned real estate industry leader, will serve a two-year term in this position from 1 July 2016. He is a member of the board of directors at Brookfield Asset Management Inc., Canada and Chongbang Holdings (International) Ltd.; and a senior advisor to Frasers Centrepoint Ltd. He is also chairman of the Institute of Real Estate Studies at the National University of Singapore, where he serves as a Practice Professor of real estate. He holds a PhD degree in urban research from Australian National University.

"Dr. Seek's vast industry expertise adds considerably to ULI's intellectual capital," said ULI Global Chief Executive Officer Patrick L. Phillips. "His knowledge and leadership skills will help ULI continue to evolve into a global organisation that is responsive to members with different needs and interests, but who are united in creating thriving, sustainable communities."

"I'm delighted to be serving as ULI's Asia Pacific chairman, and to be part of this wonderful organisation," said Seek. "I look forward to working with ULI's dedicated Asia Pacific members as we continue ULI's outstanding work in our region," he added.



Dr. Ngee Huat Seek. Photo: © Urban Land Institute

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PM Lee Hsien Loong officially opens BCA SkyLab and Academic Tower at BCA Academy

Singapore – Prime Minister Lee Hsien Loong officially opened the BCA SkyLab – claimed to be the world’s first high-rise rotatable laboratory for the tropics – and the Academic Tower – the dedicated experiential learning facility and living lab for the built environment sector – at the BCA Academy in Singapore.



The BCA SkyLab is developed by BCA in collaboration with the Lawrence Berkeley National Laboratory in California. Photo: © Building and Construction Authority

The BCA SkyLab is developed by BCA in collaboration with the Lawrence Berkeley National Laboratory in California, a world leader in science and engineering and building energy performance research. The facility boasts a 360-degree rotatable capability, full plug-and-play configurability and is fitted with extensive instrumentation and sensor networks scalable in future. The 132 square metres facility is equipped with a network of more than 200 sensors with high accuracy and granularity, across two identical cells for comparison testing. These sensors measure performance metrics such as energy performance, indoor environmental quality, outdoor environmental parameters and building automation system indicators.

A series of potential experiments, involving more than 20 organisations, has been lined up till end-2018 – such as integrated systems test of lighting, cooling and sun-shading; air-conditioning systems with oblique fins; predictive methods for tropical daylighting; and cool surface technologies. Researchers from local universities such as Nanyang

Technological University, National University of Singapore and Singapore University of Technology and Design will be among the first principal investigators for these projects, together with the industry.

Dr John Keung, CEO of BCA said: “Our medium term aspiration is to have ‘Positive-energy Low-rise, Zero-energy Medium-rise, Super Low-energy High-rise buildings in the tropics’. To realise this, we need to achieve breakthroughs with innovation as part of our green building agenda going forward. The BCA SkyLab is one such initiative – it is one of the most innovative projects we have undertaken and one of our proudest accomplishments. The BCA SkyLab aims to significantly improve energy efficiency beyond the current best-in-class Green Mark Platinum buildings which are already at least 30 percent more energy efficient than a code-compliant building. Together with our other green building research and innovation initiatives, the BCA SkyLab shall be a key facility for the built environment sector to make significant contribution to the global sustainability agenda.”

The BCA SkyLab is built on the rooftop of the newly built Academic Tower at the BCA Academy. The Academic Tower transforms the BCA Academy into a living lab that enhances the learning experience of students and built environment professionals alike. Some of the experiential features include a rooftop education deck with a functional energy efficient chiller plant, life-size graphics on Universal Design and a dedicated outdoor air dual wheel system. The Academic Tower complements the mix of existing experiential and test-bed facilities at the Academy, such as the Centre for Lean & Virtual Construction, Zero Energy Building and Sensory Garden.



Prime Minister Lee Hsien Loong (second from left) officially opened the BCA SkyLab and Academic Tower at the BCA Academy, together with Chairman Mr Lee Fook Sun (left), Minister for National Development Mr Lawrence Wong (second from right) and BCA CEO Dr John Keung (right). Photo: © Building and Construction Authority

GBCA joins ground breaking project to build a carbon zero future

Sydney, Australia – The Green Building Council of Australia (GBCA) has joined forces with the World Green Building Council (WorldGBC) to deliver on the ambitions of the Paris Agreement and tackle climate change.

The “Advancing Net Zero” project will see the WorldGBC and green building councils in countries with some of the fastest growth trajectories for construction launch national ‘net zero’ building certification and training programmes.

The GBCA joins GBCs from Brazil, Canada, Germany, India, Netherlands, South Africa and Sweden, and other not-for-profit organisations, in committing to national net zero or carbon zero certification.

“The pledge to ensure global warming remains below the critical two degrees Celsius mark must be followed with real-world action,” said the GBCA’s Chief Executive Officer, Romilly Madew.

“Over the past six months, we have been working with NABERS and the Department of the Environment to adapt the Australian Government’s Carbon Neutral Standard for buildings and precincts. This is the next step to bring our work and commitments to the international stage. Our participation in the Advancing Net Zero project reinforces Australia’s international sustainability leadership, and strengthens international collaboration as we work towards a zero carbon future worldwide,” added Ms Madew.

In addition to the recognition of net zero and carbon positive buildings, the GBCA is also developing a new curriculum to educate professionals on the design and delivery net zero buildings.

The launch of “Advancing Net Zero” reconfirms the commitment of the WorldGBC, its 74 GBCs and 27,000 member companies, to reduce CO² emissions from the buildings sector by 84 gigatonnes by 2050.

The WorldGBC’s long-term targets include:

- All new buildings and major renovations are net zero in 2030, and no buildings are built below net zero standards beyond 2030
- 100 percent of buildings are net zero by 2050
- 75,000 professionals are trained on net zero building by 2030, and 300,000 professionals by 2050
- All GBCs, which operate certification schemes, have net zero rating tools in place by 2030.

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Otis Elevators selected for Beirut Terraces

Beirut, Lebanon – Otis Elevators have been selected for Beirut Terraces, a unique building that integrates interior spaces with extended terraces set in a full-height glass envelop in Beirut, Lebanon. Otis, which operates in Lebanon through its distributor Otis Elevator Company s.a.l., plans to install a total of 10 elevators in Beirut Terraces including eight custom-designed elevators, one panoramic Gen2® elevator and one service elevator.

Beirut Terraces is set to shape the city's future by reviving the indoor-outdoor living experience through the introduction of the first vertical village concept. "We are proud to have been selected as the brand of choice for this iconic and exciting residential project," said Gabriel Abdeni, President, Otis Elevator Company s.a.l. "Every day, Otis products move millions of people safely and efficiently, and we're pleased to have our products in this unique development," added Gabriel.

The elevators chosen for Beirut Terraces will travel at speeds of up to 4 metres per second with 33 stops, and have been custom designed with reflective surfaces. One panoramic Gen2 elevator will also serve the building with a system that uses patented Otis technologies, including composite steel flat belts that replace traditional elevator cables to improve efficiency and ride comfort. The Gen2 elevator's compact gearless machine requires minimal machine room space, allowing for rapid installation. An innovative ReGen™ regenerative drive captures energy created by the elevator, feeding the energy back into a building's electrical grid. This makes the Gen2 elevator up to 75 percent more energy efficient than conventional systems with non-regenerative drives.

Developed by Benchmark and designed by Swiss architects Herzog and de Meuron, Beirut Terraces is a unique residential tower, located in Beirut Central District overlooking the waterfront district; the most high-end residential area in Lebanon. The building concept, structure, and appearance are conceived by both awareness and respect for the city, as well as self-confident optimism that it shares with contemporary Beirut.



Beirut Terraces.

BASF inaugurated new production facilities for Ucrete® flooring solutions in Malaysia

Kuala Lumpur, Malaysia – BASF recently inaugurated its new facilities for the production of Ucrete® in Bukit Raja, Klang, Malaysia. According to BASF, it will allow the company to better meet the increasing demand for high quality, durable industrial flooring solutions in the Asia Pacific region.

"The new facilities improve our flexibility to better and quicker serve our customers by ensuring a stable supply. We can reduce lead times by up to 35 percent near the place where the product is used," said Arnold De Silva, Head of Construction Chemicals responsible for Singapore, Malaysia, Myanmar, Cambodia and Laos in BASF.

The Ucrete production facilities in Malaysia is the first manufacturing hub, to produce components of the Ucrete polyurethane concrete flooring system in Asia Pacific.

BASF has a similar plant in the United Kingdom. Located within the company's Construction Chemicals manufacturing plant in Bukit Raja Industrial Park in Selangor, Malaysia, the new facilities benefit from global experience and proven technologies, operational efficiency and technical competencies.

Daniel Loh, Managing Director, BASF (Malaysia) Sdn Bhd said: "BASF has continuously invested in Malaysia for more than 25 years, making the country an important production hub for BASF to serve customers in the region. The opening of the new facilities in Malaysia underlines our strategic commitment and long-term focus on serving our customers in Asia Pacific."

Ucrete is a unique polyurethane resin technology that gives floors exceptional resistance to aggressive chemicals, as well as extreme mechanical and thermal conditions. It is ideal for the most demanding industrial environments, non-tainting and fully serviceable at temperatures up to 120°C at only 9mm thickness.



Photo: © BASF

Lyons + m3architecture win University of Queensland Sustainable Futures Building

Brisbane, Australia – The University of Queensland (UQ) has selected Lyons + m3architecture to design the Sustainable Futures Building at the St Lucia campus.

The new building will house the School of Chemical Engineering, allowing it to continue to evolve, while opening up opportunities to discover its future direction. The project will amplify the School's profile as a hub of chemical engineering leadership in Australia, the Asia Pacific region, and the global stage.

The design concept creates a physical environment and identity that reinforces the School's distinctive strengths – outwardly open and transparent, and inwardly intense and focused.

The building is designed at a leadership level for energy and water use. Its distinctive glass skin provides a highly energy-efficient façade, while energy intensive research areas are offset by expanded renewable energy photovoltaics on the roof.

The idea for the exterior of the building is the confluence between chemical engineering and the campus itself – a campus with stoic sandstone origins becoming increasingly glass with each new building addition. This evolution is due to advances in technology involving the work of chemical engineers, amongst others.

This metamorphosis from sand to glass, is use metaphorically to make a building that simultaneously acknowledges its time, place and role as the home for chemical engineering.

The design reflects the School's culture – one based on open and collaborative relationships between students, teachers, researchers and the wider industry. This openness is linked by a sense of shared discovery – whether students and staff in learning environments, or researchers and industry professionals in proof-of-concept experimental spaces.

Open connecting stairs, shared collaborative spaces, and blurred and overlapping boundaries between learning, research and industry, are the hall marks of the project.



Rendering: © Lyons + m3architecture

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Mitsubishi Electric to supply elevators in South Korea, expected to be the fastest in the country

Tokyo, Japan – Mitsubishi Electric Corporation announced that it has secured an order to deliver two elevators capable of ascending 600 metres per minute, which is expected to make them the fastest elevators in South Korea, according to Mitsubishi Electric research, when they are installed in the LCT Landmark Tower in Haeundae, Busan, in 2019.

LCT will be a major complex consisting of four buildings: The Landmark Tower (411.6 metres high and 101 floors) housing a hotel and a residential hotel; two residential towers (339 metres and 331 metres high, and both 85 floors); and one podium tower (7 floors) connecting the three high rises. A total of 78 elevators for the three high rises will be manufactured by Mitsubishi Electric (Inazawa Works, Japan) and Mitsubishi Elevator Korea Co., Ltd. (KMEC).

The order was placed by POSCO Engineering & Construction, Ltd. Deliveries will begin in December 2016 and construction of the high rises is scheduled to finish in 2019.

Features

- The two 600-metre-per-minute elevators will carry passengers from the first floor to the 100th floor in about 52 seconds. The 383.5 metres of travel will be the longest distance covered by any elevator in South Korea.
- Superior riding comfort, silence and safety will be ensured by Mitsubishi Electric's cutting-edge innovations for ultra-high-speed elevators, such as advanced drive and control equipment, streamlined aerodynamic car covers, active roller guides and various safety devices.



Rendering of LCT

Advanced wind tunnel tests confirm structural strength of The Tower at Dubai Creek Harbour

Dubai, UAE – Emaar Properties announced the successful completion of advanced wind tunnel tests to confirm the structural strength and durability of the iconic new tower in Dubai Creek Harbour, which will define a brand-new skyline for the city.

This marks another milestone in the development of The Tower at Dubai Creek Harbour, designed by Spanish-Swiss architect Santiago Calatrava, and located in the heart of the 6 square kilometres master-planned community set by the historic Dubai Creek and only 10 minutes from the Dubai International Airport.

The smart city of the future is also next-door to the Ras Al Khor Wildlife Sanctuary, protected under the UNESCO Ramsar Convention and home to over 67 species of water birds, thus defining a unique residential destination that offers unprecedented and long-term value.

Leveraging its unmatched expertise



The Tower at Dubai Creek Harbour. Photo: © Emaar Properties

in high-rise development, Emaar Properties had commissioned a comprehensive array of never-before wind tunnel tests for The Tower at Dubai Creek Harbour, which will feature world-class observation decks, luxury accommodation and retail attractions. With wind being a major challenge in the development of high-rises, especially at very high altitudes, these tests are crucial in defining the final height and design aspects.

The successful completion of the wind tunnel tests as well as a comprehensive range of seismic and local climate studies lends further momentum to The Tower's development to the highest standards of quality and safety.

Mohamed Alabbar, Chairman of Emaar Properties, said: "An ambitious project on a never-before scale and design, The Tower at Dubai Creek Harbour demands high-precision engineering across all its facets. As a significant value addition to Dubai Creek Harbour, the tower is billed to attract visitors from across the world, and will serve as a beacon of hope and positivity for the city and the region. Pushing the boundaries in high-rise engineering even further, The Tower's wind tunnel tests are an industry-first of sorts, underlining our commitment to uphold the highest standards of safety."

Santiago Calatrava Valls said: "From the materials selection to the technology used, every aspect of The Tower has been designed and developed according to the strictest international safety standards. The wind tunnel tests were an important component in the structural design stage, and we have deployed innovative engineering techniques to confirm the strength of the new icon."

For the wind tunnel testing of The Tower at Dubai Creek Harbour, up to 12 different analysis and testing methods were used to ensure that all possible cases are considered, guaranteeing the maximum quality and safety of the structure.

These tests are made for the entirety of the project with a full scaled model, and also on different sections of the project to double-check the behaviour of the building and the wind around it. Since the structure is anchored to the ground with robust cables, some of these tests are innovative and were developed for the first time in this field. Two independent and leading agencies in the world undertake the wind tunnel testing.

Additionally, the rigorous wind climate study of the area covered measurements at different heights including data provided by the weather stations. Different seismic studies were also considered and applied specifically to local ground conditions. To guarantee the maximum safety and stability of the building, the design of The Tower also includes multiple damper systems and shock absorption systems, located at different points and heights.

Offering unprecedented experiences for 360 degree views of the city and beyond, The Tower will feature The Pinnacle Room opening to grand views of the sky, and VIP Observation Garden Decks that recreate the splendour of the 'Hanging Gardens of Babylon,' one of the Seven Wonders of the Ancient World. Fully glazed rotating balconies extend outward, rotating outside the skin of the tower. The Tower will be in close proximity to a Retail District, one of the largest in the world.

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MAD reveals the Design Center for Xinhee Group

Beijing, China – Located in the Chinese coastal city of Xiamen, MAD Architects' design for the Xinhee Design Center is currently under construction. The design center is for the international fashion group, Xinhee, and its six subsidiary brands. It has a site area of 15,000 square meters with building area of 61,000 square metres. "We envision it as a building with skin-and-bones," reveals MAD founding principal Ma Yansong, "the correspondence of clothing and architecture is they both explore the relationship between the interior and the exterior," added Ma Yansong.

Xinhee Design Center has the central atrium space at its core; from there, six long spanning structures extend out to different directions, and become a star-shaped layout which formalises a solid "bone" structure frame. A mix of office spaces and green gardens compose each of the organically-formed arms. A translucent and sun-shading envelope of PTFE hangs slightly off the vertical garden, and provides ventilation during the hot season. At the same time, it lightens the building to be elegant and floating, just like a piece of delicate thin, soft, skin covering the "bone" structure of the building body. Ma Yansong elaborated: "It's interesting for a building with such an intrinsically logical structure to look floating and free."

As an innovative and creative office, the spatial organisation mimics six petals, growing from a central point. Each of the six brands have their own individual office and research space, yet can freely interact and communicate



Rendering of the Xinhee Design Center. Image: © MAD Architects

between departments. Unlike traditional corporate "boxes," a radial layout enables the office space to be highly efficient and flexible, while at the same time provide natural light, ventilation, and vista. The atrium acts as public space that is open to staff and visitors.

The atrium's footbridge provides air circulation, and doubles as a catwalk for occasional fashion shows. The two glass elevators in the atrium visually connect the office on different levels. The connection between interior and exterior space extends the design center's public interaction from inside office space to the outside gardens, and provides a relaxed atmosphere and working environment, while simultaneously creating a strong centripetal force.

The design centre is a highly efficient green building that adapts to the local climate. The void and lifted structure on

the first floor reduces the footprint by two-third. An urban environment, the first floor mainly consists of garden and water features, which are open to the public. Both the atrium and the lifted structure enables ventilation throughout the building. The summer months deliver cool air to each level, versus the winter months when the atrium transforms into a sun-filled greenhouse below the glass-enclosed roof. The stacked gardens create a 100 percent green ratio. To lower solar radiation and provide natural lighting to the office, a translucent coating is applied to the building's façade which permits 40 percent light transmittance. Solar panels line the rooftop, providing electricity for daily operations.

Xinhee Design Center is currently under construction and is expected to be in-use in 2017.

HBA honoured with Patron of the Arts Award 2016 by Singapore Lasalle College of the Arts

Singapore – Global hospitality interior design leader HBA (Hirsch Bedner Associates) has been honoured with the Patron of the Arts Award 2016 by Singapore's LASALLE College of the Arts.

The award pays tribute to patrons who support creative leaders of tomorrow at the leading educational institution for arts and design.

HBA Singapore supports outstanding students with coveted scholarships of up to S\$10,000 in their final year of BA (Hons) Interior Design studies.

"We are honoured to have been recognised with this prestigious award and thank LASALLE College of the Arts for its contributions to the design community. As Hirsch Bedner Associates (HBA) leads the world in designing the future of the most extraordinary hotels, it is also imperative that we consider the next generation of hotel designers. We must invest not just in great design, but also in great talent. The HBA Scholarship is our opportunity to give back to the arts and to the industry, ensuring that students who have proven great tenacity and aptitude are able to pursue their career goals and shape the future of design alongside us," said HBA Co-CEO Ian Carr.

Deyaar to build school in Senegal as part of Dubai Cares' 'Adopt a School' initiative

Dubai, UAE – Deyaar Development PJSC, one of Dubai's largest property developers and real estate service providers, signed an agreement with Dubai Cares to build a primary school in rural Senegal to provide access to educational facilities for the community. Dubai Cares, part of Mohammed Bin Rashid Al Maktoum Global Initiatives, is a philanthropic organisation launched by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to improve children's access to quality education in developing countries.

As part of the Dubai Cares 'Adopt a School' initiative, Deyaar will build a primary school in the impoverished region of Fatik in Senegal. This is the second overseas project that Deyaar has supported within the 'Adopt a School' initiative; the first being a school in western Nepal, which opened in February this year.

Senegal has a low literacy rate of around 39 percent and very low enrolment rates for primary and secondary education. Approximately 54 percent of people in Senegal live below the poverty line and many children face difficulty attending school.

Saeed Al Qatami, CEO of Deyaar said: "We are very pleased to announce a second partnership with Dubai Cares, and to continue to work with them to improve access to quality education for children around the world. At Deyaar, we are committed to supporting a wide range of CSR activities to make a positive and lasting contribution to society, and to support the UAE government's goal to help local and international communities in need."



Saeed Al Qatami, CEO of Deyaar and Tariq Al Gurg, Chief Executive Officer of Dubai Cares

Langsuan Village mega project selects Otis elevators, escalators

Bangkok, Thailand – Langsuan Village, one of the largest mixed-use developments in Bangkok, Thailand, will use 54 Otis elevators and escalators in its six towers.

Langsuan Village spans approximately 20 acres in Bangkok, in the area of Langsuan Road and Soi Tonson. It will consist of six towers – the residential: Sindhorn Midtown, Tonson Park View and Langsuan Park View towers, as well as three hotels and serviced apartments. It is expected to be completed in 2019, with 1,530 apartments and serviced apartments. The buildings are designed to meet the standards required to receive Leadership in Energy & Environmental Design (LEED®) certification from the U.S. Green Building Council®.

Otis Elevator Co (Thailand) Ltd, a local Otis operating unit, has been awarded the contract to supply 54 Otis elevators and escalators, including 11 high-speed, high-rise SkyRise™ passenger elevators and 33 energy-saving elevators, including 14 Gen2 elevators with ReGen™ drives. ReGen regenerative drives capture energy that would normally be wasted and feed it back into the building's power grid as usable electricity, reducing building operating costs. Otis Gen2 elevators with ReGen drives can reduce energy consumption by 75 percent under normal operating conditions, compared with traditional elevator systems with conventional drives. In addition, eight XO-508 escalator systems and two FOVF freight elevators will be installed.

"Raising standards of living and environmental friendliness are the cornerstones of Siam Sindhorn development. We use high-standard construction technology and select solutions that are aligned with our vision of 'Green Building,'" said Mr Pramote Techasupatkul, Executive Director, Siam Sindhorn Co., Ltd.

"Siam Sindhorn is an important customer with whom we have had a long-standing relationship," said Trakan Dankul, Managing Director, Otis Thailand. "We are proud to provide these units for this impressive project and support their commitment to sustainable building with our efficient Otis Gen2 ReGen elevators," he added.



Aerial shot of the Langsuan Village in Bangkok, Thailand. Photo: © Siam Sindhorn Co., Ltd.

Benoy appointed to Xuhui Vanke Center in Shanghai

Hong Kong – Benoy has announced its appointment to the Xuhui Vanke Center in Shanghai. This is developer Vanke's first large-scale commercial real estate project with a mixed-use programme in the city. Benoy has won a multi-disciplinary scope which includes Tower and Retail Architecture, Retail and Office Interior Design and Graphic Design.

The landmark development sits at a prime location adjacent to the Shanghai South Railway Station; the city's second most prominent station after the Shanghai Railway Station. The overall scheme is being developed over three phases with Benoy as the Chief Architect delivering the final phase alongside Skidmore, Owings & Merrill LLP (SOM).

Connecting six commercial blocks, the scheme aims to create a new urban complex set within a 70,000 square metres landscaped realm. The three phases are connected by a mile-long green valley which runs diagonally across the site. The wider development's twelve buildings overlook and interact with the urban parkland which essentially brings a green streetscape experience into the heart of the development. The green belt begins at the Shanghai South Railway Station edge and continues through to a museum and arts complex which anchors the journey.

Mimicking the forms of the rolling landscape, the 100,000 square metres multi-level retail podium is a network of interconnected buildings. The podium has been fragmented into a collection of curved individual blocks, each carved out to create unique spaces for Retail, Food and Beverage, Leisure and Arts tenants. The result is an undulating internal streetscape which blends public and commercial spaces, landscape and building, culture and business. Sitting above the podium are the four Grade A commercial office towers. Benoy is delivering the set of twin towers which will reach to 120 metres in height. SOM will deliver the other two towers within the final phase. The architectural design melds with the landscape once again, impressing open-air sky gardens, which overlook the public park, into the buildings. The forms and language of the towers are a vertical extension of the podium below.

Transport is perhaps the driving force behind the development, ensuring convenience and longevity. The development seamlessly integrates underground to the Shanghai South Railway Station's two-line metro station and three rail lines. The final phase of the development has commenced construction and is due to complete by 2019.



Xuhui Vanke Center. Photo: © Benoy

LAVA unveils a new project under construction in China



Photo: © LAVA

Sydney, Australia – LAVA's masterplan for the mixed-use development consists of five buildings housing offices, residential, and retail. It features fluid building masses, improved positioning of the towers from different viewing directions, logical pedestrian movement and the removal of cars from the complex.

The twin towers form an iconic entrance to the city of Hangzhou. The high-rise towers are an interpretation of the Chinese characters meaning 'gate' or entrance to a city. Utilising extensive view studies the tower ensemble was positioned so it is recognisable as a twin structure, a gate, from both near and far.

LAVA articulated the façade as two groups of long vertical fins wrapped around the buildings, a shimmering façade of fins. Fluid lines create zones within the tower elevations, whilst different colours of glass and varying depths of vertical fin elements generate refracted light effects animating the façade.

Construction on the twin towers starts in 2017, and the other buildings are under construction now.

Hotel Jen unveils Hotel Jen Beijing as third hotel in Mainland China

Hong Kong – Shangri-La International Hotel Management Ltd. and China World Trade Center announced the upcoming debut of Hotel Jen Beijing. Opening in January 2017, the hotel will be part of the prestigious China World Trade Center development in Beijing's central business district (CBD) in Chaoyang. This will be the third Hotel Jen to open in Mainland China since Shangri-La Hotels and Resorts launched the Hotel Jen brand two years ago.

Hotel Jen Beijing will offer travellers and the city's residents new and stimulating experiences set in a modern, stylish environment. The hotel's unique facilities will include a vibrant co-working hub paired with creative meeting spaces, the only gastropub in the CBD and a 3,500-square-metre world-class health club with extensive facilities to meet diverse fitness requirements.

"As we continue to grow the Hotel Jen brand in Asia, we are excited to bring our friendly and energetic hospitality style into the heart of Beijing's financial and business centre," said Lothar Nessmann, Chief Operations Officer at Hotel Jen.

"With its prime location, Hotel Jen Beijing will be ideal for independent business and leisure travellers who seek a fuss-free stay that offers quality, comfort and value coupled with distinctive local experiences," added Lothar Nessmann.



Rendering of Hotel Jen Beijing façade.

PPG support helps SOLS 24/7 Malaysia establish Solar Lab in Kuala Lumpur

Kuala Lumpur, Malaysia – PPG helped celebrate the opening of a solar laboratory in Kuala Lumpur, Malaysia, established by humanitarian organization SOLS 24/7 Malaysia. PPG contributed \$50,000 to help SOLS 24/7 Malaysia outfit the new solar lab with cutting-edge equipment to train local underserved students through the Solar Academy programme.

The Solar Academy offers Malaysian youth free education and training in the practice and theory of solar energy to encourage their social empowerment. With its new Solar Lab, SOLS 24/7 Malaysia aims to provide a well-equipped, safe, positive, innovative and creative learning environment that will help over 100 underserved students participating in the Solar Academy annually to develop skills and knowledge vital to their future success.

"Thanks to PPG's support of the Solar Lab, our students can finally apply abstract theories they learn in the classroom to installing actual live solar-energy systems, facilitating a holistic and interactive educational approach," said Raj Ridvan Singh, SOLS 24/7 Malaysia director and CEO.

The Solar Lab is outfitted with an array of live off-grid, hybrid and grid-tied photovoltaic solar power systems. It also includes an advanced EL (electroluminescence) test that functions like a solar panel X-ray machine, as well as solar water heaters and a solar-powered air conditioner.

"The Solar Lab and the Solar Academy not only offer students access to a promising future in the sustainable energy industry, but they also enable the students' personal empowerment and development," said Scott Follett, PPG general manager, Southeast Asia. "PPG is proud to be part of this initiative. We are committed to ensuring that students around the world gain the skills and knowledge needed to become tomorrow's innovators and help improve society. This is a great program, and we wish SOLS 24/7 and the students every success," added Scott.



Photo: © PPG

Broadway Malyan wins high profile Miami project



Artist's impression: © Broadway Malyan and Royal Caribbean Cruises Ltd

Singapore – Broadway Malyan has been appointed by Royal Caribbean Cruises Ltd. to design its new \$100 million cruise terminal in Miami. The proposed 'gateway to Miami' will see the creation of a new icon on the waterfront and serve the largest cruise ships in the world. The Terminal has been nicknamed the 'Crown of Miami' because of its shape which evokes the points of the symbolic headgear when viewed from the water. From the eastern or western approaches the 'M' of Miami is communicated, and when viewing the terminal side-on a sense of waves rising or ships passing is revealed.

Ian Simpson, Director at Broadway Malayan Singapore, said: "Our aim was to create an iconic destination and arrival experience for passengers, which provides a great experience from curbside to ship in an innovative and modern cruise terminal. The terminal extends along the waterfront to maximise views of the ships when docked, and the sides of the building have been angled to reflect the water and provide the terminal's unique shape which echoes the Royal Caribbean brand. We have worked very closely with Royal Caribbean to develop a design that both has the 'wow' factor and will operate efficiently as an innovative cruise terminal."

The proposals centre on making the most of the arrivals experience. The building profile has been designed to provide a dynamic addition to the port and clear views are prioritised via the inclusion of deliberate void space to ensure that passengers have the impact of seeing their cruise ship as soon as they approach the terminal. At night the façade will be lit ensuring that the building makes an impression.

It is the first time that Broadway Malyan has been appointed to deliver a project in North America and Ian argues it marks a positive step for the firm. He added: "Winning this competition is a major coup for our practice and it represents a fantastic opportunity for us to expand into a new part of the world."

The design incorporates a number of sustainability focused enhancements to reduce its environmental impact including rainwater collection and recycling so that it can be used for cooling, toilet flushing and irrigation. The design and materials have been chosen with efficiency and cost in mind. Using a simple prefabricated frame, prefabricated flooring panels, and a repetitive system, the core of the building can be constructed quickly. Steel beams will form the shape of the building's profile and the roof will be clad with waterproof aluminium. The main glazing wall faces north to maximise views and energy efficiency. The south side of the scheme forms a car park with 1,000 spaces, loading bays, and passenger drop offs (including taxi and bus stops) at every level to keep traffic moving. Aluminium fins and spacing enable ventilation for the parking levels and M&E spaces below and the car park forms a buffer between the terminal building and the noise and views of the shipping port next to the site.

Subject to planning approval the terminal construction will begin Q1 in 2017 and is expected to be operational by Q4 2018.

Eshraq Properties appoints new Chairman



Jassim Alseddiqi, new Chairman of Eshraq Properties.

Abu Dhabi, UAE – The Board of Directors of Eshraq Properties PJSC has approved the appointment of Jassim Alseddiqi as the new Chairman of the company with the mandate of leading the company to a new era of growth and expansion.

An expert in financial structuring, luxury real estate development, capital markets, portfolio management and real estate private equity, Alseddiqi will focus on energising the company's operations to be a leading provider of premium real estate in the UAE and in creating long-term value for its stakeholders.

Eshraq has a strong portfolio of premium residential, commercial and touristic real estate developments in the UAE, and is committed to its vision of becoming one of the major real estate developers of urban projects.

Jassim Alseddiqi said: "I am thankful to the Board of Directors for entrusting me this exciting opportunity to lead Eshraq Properties, a company with strong fundamentals, to a new era of growth and long-term value creation for all stakeholders. The UAE's positive growth, led by its visionary leadership, offers a strong platform to drive the diversified operations of Eshraq. Our new growth strategy is focused on creating prime real estate assets in Abu Dhabi and Dubai, exploring opportunities for further expansion in the country and across the globe."

Alseddiqi said that the potential for Eshraq in redefining the property and hospitality sector is tremendous. "We will evaluate new investment opportunities and strategic partnerships that will build our portfolio and footprint. On the financial side, we are committed to optimising resource use, and to achieve long-term profitability for our stakeholders," he said.

FBEYE International completes extensive re-design of the iconic InterContinental® Singapore

Singapore – FBEYE International recently announced the completion of their latest design project: InterContinental® Singapore after an extensive renovation scheme.

After successful completion of the Executive Club Lounge, 65 Shophouse Guestrooms and Suites and the specialty Chinese restaurant “Man Fu Yuan”, the leading design firm FBEYE International was awarded to design the hotel lobby, The Lobby Lounge, European restaurant Ash & Elm and the 338 Guestrooms and Suites in the main tower.

Continuing the unique theme and to complement the character of the vibrant locale - Arab Street, Kampong Glam, Little India and Chinatown – the grand lobby has been redesigned with a focus on nature with design details representative of a by-gone era, intertwined with local cultural influences of old Singapore.

In addition, the Concierge Lounge located at the entrance of the hotel lobby, was created based on the living room of a traditional home. The corridor walls are lined with a series of exquisite art pieces, each bordered by British-inspired columns which stem from inspirations of the colonial architecture of old Singapore.

Ash & Elm, the latest addition to the InterContinental® Singapore’s collection of dining establishments is a vibrant restaurant focused on European Dining. The dynamic space transforms throughout the day with the skylight canopy which runs the length of the dining area providing a sense of movement as glimmers of natural daylight provide an ever-changing colour palate to the space.

FBEYE International integrated the use of natural materials in areas such as the butcher-block worktops, a mixture of exotic marble, aged oak timbre and mosaic tiles in the flooring as well as the timber walls to introduce an organic feel to the space as well as imbuing an atmosphere of liveliness. In the evening, Pendant lights, comprising of hand-cut polished crystals are switched on to help to set the mood, making it cosier and inviting for guests.



The lobby of the InterContinental® Singapore. Photo: © InterContinental® Singapore

Besides the hotel’s public spaces, FBEYE International also meticulously designed the hotel’s 338 Guestrooms and Suites in the main tower. Inspired by ornate art, ceramics, and eye catching embroidery, the guestroom design exudes a residential feel that is tranquil without being over imposing.

Warren Foster-Brown, Managing Director of FBEYE International stated: “The InterContinental® Singapore is an iconic hotel deeply rooted in the heritage of the arts and cultural districts of Bugis and Bras Basah. When re-designing the hotel FBEYE International wanted to ensure that all new designs reflected these cultures and their historical influences that surrounded the iconic building.”

Mr Bruno Fallegger, Hotel Manager of InterContinental® Singapore stated: “InterContinental® Singapore has been on a journey towards redefining luxury at the heart of heritage Bugis with the launch of brand new guestrooms, public spaces and dining establishments. Through the holistic renovation project, FBEYE International has been instrumental in delivering charming designs that not only breathe new life into our landmark hotel, but also allowed us to progress in the intended direction towards luxury and heritage.”

Singapore design firm FBEYE International celebrates first three Michelin stars

Singapore – Singapore’s top chefs are not the only ones to be celebrating Singapore’s first Michelin star announcements. Specialist hospitality interior design firm FBEYE International (FBEYE) is also celebrating the first three Michelin stars in Singapore for two of the firm’s recently designed restaurants.

The intimate Shoukouwa at One Fullerton road, which has space for only 14 diners, received two Michelin stars, while Jaan, an intimate 40-seater French restaurant on the 70th floor of one of Southeast Asia’s tallest hotels received one Michelin star.

“Of course, the Michelin stars are all about the food experience, but we like to think that in some subtle way the interior design does have an important part to play in the dining experience,” said Warren Foster-Brown, founder and principal of FBEYE.

“It’s interesting that in both of these two restaurants, the design is deliberately planned to not draw attention to itself, but to put the emphasis firmly on the aesthetics of the food,” he added.

Outside Singapore, FBEYE was also recently shortlisted in The International Hotel & Property Awards for Favola, the restaurant within the stylish new Le Meridien Dhaka Hotel.

Commercial and industrial property insurer FM Global breaks ground on S\$80-million unique loss prevention training and operations centre in Singapore



FM Global groundbreaking shovelling ceremony. Photo: © FM Global

Singapore – FM Global, one of the world’s largest commercial and industrial property insurers, broke ground on 22 August 2016 on the construction of a new loss prevention training and operations centre, located in the Singapore Science Park, a research, development and technology hub in Singapore. The ceremony marks the start of the construction phase for the six-storey, 125,000-square-foot (11,610-square-metre) facility that will house the FM Global Asia SimZone, the company’s first hands-on training facility in Asia, and the first of its kind on the continent. The S\$80-million building will be constructed by Ascendas-Singbridge, Asia’s leading provider of business space solutions, and is expected to be operational in early 2019.

“Over the course of FM Global’s 35 years of operating in Asia, we have seen that companies in the region are very interested in increasing their resilience to risk, thereby enhancing their ability to maintain positive business performance when disaster strikes,” said FM Global’s president and chief executive officer, Thomas Lawson. “The new centre will house an array of one-of-a-kind learning facilities to provide experiential loss prevention education, at no cost, to our policyholders as well as to building designers, contractors, students, educational institutes, insurance brokers and government officials. The facility will leverage our nearly two centuries of loss prevention engineering and client experience and expand our insurance and engineering operations in Singapore into full-fledged education,” added Lawson.

A key focus of FM Global’s business will continue to be helping companies become more resilient by providing them with a better understanding of the property hazards that can affect their business continuity and delivering the best loss prevention advice based on scientific research and engineering, rather than solely relying on insurance for protection. The center aims to extend these services with training facilities that help the business community on the continent thrive by increasing their appreciation for resilience and knowledge of how to effectively reduce their property risk exposure.

Interactive laboratories and learning areas will allow the safe simulation of property risks, such as natural hazards, fire, ignitable liquid, construction, electrical hazards and industrial equipment malfunction, in a protected environment to help visitors better understand how local hazards can be mitigated.



Artist’s impression of the FM Global centre. Photo: © FM Global

Schindler to supply lifts to upcoming Hotel & Residence Mandarin Oriental, and Hotel Waldorf Astoria

Bali, Indonesia – Schindler announced it will provide a total of 40 high-performance elevators to the luxury Hotel & Residence Mandarin Oriental, Bali, and the Hotel Waldorf Astoria, Bali - set to open at the end of 2016 and 2017 respectively in Indonesia's world-famous leisure destination.

Developed by PT Bali Raga Wisata on the island's picturesque southern Bukit Peninsula, the exclusive hideaway resorts, individually operated by Mandarin Oriental Hotel Group and Hilton Worldwide, will form the new Bukit Pandawa integrated resort development, and will comprise more than 200 premium villas and guestrooms.

Conveniently located 25 minutes from Ngurah Rai International Airport, and perched 40 metres above sea level on a stunning cliff-side plateau, both hotels will offer sweeping 180-degree views and direct access to a secluded and protected white-sand beach. Designed by acclaimed architect and

interior designer Jean-Michel Gathy of Denniston International, the Hotel & Residence Mandarin Oriental's contemporary, Orient-inspired elements will blend seamlessly with 22 stylish and state-of-the-art Schindler 5500 elevators, and 14 advanced and aesthetic Schindler 3300AP elevators. These two popular models will efficiently and seamlessly transport guests between 24 expansive guestrooms and 97 spacious pool villas, restaurants, and health and fitness facilities. With tranquility and ease key expectations of resort travel in Bali, both models are commended for their smooth and quiet operation.

Schindler will also supply four Schindler 5500 elevators to the forthcoming Hotel Waldorf Astoria, Bali, superbly designed by SCDA Architects. The resort will encompass 96 luxurious guestrooms, ranging from one-bedroom villas to six-bedroom suite villas, and will also feature exclusive dining and event facilities, including a wedding chapel.

"Both the Hotel & Residence Mandarin Oriental, and the Hotel Waldorf Astoria, will surely become Bukit Peninsula's most spectacular and sought-after properties," said Willis Phua, President Director of PT Berca Schindler Lifts. "We're delighted to have Schindler's elevators selected for these developments in Bali, and look forward to contributing to the pleasant experiences of the resorts' guests."



The sprawling Hotel & Residence Mandarin Oriental, Bali will feature 36 high-tech Schindler elevators for effortless mobility. Photo: © PT Bali Raga Wisata

JLL acquires PDM International, a leading interior design firm in Asia Pacific

Singapore – JLL has acquired PDM International, a leading interior design practice with a 20-year track record across Asia Pacific.

With more than 180 professional staff, PDM delivers innovative and creative design and construction solutions for office, retail, hospitality, residential and leisure real estate projects. The acquisition is the latest example of JLL's disciplined acquisition strategy which, since the start of 2015, has seen JLL announce or close more than 40 margin-accretive transactions with a combined value of approximately \$1.2 billion.

"This is an exciting move for JLL, adding to our already strong Project and Development Services offering in Asia Pacific," said Jordi Martin, CEO, Corporate Solutions Asia Pacific, JLL.

Marcus Foley, co-founder of PDM International, said: "We are thrilled to be joining the JLL family. Our expertise and geographic footprint as a company is a great fit with what JLL already offers and we are looking forward to working together to expand the business across Asia Pacific."

PDM's design and construct expertise will complement JLL's Project Management and Construction Management capabilities. With the addition of PDM, JLL will be able to provide design and construct services in 19 cities, with the addition of Beijing, Shanghai, Bangkok, Kuala Lumpur and Seoul, and continue to provide project management in 27 cities across Asia Pacific.

Sydney Opera House unveils designs for Renewal

Sydney, Australia – The NSW Deputy Premier and Minister for the Arts, Troy Grant, unveiled working designs for the largest programme of upgrades to the Opera House since it opened in 1973.

The Renewal projects will open more of the Opera House to the public, improve access and ensure it meets the needs and expectations of audiences, artists and the 8.2 million people who visit each year.

The NSW Government has committed \$202 million from the Cultural Infrastructure Fund to the Renewal plans revealed today, which will:

- Upgrade the acoustics, accessibility, efficiency and flexibility of the Opera House's largest internal performance space, the Concert Hall, which hosts world-leading classical and contemporary musicians, speakers and other performers;
- Transform office space into a new Creative Learning Centre, a dedicated place for children, families and young people;
- Remove the existing intrusive marquee from the Northern Broadwalk, and build a premium Function Centre within the building envelope, with spectacular views of the harbour; and
- Create a welcoming, car-free entrance under the Monumental Steps, and improve access to a more comfortable and inviting main foyer.



Artist's impression of the refurbished Concert Hall at the Sydney Opera House.

Australia's premier tourist destination and performing arts centre, the Opera House contributes \$775 million annually to the NSW economy and has a national-identity value of \$4.6 billion (Deloitte Access Economics, 2013).

NSW Deputy Premier and Minister for the Arts Troy Grant said the plans will ensure the Opera House is able to meet the increasing popularity of Australia's leading tourist destination and busiest performing arts centre. "The Sydney Opera House is the symbol of modern Australia. It is our responsibility as custodians of this extraordinary place to maintain and renew it for all Australians," said Mr Grant.

"That's why we are investing more than \$200 million in these wonderful projects, which represent the biggest upgrade to the Opera House since it opened 43 years ago," added Mr Grant.

The largest of the four NSW Government-funded projects, the Concert Hall upgrade is expected to take 18 months to complete. Construction will begin in mid-2019 and the hall will reopen with the SSO's 2021 season.

In addition to the four projects revealed in today's designs, the first stage of Renewal also includes a \$45 million self-funded project to replace the 'engine' in the Opera House's second-largest internal performance space, the Joan Sutherland Theatre (JST). Announced in June 2015, the Theatre Machinery Project will improve the safety and reliability of the JST, which will close from May to December next year, during construction.

The Renewal works will be staged so that audiences and visitors can continue to enjoy world-class experiences at the Opera House while these critical upgrades are completed. When the Joan Sutherland Theatre closes for seven months in 2017, the Opera House's five other performance stages, its food and beverage outlets, tours and on-site facilities will remain open and fully operational. This same will be the case during the Concert Hall closure.

Phoenix Property Investors announces 'The Master Collection'

Hong Kong – Phoenix Property Investors (Phoenix) has unveiled The Master Collection, the Company's latest premium residential development in Taipei's prestigious Great Taipei New Town district. Facing Xueshan with Yangmingshan on its north, The Master Collection comprises 28 spectacular private houses designed by five of the world's most distinguished architects.

Phoenix collaborated with preeminent leaders in the design field, including architects Richard Meier, Jim Olson, Annabelle Selldorf, Steven Harris and Calvin Tsao (from Tsao & McKown).

Celebrated for their innovation and individual visions, all five architects are included in Architectural Digest's 2016 list of the world's Top 100 thought leaders and design influencers.

Surrounded by verdant hills and open spaces, the 28 luxurious houses enjoy easy access to the centre of Taipei City and are seamlessly integrated into the natural landscape. Offering uncommon privacy and the security of a gated community, each house

boasts a private swimming pool and individual garden. Ranging from an expansive 6,372 square feet to a deluxe 13,718 square feet, each home within The Master Collection is an inspired architectural masterpiece.

“Phoenix Property Investors is proud to have such an illustrious group of architects involved in The Master Collection,” said Mr Samuel W. T. Chu, Founding Partner, Phoenix Property Investors. “We have worked closely with the five renowned architects, who brought their collective experience and innovative designs, to deliver our vision. The Master Collection presents a once-in-a-lifetime opportunity to own freehold property in a stunning location surrounded by beautiful natural landscape,” added Mr Chu.



23 Houses of The Master Collection. Photo: © Phoenix Property Investors

Construction on The Master Collection is well underway. With five residences designed by Seattle-based architect Jim Olson due for completion by Q3, 2016, a series of exclusive exhibitions will be held in the Asia-Pacific region, beginning with Hong Kong this July. This rare collection of exceptional houses is the result of ongoing, open collaborations, and demonstrates Phoenix’s commitment to excellence. Each architect visited the mountain location and was inspired by the landscape, natural environment and local culture.

Surbana Jurong acquires SMEC to become one of Asia’s largest consultants for urban and infrastructure developments

Singapore – Singapore-based Surbana Jurong Private Limited (Surbana Jurong), and SMEC Holdings Limited (SMEC), an award-winning consultancy firm specialising in major infrastructure projects in Australia, have joined forces to establish a formidable global consultancy group with deep combined expertise in urban and infrastructure sectors.

Surbana Jurong’s 100 percent acquisition of SMEC for approximately S\$400 million will significantly transform both companies. With Surbana Jurong and SMEC bringing complementary strengths to the table, the combined entity will have a global workforce of almost 10,000 employees in over 100 offices across 40 countries in Asia, Australia, the Middle East, Africa and the Americas. The combined entity would be one of the largest urban and infrastructure consulting firms in Asia.

Wong Heang Fine, Group CEO of Surbana Jurong said: “Surbana Jurong and SMEC share complementary strengths and competencies as well as a rich and proud heritage of major iconic projects recognised around the world. SMEC’s experience and strength in major infrastructure projects in the urban transport, energy and water sectors such as hydroelectric power plants, Mass Rapid Transit (MRT) & Light Rail Transit (LRT) systems, bridges and highways, coupled with Surbana Jurong’s track record and expertise in urban planning, township and industrial development, will enable us to offer unique complete value chain services in urban and infrastructure solutions to our clients globally.”

Commenting on the partnership, Andy Goodwin, SMEC’s CEO and Managing Director, said: “We are delighted about this partnership with Surbana Jurong, an Asian powerhouse, who will further accelerate and support SMEC’s growth ambitions. This partnership is a reflection of the strategic value of our business and its potential to further deliver solutions internationally. It also signifies recognition of the professional skills at SMEC. The combined entity will not only benefit our clients, but importantly deliver enhanced growth opportunities for our employees and our partners. We are confident that the synergies between SMEC’s progressive culture and Surbana Jurong’s established company values will result in a mutually beneficial partnership over the long term.”



Mr Wong Heang Fine (left) and Mr Andy Goodwin.

New Zealand Green Building Council announces new chief executive

Auckland, New Zealand – The New Zealand Green Building Council (NZGBC) has announced the appointment of Andrew Eagles to the position of Chief Executive.

Effective 29 September 2016, Eagles will step into the role currently held by Alex Cutler, who has led the organisation since May 2010. Ms Cutler's final day with the NZGBC will be 30 September 2016.

Announcing the appointment, NZGBC Board Chair Mary-Jane Daly said that in a strong field of candidates, Eagles stood out for several reasons. "Andrew has a breadth of technical skills relevant to the property, building and construction industries, and has been directly working in the field of sustainability for more than 13 years. His enthusiastic leadership and strategic experience will be an invaluable asset to our organisation."

Taranaki-born Eagles is currently working in London as CEO of the Brick Development Association, and prior to that was the Managing Director of Sustainable Homes for nine years. He has an honours degree in public policy from Victoria University of Wellington.

"At Sustainable Homes, Andrew led a business focused on providing sustainability solutions for the built environment, with core services in consultancy and professional training. This is a perfect fit with NZGBC's work, as we continue to work with the building and construction industries to create healthy, efficient and productive buildings," added Ms Daly.

Eagles has been living in the UK for more than 13 years, and says he's keen to bring back his international experience to help influence the New Zealand market.

"I'm thrilled to have this opportunity, to lead the NZGBC and to return home to New Zealand with my family. I've seen the appetite for sustainability in residential and commercial buildings increase worldwide over the past decade, and I hope to inspire others to create the kind of sustainable built environment New Zealand deserves," said Eagles.



Andrew Eagles

ATSA Architects Sdn Bhd helped to rebuild and restore a 106-year-old Malay heritage mosque in Perak, Malaysia

Kuala Lumpur, Malaysia – Leading Malaysian architectural firm, ATSA Architects Sdn Bhd (ATSA Architects), has geared up the communal conservation effort of the Kampung Teluk Memali in Perak into the vital second phase of the effort.

After the success of the first Green Platinum rated mosque in Malaysia, the Raja Haji Fisabilillah Mosque in Cyberjaya, ATSA Architects has undertaken a historic conservation endeavour involving a 106-year-old Malay heritage mosque in Kg Gajah, Perak by relocating and restoring it from the old site to a new site in Ipoh, Perak.

The conservation work has begun with the first phase of the construction of a new platform base on the new site on last April 2016. Whilst the second phase involved the dismantling, relocating, repairing and treating and reinstalling the structural timber components of the mosque building on its new site in Taman Seri Bougainvillea, Bandar Seri Botani, Ipoh, Perak.

Since the last month of June 2016, coincidentally with Muslim holy month of Ramadan 1437 Hijrah, the dismantling

work has begun with the relocation of an intricate timber *mimbar* from the mosque prayer hall to a community hall in the nearby Kampung Tersusun Teluk Memali in Kg. Gajah, Perak. Meanwhile on 22nd June 2016, in conjunction with the sacred day of *Nuzul Al-Quran* (Muslims believed it was the day Al-Quran was revealed), the *kolah* or ablution pond had been lifted and taken out by using crane and was transported using lorry to the new site on the same day.

A week later, the dismantling work has officially kicked off involving a group of carpenters from Ipoh, Perak. The dismantling has been done carefully under the supervision of Dr. Mohd Jaki Mamat, a licensed conservator from Politeknik Ungku Omar. This was to ensure every single step was done accordingly to the conservation principles.

The dismantling process saw the removing of the existing zinc metal roofing, followed by the fascia boards known as *papan cantik*, roof structural components, such as battens, rafters and roof beams. This led to the discovery of the former wood shingles, believed to

be the original roofing material before the zinc metal roofing.

The dismantling process then continued by the dismantling of the wall panels, where the decorative panels, window panels and supporting columns were located. Each component was equally important structural components, thus they were taken down carefully piece by piece. The four main columns were later removed by using the crane to ease and fasten the dismantling process.

All of the structural timber components were transported using lorry and were kept properly after the marking and tagging step on the dismantled components. A special tent was erected on the site to protect the timber components from the elements.

Explained Ar. Azim A. Aziz, the Chief Executive Officer of ATSA Architects, "We are now in the midst of repairing and treating the timber components. Selected numbers of the components need to be upgraded due to decay, termite infestation, and several other factors. To ensure the high quality of

craftsmanship, we have selected a local timber craftsman, Sohig Enterprise. All of the timber treatment works are being done in their workshop in Chemor, Perak.”

“To find the suitable and matched timber species and types, we have engaged expert from the Malaysian Timber Industry Board (MTIB) assisted by our licensed conservator, Dr. Mohd. Jaki Mamat. We have gone extra length to find the replacement timber as far as in Kemaman, Terengganu, supplied by Pesama Timber Corporation,” added Encik Azim.

The work will be finished in a few weeks’ time, before the reinstallation is slated to be started by early September 2016, before reaching the third phase. The third phase is an inclusion of electricity and water supply along with the construction of supporting spaces, such as the *balai lintang* (annexe building for female worshippers and communal activities), ablution, toilets, landscaping works, road, drainage, and fencing.

Meanwhile, several local universities and colleges will also take part in this historic endeavour, in the course of their community services initiatives, as well as a hands-on learning experience for their architectural and construction students. The institutions namely Politeknik Ungku



View towards the balai lintang and kolah structure. Photo: © ATSA Architects Sdn Bhd

Omar, the International Islamic University Malaysia and Taylor’s University will join hand in hand in the restoration effort of this historic mosque.

Encik Azim continued, “As part and parcel of financing this voluntary and non-profitable effort, we were endeavouring a monograph on the mosque architecture in Malaysia. The monograph entitled ‘Masjid – Selected Mosques and Musollas in Malaysia’ is

our effort to publish and document the various mosques that have been built in our country since the 17th century. Hence, all proceeds from the sales of the monograph, minus its printing cost, will be pledged into the funding of the conservation effort. We have successfully collected RM 250,000.00 amount, but the amount is still inadequate, and we are appealing for another RM 250,000.00 to complete the mosque.”

Nakheel enhances the Ibn Battuta journey with opening of Mall-Metro connection

Dubai, UAE – A new link has opened between Nakheel’s Ibn Battuta Mall and the Dubai Metro station, meaning easier public transport access to more than 400 shops, restaurants and entertainment outlets at the world’s largest themed mall.

The two-storey, 210 metre walkway enables passengers using the Metro or bus services to directly access the mall, which is themed around the journeys of renowned 14th century Arabian explorer, Ibn Battuta.

Mirroring the architectural design of the main mall, the Metro connection features 90 new retail and dining outlets due to open later this year.

Ali Rashid Lootah, Nakheel Chairman, said: “With more than 20 million visitors a year, Ibn Battuta Mall is already one of Dubai’s ‘must-see’ destinations. The Metro link is a natural progression for Ibn Battuta that will inspire more visitors to discover its stunning architecture, intriguing history and retail offering – and encourage those who would normally drive to use public transport instead.”

The Mall-Metro connection is a vital element of an ongoing Ibn Battuta expansion that will transform the existing complex into a mega retail, entertainment and leisure destination spanning seven million square feet.

Phase one – a 300,000 square feet extension with 60 new shops and restaurants opened in May this year, while Ibn Battuta’s first hotel – a 372-room Premier Inn connected directly to the mall – will be operational in October. Subsequent expansions, covering 4.7 million square feet, include a mall with a glass-covered courtyard, a new cinema complex, a multi-storey car park and second hotel.



Interior of Ibn Battuta Mall Metro link.

Indonesia opens Asia's "first" cinema playground in Maxxbox Lippo Village

Singapore – Cinemaxx Junior boasts Asia's "first" cinema playground designed for the family movie going audience. Located at Maxxbox Lippo Village in Indonesia, the 380 square metres playground consist of slides, vertical wall play mazes, trampolines, track rides, climbing nets for children to play before and during movie screenings.

Working with Singapore based architectural firm, DP Design Pte Ltd, regional playground specialist Playpoint together with Carve, a Netherlands based playground designers re-imagined the concept of indoor playgrounds. Instead of thematic cage indoor playgrounds currently available, an abstract playground can be interpreted in many ways by the kids' imagination to create their own worlds. They can imagined

themselves navigating their way in the millennium Falcon or crossing the forest canopy. The design blends form to create a visually stunning and functionally adventurous playground for all ages. Adventurous children climb up the three dimensional climbing nets to the mezzanine level and slide down the tube slides where a big giant trampoline and flying fox awaits.

Children can also navigate their way along the walls via three Wall-o-Ila, interconnected via crawl tube nets, to reach the mezzanine level. Each Wall-o-Ila comes with different play features like sliding poles, lounge nets, climbing ropes, hammocks and vertical rope.

At the Mezzanine level, there are lounge hammocks, teardrop play nets and spinners to keep children entertained.

Children can access the screening room through an entrance at the mezzanine level or through one of the vertical wall play maze and slide down the tube slide to a giant ball pit.

Commenting on the concept, Mr Jason Sim, Managing Director, Playpoint (Asia) Pte Ltd said: "Indoor playgrounds such as Cinemaxx Junior, can be re designed to invoke an architectural look combining form and function. In Singapore, due to high rental charges, developers can relook at indoor playgrounds from a different perspective to the standard cage playground commonly found in pay as you play playground."



Wall-o-Ila creates a visually interesting play scape. Photo: © Playpoint (Singapore) Pte Ltd



Crawl tube nets links the Wall-o-Ila together. Photo: © Playpoint (Singapore) Pte Ltd



Children climbing on the Wall-o-Ila. Photo: © Playpoint (Singapore) Pte Ltd



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With their presence in over 130 countries, dormakaba operates both globally and locally. dormakaba knows the on-site requirements, they listen to their customers and partners, they ask the right questions and consider every aspect to come up with smart, secure access solutions – everything related to doors and secure access to buildings and rooms, all provided from a single source. Innovative solutions that are as precise as they are reliable.

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This includes locking systems with cylinders and locks, right through to fully networked 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.

The new name dormakaba stands for the union of two strong partners and brands, which will generate long-term added value for all stakeholders. This value comes from the combination of complementary product and service portfolios and a comprehensive presence along the entire value creation chain as well as around the whole world.

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For more information, visit www.dormakaba.com.sg.



With dormakaba you have a strong partner who is there for you throughout every development phase of your building project – from the initial consultation to the last door handle.

Industry stalwart joins GBCA's growing team

Sydney, Australia – An industry stalwart and passionate sustainability advocate, Michael Manikas has been appointed Head of Industry Development at the Green Building Council of Australia (GBCA).

The former chief executive of the Australian Institute of Quantity Surveyors (AIQS), Mr Manikas has more than two decades of experience working for a range of organisations across the property and construction industry.

The GBCA's Chief Executive Officer Romilly Madew describes the appointment as a "real win" for the industry.

"During his time as CEO at AIQS, Michael transformed the organisation into a forward-thinking and sustainable operation – establishing online training, developing the Certified Quantity Surveyor trademark, and building the ondemand AIQS Academy. Michael's insight, experience and strong networks will be invaluable as we drive continuous improvements to our professional development programme," said Ms Madew.

Mr Manikas has held previous roles with Turner & Townsend, Australand, Built, Mirvac and was the long-time Associate Director at Davis Langdon. "Michael was the driving force behind Davis Langdon's sustainability agenda for many years, and was the author of the influential 'Road to Green Property' handbook which outlined the costs and benefits of sustainable development," said Ms Madew.

Mr Manikas' appointment follows two other high-profile recruits, Jonathan Cartledge and Nicole Sullivan. The three commenced with the GBCA on 19 September 2016.



Michael Manikas

Dong Yang Mining Company launches eco-friendly paint in Singapore

Singapore – Dong Yang Mining Company, based in Gangwon Province in Korea, has launched its eco-friendly paint in Singapore. Called 'Natural Power Sericite Paint', the product was launched by the Mr Jin Kang Jung, Chairman of Dong Yang Mining Company at the Suntec Singapore in the presence of industry players and media.

Unlike traditional interior paints, which comprise mostly of chemicals and solvents, Natural Power Sericite Paint is made from Sericite, a natural occurring ore found in DongHae, Gangwon Province.

Natural Power Sericite Paint aims to set a new standard in the interior paint industry as it is environmentally-friendly with a number of health and environmental benefits. In addition, the Natural Power Sericite Paint is also safe as it claims to be the world's first Sericite flame-retardant paint.

Researches have shown that the alkali mineral of Sericite, mined from the Gangwon Province in Korea, contains powerful anti-microbial, anti-fungal and detoxification properties, and emits negative ions and far infrared. In fact, the mineral has been used for medical and cosmetic purposes for centuries since the time of the Egyptian Queen Cleopatra.

Now, with Dong Yang Mining Company's proprietary technologies, the company is able to produce Sericite Paint that harnesses these positive healthful properties to enhance the indoor environment all day every day. This is an impressive breakthrough as people from all over the world have been reported to be suffering from Sick Building Syndrome for decades.

Sericite Paint has a myriad of health-enhancing properties, including:

- Air-purifying effects – Surface negative ions on the sericite helps freshen and purify the air by causing allergens such as pollen, mould spores, dust, and animal dander floating in the air (which have either a neutral or a positive charge) to be attracted to and stick to each other, forming 'clumps' (because opposite charges attract). These clumps of particles then become heavy enough so that gravity can pull them down to the floor, where they can be vacuumed up, rather than staying in suspension where they can be breathed in and cause allergic reactions.

- Anti-oxidant effects – Sericite contains a reasonable amount of carbon atoms, which might belong to organic compounds such as polyphenolic compounds, well-known for its anti-oxidants. The phenolic compounds may act as anti-oxidants because they are scavenging reactive free radicals and could terminate oxidative chain reaction. Therefore, Sericite may react with reactive free radicals present in the air atmosphere to protect the human body.

- Generation of ANIONS helps to:

- o Improve indoor air quality;
- o Increase oxygen flow to the brain, and thus enhancing alertness and cognitive functions, and at the same time reducing drowsiness;
- o Protect environment against bacteria, reducing respiratory problems.



Mr Jin Kang Jung, Chairman of Dong Yang Mining Company, introduced the Natural Power Sericite Paint to the invited guests.



Prof. Seung-Mok Lee, Department of Environmental Engineering, Catholic Kwandong University in Gangneung, Korea made a presentation on the Sericite product and its applications.



The Natural Power Sericite Paint comes in 26 shades of warm, cool and neutral hues and 10 beautiful colours for its powdered paint series.

- Moisture-adjusting properties refresh the indoor environment;
- Deodorising properties, through physical and chemical absorption mechanisms, provides a fresh environment;
- Elimination of Volatile Organic Compound (VOC) / Absorption of heavy metals and toxins
 - with zero VOC, the indoor environment is completely free from the Sick Building Syndrome;
- Claimed to be the world's first Sericite flame retardant paint.

The Natural Power Sericite Paint comes in 26 shades of warm, cool and neutral hues and 10 beautiful colours for its powdered paint series. The Sericite Paint is smooth and easy to apply onto walls, and has an elegant finish that looks beautiful under both natural and artificial lightings. It can also be custom made according to the customer's requirements.

Natural Power Sericite Paint has been awarded a number of product and quality certifications for its efforts in creating a paint that protects the environment and enhances people's health. The Korean Ministry of Environment has awarded Dong Yang Mining Company with the Certificate of Green Technology and Certificate of Green Technology Product. Besides Singapore, Natural Power Sericite Paint has been well received in Japan, Hong Kong, Taiwan and China.

Natural Power Sericite Paint is available in Singapore from Natural Power Green Product Pte Ltd. **For more information, visit www.naturalpower-sg.com.**

CTBUH names Lifetime Achievement recipients and 2016 Fellows

Chicago, USA – The Council on Tall Buildings and Urban Habitat (CTBUH) has announced the recipients of its two Lifetime Achievement awards for 2016. This year the CTBUH Board of Trustees will award the Lynn S. Beedle Lifetime Achievement Award to Dr. Cheong Koon Hean. Dr. Cheong is the first government official and urban planning figure to win the award. Her work in Singapore to encourage smart growth and sustainable vertical development succinctly aligns with the Council's focus on the urban habitat. The Fazlur R. Khan Lifetime Achievement Medal will be awarded to Ron Klemencic, a preeminent structural engineer and former Chairman of the Council. Klemencic was a clear choice for the honor, both for his countless contributions in the engineering of tall buildings and his commitment to disseminating information for the industry at large. The CTBUH is also pleased to recognize three new CTBUH Fellows for their ongoing contributions and leadership within the Council over a number of years.

Lynn S. Beedle Lifetime Achievement Award

This award recognises an individual who has made extraordinary contributions to the advancement of tall buildings and the urban environment during his or her professional career. These contributions and leadership are recognised by the professional community and have significant effects, which extend beyond



Dr. Cheong Koon Hean, winner of the 2016 Lynn S. Beedle Lifetime Achievement Award.

the professional community, to enhance cities and the lives of their inhabitants. The individual's contributions may be well known or little known by the public and may take any form, such as completed buildings, research, technology, methods, ideas, urban planning, or industry leadership.

2016 Lynn S. Beedle Lifetime Achievement Award – Winner

Dr. Cheong Koon Hean is an architect-planner who has been credited with shaping much of Singapore's urban landscape. In her long career, especially as the Deputy Secretary in the Ministry of National Development and subsequently as the CEO of the Urban Redevelopment Authority (URA) from 2004 to 2010, she led the long term strategic planning of Singapore, crucial to ensuring that the development needs of the small city-state can be met. In 2010 she was appointed CEO of the Housing and Development Board (HDB) which houses about 82 percent of the residents of Singapore. At HDB, she led the standards for quality public housing and facilitating the development of many award winning projects.

She also played a key role in the development of major growth areas. In particular, she was the key driver of Marina Bay, Singapore's new city extension, which has since become the new signature image for Singapore. A strong proponent of good design, she encouraged the development of many high quality tall buildings, transforming Singapore into one of the most livable and beautiful cities in Asia.

Fazlur R. Khan Lifetime Achievement Medal

This award recognises an individual for his or her demonstrated excellence in technical design and/or research that has made a significant contribution to a discipline(s) for the design of tall buildings and the built urban environment. The contribution may be demonstrated in the form of specific technical advances, innovations, design breakthroughs, building systems integration or innovative engineering systems that resulted in a practical design solution and completion of a project(s).

2016 Fazlur R. Khan Lifetime Achievement Medal – Winner



Ron Klemencic, winner of the 2016 Fazlur R. Khan Lifetime Achievement Medal.

Ron Klemencic, is Chairman and CEO of Magnusson Klemencic Associates, an award-winning, 200-person structural and civil engineering firm headquartered in Seattle, Washington, with a branch office in Chicago. Over his 30-year career, Ron has worked on projects in 24 US states and 24 countries, with developments up to 650,000 square metres (seven million square feet) and towers up to 112 storeys.

Ron is known for his creativity, innovation, and focus on complex high-rise and mixed-use designs. Since pioneering the development and U.S. adoption of "Performance-Based Seismic Design" (PBSD) methodology for high-rise buildings, Ron continues to advance the application, with a current count of 38 PBSD buildings – more than any other engineer in the U.S.

2016 CTBUH Fellows

CTBUH Fellows are recognised for their contribution to the Council over an extended period of time, and in recognition of their work and the sharing of their knowledge in the design and construction of tall buildings and the urban habitat.

Israel David, Founder, David Engineers

Israel David, one of the 2016 CTBUH Fellows.

Israel David received a BSc degree in Civil Engineering and MSc degree in Civil Engineering at the “Technion” – the Israeli Technical Institute in Haifa Israel. In 1990, he founded a structural design and consulting firm called “David Engineers LTD,” which he owns and manages. The firm is one of the largest engineering companies in Israel and is involved in projects in 20 different countries all over the world. He has been the CTBUH Israel Country Representative since 2009.

Mark Sarkisian, Partner of Structural Engineering, SOM

Mark Sarkisian, one of the 2016 CTBUH Fellows.

Mark Sarkisian leads Skidmore, Owings & Merrill, LLP’s San Francisco-based Structural Engineering Studio – an award winning group that collaborates with the firm’s other disciplines to create innovative and integrated structural solutions. His diverse portfolio includes commercial, laboratory, medical, historic, transportation, residential/hotel, and educational facilities, as well as mixed-use skyscrapers. He was one of the longest serving members of the CTBUH Advisory Board.

Cathy Yang, General Manager, Shanghai Tower Business Operation & Management

Cathy Yang, one of the 2016 CTBUH Fellows.

Cathy Yang is currently the head of the commercial company of Shanghai Tower. Before joining Shanghai Tower, she had been in charge of TAIPEI 101’s operation for 15 years.

There, she guided TAIPEI 101 on the journey to become the world’s tallest LEED EB Platinum building in 2011, started the re-certification process in 2014, and initiated the issuance of the annual TAIPEI 101 Corporate Sustainability Report. She served as a member of the CTBUH Board of Trustees from 2013-2015.

Landscape architecture firm SWA Group to plan Toronto’s last large undeveloped site

Laguna Beach, California, USA – SWA Group’s Laguna Beach studio has been selected to plan the last large, undeveloped site in Toronto, Ontario, Canada. Owners Woodbine Entertainment Group, along with development consultant Live Work Learn Play, have commissioned a transformation of the 683-acre site into a vibrant, urban mixed-use neighbourhood with the extant Woodbine Racetrack at its centre.

Currently the land is bordered by a highway, two major roads, and a light rail line. In addition to re-conceptualising the horse-racing venue for an optimal urban experience, SWA designers and planners will draft guidelines for a vision that welcomes in the surrounding neighbourhoods, which include a burgeoning immigrant population, and entertainment and recreation alternatives. Proposed walking and biking trails, as well as retail and restaurant offerings, will complement an extensive amount of housing,

drawing daytime visitors from the city as well as overnight guests from farther afield. There is also a goal to expand an onsite agriculture experiment that grows feed for the resident thoroughbred race horses. Integrated into the master plan will be the existing stable and grandstand as well as a new casino. The nearby Pearson International Airport, together with an upcoming north-south light rail line, will make reaching the site very convenient.



Photo: © Woodbine Entertainment Group

Goettsch Partners completes R&F Yingkai Square mixed-use tower with Park Hyatt Guangzhou Hotel at top

Chicago, USA – Goettsch Partners (GP) recently completed the R&F Yingkai Square mixed-use tower, featuring the Park Hyatt Guangzhou hotel, in Guangzhou, China. Developed by R&F Properties Co. and located in the new city centre of Zujiang, the 296-metre tower totals 66 storeys and 174,500 square metres and is currently the 7th tallest completed building in Guangzhou, according to the Council on Tall Buildings and Urban Habitat. The building includes 114,500 square metres of office space and 10,000 square metres of retail, in addition to the 208-key Park Hyatt at the top, with hotel interiors designed by Tokyo-based firm Super Potato.

“GP is very pleased to deliver this signature tower for R&F Properties and Hyatt,” said James Zheng, AIA, LEED AP, president of Goettsch Partners. “The project is one of 11 Hyatts we have completed, including three in the last eight months, and marks our first for the luxury Park Hyatt brand,” added James.

The building is part of a larger master plan of mixed-use towers that collectively signify the stature of Guangzhou as a major metropolitan city. The simple yet iconic form of the tower traces inspiration from local bamboo plants, as seen in the building’s asymmetrically carved corners as well as the veining of vertical strips on the façade. The strips compress and stretch as they rise, starting more dense at the base to enhance the sense of gravity. The hotel occupies the building’s uppermost floors, with office space below, and subway connections below grade.

“With its tight urban site, diverse functions and direct connections to transit, the building has quickly made an impact,” said Paul De Santis, LEED AP, principal and senior designer at GP. “The building establishes a unique silhouette in the rapidly evolving skyline,” added Paul.

While the tower internalises its functions into a singular expression, the design is greatly born of its context. The square tower massing respects the geometric rigidity of the street grid, helping to form urban rooms in conjunction with the neighboring parcel. The pinching language created by carving out the corners highlights the unique views available at various heights through and over neighbouring structures while the diagonal extensions of the site relate to the adjacent central green and nearby Pearl River Delta.

The building is at once connected to the urban street life around it while balanced with an intimacy required for a luxury hotel experience. The hotel drop-off and arrival sequence is choreographed to emphasise a sense of calm, with a warm, neutral palette punctuated by sculptures that aid in orientation. An infinity-edge pool on level 60 runs the length of one side of the building, overlooking the panoramic views of the Guangzhou skyline. A signature outdoor roof garden on level 70 offers similar sweeping views while providing an inviting space to dine and relax.



Photo: © 1st Image

PPG reaches agreement with Vitro for sale of flat glass operations

Pittsburgh, USA – PPG recently announced that it has reached a definitive agreement to sell the assets of its flat glass manufacturing and glass coatings operations to Vitro S.A.B. de C.V., a leading producer of flat glass and specialty products. The transaction is expected to close by the end of 2016, subject to customary closing conditions.

Under the terms of the agreement, PPG will divest its entire flat glass manufacturing and glass coatings operations, including production sites located in Fresno, California; Salem, Oregon; Carlisle, Pennsylvania; and Wichita Falls, Texas; four distribution/fabrication facilities located across Canada; and a research-and-development centre located in Harmar, Pennsylvania, near Pittsburgh. PPG’s flat glass business includes approximately 1,200 employees. The business manufactures glass that is fabricated into products used primarily in commercial and residential construction.

“This transaction represents the end of an historic era for PPG as a manufacturer of flat glass, and it is another major step in our portfolio transformation to focus on paints, coatings and specialty materials. Upon completion of this transaction, the flat glass operations will become part of a company that is focused on growing its core glass business,” said Michael H. McGarry, PPG President and Chief Executive Officer.

PPG will receive approximately \$750 million in gross cash proceeds. Upon completion of this transaction and PPG’s recently announced transaction to divest its European fiberglass operations, approximately 98 percent of PPG’s business portfolio will be focused on paints, coatings and specialty materials.

Green Building Councils and cities join forces to ramp up building energy efficiency

London, UK – Green Building Councils are joining forces with leading cities around the world to dramatically ramp up energy efficiency within buildings, under a new partnership between the World Green Building Council (WorldGBC) and the World Resources Institute-led Building Efficiency Accelerator (BEA).

Green Building Councils in Colombia, the United Arab Emirates, Poland and South Africa will work with Mayors and staff in the cities of Bogota, Dubai, Warsaw and Tshwane, respectively, under the BEA in a bid to double the rate of energy efficiency by 2030. They will help cities to define the best action they can take to make efficiency improvements and receive market buy-in from those in the sector who will help to deliver these energy savings.

This work is being undertaken as part of the BEA, a public-private partnership of cities, businesses and organisations which aims to improve energy efficiency in buildings. The BEA is one of six accelerators under Sustainable Energy for All (SE4All), an initiative led by the United Nations Secretary-General, and is funded by the Global Environment Facility (GEF).

As one of the larger delivery partners under the BEA, WorldGBC and the participating Green Building Councils are turning climate finance into concrete, timely and measurable action in cities in the wake of COP21. This includes Green Building Councils providing direct support to the city governments mentioned above, while WorldGBC will primarily share

resources and build capacity around the value of green building certification programmes which can operate at a national but also local level.

Announcing the partnership at the Green Building Council of South Africa's annual convention in Johannesburg, Terri Wills, CEO of the World Green Building Council, said: "Cities and the buildings which make them up consume around 75 per cent of global energy, putting them at the coal face of our fight against climate change. But whilst they are a major consumer of energy, cities also have huge potential to dramatically reduce energy use, with buildings offering one of the most effective ways to do so. Through collaboration with cities, our Green Building Councils will provide on-the-ground expertise to help realise this opportunity."

Jennifer Layke, Director, Building Efficiency Initiative, WRI Ross Center for Sustainable Cities, World Resources Institute, said: "Cities are powerful leaders: as owners, investors and regulators, they shape the sustainability of our future. Buildings that are efficient improve the productivity of both people and energy systems. By joining forces, the WorldGBC and the Building Efficiency Accelerator support the success of policy and project action taken by all cities: those that are inspirational examples and those that aspire to do much more. Working in partnership, WRI and WorldGBC bring more knowledge and resources to help BEA partner cities."

Generali Tower, by Zaha Hadid Architects, tops out at 44 floors

London, UK – Construction of the 170-metre Generali Tower, Milan by Zaha Hadid Architects (ZHA) has topped-out at 44 storeys. The Generali Tower, together with two further towers, forms the centrepiece of the CityLife masterplan developed by ArchA to regenerate the old site of Milan's International Fair which closed in 2005.

The CityLife redevelopment opens the site to year-round public use with the inclusion of new civic spaces, public parks and residential buildings in addition to shopping areas and corporate offices, all with direct transport connections via the Tre Torri station on line 5 of the city's metro system. When complete, CityLife will be the largest new civic space and public park created for Milan since Parco Sempione opened 120 years ago.

A public piazza and shopping area will form the base of the tower, with the 39 storeys in the tower above accommodating 3,200 staff to meet Generali's continued growth as one of the world's largest financial institutions. At the intersection of important routes through city which converge in the new CityLife park, the Generali Tower is aligned at ground level to connect directly with its surrounding public park and piazza; the curvilinear geometries of its podium are defined by the tensional forces generated from these intersecting routes.

This torsional force is transferred vertically through the tower by the realignment of successive floor slabs that incrementally 'twist' about a vertical axis. This incremental twisting is defined by algorithms to give each floor a fractionally different relationship to the floors above and below.

As the tower rises creating broader views and connections across the city, this twisting orientates the tower's upper floors to face the centre of Milan and the Duomo. ZHA has developed a double-façade system for the Generali Tower with inclined structural columns that increase efficiencies in usable floor areas and contribute to its targeted LEED Platinum certification. A system of sun-deflecting louvers flanked by glazing that includes a series of ventilating registers to draw outside air through the cavity provides an extremely efficient environmental control for each floor.



Generali Tower under construction. Image by Alberto Fanelli @ Citylife

Utrecht University awards Honorary Doctorate to Francine Houben

Delft, The Netherlands – Francine Houben has received an Honorary Doctorate from Utrecht University. Maarten Hajer, Professor of Urban Futures at the Faculty of Geosciences, awarded the Honorary Doctorate during the University's 380th Dies Natalis on March 29, 2016.

"Francine Houben's thoughtful and interdisciplinary solutions contribute to a well-functioning urbanity," said Maarten Hajer. "Her work centres on people, but moreover it is about social interaction. She designs buildings that bring out the best in people, creating truly public domains," added Maarten.

In her words of thanks, Francine Houben emphasised that architecture is never a solo act: "If you want to be innovative, you need passion, creativity and curiosity and to work with researchers from a wide range of specialties, both within and outside of the academic community. Interesting developments in architecture are produced by those who create the freedom to experiment and work together between the fragmented practices of design and construction."

Francine Houben is the founding partner and creative director of Mecanoo architecten, based in Delft, The Netherlands. With her practice, she has created award winning designs such as the Library of Birmingham, the Bruce C. Bolling Municipal Building in Boston, MA, and the Delft Municipal Offices and Train Station. Francine Houben curated the first International Architecture Biennial in Rotterdam and is a board member of the Society of Arts, part of the Royal Netherlands Academy for Arts and Sciences. She was recently commissioned to lead the design of the New York Public Library Midtown Campus renovation. In November 2015 Queen Máxima of the Netherlands presented the Prins Bernhard Cultuurfonds Prize to Francine for her oeuvre. The book 'People Place Purpose', which outlines Mecanoo's approach, was also published in November 2015.



Francine Houben. Photo: © Mecanoo architecten

Mecanoo reveals Kaohsiung Station design

Delft, The Netherlands – With its organic, curvilinear shape and landscaped canopy, the new Kaohsiung Station will introduce a generous amount of public green space to Taiwan's second city. Designed by Netherlands-based Mecanoo architecten, the station reaches out to the city in a powerful gesture, acting as a green connector that unifies different modes of transport, and represents Kaohsiung's vision for the future as a sustainable city. The new Kaohsiung Station is the crowning achievement of the massive Kaohsiung Metropolitan Area Underground Railway Project, which includes seven subterranean stations along a 9.75 km railway tunnel. It will be a true transportation hub integrating train, metro, local and intercity bus services, taxi and bicycle. As a key project for the city's transformation, Mecanoo designed an above-ground station that adds valuable public green space and activates the local community.

As a main arrival point for travellers, the station sets a new stage for the city's spirit, values and identity. Arriving from the underground train and metro platforms, Kaohsiung Station's central hall is a sunken plaza that unfolds underneath a bright ceiling of oval-shaped lights.

The station's canopy connects a hotel, commercial building, shops, restaurants and other facilities for the local community and travellers. Atop the multi-layered landscape is a cycling path running east west. The colonial Japanese station building, which will be relocated to its original site, is embraced by the canopy and symbolically reconnects the old and new Kaohsiung.

Francine Houben, creative director of Mecanoo architecten commented: "The most important events in Taiwanese villages take place on the main square in front of the temple, lit with traditional red lanterns. The central hall has been designed



Bird's eye view of the Kaohsiung Station. Photo: © Mecanoo architecten

as a contemporary equivalent of this, creating a memorable experience for travellers. The sprawling green canopy protects the open public plaza underneath from Kaohsiung's tropical climate like large trees would do. Here people can meet, enjoy a refreshing breeze, or visit events that take place at the station, like a farmers' market, second hand market, traditional open air opera or a mobile library."

The project will occupy a 8.5 hectare site and include a 13,000 square metres sunken station plaza, 35,000 square metres green canopy, 22,000 square metres hotel, 52,000 square metres commercial building, and 60,000 square metres landscape design. Work on the Kaohsiung Metropolitan Area Underground Railway Project and underground station commenced in 2014. Completion of the Kaohsiung station is expected in 2024.

New timber tower in Amsterdam set to become the tallest in the world

Amsterdam, The Netherlands – HAUT, the 21-storey wooden residential building by the Dutch River Amstel, is a serious contender to become the tallest timber tower in the world. The municipality of Amsterdam has selected Team V Architecture with Lingotto, Nicole Maarsen, ARUP and brand partner NLE to develop this remarkable high-rise structure. Construction work is expected to start in the second half of 2017. HAUT promises to be a prototype of building in an innovative, sustainable and environmentally-friendly manner.

The use of timber in high-rise buildings is one of the most keenly discussed innovations in the construction industry worldwide. It represents an important step towards the carbon-neutral city: more than three million kilos of CO₂ will be stored in the cross laminated timber used to build HAUT. Apart from the innovative use of wood in the construction, the building will also be provided with energy-generating facades and the wastewater it produces will be collected and purified. As a result, the design is targeting for a BREEAM Outstanding rating, the highest possible sustainability grade.



Rendering of the HAUT. Image copyright by Team V Architecture. Visualization made by Zwartlicht.

KONE wins order for Goldmark City residential development in Vietnam

Helsinki, Finland – KONE has won an order to supply 62 elevators to Goldmark City, a new residential development in Hanoi, Vietnam. Goldmark City occupies a prime location along Hanoi's major routes, including to the Noi Bai International Airport, the National Convention Centre and to other districts. The development is built upon almost twelve hectares of land and boasts 5,000 residential units in nine 40-storey apartment buildings.

KONE will deliver 57 KONE S MiniSpace™ elevators that use the energy-efficient KONE EcoDisc™ hoisting machine, and five KONE S MonoSpace® machine room-less elevators. The KONE E-Link™ remote monitoring solution will be included to provide real-time equipment performance updates and enable rapid resolution deployment for optimal people flow.

"KONE is delighted to be part of this prestigious development in a key district of Hanoi, and we believe that our high quality equipment will serve everyone who visits or resides in this development," said Neeraj Sharma, Executive Vice President for KONE Asia-Pacific.

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NEWS

UBU Sports completes installation of scientifically advanced synthetic turf system at U.S. Bank Stadium

Minneapolis, Minnesota, USA – UBU Sports®, a premier provider of synthetic turf systems that optimise performance and maximise safety, has completed installation of its Speed Series S5-M synthetic turf surface at U.S. Bank Stadium, the new home of the Minnesota Vikings.

The grand opening for U.S. Bank Stadium was held July 22, while the first sporting event – the 2016 International Champions Cup match between AC Milan and Chelsea – formally opened the venue on August 3.

“With the field now fully installed at U.S. Bank Stadium, the venue truly looks and feels like the home of the Minnesota Vikings,” said Vikings Chief Operating Officer Kevin Warren. “More importantly than the aesthetics, however, is that the UBU Speed Series gives our players a safe environment to perform at their highest levels,” added Mr Kevin.

“It’s very gratifying seeing the finished product and the corresponding excitement from the Vikings community as they prepare to start a new chapter in this magnificent new venue,” said UBU Sports CEO Mark Nicholls. “The Vikings recognise that not all surfaces are created equal and that it matters what you play on. Providing their athletes with the highest quality surface in the industry reaffirms their unwavering commitment to excellence as an organisation,” he added.

The Speed Series S5-M synthetic turf system features Harmony slit-film fiber and a mixture of resilient particles and sand infill that ensures a fast, firm, safe and durable playing surface. The Speed Series incorporates ISO Grid fiber spacing ensuring consistent playability throughout the field, and features a dynamic multiple layer ARMOURWEAVE backing system that ensures dimensional stability and long lasting seams. The Speed Series S5-M also feature UBU-4K colouration and incorporates a Removable Active Panel (RAP) system for seamless event conversion.



Photo: © Minnesota Vikings

30 top landscape architecture projects earn 2016 ASLA Professional Awards



ASLA 2016 Honor Award, General Design Category. Bishan-Ang Mo Kio Park by Ramoll Studio Dreiseitl. Photo Credit: Public Utilities Board

Washington, D.C., USA – The American Society of Landscape Architects (ASLA) is excited to announce its 30 professional award recipients for 2016. Selected from 456 entries, the awards honour top public, commercial, residential, institutional, planning, communications and research projects in the U.S. and around the world. The winners will receive their awards at the ASLA Annual Meeting and EXPO in New Orleans on 24 October 2016 at the New Orleans Ernest M. Morial Convention Center.

The Bishan-Ang Mo Kio Park in Bishan, Singapore by Ramboll Studio Dreiseitl for the Public Utilities Board / National Parks Board, Singapore, won a professional Honor Award in the general design category.

Complete awards criteria, project information and images can be viewed at www.asla.org/2016awards.

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Inaugural SGBC-BCA Sustainability Leadership Awards winners announced



Minister for the Environment and Water Resources Mr Masagos Zulkifli (sixth from left) and Mr Chia Ngiang Hong, President of SGBC (fifth from left) and Mr Lim Fook Sun, Chairman of BCA (seventh from left) posing for a group photo with the award winners. Photo: © SGBC

Singapore – Winners of the inaugural SGBC-BCA Sustainability Leadership Awards 2016 have been announced. The Awards, jointly conferred by the Singapore Green Building Council (SGBC) and the Building and Construction Authority (BCA), recognises buildings and buildings for being green and sustainable in an innovative way.

The award ceremony was held during the SGBC Gala Dinner 2016 on 6 September 2016 at the Pan Pacific Singapore. Minister for the Environment and Water Resources Mr Masagos Zulkifli was the Guest of Honour at the event.

The winners for two award categories (Business Leadership in Sustainability and Leadership in Sustainable Design and Performance) will go on to represent Singapore in the World Green Building Council (WorldGBC) Asia Pacific Leadership in Green Building Awards 2016, which will take place on 5 October 2016 in India.

Winners are:

Award Category	Winner
Business Leadership in Sustainability	Beca Carter Hollings & Ferner (S.E. Asia) Pte Ltd
Leadership in Sustainable Design & Performance 1. Commercial 2. Institutional 3. Residential	1. CapitaGreen 2. Singapore Management University 3. Tree House
Leadership in Green Building Product	1. Mapei Far East Pte Ltd 2. Nippon Paint (S) Co. Pte Ltd 3. ParexGroup Pte Ltd 4. SKK (S) Pte Ltd

All entries were judged holistically: for the Business Leadership in Sustainability Award Category, all sustainability initiatives across factors such as corporate policy, goals & planning and training were considered. For the Leadership in Sustainable Design & Performance Award Category, aside from the exterior or façade of the building, the judging process also took into account the softer aspects, such as the management's commitment to sustainability and the efforts taken to educate its tenants and occupants on leading a more sustainable lifestyle.



The award ceremony attracted many industry professionals such as architects, developers, engineers and key decision makers. Photo: © SGBC

Mr Chia Ngiang Hong, President of SGBC said: "We are very heartened to see the high quality of submissions for the Awards from our member companies, further attesting to their commitment to sustainability. We hope that when our representatives are presented at the WorldGBC Asia Pacific Leadership in Green Building Awards, they will also impress the international panel of judges."

Dr John Keung, Chief Executive Officer of BCA said: "We are glad to see the industry become increasingly committed in driving environmental sustainability for their buildings and businesses through various innovative measures. Such ground-up initiatives are crucial in helping Singapore push the green building agenda forward. We hope that these awards will encourage building owners and businesses to continue engaging their occupants and customers so that they are more aware of the need to be environmentally conscious in their day-to-day activities."

Four companies with outstanding performance in the area of green building product development and certification also emerged as winners of the Leadership in Green Building Product Award Category. These companies understand the importance of greening their product offerings for greater sustainability and have achieved stellar performance in the Singapore Green Building Product (SGBP) labelling scheme, thereby allowing them to clinch this Award.

In addition, 40 companies who have successfully completed their certifications with SGBC's labelling schemes were also presented with their certificates during the Gala Dinner.



Trophies of the inaugural SGBC-BCA Sustainability Leadership Awards 2016. Photo: © SGBC

5th EmiratesGBC Congress 2016 to discuss UAE's achievements in sustainable development a way forward strategy

Dubai, UAE – Emirates Green Building Council (EmiratesGBC) will put the spotlight on UAE's achievements in sustainable development as a way forward strategy to a greener future, at the fifth EmiratesGBC Congress 2016 to be held on October 25 & 26 at Dusit Thani hotel in Dubai.

The annual gathering of regional and international experts, who represent diverse sectors of the sustainable built environment and related industries, will highlight how the nation's success in green buildings can be leveraged to formulate a roadmap of the future in line with UAE Vision 2021 and the objectives of the Paris COP21 Climate Agreement. The theme of EmiratesGBC Congress 2016, organised under the patronage of the UAE Ministry of Infrastructure Development, is 'UAE of the Future: Looking Backwards as a Way Forward.' The two-day event will include keynotes, panel discussions, networking sessions and a workshop followed by site visit.

Saeed Al Abbar, Chairman of EmiratesGBC, said: "With this year's Congress we are back-casting on the sustainable development framework of the UAE and the region whereby through discussions we envision future desired conditions for a green and sustainable urban environment. The Congress will then proceed to define the steps that are needed to achieve the conditions.

"This is a path-breaking approach whereby we do not merely continue the measures we have taken but work towards tangible goals. We are confident that the Congress will serve as a referral point in shaping the new sustainable development narrative of the UAE, enabling the nation to achieve the goals of the Vision 2021."

Based on the 'back-casting' approach, EmiratesGBC Congress 2016 has five key pillars: Building the Future City, Targets of the Future, Transports of the Future, Materials of the Future and Regulations of the Future. "These five pillars will help us develop a comprehensive framework for creating a sustainable development strategy that can be replicated across the region. Our goal is to foster innovative thinking and research that will redefine the green building industry," added Mr Al Abbar.

The first day will explore the achievements to date in sustainable urban development and focus on how we can use the accomplishments of the past to achieve a sustainable future. The second day includes an architectural heritage tour to the Sheikh Mohammed Center for Cultural Understanding, House 26 in the Al Fahidi Historic Neighbourhood (Bastakiya) in Bur Dubai.

For more information, visit <http://emiratesgbc.org/2016congress>.



Saeed Al Abbar, Chairman of EmiratesGBC

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Exterior of IMG Worlds of Adventure.

WORLD'S LARGEST INDOOR THEME PARK OPENS IN DUBAI



Opening day of IMG Worlds of Adventure.

IMG Worlds of Adventure, the world's largest indoor theme park, opened its doors for the very first time on 31st August 2016. Wholly owned by the Ilyas and Mustafa Galadari Group and managed by IMG Worlds, IMG Worlds of Adventure is the first international mega-themed park to open in Dubai and will redefine the modern theme park experience here since it is unprecedented in size and offering.



IMG Worlds Of Adventure – Velociraptor.

Wholly owned by the Ilyas and Mustafa Galadari Group and managed by IMG Worlds, IMG Worlds of Adventure is the first international mega-themed park to open in Dubai and will redefine the modern theme park experience here since it is unprecedented in size and offering.

IMG Worlds of Adventure promises guests a remarkable immersive indoor theme park experience, bringing together the best international and local interactive entertainment and globally recognised cartoon characters and Super Heroes.

The theme park contains four zones: MARVEL, Cartoon Network, Lost Valley – Dinosaur Adventure and IMG Boulevard spread over 1.5 million square feet in a temperature controlled environment for year-round entertainment.



IMG Worlds Of Adventure – Cartoon Network.



IMG Worlds of Adventure - IMG Boulevard - IMG Emporium.



IMG Boulevard - World Of Candy.

Attractions at theme park include over 20 signature rides, 25 original retail concept stores, 28 immersive food and beverage offerings, a 12-screen state-of-the-art Novo Cinema multiplex with an IMAX screen and two VIP theatres and about 4,500 parking spaces.

IMG Worlds of Adventure is the first of the IMG Group's planned developments in the leisure and entertainment industry with future expansion plans both locally and internationally. IMG Worlds of Adventure can host 30,000 visitors a day and looks to welcome 4.5 million visitors in its first year of operation.

Mr Ilyas Galadari and Mr Mustafa Galadari, Executive Co-Chairmen and Owners of the Ilyas & Mustafa Galadari Group, said: "The creation of IMG Worlds of Adventure is the realisation of a shared childhood dream. This landmark launch has turned our aspirations of creating the world's largest indoor theme park into a reality. This marks a great achievement for everyone at the Ilyas & Mustafa Galadari Group and we would like to thank everyone who has been part of this epic journey. As the first international mega-themed park to open in the region, IMG Worlds of Adventure will set a new universal standard for a fully immersive theme park experience, further driving tourism whilst enabling the United Arab Emirates to achieve its vision of becoming the leading global leisure and entertainment destination. Today is a key milestone in Dubai's rich history and we are proud to be a part of it."

Lennard Otto, Chief Executive Officer of IMG Worlds of Adventure, commented: "We are excited to have launched the world's largest indoor theme park today, which will be a major tourism attraction for Dubai, the surrounding regions and the rest of the world. As the first international theme park to open in Dubai, we expect to host over 4.5 million people in our first year of operation, transforming the entertainment and leisure industry forever. We look forward to welcoming everyone in the coming days, weeks and months."

IMG Worlds of Adventure is situated along Sheikh Mohammed Bin Zayed Road, along Dubai's growth corridor, one of the fastest emerging tourism hubs in Dubai.

It is also located 20 minutes from both Dubai International Airport and Dubai World Central Al Maktoum International Airport, 20 minutes from Dubai Marina, 20 minutes from the Expo 20/20 site and 15 minutes from The Dubai Mall, making it easily accessible for both residents and tourists alike.

IMG Worlds of Adventure is set to become a must-visit international destination, bringing the best of family entertainment to Dubai's growing leisure industry.

Zone Facts

- **The 350,000 square foot MARVEL zone** offers a wide range of entertainment experiences from iconic MARVEL Super Heroes, including the unique 'Avengers: Battle of Ultron' ride, a stereoscopic 3D multimedia experience. Attractions centres around characters including Spider-Man, Iron Man, Hulk, Thor and Captain America. The MARVEL name and characters have been licensed to IMG Theme Park L.L.C. by Marvel Entertainment.
- **The Cartoon Network zone** spans 230,000 square feet and will feature exclusive attractions including the first ever Ben 10 5D cinema, which host up to 1,200 visitors an hour with an exclusive 10 minute 3D movie. Alongside the world's largest Ben 10 retail store, the zone incorporates the highly popular Cartoon Network brands LazyTown, Adventure Time, The Powerpuff Girls and The Amazing World of Gumball. The Cartoon Network name and characters have been licensed to IMG Theme Park L.L.C. by Turner CN Enterprises.



IMG Worlds Of Adventure – Haunted Hotel.



IMG Worlds of Adventure - Lost Valley - Dinosaur Adventure - Adventure Fortress.



IMG Worlds of Adventure - Lost Valley - Dinosaur Adventure - Dino Carousel.



IMG Worlds of Adventure - Marvel - Chang's Golden Dragon.

- **The Lost Valley – Dinosaur Adventure zone** has been developed uniquely for IMG Worlds of Adventure and is the home to over 69 state-of-the-art animatronic dinosaurs. The largest of the four zones, it spans a massive 700,000 square feet, including the external coaster ‘The Velociraptor’, which propels guests to 100 km/h in 2.5 seconds and is the tallest and fastest rollercoaster in Dubai.
- **IMG Boulevard zone** covers 200,000 square feet and features a diverse range of exciting attractions, including The Haunted Hotel, vast retail and dining selections, live entertainment and interactive experiences.
- The 28 **food and beverage** outlets include Arabic, European, American and Pan-Asian cuisines and all F&B outlets are original themed concepts that offer a range of fine, casual and healthy dining choices.
- The park contains 25 **retail outlets**, spanning a total of 73,000 square foot of retail development, and houses a spectacular offering of over 5,000 product lines including 60 percent original and bespoke gifts of toys, collectables, fashion and accessories.



IMG Worlds of Adventure - Marvel - Marvel Universe.



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Shanghai Disneyland Enchanted Storybook Castle

Shanghai Disney Resort opens its gates

Shanghai Disney Resort, the first Disney resort in Mainland China and the sixth worldwide, officially opened its doors to the public on 16 June 2016. This is one of Disney's most ambitious projects ever. It is a theme park like no other with the biggest, tallest castle in any Disney park, the first pirate-themed land and Disney's most technologically advanced park to date.

Shanghai Disney Resort reflects Disney's 60-year history of innovation, creativity and storytelling, in a way that is authentically Disney and distinctly Chinese. Walt Disney Imagineering creates and designs all Disney parks, resorts and attractions around the world, and a team of local and international experts from Walt Disney Imagineering Shanghai designed Shanghai Disney Resort.

"The grand opening of Shanghai Disney Resort is a celebration of creativity and collaboration, a triumph of imagination and innovation, and a testament to the strong partnership between Disney and China. Together we have created an extraordinary destination, a magical place unique in the world, where East meets West, the past meets the future, and anything is possible for those who believe. It is our sincere hope that this spectacular place will inspire wonder and create joy for the people of China for generations to come," said Bob Iger, chairman and chief executive officer, The Walt Disney Company.



Disneytown

Disney developed the Resort in a joint venture with Shendi Group. Fan Xiping, the Shendi Group Chairman, said in a statement: "After five years of joint efforts, partners from both China and the United States have created magic together. In the process of combining global standards and local best practices, we integrated with each other and established mutual trust and effective communication. The young team has learned and grown in the process, bringing into full play its role as the local guide. The team worked closely with Disney in the development and construction of Shanghai Disneyland and the resort, jointly building the tallest and largest Disney castle in the world, and providing quality services to our guests. The team's dedication and commitment make it an unforgettable chapter in their life."



Shanghai Disneyland Hotel – night view.

Shanghai Disney Resort is filled with immersive Disney storytelling, thrilling attractions, spectacular live entertainment and memory-making experiences designed to inspire and delight Chinese guests. The world-class vacation destination includes a magical theme park with six themed lands, two imaginatively designed hotels, a Disneytown shopping and dining district, and Wishing Star Park recreational area.

In Shanghai Disneyland, a 4.6 hectare (11 acre), one-of-a-kind, dynamic green space welcomes guests to Shanghai Disneyland and provides the perfect spot to view the parade or the nighttime spectacular of magic and light. It also features Chinese seasonal plants and flowers, dramatic lighting and traditional music to serve as a backdrop for vibrant Chinese cultural celebrations and festivals, as well as opportunities for art, creativity, exploration and



Crystal Grotto

discovery. The park consists of other large-scale entertainment spaces, indoor and out, that will be used for various purposes throughout the year.

Shanghai Disney Resort – An architectural marvel for everyone

The six themed lands of Shanghai Disneyland – Mickey Avenue, Gardens of Imagination, Adventure Isle, Treasure Cove, Tomorrowland and Fantasyland – invite guests to step into new worlds of imagination and fantasy, each with their own distinct attractions, entertainment and immersive experiences.

Adventure Isle immerses guests in a newly discovered lost world. The Gardens of Imagination celebrates the wonders of nature and joy of imagination with whimsical décor and interactive spaces. Mickey Avenue is the first main entry at a Disney theme park that's inspired by the colorful personalities of Mickey Mouse and his pals. Tomorrowland is a place of limitless possibilities, where the promise of tomorrow looks brighter than ever. Treasure Cove is the first pirate-themed land in a Disney park, a place to join the adventures of Captain Jack Sparrow and Davy Jones. The largest of all the lands, Fantasyland, is inspired by Disney's animated films and home to the majestic Enchanted Storybook Castle – the tallest, largest and most interactive Disney castle in the world.

Adjacent to the theme park is Disneytown, which features approximately 50 international shopping and dining locations in five unique areas. The World of Disney Store, the first in Asia, offers a comprehensive collection of Disney merchandise, with products designed especially for Shanghai Disney Resort and the Grand Opening. The lavish Walt Disney Grand Theatre, also in Disneytown, is now playing the Mandarin premiere of Disney's hit musical, *THE LION KING*, a separately-ticketed event.

Guests may continue their Disney experience at the resort's two hotels, the elegant Shanghai Disneyland Hotel and the whimsical Toy Story Hotel. The themed hotels are conveniently located near Shanghai Disneyland and promise a fun, relaxing stay.

Near the hotels and Disneytown is Wishing Star Park, which offers guests the opportunity to enjoy peaceful greenery, a 2.5 kilometre walking path and a glittering lake, with approximately 500,000 square metres open to the public.

Incorporating unique characteristics that Chinese guests will recognise and appreciate, Shanghai Disney Resort offers a distinctive Disney experience that reflects the beauty and unique identity of today's China – from traditional regional dining cuisine and Chinese acrobatic performances, to the Shikumen architecture at Disneytown and Chinese Zodiac designs in Garden of the Twelve Friends.



Tomorrowland



Wandering Moon Teahouse

PROJECT DATA

Project: Shanghai Disney Resort

Opening date: 16 June 2016

Location: Pudong New District, Shanghai

Land area: 963 acres

Theme Parks: One

Resort Hotels: Two

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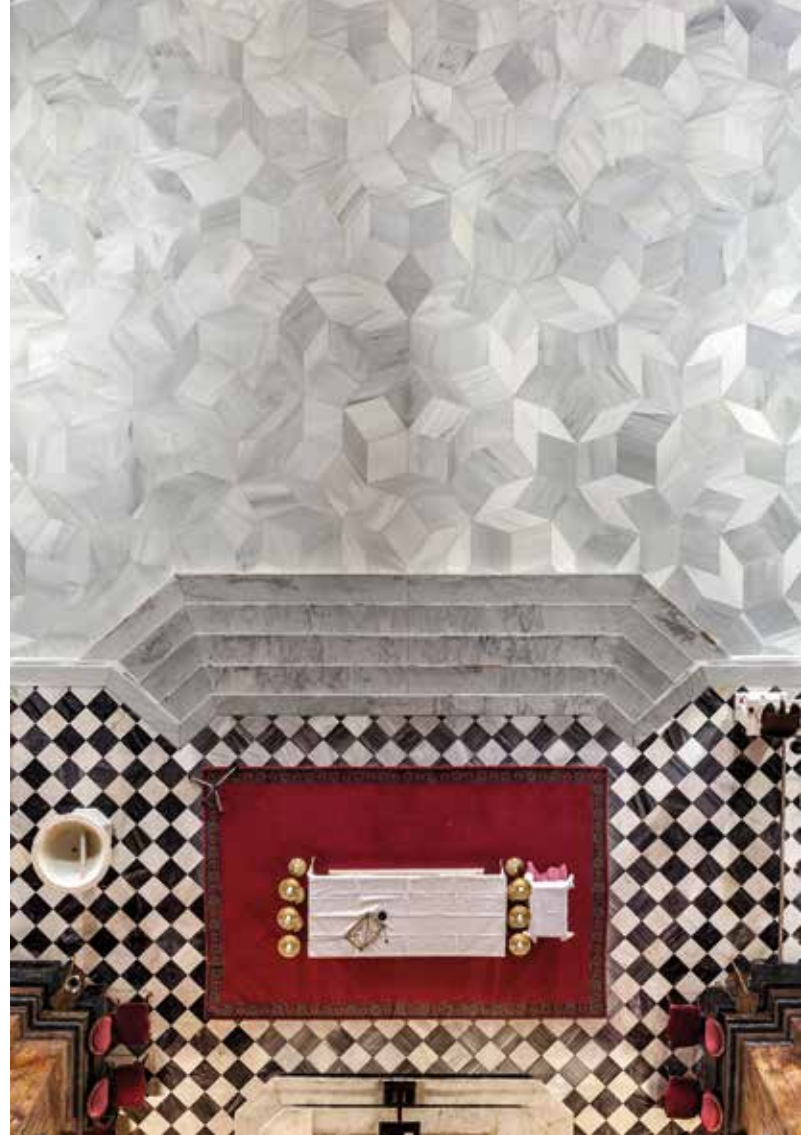


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Santa Maria Church in Minorca

Renovating the floors in an ancient church in the Balearic Islands.

Maó is the capital of Menorca Island, belonging to the Balearic Islands. It originated as the Mediterranean Portus Magonis, bearing the name of the Carthaginian general Mago. Under the Romans it was a municipium (privileged town). The Arab pirate Barbarossa besieged and captured the place in 1535, and in 1558 it was sacked by corsairs. The British, after their seizure of Maó in 1708, declared it a free port in 1718. In 1756 it fell into the hands of the French, was restored to the British in 1763, recovered by the Spanish in 1781, and in 1802 finally ceded to Spain.



Above: A view of the flooring featuring an aperiodic mosaic. Below: After building the screed with TOPCEM, the slabs were bonded with KERABOND+ISOLASTIC and the joints were grouted with KERACOLOR FF+FUGOLASTIC.





Among its important landmarks one finds the Santa María de Maó Church, which was built in the 18th century (between 1748 and 1772) on the ruins of an old gothic church from the 13th century. The interior is in the neogothic style, with one sole nave with vaults and, along the sides, various chapels dedicated to various saints.

Of note is the monumental organ built in 1810 by the maestros Francisco Otter and Joan Kiburz, of 15 metres in height and 9 metres in width, with four keyboards and 3.006 sonorous tubes, of which 197 are of wood and the rest of metal.

Restoration of the flooring

On occasion of the celebration of the organ's second centenary, work began on consolidating the floorings in the church, and the eight new bells which form the harmonic percussion ensemble were installed.

Mapei collaborated in the restoration and rebuilding of the church's flooring. Its serious structural faults and the safety problems they generated made this comprehensive consolidation work on the flooring necessary. Part of the work was carried out under the aegis of it's the Balearic Islands Government, that devised a special restoration plan for historical buildings.

The structures that were damaged or sunken were restored and consolidated to ensure the required safety level for public use. The installation work on the floors was carried out using white marble from the city of Macael, in Andalusia (Spain), as required by the Balearic Islands Government.

The aim was to reproduce the original chromatics of the church's very first floor, which was entirely in white marble. The design of the flooring features an aperiodic mosaic lacking in regular symmetry. The entire flooring was built with two elements - rhombuses of different widths - in which different patterns are repeated, amongst them some five-pointed stars which appear radially from the centre of the nave. These two elements allow for an infinite number of different combinations, which makes the flooring unique.

The star located in the centre of the nave stands out for its red marble. It reproduces the anagram of Christ in the middle, the expression in Greek "Catholic Church" and the name of the five continents, marking the geographical direction in which they are found.

Mapei's intervention

Mapei products were chosen for renovating these floors which were to be subjected to intense foot traffic.

Once the existing flooring had been completely removed,



TOPCEM special normal-setting, quick-drying (4 days), controlled-shrinkage hydraulic binder was used to build the new screeds.

The new marble slabs were bonded with the cementitious adhesive KERABOND in its white shade, mixed with ISOLASTIC elasticising latex.

Joints were grouted with KERACOLOR FF pre-blended, high-performance, polymer-modified cementitious mortar mixed with FUGOLASTIC polymer liquid admix to improve the grout adhesion and mechanical strength and to reduce porosity and absorption.

Article source: *Realtà Mapei International* 54/2015

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

Mapei Products

Building the screeds and preparing the substrates: Topcem

Bonding marble slabs: Kerabond+Isolastic

Grouting joints: Keracolor FF+ Fugolastic



PROJECT DATA

Project: Santa Maria de Maó Church

Location: Maó, Menorca (Spain)

Period of Construction: 13th century, rebuilt in 1748

Year of the Mapei Intervention: 2011

Intervention by Mapei: supplying products for building the screeds and laying marble slabs on floorings

Works Direction: Jesus Cardona Pons

Laying Company: Menorca Obres Loga, S.L.

Mapei Distributor: Bigmat A. Palliser, S.L.

Mapei Co-ordinator: Ferran Farré, Ibermapei (Spain)



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Let There Be Light

Aurecon helps show the iconic Buddhist Tooth Relic Temple & Museum in Singapore in a new light.

The Buddha Tooth Relic Temple & Museum is one of the most striking landmarks in Singapore's Chinatown district, and a place where Buddhists attend a range of daily services. Opened in May 2007, and consecrated in 2008 as a Chinese Buddhist temple, the Tang-styled Temple has particular importance to Buddhists as it is home to a religious relic; a Tooth of the Buddha. This artefact is the centrepiece of the building and sits in the Sacred Light Hall on the Temple's fourth storey.

Global engineering and infrastructure advisory firm Aurecon was appointed by the Buddha Tooth Relic Temple & Museum, to provide specialist lighting consultancy services for a significant upgrade of its lighting system. The work was carried out to better enhance the visitor experience for both tourists and worshippers, and to draw closer attention to the Temple's intricate design and detailing. This included a full overhaul of the Temple's interior and exterior lighting sources.

Aurecon's Principal Lighting Designer, Angela Woo-Scott, said the potential for creating a transformative lighting set-up was immediately apparent on arriving at the venue.

"It was clear to us on our first visit to the Temple that we had to strike an important balance between maintaining the serenity expected of a place of worship while also creating a system that would best highlight the incredibly detailed design of the building along with its array of culturally-significant artefacts. Lighting can play an important role in defining how people will behave within a given space and this project was an opportunity to use that to maximum effect."

Upgrade and improve

Aurecon proposed a new lighting system for all the public interior and exterior areas. In particular, emphasis was placed on improving the exterior lighting of the Temple's façade and landscape, as well as its lighting control systems, which were suffering functionality issues caused by wear and tear. The Buddha Tooth Relic Temple is instantly recognisable in its neighbourhood, but much of its beauty lies in the detail, so the lack of adequate exterior lighting meant visitors and passers-by were not able to fully appreciate the intricacy of the building. For the team at Aurecon, this was one area of work where immediate improvement could be made.

The client's initial request was to perform simple re-lamping or replacement of faulty exterior light bulbs. There were also no plans to change the halogen light sources that lit the Temple's interior. However, following a full site inspection, Aurecon discussed a proposed new lighting system, to be installed in both public interior and exterior areas (excluding the Temple's museum).

Rather than simply update what was in place, Aurecon was able to show the client how a new lighting system would improve the ambiance and overall experience for worshippers, visitors and staff. The aim was to enhance the immersive experience within these spaces to create better overall appreciation of the building. Aurecon supplied detailed plans, drawings and more to demonstrate how the new lighting system would improve the experience for those attending the Temple.

Photo: © Aurecon



Before upgrading: Front view of Buddha Tooth Relic Temple at night.



After upgrading. Photo: © Aurecon

Working in a culturally sensitive manner

Aurecon's project team approached the execution phase with sensitivity, given that the facility would be operational during the upgrading work and out of respect for the religious landmark. In particular, the Chief Monk was initially unsure about upgrading the interior lights, having grown accustomed to the existing set-up within the building that is both his place of worship and his place of residence.

Constant dialogue with the Temple's facilities management team was equally important. Aurecon ensured a consistent flow of information as the project team reviewed and assessed the management team's diverse responses while they adapted to new controls and multiple light programming. By ensuring such clear and frequent dialogue, adjustments could be more easily and accurately tailored to accommodate preferences and to improve the system further.

Creating unique solutions to technical challenges

Taking into account that the Temple was a finished structure, lighting replacement required extra careful handling to ensure no damage was caused to the building's polished surfaces. Special attention was paid to work that needed to be done close to Temple finishes, which could not be altered to match lighting fixtures.

Running new electrical cables in many areas proved impossible. In response, Aurecon's project team showcased their creative versatility by developing bespoke, onsite solutions to adjust the output and beam angles from light fittings to suit each space.



Before upgrading: Side view of Buddha Tooth Relic Temple at night.



After upgrading. Photo: © Aurecon

Throughout the project, the Buddha Tooth Relic Temple remained fully operational from morning to night, and also on many nights when religious ceremonies were taking place – sometimes up to midnight. Work in the Temple’s public spaces had to be conducted in the early hours, when the building was closed. Tasks such as light testing, commissioning and turning were also performed then. Rope access could be used at these times too, to facilitate facade lighting replacement work.

Commenting on the project’s success, Angela, added: “Visitors and worshippers at the Buddha Tooth Relic Temple & Museum now have a better experience overall and are able to enjoy the facility’s beauty in an environment that pays respect to the importance of the Temple while still showcasing its wonder. Overall, the client was happy with the new lighting; many spaces in the temple are brighter and lighted correctly with the proper tuning and adjustment of light levels and aiming. The façade lighting has helped the temple display its magnificence at night as a significant landmark. Maintenance requirements have also been reduced; it is now easy to control lighting in all spaces. After the final site inspection with the Chief Monk, he was very pleased, as the temple’s fine and intricate details are now highlighted better than they have ever been before. Additionally, through the use of LED technology, the electricity consumption of the temple has also decreased, thus making an important contribution to the sustainable and responsible use of resources.”

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Night view of the mosque from compound area.

Cyberjaya Mosque

– Raja Haji Fi Sabilillah Mosque

Envisaged as the Silicon Valley of Malaysia, the township of Cyberjaya, located 40 kilometres from the centre of Kuala Lumpur, was initiated and founded by the Malaysian fourth Prime Minister, Tun Dr Mahathir Mohamad in 1997. Occupying a 7,000-acre site, the new, purpose-built township was designed to be home to the rapidly expanding Malaysian Information Technology and Knowledge Economy, or K-Economy. Under the original plans, it was due to be completed in 2020, with the capacity to accommodate a daytime population of around 210,000 people.

Now 15 years on, Cyberjaya is currently 40 percent developed and in 2013, it has a daytime population of 52,000. It is estimated that the township will be completed within the next 10 to 15 years and by 2016, it is estimated that the daytime population will be



approximately 64,000. The Cyberjaya Mosque has been designed to cater for this growing population religious needs, which is expected to be 50 percent Muslims in the future.

Work on the design of the Cyberjaya Mosque began in early 2012, following the award of the design commission to ATSA Architects. The mosque's design was inspired by the bespoke design of the National Mosque in Kuala Lumpur that was completed in 1965. The Cyberjaya mosque completed in 2015, which also coincided with the 50th anniversary of the opening of the iconic National Mosque in Kuala Lumpur.

Design Concept

With a capacity for up to 8,300 people, the mosque is designed to be more than a place of worship and as a local centre for Islamic activities. It is situated on a 100-acre site which will eventually be part of the new Islamic University of Malaysia campus and forms an integral part of the overall development complex. W&W Architect is responsible for the design of the master plan of the university campus, which includes the mosque location, and its layout concept



is based on a 'Pending,' or the royal belt buckle.

The design of the mosque is contemporary modern and incorporates traditional Islamic design elements. The goal of the design is to portray Islam as a progressive religion, as well as to reflect the simplicity and purity of modern Malaysian mosque architecture. The

mosque was designed in line with the vision of Cyberjaya being a green city of the future. The main emphasis of the design is towards a more modern approach rather than the conventional postmodern typology, emphasising the building's sustainability elements, but retaining the spiritual design essence of Islam.



Main Prayer Hall

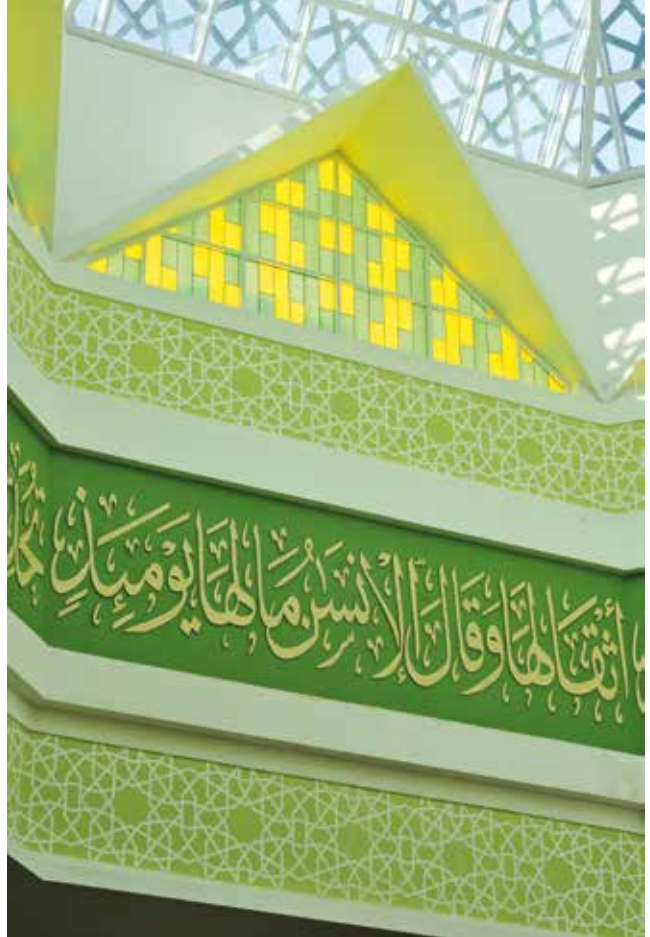
The mosque's main prayer hall has been designed to be air-conditioned for two hours during Friday prayers and during prayers of other special Islamic occasions. At other times, it is envisaged that fans and ventilators will be sufficient to sustain an average daytime temperature of 26 degrees Celsius within the mosque main prayer hall. A large central courtyard with a tall signature tree situated before the main prayer hall was incorporated to facilitate both natural ventilation and natural lighting to the floors above.



View from the main prayer hall.



View from the main prayer hall towards the Mihrab wall.



The Dome

The mosque's unique dome is perhaps one of its most-innovative elements. The single dome is situated over the enclosed main prayer hall, and formed by the use of double glazed LE glass, providing both shade and a source of natural light. Rising hot air is extracted and released through the ventilators positioned at the top of the dome's underside and just below its pinnacle, thus releasing trapped hot air and reducing the temperature in the prayer hall. Retractable blinds will provide further shade when needed, to prevent direct sunlight entering the main prayer hall.



The Dome



Glass

Low E glass panels will be used throughout the mosque to minimise the heat from the sun entering the mosque building and heating up the space. Natural cooling is also provided by the slightly elevated water feature surrounding the exterior wall of the *qibla*. A water feature can be seen from the inside of the main prayer hall. A sloping feature wall behind the pool, allows water to flow gently, creating therapeutic sounds into the main prayer hall.

Much of the rooftop area will be covered with solar panels, which will both generate renewable energy and to shade the area from the hot sun. It will be one of the first mosques in Malaysia to have a covered roof top prayer area. As well as supplying electricity, it is envisaged that the energy generated by the solar panels will generate an income for the mosque to sustain the running cost of the mosque. *Arabesque* pattern in GRC (Glass Reinforced Concrete) is used as its primary wall which acts as ventilator blocks and sunscreen devices. The use of ventilator or sun block shall allow for natural wind to flow through the building and at the same time prevent heat that is generated from direct sunlight from entering the building.



View from below the glass dome.

GRC Panels

To supplement the mosque's natural lighting, LED light fittings, and low-energy lighting will be used during the evenings and at night. Light sensors will be installed throughout the building to control the artificial lighting automatically when not in use.



Detailed view of the GRAC wall panels.

Ablution

Taking ablution is one of the most important steps before performing prayers. Therefore, in our initial planning the placement of ablution taps are plentiful and visible. We envisioned that all who come to pray will first take the ablution before entering the mosque.



Ablution area

Water Harvesting System

A water harvesting system has been integrated into the mosque's of a comprehensive landscape irrigation system and for grey water usage. An effort to collect water both from rain water and used ablution water are incorporated in the design of the mosque. Some of the water collected are used for gray water usage mainly for toilet use and for landscape irrigation. Two types of tank were used which are G.I. steel tanks, located at roof top above the toilet structure to collect rainwater and the other are underground concrete reinforced tanks to collect water harvested mainly from used ablution water and rainwater to reduce usage and the overall mosque water consumption. It is also a conscious effort to value water as a source necessary to sustain life.

Innovative and Traditional

The mosque is accessible via three entrances, including a dedicated VIP entrance to the southwest side, 'drop-off' area on the eastern side, and pedestrian entrance to the south side. In addition to the main building, the mosque also incorporates a multi-purpose hall, a banqueting hall; with a seating capacity for 800 people, and an area designed for staff housing.

The mosque complex is designed to revolve around the main prayer hall. As the main feature, it is the most-ornate part of the mosque, featuring an intricate facade with Islamic geometric motifs. With a capacity for up to 1,200 worshippers, it stands at twice the height of the surrounding structures and is enclosed to allow for air-conditioning whenever it is required.

A semi-enclosed, 'overspill' prayer area will be made cooled with the use of natural ventilation and fans. The upper floor is accessible via a moving walkway or traveller, as well as staircases and a glass lift. A green rooftop area, finished with artificial turf, has the potential to accommodate a further 1,800 worshippers, and will be used once the mosque reached its current capacity.

The Minaret

An iconic, five-tiered, slender minaret made of steel standing 27 metres (88 feet) high is situated at the front of the plaza, with an ablution area located below. The five tiers of the steel minaret symbolises the five pillars of Islam. The five pillars of Islam are:

1. Shahadah (belief or confession of faith)
2. Solat (worship in the form of prayer)
3. Sawm Ramadan (fasting during the month of Ramadan)
4. Zakat (alms or charitable giving)
5. Hajj (the pilgrimage to Mecca at least once in a lifetime if he/she is able to do so)

The inspiration of the minaret is taken from the Malay *Keris* form. The *Keris* symbolises the Malay culture and strength.

The Mihrab and Mimbar

As suggested by the DYMM Tuanku Sultan Selangor, the *mihrab* and *mimbar* incorporates elements of traditional Malay wood carving which will be carried out by local craftsmen. The *mihrab* is formed by a pointed arch with a wooden frame at the centre, flanked by a larger, square frame featuring geometric patterns and the name of Allah and the Prophet. A raised, wooden *mimbar* platform is placed to the right, surmounted by a timber dome with similar patterns and form to that of the mosque glass dome. The wooden elements symbolise Malaysia's heritage and it will support Malay traditional arts and handiwork.

The Imam Chair

The Imam chair placed on the sermon platform wooden *mimbar*. It is specially designed and hand made by wood carved in Besut, a known area for traditional woodcarvers. The backing and seat are made of cushion for comfort.

The Lecture Table and Chair

A purposeful design of a lecture table and chair made of time that is often used by invited guest speakers to deliver religious lectures from time to time. We recommended the inclusion of the table as to complete the overall design of the import area in front of the *mihrab*. It was designed and customised to follow the originality theme of the mosque.



The Minaret



The Imam Chair

A Cokmar

A "Cokmar" is symbolic stuff that the *Khatib* or the Imam holds or placed in front of him during the deliverance of Friday and Eid sermons. The five feet tall staff is made of cengal wood and topped with silver plated crown in the shape of the mosque dome. A metal finial is placed at the center. It is embellished with delicate flora and vegetal patterns following the Semarak Api flower. The Cokmar is an essential item used by the *Khatib* and placed to the left while delivering a sermon. At times, during Friday prayers at mid-day the sun rays are reflected from the silver top of the Cokmar.

Calligraphy

The beautiful Quranic inscriptions were written by the well-known inscription writer, Tuan Syed Hussein. The type of writing chosen for the inscription is from the "Thuluth" style that expressed more delicate and artistic qualities that is much appreciated. The inscriptions are carved out from selected land wood timber chosen from the forest in East Coast of Peninsula Malaysia. The calligraphy was placed at the base of the dome is also hand written inscription work by Tuan Syed Hussein and was carved out in plaster by carvers brought-in from Uzbekistan.

Toilet

The toilet structure is placed separate from the main mosque building as required. It is separated by a landscape courtyard which also brought in greenery to parts of the mosque. The toilet structure housing both separate the male and female toilets and were designed to be naturally ventilated.

Landscape planter box planted with scented plants are used to naturally ventilate the otherwise stuffy toilets and at the same time will generate pleasing smell that will counteract with any bad odour. The plants act as a natural air freshener.

Water Feature

A water feature and wall is placed on the western side of the mosque, which is also in the direction of the *qibla* wall. The water features acts as a coolant agent that helps cool the main prayer hall whenever the glass doors are opened to allow for natural ventilation.

The trickling flow of the water from the slanting cascading wall acts

and provides for a soothing sound. The wall provides a barrier, blocking the unfavourably view facing West which is behind of the mosque. The top of the wall were designed as planter boxes. *Calatia* plants which can grow up to 10 feet tall are planted to act as both as a screen and natural barrier. It is also envisaged to block some of the western sun in the afternoons until the setting of the evening sun.

Canopy

The freestanding canopies were used and placed at the front and sides of the mosque to provide shade to the worshipers seated below. The canopies also allow for shade to worshipers taking *wudhuk* before prayers.

The canopies used as seating areas were designed to encourage interaction before or after prayers. It is a welcoming addition to the mosque that allows worshipers to rest, interact, chat or just take a moment before proceeding to their next task or destination.

Roof Top Garden

The roof top is designed for future extension where worshipers can use once the various overspill are filled out. Artificial tuft is used for comfort and ethically pleasing. BIPV is recommended as to provide shade for worshipers to use the space in future. Once fully installed, it will provide 425 kW of harvested solar energy that will then sold to TNB under the SEDA programme.

Solar Panel Cells Photovoltaic

Much of the rooftop area will be covered with solar panels, which will both generate renewable energy and provide shading during occasions when the rooftop area is in use for prayers. It will be one of the first mosques in Malaysia that will have a covered rooftop prayer area. As well as supplying electricity, it is envisaged that the energy generated by the solar panels will be profitable to the mosque to sustain the running cost of the mosque.

Arabesque pattern in GRC (Glass Reinforced Concrete) is used as its primary wall which acts as ventilator blocks and sunscreen devices. This shall allow for natural wind to flow through the building and at the same time prevent direct sunlight form entering the building.

Class Rooms

Several classrooms, offices, VIP room and meeting room are incorporated into the planning of the mosque. The classrooms are provided for the learning of the Quran and other religious lectures which will be conducted during the day and night. The offices spaces are place to accommodate the staff required for the running of the mosque. The VIP room and meeting room are provided to complete the facilities that will help elevate the status of the mosque.

Zakat Payment Counter

Zakat (tithe) counters were added to the mosque for the population convenience to assist and collect the obligatory payments.

Funeral Preparation Room

New currently added is a room for funeral or burial preparation. An area is provided for convenience to Muslim population to assist in the "Mandi Jenazah" (the bathing of the deceased body) before "Kapan" (wrapping of the deceased with the layer of the white cloth before burial) before it is pray upon with a special prayer called "Sembahyang Jenazah". This is most needed in modern day townships whereby most of apartments or terrace houses which are not able to properly perform such ritual properly.

Dining area

A dining area that can accommodate up to 200 people is placed at one corner of the mosque. This is to facilitate the usual "Kenduri" or eating after a "Doa Selamat" (a special praying session and a recital), be at night or during the day. During Ramadhan, the area can be expanded to allow for breaking of fast or Ifta and after that performing the Maghrib prayer, Isyak prayers and then the "Tarawih" prayers. This will continue every Ramadhan for 30 days. During Ramadhan months, the multi-purpose hall is also used for a formal sitting for the breaking of fast.

Islamic Garden

At the suggestion of the Sultan of Selangor, an Islamic garden is placed around the sculptural minaret. The scented Cempaka tree was chosen as the ideal plant to be planted in the planted boxes that were designed as seating benches where visitors and worshippers can seat before and after

prayers. Once the trees are matured, it will offer much needed shade and the flowers will give wonderful scented smells that will greet the worshippers and visitors alike before entering the mosque.

Landscape

As mentioned previously, the mosque and its supporting buildings was designed to fit in the master plan of the future of University Islam Malaysia which will be built over the remaining 90 acres site. With the landscape allocation, we ensure that the mosque will be surrounded by landscape of both scented plants and plants that will express the concept of the mosque within a garden. Floral trees are mixed with structural form of the plants. Shrubs are planted to provide visually pleasant setting that accentuated the tropical setting.

The parking spaces are designed with the use of grass crete that reduces the hard surface area. Grass are expected to grow and cover most of the concrete pavers. Other plants like the Frangipani, Tecoma and Red flame trees are also planted to introduce colour to the mosque setting. A single Red flame tree is planted in the middle of the entrance roundabout to reflect the official plant of Sepang, the district and the main entrance road, Jalan Semarak Api. Once fully grown in years to come, the Red flame tree will become the signature tree located in the entrance round about. Once matured and blooming, it will have a bright, vibrant and distinctive red flowers.

Friday Bazaar

Friday Bazaars have become a common sight on Fridays in conjunction with the obligatory Friday prayers and it will attract a large number of worshippers coming to the mosque. Many freestanding tent-like structures were built along a strip of pavement located near the boundary of the mosque. It starts at the bus lay by, or at the bus stops that is located near the boundary of the site. It was envisage that traders will open shop before Friday prayers. It will be opened once a week. It will allow traders to trade, before and after Friday prayers.

During Ramadhan month, it is also an ideal place to set up the Bazaar Ramadhan of Cyberjaya selling all sort of food, drinks and others items in preparation of the breaking of fast or in anticipation of celebrating the Aidilfitri, which falls on every first day of the Syawal month.

PROJECT DATA

Project: Cyberjaya Mosque

Location: Cyberjaya, Malaysia

Architect: ATSA Architects

Type: Mosque

Architectural Style: Contemporary, Sustainable (Green) Design

Built-Up Area: 8,782 square metres (94,535 square feet)

Capacity: 8,300 people

Completion Date: 2015

Photos: © Din Arshad | ATSA Architects Sdn Bhd

The Staff Quarters

The staff quarters were built to cater for mosque's main staff. The staff consists of living areas for two imams in double storey units and four single storey units for the bilals. The design and planning of the staff quarters follows the concept of cluster living which promotes community living. It is centered around a courtyard with a Rambutan fruit tree and a raised platform. Once fully grown, the Rambutan tree will not only bear the delicious fruit to be shared by all but also provide shade to the courtyard.

The Courtyard in the Mosque

A large green courtyard is placed inside the mosque and it is a welcome introduction to the otherwise ordinary simple design of the mosque. At the center of the open courtyard, a signature tree was planted. The Bunga Tanjung tree is chosen to be the signature tree for the courtyard due to its unique characteristics, medicinal properties and the scent that will give once it flowers. This particular tree is usually planted near to each individual Kampung houses because it can provide the many traditional ingredients for medicine.

Green Building Features

Many green building features and materials were added to the mosque such as Lafarge fly-ash concrete which contains recyclable materials, Pantene Insulation material was also used to help reduce heat gain from the roof, ionized ceiling material at the main prayer hall help to provide good quality of air, double-glazed glass for the dome is used to omit light and not heat to the main prayer hall. Water harvesting, Solar Panels and generous landscape to cool its surroundings.

GBI Green Platinum Building

The ethos behind the mosque's design is to ensure that it will be a truly sustainable building and that it will ultimately become a model for the building of future mosque's in Malaysia. As such, the design adheres to the highest rating level, Platinum on the Green Building Index (GBI) standards, incorporating recyclable materials, and energy efficient equipment to minimise energy usage to reduce its running costs. It will be one of the first mosques in the world to use solar panels to generate electricity and subscribing to a FIT scheme. The energy generated and supplied to the natural grid will contribute to the country's supply of renewable energy.

The design of the mosque follows the MS 1525 guidelines that is particular address the energy consumption of the building. The points to qualify for GBI platinum rating are at below 90 points. The criteria that the building is aiming at are 6 GBI criterias as noted below. They are:

1. Energy Efficiency (EE)
2. Materials and Resources (MR)
3. Water Efficiency (WE)
4. Indoor Environment Quality (EQ)
5. Sustainable Site Planning and Management (SM)
6. Innovation (IN)

The mosque has been awarded with the Platinum rating by the Green Building Index (GBI) Malaysia – DA Stage on 18 December 2014.



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- Plenary Sessions
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 - Dedicated Session on Climate Change and Sustainable Development
- 100 Parallel Sessions and Regional Forums
- Exhibition with Business Matching
- International Youth Competition
- Green Building & Eco-Tours (8 & 9 June 2017)
- Networking Luncheon & Gala Dinner

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Text and photos by Pentair Water Quality Systems

Perhaps no other feature contributes more to the beauty and tranquillity of your poolscape than the sight and sound of moving water. No wonder water features are one of the most popular accessories in today's elegant backyard retreats. The many available options by Pentair allow you to integrate mesmerizing water effects in either dramatic or subtle ways that transform any pool environment from great to spectacular. Pentair Aquatic Systems is a global one-stop manufacturer of swimming pool equipment and accessories with high-quality, efficient and durable products providing the latest energy-saving pool equipment to the top commercial and residential projects worldwide.



ColorCascade™ LED Light Bubbler

The ColorCascade™ bubbler is a vivid mix of colour changing LED lighting and fountain-like water movement. It is the perfect way to showcase and enhance pool features like sun shelves, steps, beach entries and poolscape elements. Its low voltage and minimal water flow requirements make them an ideal, energy-efficient addition to pools, fountains, pounds and more. The colour LED lights are energy-efficient and feature five vibrant colours and seven dazzling light shows. The ColorCascade™ bubbler is fully compatible with other products of Pentair line: as the IntelliBrite™ 5g LED Pool Lighting for dynamic and synchronized coloured light shows. Furthermore it is possible to control your pool water features directly from home or from anywhere else with a wireless remote and the ScreenLogic™ interface for the iPhone, iPad, and iPod touch Digital Mobile Device, PC or Mac computer.

MagicStream™ Laminars

MagicStream™ laminars create clear, uniform arcs of moving water that originate from either a pool deck or surrounding landscape. At night, these translucent streams are brilliantly coloured, creating a water effect that adds elegant entertainment to your poolscape. These water arcs reach higher than 2 metres into your pool, spa or other water feature. MagicStream™ laminars remove all turbulence from the water before projecting it through a finely machined nozzle. The result is a dramatic arc of water flowing through the air in a smooth, clear, unbroken stream. Nighttime colour effects include the ability to hold on a steady colour or scroll through a range of available colours. You can choose energy-efficient LED for a nearly endless array of colour choices. As well as the ColorCascade™ LED light bubbler, the MagiStream™ Laminars is fully compatible with the IntelliBrite™ 5g line of LED pool lights and it is possible to be controlled by a wireless remote and the ScreenLogic™ interface for all the devises listed above.





For more information, contact Pentair Water Quality Systems at tel. (+65) 6768 5800, email Asia2@pentair.com or visit www.pentairpoolasia.com.

Beautifying buildings with water features

Hitachi Aqua-Tech was established in 1977 as a water treatment company serving the Asia Pacific, Indian Ocean region and the Middle East region. With a vast range of experience, the company provided a comprehensive solution to solve a broad spectrum of water problems by incorporating the latest technologies and techniques known.

Later in 1988, the company started a new business – specializing in swimming pools and water features. Over the years, Hitachi Aqua-Tech has built a reputation of design innovation and creative engineering in the areas of pools, fountains, water theme parks, irrigation systems and water features. The company can also provide 3D animations to its clients to help visualise the overall fountain show.

Hitachi Aqua-Tech provides complete EPCM (Engineering, Procurement, Construction and Maintenance) services to its clients and aims to provide a one-stop solution for resorts, hotels, residential & commercial facilities and developers.

The company has designed and installed water features for several notable projects in Singapore, Malaysia and Dubai. Its newest project in Singapore is the highly anticipated Jewel development at the Singapore Changi Airport.

Some of the company's iconic projects include:

- Jewel Changi Airport, Singapore (NEW)
- Suria Mall, KLCC, Malaysia
- Dubai Mall, Dubai
- Gardens By The Bay, Singapore
- Coral @ Keppel Bay, Singapore
- The Interlace, Singapore
- Sky Habitat, Singapore
- D'Leedon, Singapore
- Reflection @ Keppel Bay, Singapore
- Jurong West Sports Complex, Singapore
- D'Leedon Condominium, Singapore
- W Residences, Singapore

Adding a water feature to your building project can transform the entire look and feel of your property and landscape setting. Water features come in a myriad of designs, sizes, categories and shapes to meet the needs of your project. There are several companies in Singapore offering a wide range of such water features and one of them is Hitachi Aqua-Tech Engineering Pte Ltd.



Resorts World Sentosa in Singapore.



Guilin View condominium in Singapore.

Benefits of water features are plenty. They help to lessen stress, enhance the property of your building, create positive energy and boost mood.

Commenting on the company's range of services, Steven Lee, Business Development Manager said: "We love having fun with water to enhance your five main lifestyles: excitement lifestyles, enjoyment lifestyles, relaxation lifestyles, wellness lifestyles and future lifestyles."

For more information, visit www.hitachi-aqt.com.



Reflection @ Keppel Bay Condominium in Singapore.



Gardens by the Bay in Singapore.



Wangjing Soho – A new icon in Beijing

OASE was commissioned to design and install a musical fountain for Wangjing Soho, a large scale retail and office development in Beijing, designed by the late British architect, Zaha Hadid.

“Not hammer-strokes, but dance of the water, sings the pebbles into perfection.” - Rabindranath Tagore

Nestled within the new district of Beijing, Wangjing has a new icon. Three interweaving “mountains” shaped sinuously like pebbles perched side by side. Designed by the late Zaha Hadid, the buildings frame a series of public spaces, including landscaped gardens, a central plaza and a musical fountain pool.

Going by Hadid’s style, there were no right angles to be found. This included the central pool, which was in a beautifully proportioned organic form that took on its own sculptural qualities. The developer, Soho Group China, had envisioned the fountain to be the centerpiece. To complete the entire masterpiece - from architecture, to landform, to waterscape, the lines just flowed continuously, one into the other.

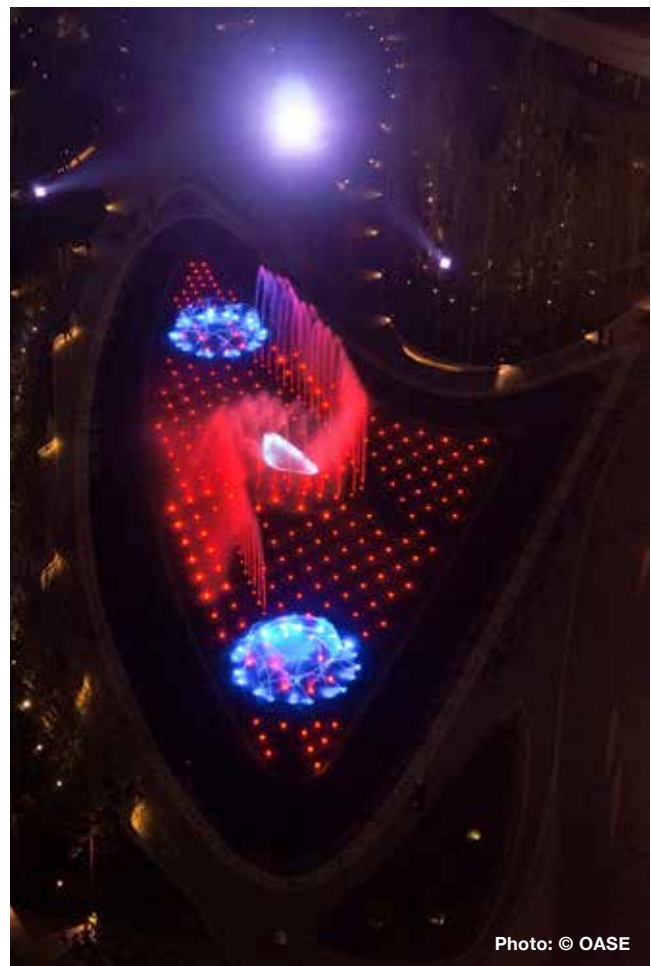


Photo: © OASE



Photo: © OASE

The fountain, designed and installed by OASE, was envisioned like a piece of art, one that was articulated with water forms. The spirit of abstraction was deeply central to the design - to maintain an essence of lightness, of ephemerality and a natural rhythm that complemented the urban heartbeat of this new commercial district.

As most of the primary views of the fountain are from the surrounding buildings looking down into the fountain, OASE decided to create a canvas of light within the pool. This gave an added dimension to the pool area; creating different patterns of water and light that made the entire pool surface change into a moving art mural at night.

Fountain with three main zones

Divided into three main zones, the perimeter zone consisted of intimately scaled parabolic jets and misting effects. The design of the pool encouraged people to come close to the water edge by creating a gently sloping surface that interfaced the ground scape into the pool. The arching jets and mist was key to a pre-show setting, to allow people to settle in and enjoy the relaxed atmosphere of flowing water and soft-lighting as they slowly gathered around the pool.

The second zone was made up of two rings, placed



Photo: © OASE

strategically on both sides of the pool. These rings embody the yin aspect of the fountain, with water effects that are soft, graceful, remarkably elegant in nature. Characterised by a 360 degree moving rotation, these jets move with the poise of a dancer and the boldness of a stroke.

The third zone embodies the heart of the fountain, a central spine of vertical jets that weave sensuously within the asymmetrical pool. A towering jet rising all the way up 40 metres becomes a landmark feature that can be seen from afar. The jets shoot into the air, running from one end of the pool to the other, in a heart-stopping sequence of precision and fanfare. The energy that builds up within the fountain is overwhelming as the musical beats speed up. The spectators are awed and find themselves moving and swaying as if they have become part of the show as well.

This has become a nightly ritual, when the office workers end their day at work and the neighbourhood residents take their evening stroll. The fountain is not just simply a pool by the building. It has a story to tell and it brings people closer to appreciating the architecture of these three beautiful pebble forms. The pebbles sing; when the water dances.

For more information, visit www.oase-livingwater.com.



Photo: © OASE

Wind Roundabout – Fort Worth, TX, USA

Kinetic Sculpture, Artist: Ned Kahn

Text and photos courtesy of Jakob AG

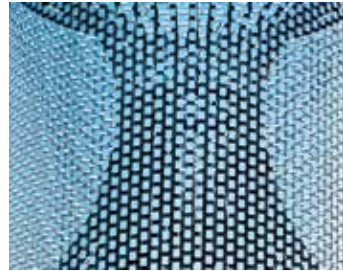
The Wind Roundabout is 30 feet tall and 30 feet in diameter. The “veil” of stainless steel cables and hundreds of aluminum rectangles is supported by a stainless steel structure. The aluminum rectangles move with the wind and reflect sunlight and the lights from passing cars, revealing the pattern of airflow over the roundabout and through the structure. The sculpture was commissioned by the City of Fort Worth. Jakob AG was proud to be associated with the project.



About Ned Kahn

Ned Kahn is an environmental artist and sculptor. His works usually involve capturing an invisible aspect of nature and making it visible; examples include building facades that move in waves in response to wind; indoor tornadoes and vortices made of fog, steam, or fire; a transparent sphere containing water and sand which, when spun, erodes a beach-like ripple pattern into the sand surface. Kahn lives and works in California. **For more information, visit www.nedkahn.com.**





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Thermatech® solar reflectance technology provides indoor thermal comfort all year round

Text and photos courtesy of NS BlueScope Lysaght Singapore Pte Ltd.

Climates in tropical countries are getting more severe. Temperatures have continued to climb around the world in 2016, with July being the earth's hottest month on record¹ according to the National Oceanic and Atmospheric Administration in the United States. In cities at mid-to-low latitudes, the Urban Heat Island (UHI) effect is also contributing to discomfort and significantly higher air-conditioning loads. High-density commercial areas with many skyscrapers in Singapore can experience temperatures of up to 2°C higher² than areas with more greenery.

With warmer temperatures likely to be the new normal, especially in commercial areas, the race is on to find new, environmentally friendly solutions to ensure urban spaces remain comfortable. Architects, builders, and developers are considering new types of building materials, creative architectural designs, as well as the inclusion of more greenery as ways to mitigate hotter environments, driven by customers who are very much aware of the consequences of climate change and beginning to understand the benefits of thermal efficiency.

Customers today demand that new buildings adhere to well-recognised green building standards which promote best practices in building design and encourage the use of sustainable designs and construction materials. Green building rating scheme such as the Leadership in Energy and Environment Design (LEED), Malaysia's Green Building Index (GBI) and Singapore's BCA Green Mark Scheme are becoming a prerequisite for commercial building owners and tenants alike, while home owners want spaces that are comfortable all day through and all year round.

Thermally efficient roofing for buildings is an ideal way to address the combined challenge of harsher climates and the UHI effect, and it can contribute to sustainable buildings at the same time. Clean COLORBOND® ULTRA steel with Thermatech® technology is an innovation from BlueScope that meet green building requirements.

What is Thermatech® technology?

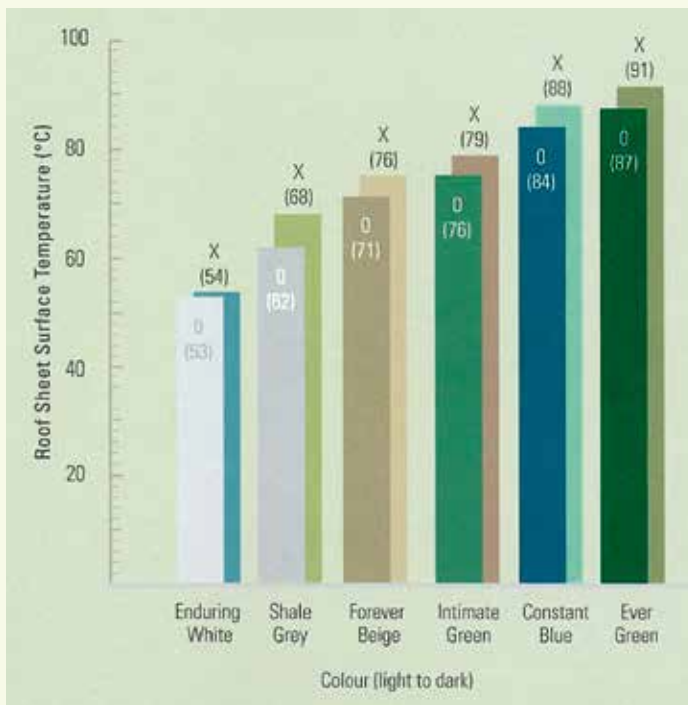
Thermatech® solar reflectance technology, which is incorporated into Clean COLORBOND® ULTRA steel, is developed to provide improved thermal comfort all year round and without any compromise to its appearance. It works by reflecting a large proportion of the sun's radiation, ensuring less heat is absorbed and transmitted into the building. Therefore it requires less energy on cooling, saving costs and reducing carbon footprints at the same time. The building infrastructure will also last longer because of reduced heat stress on the roofing system.

Solar Reflectance Index (SRI) is a numerical expression of a constructed surface's ability to reflect solar heat which is measured in accordance to ASTM E 1980. Higher SRI value represents a roof with lower surface temperature, hence reduces room temperature. Thermatech® technology can increase the SRI value of a roofing material. With the SRI for standard black set at zero and a standard

¹ July was earth's hottest month on record, *Straits Times*, August 19, 2016, <http://www.straitstimes.com/world/july-was-earths-hottest-month-on-record>

² An Investigation of the Urban Heat Island of Singapore by R. Priyadarsini and N.H. Wong, *Proceedings of the 41st Annual Conference of the Architectural Science Association ANZAScA 2007 at Deakin University*, http://anzasca.net/wp-content/uploads/2014/08/ANZAScA2007_RPriyadarsini_NH-Wong.pdf

Comparison of roof sheet temperatures (insulated*):



O – Clean COLORBOND® Ultra steel
X – Standard pre-painted steel

* Assume 1000W/sq.m.;
Exterior Temperature = 36°C, no wind;
Thermal emittance = 0.85;
100mm bulk insulation

The temperature of the roof sheet is lowered due to the Thermatech® technology in Clean COLORBOND® Ultra steel. This in turn cuts down the heat radiation traveling downward into the building, making the interior of the building closer.

white rated at a maximum of 100, Clean COLORBOND® ULTRA steel with light coloured roofing are preferred in Singapore and the neighbouring countries. In moderate to hot climates, Clean COLORBOND® ULTRA steel can reduce annual cooling energy consumption by up to 15 percent* when compared to roofing material of a similar colour with lower solar reflectance. Clean COLORBOND® ULTRA steel with Thermatech® technology can reduce peak roof temperature by up to 6°C*, depending on the colour. In fact, Thermatech® can optimise the thermal performance of every colour in the standard Clean COLORBOND® steel range without changing its appearance, making design planning easy.

The development of Clean COLORBOND® ULTRA steel with Thermatech® technology by BlueScope made available to NS BlueScope Lysaght Singapore's roofing and walling products ensures superiority by cutting-edge and trend-leading approach. Clean COLORBOND® ULTRA steel's renowned durability, colour retention and flexibility empower architects, builders, and developers to shape their long-term architectural vision and conscience in alignment with the Singaporean landscape and local concerns. With Thermatech® solar reflectance technology made available to the Singaporean market, it is helping to create a future that is comfortable not just for people, but for the environment as well.

COLORBOND® steel has been a favourite building material in the ASEAN region for over 50 years. It is an aluminium/zinc alloy-coated steel treated with proprietary paint system that is lightweight and versatile. Clean COLORBOND® ULTRA steel is backed by BlueScope's material warranty** against perforation by corrosion for up to 30 years, as well as warranties against flaking and peeling, colour fading and dirt staining.

*Depending on level of insulation, colour, building shape and function.

**Warranty terms and conditions apply.

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

Attitudes to Flooring

Text by Alec Stacey, Technical Manager, Bona Ltd

Wooden flooring remains the flooring of choice for many environments. Within older, historic buildings such as museums or galleries, the flooring can complement the ambience and majesty of the building, whilst providing a long lasting and attractive surface. In other situations wood flooring can produce a contemporary, clean look, complementing the different materials used within modern homes and businesses.

Installing wood flooring has never been simpler. Modern damp proofing and adhesive products allow a quick and safe installation which should last a lifetime. However, the end user is going to be more focused on the exposed timber surface, which can take many forms depending on the surface treatment used. This treatment will be responsible for not only the aesthetic qualities of the flooring but will determine the wear resistance and subsequent aftercare the floor will require.

In cases involving existing floors, sometimes a variety of treatments have been used over years with varying degrees of success. Invariably the surface treatment has been unable to cope with the demands placed upon it, or the surface has been provided with an insufficient level of maintenance leading to deterioration and the exposure of bare timber in the more heavily trafficked areas of the floor. This is often the point in time when a full refurbishment of the floor becomes necessary. In addition to the expense, the main issue within public, commercial or retail spaces is the removal of the floors from use while the work is undertaken, and the level of disruption this generates.

Traditionally, floors within busy, high traffic environments such as airports and stations have been treated with penetrating oil. Although this offers limited protection to the timber surface (the treatment resides in the top layer of the wood where it hardens), the surface can be easily maintained by the periodic application of more oil to the surface. This preserves the saturation of oil in the surface which gives the floor its appearance (a rich colour), wear properties and resistance to liquid spills. As this re-introduction of oil can be made very simply, using a buffing machine to apply the oil and a cloth underneath to buff off the excess, it means that areas of the floor do not have to be removed from use.



Bona Traffic HD Anti-Slip provides a perfect durable finish for a busy flooring. Photo courtesy of Bona



Bona Traffic HD lacquer at Edinburgh Botanic Gardens. Photo courtesy of Bona.

Where lacquer (varnish) treatments have been used, which seal the surface and therefore offer a high level of protection/durability, dealing with areas which have worn back to bare wood are less simple to address. The damaged area must be clean (sanded) and the primer and varnish reapplied to the same specification as used elsewhere. The products have to dry and cure to a state which will be able to cope with the trafficking regime. This all takes time - which is seldom available.

An alternative to this remedial approach is a preventative one. On a new or recently refurbished lacquered floor, measures such as providing effective barrier mats at points of entry, and considering the implications of design, can have a highly beneficial effect at mitigating the damage caused by the trafficking of abrasive particles of grit and dirt onto the floor. Frequent dry cleaning (sweeping/dry mopping) and the use of a pH neutral cleaner as required is essential. During cleaning the surface can be checked for signs of wear, light scratches etc. In addition to frequent cleaning, the surface should receive a periodic deep clean. The regularity of this process depends on the nature of the floor's use. In museums this may occur quarterly or more frequently if necessary. The periodic 'deep clean' should be by scrubber-drier to get the surface as clean as possible. This prevents dirt becoming trapped between layers of the maintainer which leads to floors becoming discoloured over time. Following the deep clean, the surface can be treated with a maintenance product (polish or similar) to restore the appearance and sheen of the floor whilst offering further protection to the surface.

The next step to preserve the surface involves applying a further varnish coat. This would be made at 12-18 month intervals in a heavily trafficked environment. In order to overcoat the surface, all maintenance products must be removed. This is achieved by abrading the surface with BONA fine diamond abrasives which serve to provide a physical key for the next coat in addition to the mechanical cleaning. Following the removal of all dust a varnish coat can be applied; a process which can be completed overnight, allowing the floors to be used the following day. Once the frequency of these treatments is fine-tuned, it should be possible to avoid a full scale refurbishment and the floor should never require sanding back to bare wood again. With this system in place the floors should always be in the best possible condition with minimal disruption to the operation of the location. The high costs of full refurbishment and excessive downtime are eliminated with a more predictable outlay for the maintenance and periodic overcoating.

For more information, contact Bona Far East & Pacific Pte Ltd at Tel (+65) 6377 1158, email info.apc@bona.com or visit www.bona.com.

Sika Hygiene Flooring Solution for Food Industry

Four Leaves Pte Ltd is a leading chain bakery in Singapore since 1981. With a reputation for providing high quality bakery products, it has successfully developed its customer base under different brand names of St. Leaven (Takashimaya), Peck (Takashimaya), Epid'or (Raffles City) and Splash n Decker (Ngee Ann Polytechnic).

Recently it has expanded its central factories from Enterprise Road to Chin Bee Crescent in order to cater for its growing customer base across 28 retail outlets in Singapore.

In its Chin Bee Crescent central factory, Sika (Singapore) Pte Ltd is proud to be their strategic partner for supplying its well-proven Sikafloor® Systems through Sika's applicator, Asset Protection Services Pte Ltd.

Sika (Singapore) Pte Ltd demonstrated to the client their expertise and understanding of the facility and worked with the project's main contractor, Boustead Singapore Ltd to create high-performance flooring surfaces for the building.

Sikafloor® Systems were installed for more than 3,800 square metres in the building, mainly in the Central Kitchen and Warehouse areas from June to August 2016.

The areas featured Sika's market-leading product: Sikafloor®-21 PurCem®.

Sikafloor®-21 PurCem® is a polyurethane floor systems combine the most demanding performance characteristics including resistance to impact, abrasion, aggressive chemicals and thermal shock. They are easy to maintain and completely reliable, making PurCem® the perfect choice for areas where both cleanliness and durability are crucial. Available in different slip resistant textures, both in a matte or glossy finish.



Central factory of Four Leaves Pte Ltd.



Warehouse area using Sikafloor®-21 PurCem® in green RAL 6010.

Product Highlights

Top Performance

- Excellent abrasion, chemical and impact resistance, high temperature variations and thermal shock resistance

Sustainable Solution

- Extremely low VOC
- Water based
- Odourless
- Fulfil all norms for indoor quality
- Superior life cycle cost advantages due to its durability, low maintenance and easy renewal with resurfacing options

Hygiene Floors

- HACCP Food Safety Certified
- Fulfil hygienic and cleaning requirements for food processing areas

PROJECT DATA

Project / Owner: Four Leaves Pte Ltd

Location: Chin Bee Crescent

Main Contractor: Boustead Singapore Ltd

Applicator: Asset Protection Services Pte Ltd

Supplier: Sika (Singapore) Pte Ltd

Products: Sikafloor® Systems

Quantity: More than 3,800 square metres



The Sikafloor® systems delivered exceptional results, assured a rapid and perfect finish and completion on schedule. This is a typical trademark of using Sikafloor® products and systems.

For more information, tel (+65) 6777 2811 or visit <http://www.sika.com.sg>.

natural resources
green technology
 green building products sustainable development healthy indoor air
 solar ecological green raw zero energy construction materials carbon
 green architecture emission
building a green future
 buildings that breathe

The September/October 2017 issue of *Southeast Asia Building* is dedicated to sustainable architecture, green building technology and eco-friendly building products. And we are looking for article contributions from you! If you wish to submit your project or product story for our consideration in this issue, you can write to the editor at seab@tradelinkmedia.com.sg

Deadline for submission is 1st July 2017!

New SBF Center in Singapore gets fitted with Victaulic pipe joining solutions

Completed in June 2016, SBF Center is a new commercial development in the heart of Singapore's central business district. The building comprises a 31-storey office tower holding medical suites and offices, as well as a 9-storey podium unit that holds retail and food and beverage outlets. The development will be integrated into Singapore's extensive MRT system with an undercover walkway connecting it to the Tanjong Pagar Station.

Like most of Southeast Asia, Singapore is subject to a consistently hot and humid climate, making high-quality and functional air conditioning systems a top priority for new construction projects. This rang true for the SBF Center. With a total footprint of more than 340,000 square feet, the building required a robust and reliable air conditioning system.

WKH Construction & Engineering Pte. Ltd. was chosen to design, install, test and commission the Air Conditioning and Mechanical Ventilation (ACMV) piping on the project. WKH's scope of work included the supply and installation of pump, chiller, AHU and cooling tower connections, as well as all distribution piping for the chilled and condenser water systems.

Challenges & Solutions

Like most commercial ACMV installations around the world, pipe joining methods are typically limited to two options – a weld-and-flange system or a grooved system. Mr Chai Chee Wooi, Director of WKH, weighed these options when considering the challenges of the project, which included a tight construction timeline with limited manpower and little access to ancillary equipment.

When considering a pipe joining method for the SBF Center, Mr Chai had three questions on his mind:

- Which system will allow WKH to deliver the project within budget?
- Which system will allow WKH to deliver the project on time?
- Which system will allow WKH to maximize the resources we have and improve our team's efficiency onsite?

Having successfully used the grooved pipe joining method on previous projects, WKH initiated a cost analysis of their options. Calculating based on pipe joint installation time and manpower requirements, WKH estimated they could reduce



the required manpower onsite by 35 percent with a grooved system as opposed to a weld-and-flange system. The potential savings was promising enough for WKH to go grooved.

WKH engaged Victaulic, the world leader in mechanical pipe joining solutions, to provide all couplings, fittings, valves and accessories sized 65mm – 500mm/2½" - 20" on the chilled and condenser water piping systems. As the originator of the grooved pipe joining concept and with over 90 years of experience in commercial and industrial projects around the world, Victaulic was a solid choice to provide WKH with a time-tested, high-quality ACMV installation.

Improved Productivity

The grooved pipe joining method is ideally suited for improving jobsite productivity by reducing the required number of installers onsite. The speed and simplicity of the installation process is key. A grooved pipe joint requires only four elements for proper installation: 1) grooved pipe; 2) the gasket; 3) the coupling housing; and 4) two bolts and nuts. Joint verification is as simple as visually checking for bolt pad-to-bolt pad contact, as opposed to the lengthy and tedious x-ray tests required on welded joints. This ease of installation and inspection meant WKH's skilled manpower could be used on more critical areas of the project, while other members of the team could be easily be trained to install and inspect the grooved piping installation.

Mr Chai noted: "The Victaulic grooved system is exceptionally user-friendly. We were able to quickly train our team onsite to properly install and inspect a joint using simple hand tools."



When compared to the lengthy weld-and-flange pipe joining process, the grooved piping method has proven to be up to 10 times faster to install. The method also eliminates hazardous flames and fumes; reduces the amount of additional equipment needed; and allows manpower to be maximized by reducing the number of men required to install a joint.

On the chiller plant room alone, WKH was able to completely install and test the system in half the amount of time using **half the amount of manpower** as a weld-and-flange system. The substantial increase in productivity meant WKH was able to maximize the time of the workforce they already had, and ultimately, only use their own in-house installers.

"The improvement in productivity had a massive impact on the overall job," said Mr Chai. "I was able to get the job done with my own team without needing to outsource a sub-contractor. Not only did that mean WKH could keep more of the revenue generated from the project, but I also didn't need to worry about any extra liability for additional welders on the jobsite," he added.

The use of a Victaulic grooved piping system also facilitated other costs to be cut on the project. With a weld-and-flange system, WKH estimated two scissor lifts would be required to complete the installation on time – one for the welder and one for the fitter. As Victaulic grooved products

only required one pair of hands to complete an installation, the need for two scissor lifts and two men was cut in half, providing an additional 50 percent savings on ancillary equipment costs.

Efficiency Is A Key Element To Growth

The Singapore Building and Construction Authority's Productivity Innovation Project (PIP) scheme is a programme that primarily aims to encourage and facilitate Singapore-registered companies to advance their performance capability, identify productivity gaps, and improve site processes to achieve higher onsite efficiency.

"The PIP scheme is critical in helping small contractors re-engineer site processes and adopt labour-efficient construction technologies to improve onsite productivity," noted Mr Chai. "Utilising Victaulic directly impacted our required manpower onsite, with an overall reduction of 35 percent when compared to weld-and-flange. By providing this information to PIP, we were able to capitalise on the grant funding. This allows WKH to reinvest both the 35 percent savings and the funding from the PIP scheme to continue developing strategies to make our business more efficient and lean."

For more information, tel (+86) 21 6021 9400, email vicap@victaulic.com or visit www.victaulic.com.





BEX Asia 2016 and MCE Asia 2016
Marina Bay Sands Convention and
Exhibition Centre
Singapore

Smart and sustainable buildings take Centre stage at BEX Asia 2016 and MCE Asia 2016

One of Southeast Asia's leading trade shows for the green building market, Build Eco Xpo (BEX) Asia 2016, returned for its ninth edition this year. Designed to engage every professional in the green building industry, the three-day exhibition was officially launched by Guest-of-Honour, Mr Lawrence Wong, Minister for National Development and Second Minister for Finance at the Marina Bay Sands Convention and Exhibition Centre on 7 September 2016.

Organised by Reed Exhibitions and its strategic partners Building and Construction Authority of Singapore (BCA) and Singapore Green Building Council (SGBC), BEX Asia 2016 remained a premier sourcing platform the region's green building industry players.



Above: Minister Lawrence Wong delivering the opening speech at the joint opening ceremony for SGBW 2016, IGBC 2016 and BEX and MCE Asia 2016. Photo: © Building and Construction Authority (BCA) and Reed Exhibitions.



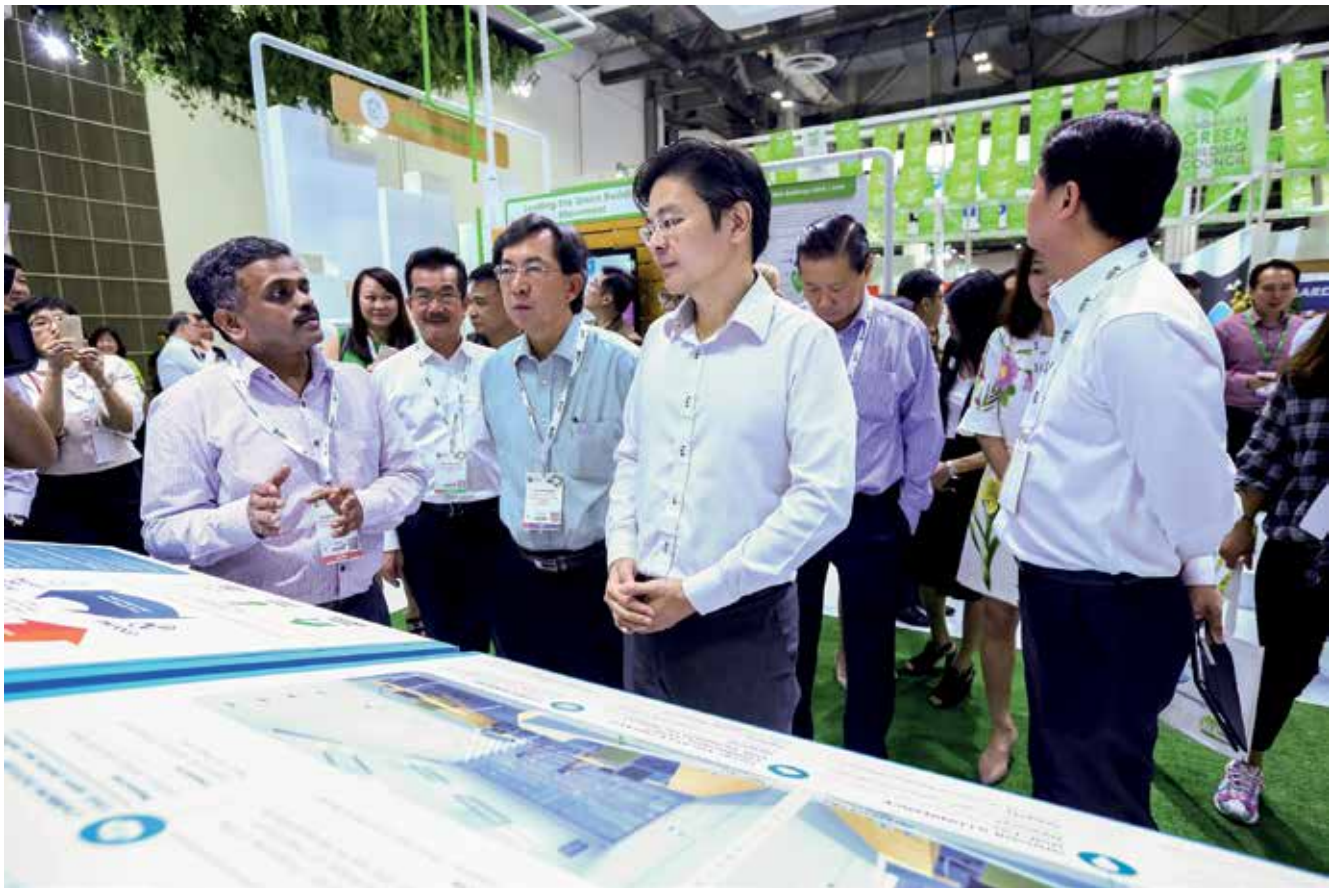
Left: Michelle Lim, Managing Director, Reed Exhibitions giving her speech at the joint opening ceremony for SGBW 2016, IGBC 2016 and BEX and MCE Asia 2016. Photo: © Building and Construction Authority (BCA) and Reed Exhibitions.



From left to right: Dr John Keung, CEO, BCA; Lee Fook Sun, Chairman, BCA; Minister Lawrence Wong; Debbie Evans, President, Reed Exhibitions, SEA and Australia; and Chia Ngiang Hong, President, SGBC officiated the joint opening ceremony of SGBW 2016, IGBC 2016 and BEX and MCE Asia 2016. Photo: © Building and Construction Authority (BCA) and Reed Exhibitions.



From left to right: Dr John Keung, CEO, BCA; Lee Fook Sun, Chairman, BCA; Minister Lawrence Wong; Debbie Evans, President, Reed Exhibitions, SEA and Australia; Michelle Lim, Managing Director, Reed Exhibitions, Chia Ngiang Hong, President, SGBC at the ribbon cutting ceremony of BEX Asia and MCE Asia 2016. Photo: © Building and Construction Authority (BCA) and Reed Exhibitions.



Minister Lawrence Wong at the BCA booth at BEX Asia 2016. Photo: © Building and Construction Authority (BCA) and Reed Exhibitions.

Professionals such as green building experts, policy-makers, academics and built environment practitioners converged at the exhibition to source for new building materials, network with one another and gain new knowledge.

Held alongside BEX Asia 2016 was the second edition of Mostra Convegno Expocomfort (MCE) Asia 2016, dedicated to the Cooling, Water, Renewable Energy and Heating aspects of buildings. The exhibition threw the spotlight on various technologies such as energy-efficient solutions in HVAC-R, plumbing technology and sanitary accessories and solar energy.

Together, both BEX Asia and MCE Asia 2016 had gathered some 450 leading companies representing 32 countries to showcase their latest innovations and technologies. Companies exhibiting at BEX Asia and MCE Asia 2016 included industry giants like Ariston Thermo, BELIMO Actuators Limited, Daikin Air conditioning, DEOS Control Systems, EURA Drives Europe, Nippon Paint, PAREXGroup, SMARTD Chillers, as well as a new Italian pavilion led by ICE-Spazio Italia, comprising of some of the best Italian companies – BLUPURA Srl, ERRECOM, Emmecom Srl, Impresind, Brandoni S.p.A., and Fumasi by Gimap Srl.

The shows also had an exciting line-up of talks and technical presentations by 48 industry experts in the exhibition halls. A total of 11,976 visitors across 57 countries attended both shows. This was an eight percent increase in participation from 2015. The refreshed Business Concierge programme also facilitated a total of 373 business meetings.

Leading regional and international experts and speakers also shared their knowledge through various topics at the International Green Building Conference 2016 (IGBC 2016), co-located with BEX Asia and MCE Asia 2016 at Marina Bay Sands.

Organised by the Building and Construction Authority of Singapore, IGBC 2016 was built upon the theme “Build Green: The Next Decade”. The Conference focused on empowering and involving the community in driving sustainability. In support of the historic Paris Landmark agreement at COP21 towards taking action on climate change, the conference inspired and catalysed new thinking, collaborations and partnerships as well as innovative and holistic solutions to climate change.

“Going Green and building sustainable buildings are not the responsibility of only one party, but requires the collective effort of government bodies and private corporations such as developers, architects, consultants and other industry stakeholders. With this in mind, BEX and MCE Asia and IGBC are continually working hand in hand with like-minded stakeholders to find practical solutions to build sustainable buildings and encourage the adoption of energy conservation technologies together. We are proud to share the vision of creating the most comprehensive and complete value chain for the sustainable green living environment,” said Ms Michelle Lim, Managing Director, Reed Exhibitions, at the joint opening ceremony of BEX Asia, MCE Asia and IGBC Asia 2016.

For more information, visit www.bex-asia.com.

ASUN International Pte Ltd

ASUN International Pte Ltd presented a new generation of water heater with high-energy efficient system called "Heat Pump Water Heater" at BEX Asia 2016. It works by drawing heat from the air and transfers that heat through a compressor into a water tank.

"No electrical heating is needed for our water heater, as all heat is transferred from the hot air around us. It is environmentally friendly because no secondary heating element is required. It is very high energy efficiency water heater and suitable for tropic country," said Mr Keith Chang, Sales Manager, ASUN International Pte Ltd.

Advantages:

- 100 percent heat pump technology without heating elements
- Extremely safe as water and electricity are separated
- Faster water flow rate
- High efficiency, cost saving up to 75 percent comparing to electric water heater
- Centralized hot water solution
- Stainless steel 360° bi-layer insulation water tank
- Ideal for fuel boiler replacement
- 3 years full warranty



The Heat Pump Water Heater was a key highlight at ASUN's booth.
Photo: © ASUN International Pte Ltd

The Heat Pump Water Heater, developed for residential, commercial and industrial applications, is available for the markets in Singapore and Malaysia. It will be available in ASEAN markets as well. For more information, visit www.asun.com.sg.

Buildchem Co., Ltd.

Buildchem Co., Ltd. from Republic of Korea presented its HYBRID n-COAT advanced floor coatings at BEX Asia 2016.

HYBRID n-COAT is a unique floor coating product different from epoxy or PU. The reason it is called hybrid is because of the technology behind the product which takes inorganic components as main component and organic components as sub-component and chemically react them to create a new component. Through this chemical reaction, HYBRID n-COAT possesses both the advantages of inorganic and organic products.

Characteristics of n-COAT

- Never-peel-off bonding through penetration
- Minimum 3~5H surface hardness
- Non-flammable
- Anti-bacterial
- Rapid set time (1~2 hrs set-to-touch time in 30°C)
- Superior anti-stain properties
- Eco-friendly, low-odor
- Strong chemical resistance

HYBRID n-COAT is most suitable for areas with heavy traffic and lots of chemicals/oil usage such as manufacturing plants, warehouses, and parking lots. There are also special grade products such as acid-resistance coating(n-COAT AR) for extreme chemicals, anti-static coating(n-COAT AS), exterior coating(n-COAT EX), etc.

For more information, visit www.n-coat.com.



Choulhak Yun, Sales Associate of Buildchem Co., Ltd.



A project in Korea using Buildchem's n-COAT smart-polishing system. Photo: © Buildchem Co Ltd

Big Ass Solutions

Big Ass Solutions (BAS) participated in BEX Asia 2016, the company's first time at the green building exhibition. This participation coincided with BAS's recent five certifications under the Singapore Green Building Product (SGBP) labelling scheme.

Visitors at the show were 'blown away' by the massive overhead Essence® fan, which cools large spaces by moving large volumes of air, and doing it very quietly. Also showcased at the exhibition were the company's latest Haiku H & I series fans with SenseME™, an intelligent function to automate the cooling process.

Many visitors learned how Big Ass Solutions is serious in its drive to innovate and improve, backed with serious research and intensive engineering. They were also interested in the fact that the award-winning energy efficient fans could help reduce cooling bills by 20 percent, and that the SGBP-certified fans could help building projects achieve Green Mark standards.

Big Ass Solutions' extensive range of applications mean its products are found in more and more places in Singapore. Many visitors already recognised the massive overhead fans, being familiar with the Essence® fan at Marina Bay Sands Hotel Tower Entrance, and the Powerfoil® fan at 313 Somerset and City Square Mall. The Haiku series are commonly used for smaller residential and commercial spaces, and can be seen at the walkways of Capitol Theatre, among other locations.

With the main headquarters in Lexington, Kentucky, the Singapore office is the Asia Pacific Headquarters, with other offices in Malaysia, Hong Kong and Australia.

For more information, visit bigassfans.sg/SEAB16.



Essence® Fan. Photo: © Big Ass Solutions

Shanghai Tong Lee Hardware Pte Ltd

Shanghai Tong Lee Hardware Pte Ltd launched a new finger protection roller called "Roller protectors FSR" (non-hinge side) at BEX Asia 2016. As the name implies, the roller protects fingers from getting trapped at the hinge side of manual and automatic swing doors.

It can be installed in both new and existing doors and it is suitable for schools, kindergartens and other public places where young children are prone to finger-trapping accidents.

"The finger protection roller addresses the safety feature of doors in an innovative way. It is extremely durable and maintenance-free," said Mr Andreas Dintheer, Owner, Planet GDZ AG.

With the new mounting system developed by Planet, you will no longer need two people to carry out the installation. Only one person is needed for the installation. In addition, the roller protector is easy to mount and remove to read inspection stickers, re-adjust the door hinges, re-align the fabric/roller protector, adjust the Planet drop-down seal or gain access to the cable ducts.

The FSR roller protectors are available in three designs:

- FSR 5000 (BASIC) is the standard model
- FSR 6000 (QUICK) for quick installation
- FSR 7000 (OUTDOOR) for outdoors



Henry Tee, Managing Director, Shanghai Tong Lee Hardware Pte Ltd (left) and Andreas Dintheer, Owner, Planet GDZ AG showing the new finger protection roller.



FSR 5000 (BASIC) is the standard model.
Photo: © PLANET GDZ AG



FSR 6000 (QUICK) for quick installation.
Photo: © PLANET GDZ AG



FSR 7000 (OUTDOOR) for outdoors.
Photo: © PLANET GDZ AG

The finger protection roller is available in Singapore from Shanghai Tong Lee Hardware Pte Ltd. For more information, visit www.shanghaitonglee.com.sg.

MicroCell Marketing (Asia) Pte Ltd

MicroCell Marketing (Asia) Pte Ltd is a Singapore-based company dedicated to the promotion of eco-friendly building materials. The company's strong belief in sustainability is demonstrated not only in the flagship product, CellWood®, but also in the way the company runs its business and operations.

MicroCell is a new company with a focus on utilising technology, innovation and flexibility for the advancement of long lasting eco-friendly building materials. MicroCell aims to be a major supplier of wood-alternative materials in the long run by adopting multi-faceted, sustainable and eco-friendly policies in the research and development, manufacturing, marketing, distribution and utilisation of its line of products and services in the building industry.

About CellWood®

According to MicroCell, CellWood® is a patented, revolutionary and eco-friendly material that serves as an alternative to wood and WPC. It is a 100 percent co-polymer product that possesses wood-like look, feel and properties. It eliminates the need for wood and wood by-products such as raw materials, thereby not contributing to deforestation.

Benefits and features of CellWood®

- Wood-like properties
- Slip-resistant
- 100 percent waterproof
- Non-susceptible to water damages
- Non-toxic: 0 percent heavy metals and 0 percent formaldehyde
- Easily processed into various shapes via Thermo-Shaping
- 100 percent recyclable and reusable



Sarah Leroy, Account Manager and Charlie Yap, Business Development Director, MicroCell Marketing (Asia) Pte Ltd.

CellWood® can be applied in the following ways:

- (1) As raw materials – pellets to sell to other product manufacturers
- (2) As building materials – materials for building developers
- (3) As flooring materials – outdoor decking and indoor planks
- (4) As furniture materials – design and manufacturing of outdoor furniture
- (5) For landscape, water and sculpted features – design and manufacturing of landscape, water and sculptured features

For more information, visit www.microcell.asia.

Chun Hoe Pte Ltd

Chun Hoe Pte Ltd is a subsidiary of Chun Hoe Trading Sdn Bhd in Malaysia with more than 20 years of experience and technical knowledge in the manufacture, export and trading of building materials, hardware and steel wire products.

At BEX Asia 2016, the company showcased a wide range of fences such as BRC Fence, Anti Climb Security Fence, Chain Link Fence and others. "Our high quality fences are used by schools, condominiums, army camps, airports, or any place which needs security measures," said Mr Andy Chak of Chun Hoe Pte Ltd.

For more information, visit www.chunhoe.com.sg.



Chun Hoe's booth at BEX Asia 2016. Photo: © Chun Hoe Pte Ltd



Security Fence for airport use. Photo: © Chun Hoe Pte Ltd

ebm-papst SEA Pte. Ltd.

It has been the second round for ebm-papst SEA Pte. Ltd. to participate in MCE Asia 2016 in Singapore. ebm-papst is a leading manufacturer of fans and motors in the world.

As a special highlight, the Minister for National Development, Mr Lawrence Wong, visited the ebm-papst's booth on the very first day of the exhibition.

According to Mr Coleman Lim, Managing Director of ebm-papst SEA Pte. Ltd., MCE Asia has turned out to be the optimal platform to present the company's energy-efficient GreenTech EC technology, which can be used in air handling units. For this reason, ebm-papst had presented the RadiPac, a backward curved centrifugal fan that can lower the power consumption by up to 40 percent compared to conventional AC ventilators. The RadiPac is the optimal solution for the retrofitting business, as this new generation both fulfills demands for a smaller overall CO2 footprint and comes as a ready-to-use system.

In addition, ebm-papst showcased its FanGrid, a modular system that consists of multiple GreenTech EC fans operating in parallel. This scalable design offers increased operational reliability for efficient transportation of high volumes of air.

Besides this, ebm-papst displayed a unique range of fans that are typically used throughout buildings and can help end users to reduce their running costs as well as to meet latest efficiency requirements at lower noise levels. To select the right fan for the application the ebm-papst FanScout provides an easy and quick tool to choose the ideal ventilator for individual requirements.

For more information, visit www.ebmpapst.com.



On the left, Mr Lawrence Wong, Minister for National Development visited the ebm-papst booth. Photo: © ebm-papst



RadiPac backward curved centrifugal fan with energy-efficient GreenTech EC technology for the use in air-handling units. Photo: © ebm-papst

EuroTec GmbH

EuroTec GmbH is a leading specialist for fastening technology based in Hagen, Germany. At BEX Asia 2016, the company presented a new multifunctional installation system suitable for all common deck coverings.

The new multifunctional installation system Stone System from Eurotec minimises the effort required to construct a patio. A unique practical feature of this system is that it can be combined with various deck coverings. One simply needs a load-bearing foundation, the Stone System from Eurotec, and the desired deck covering.

Advantages:

- Exceptionally economical
- Time-saving and straightforward installation
- Stone slabs can be combined with timber or WPC boards, for example
- Precise joint pattern
- Long-lasting
- Certified, high load-bearing capacity



Jörn Rüschemschmidt, Export, EuroTec GmbH at his booth.

According to Jörn Rüschemschmidt, Export, EuroTec GmbH, the new system is not only innovative and versatile, but also flexible and user-friendly. He added that the company's products are very well known in Dubai and it has completed several projects there. It is now looking at expanding its market in the Middle East, New Zealand, Australia, Asia and regions with similar climate as Dubai. "We are looking for distributors in Singapore and in this region," said Jörn. In Singapore, the company has worked on some prestigious hotel decks.

For more information, visit www.e-u-r-o-tec.de.

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ARCHITECTURE HARDWARE SYSTEM | HAWA AG

HAWA-Junior hardware systems of all weight categories are characterised by reliability, safety and ease of installation. Even after 30 years on the market they are still fresh and attractive and much sought after by tradesmen, designers, architects and building owners thanks to continuous improvement and system updates.

The development engineers in Mettmenstetten near Zurich gave the conventional HAWA-Junior 80/B a new suspension assembly that is quick and easy to install without the need for tools thanks to an innovative clip assembly system. The integrated multi-functional cover cap made of metal doubles up as a locking mechanism and as a handle for pulling out the suspension assembly. The reduced volume of the integrated suspension assembly made it possible to reduce the size of the new high-quality metal cover cap. An extremely narrow gap of just one millimeter is all that remains between the upper door edge and the top track. It is virtually invisible. A system variant with a 20 mm longer suspension bolt enables the installation of suspended ceiling panels over the top track. The top track disappears into the ceiling – a very appealing solution from a design viewpoint.



HAWA-Junior 80/B (mod.) was developed specifically for quick and easy installation. Photo: © HAWA AG

The height (+/- 7 mm) is adjusted first from underneath directly via the suspension bolt and then fine-tuned from the front via the adjustment mechanism in the suspension assembly. HAWA-Junior 80/B (mod.) was developed specifically for quick and easy installation. With no detrimental effect on the qualities that have made the HAWA-Junior a global best-seller among sliding door hardware systems.

The company's new developments also include a track stop with a new design and a retention force adjustable to suit the weight of the door. It holds the doors in position when open and closed. It features a discreet black cover cap that conceals the mechanism. This innovation is characterized by outstanding ease of installation and adjustment and is suitable for all HAWA-Junior 80 sliding hardware systems.

For more information, visit www.hawa.ch.

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DOOR HARDWARE PRODUCTS | ALLGOOD PLC

Allgood plc is one of the world's leading companies in the supply of door hardware products and associated services to major construction projects. Since 1966, the company's award winning export division has successfully supplied thousands of projects around the globe.

Allgood's reputation has been built on supplying the construction industry with high quality products that are designed to last. Manufactured in the UK in the company's factory, the exclusive Modric, Contego (antimicrobial copper) and Sembla door furniture ranges are the perfect combination of aesthetics, durable design and high quality manufacture.

With a vast array of products incorporating architectural ironmongery, door sets, washroom, security and automation systems, Allgood can tailor each specification to meet the needs of the specifier, contractor and client providing an appropriate solution which complements the design of an individual project. Allgood's products are used in a variety of projects such as Commercial buildings, Public Buildings, Healthcare, Education and Hotels around the world.



Modric Lever Handle 3570.

Case study: Fullerton Hotel, Singapore



Photos left and below: Allgood supplied a high quality and bespoke range of products that would complement The Fullerton's prestigious reputation.

In Singapore, Allgood had supplied its products to the prestigious Fullerton Hotel. Allgood originally specified a combination of stainless steel Haft Elipse levers and matching pulls in the public areas, along with bespoke FSB pull handles for the ballroom doors. In the back of house area, Modric lever handles were fitted throughout, ensuring the hotel had a product that would last for at least 25 years. More recently, Allgood was asked to provide new window fittings in a polished stainless steel finish, to match the white painted windows in the bedroom.

For more information, visit www.allgood.co.uk.



REVERSIBLE KEY SYSTEM | JANUS

Since 1903, BKS locking systems offer innovative and tailor-made solutions and are manufactured according to the highest quality standards. The company's numerous patents and certificate attest to this. With a BKS master key system, you are opting for a modern system with a great variety of functions and features.

BKS Janus reversible key system meets the highest demands with regard to security, functionality and design. The key with drilling cavities provides for efficient mechanical copy protection. Four variably arranged tumbler rows protect the cylinder plug against tampering. The modular cylinder design makes it possible to adapt the cylinder length to each particular installation situation.

Alongside the new, dynamic dimple key design, security has also been increased with patent protection lasting until 2031 for Janus latest generation. The key system's distinctive feature is the key of high-quality nickel silver with a red glass ball, a sign of quality and accentuates the symmetry of the reversible key.

Through the use of functional pins, it is possible to implement the most complex hierarchies in a master key system. As a matter of course, the Janus reversible key system uses protected key profiles exclusively.



Features and benefits provided by the Janus reversible key system:

- Tested according to EN 1303 and DIN 18252
- With bumping protection as standard
- Profile cylinder with four tumbler pin rows
- "Sandwich design" for variable cylinder lengths
- With cylinder body cover of chromium-nickel steel
- Patent-protected key profiles only
- Faceplate fixing screw: M5 x 80 mm, nickel-plated steel (optionally brass)
- Suitable for complex master key systems
- Suitable for registered key bittings with security card in the private sector



For more information, visit www.g-u.com.



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SHADE SYSTEM | INFINITY CANOPY

Infinity Canopy is one of the most dynamic and versatile shade systems in the world offering infinite shade, infinite design and infinite possibilities. Its unique modular design allows it to adapt to any space, in one or multiple colours and offer unique features.

Infinity Canopy can be installed on pergolas or between two opposing structures on a pair of parallel cables. It can also attach directly to available overhead support indoors or outdoors. The canopy is comprised of individual shade panels that connect together to create shade sections in any length. Multiple shade sections in the desired length are placed side by side to cover any space. The individual shade panels can be in one or multiple colours and interchanged to create unique designs not possible by any other shade system.



Canopies have become a common part of modern outdoor design for their simplicity, beauty, ability to cover long projections, and be retracted when desired. However, they have major drawbacks because they are made from one long piece of fabric and to fit properly they require precise measurements and fabrication. Once installed, these canopies cannot be modified and repairs (if possible) require an expensive trip back to the shop. "I encountered these drawbacks first hand when I wanted a canopy for my house. I felt the current canopies were inadequate and antiquated which led me to develop Infinity Canopy," said Dr. Shargani inventor of Infinity Canopy.



In contrast Infinity Canopy's is modular. It uses individual shade panels that are connected together one at a time to create a canopy that can be as long and wide as needed to adapt to any space. The individual panels can be in one or multiple colours to create a simple or multi-colour canopy. Every aspect of Infinity Canopy can be changed even after installation to create infinite configurations and designs not possible by any other shade system. Repairs can be completed on site using readily available parts and panels.

Recently, the US Patent Office issued the patent number 9,255,441 covering the unique and revolutionary features of

Infinity Canopy that allow it to adapt to any space, be installed quickly, and changed even after installation. This is the first patent issued for Infinity Canopy with additional utility and design patents pending.

Dr. Shargani the inventor of Infinity Canopy said: "We claimed to have revolutionised the canopy and this patent confirms that. This is a major achievement for our company, the shade products industry and the customers. We will continue the innovation and development of Infinity Canopy."

For more information, visit www.infinitycanopy.com.

NITOFLOL SL 3000UT | FOSROC SINGAPORE



Finished product. Photo: © Fosroc Singapore

Since the company's beginnings over 80 years ago, FOSROC has developed into a leading supplier and manufacturer for construction chemicals, delivering constructive solutions for projects across a broad range of market segments including transport, utilities, industrial and general buildings.

Combining years of experience of flooring systems throughout the world with market leading products, FOSROC offers a complete flooring solution from design to installation. With the increasing growth of food and beverage as well as dairy processing plants, FOSROC Nitoflor SL 3000UT has been specially developed. Hygiene is the key for products to be used in the food industry. It is one of the fundamental considerations that a floor can be cleaned thoroughly and easily. The most common requirements are impermeability to water, anti-slip surface and resistance to animal fats and vegetable oils. Another major condition would be, at the time of application and while in use, the flooring system should not affect the smell and taste of the food stuffs. FOSROC Nitoflor SL 3000UT, which have been specially developed for the food industry meets all these criteria.

FOSROC Nitoflor SL 3000UT is a medium to heavy duty, flow applied cementitious polyurethane floor topping system designed with the highest order of durability to resist abrasion, a wide range of commonly used chemicals in the food, dairy, pharmaceutical industries and engineering workshops. FOSROC Nitoflor SL 3000UT is HACCP International certified to be suitable for use in food and beverage facilities. A flooring system which is not only functional but aesthetically-pleasing as well.

Features & benefits of Nitoflor SL 3000UT

- Tough PU formulation
- Good Self-Smoothing Features
- Matt / Low-Sheen Appearance
- No Odour
- Temperature Stable
- Easy to Mix & Apply

For more information, visit www.fosroc.com.



Sample board. Photo: © Fosroc Singapore

SPECIALIST IN RENEWABLE ENERGY | DETRA



Photo: © DETRA

DETRA is a consultancy specialising in renewable energy and providing full engineering support for the solar projects worldwide. The company has been trusted by over 90 companies worldwide and has designed more than 3.4GW of solar systems since 2009. DETRA provides a wide range of services – from the concept or initial design up to the complete package of drawings for the project execution (final construction stage).

The company's skilled electrical and mechanical engineers are adept at working with its clients' engineering resources or independently to deliver the best results. Experience in working with EPCs, Solar developers and investors around the world has enabled DETRA to develop internal strategies that deliver consistent high quality services.

Leveraging in-house project management and time tracking tools DETRA can offer a swift turnaround time for any size roof mount or ground mount solar project.

DETRA's system designs are supported by the leading CAD packages, including: PVSyst, PVSol, Autodesk Mechanical, Autodesk Electrical and Sketchup.

Through a continuous cycle of feedback and improvement from the company's clients, DETRA ensures that its designs are optimised both technically and commercially.

For more information, visit www.detra.co.uk.

Photo: © DETRA



Photo: © DETRA



TITANIUM FINISHES | ARCHITECTURAL TITANIUM

Architectural Titanium provides one of the most experienced consultants for worldwide applications in architecture, art and design. The company represents the largest and most advanced manufacturers of titanium producing a variety of natural and custom finishes and a spectrum of anodized colours. With global activities spanning every aspect of titanium research, production and distribution, the company offers a full range of products and value-added services specifically design for architectural applications.

The company's experience in custom architectural metals began back in 1986, working internationally with all metals. In 1997, the company was contracted by TIMET to develop and expand the global titanium architecture market, which coincided with its first project, The Guggenheim Museum in Bilbao. Frank Gehry's iconic building thrust titanium into the public eye and grabbed everyone's attention. Titanium had been used on other buildings prior to the Guggenheim, but no one bothered to notice until that moment in time. After that, the company became purists and never worked with another material aside from titanium ever again.

With over 50 years of combined expertise in the field, Architectural Titanium continues to grow and develop new technologies that build off of the unique and superior attributes of titanium. Advanced processes and cutting edge technologies are utilised to provide architects, designers and artists with distinctive design solutions.

Crystal Titanium®

Crystal Titanium® is a proprietary custom metal, patented and manufactured by Architectural Titanium. Mill finish titanium sheets or plates are secured in custom fixtures in a specialised furnace where the vacuum is equivalent to outer space. The furnace is gradually heated to near the melting temperature.

During this precision controlled cycle, the titanium's natural crystal structure begins to enlarge and re-orientate. The crystals grow in a columnar pattern across the thickness of the titanium. A transition from hexagonal to cubic crystal alignment creates the uniquely faceted specular orientation of crystal growth and size. The resulting visual aesthetic is unmatched by another metal and is only available in titanium. For more information, visit www.architecturaltitanium.com.



Application of G1 finish titanium (from Architectural Titanium) in building projects.



The product crystal titanium from Architectural Titanium.

FAÇADE MATERIAL | **EQUITONE**



EQUITONE [linea] façade material. Photo: © EQUITONE



EQUITONE [materia] façade material. Photo: © EQUITONE

EQUITONE has launched a new facade material which will appeal to architects and specifiers across Southeast Asia region.

EQUITONE [materia] is a through coloured facade material that accentuates the beauty of fibre cement. The material encompasses the characteristics of cement, whereas the fibres render its surface textured yet velvety.

The ever-changing atmosphere, gives the material natural subtle shade variations. The material comes in large panel size and can be transformed into any size or shape in the workshop or on site.

All EQUITONE materials are:

- Prefinished
- Through Colour
- With textures

The product is available in Southeast Asia through Eternit Asia Panels. For more information, visit www.equitone.com.

TRANSLUCENT FAÇADE SYSTEMS | ARCHITECTURAL BUILDING ELEMENTS PTY LTD

RODECA Translucent Facade Systems were recently selected for two of the new sports complexes constructed in Port Moresby, Papua New Guinea for the 2015 Pacific Games.

The Sir John Guise Stadium incorporated RODECA 60mm thick Opal colour panels for upper section facade surrounding the entire building.

The same system was also used in various locations including the main building facade on the Taurama Stadium complex.

RODECA Translucent Facade Systems incorporate high-impact polycarbonate panels and proprietary extruded aluminium frame profiles.

RODECA polycarbonate facade panels have outstanding temperature resistance from -40°C to +115°C and temporarily up to 130°C, outstanding long term weathering performance through UV protection and excellent thermal properties.

Rodeca GmbH manufactures RODECA Translucent Building Elements in Germany. Rodeca GmbH was established in 1971 and claimed to be the first to bring translucent polycarbonate wall panels to the construction industry.

Rodeca's translucent facade systems have featured in many award-winning projects around the world including the UK's prestigious Sterling Award for the Laban Dance Studio building in London.

Rodeca GmbH is represented in this region by Architectural Building Elements Pty Ltd based in Melbourne Australia who can be contacted for information on RODECA Translucent Building Elements. For more information, visit www.rodeca.com.au.



The Sir John Guise Stadium. Photo: © Architectural Building Elements Pty Ltd



Taurama Stadium complex. Photo: © Architectural Building Elements Pty Ltd

WALLPAPER COVER-UP | TOR COATINGS

Tor Coatings was established in 1975 and with over 35 years' experience in the building coatings industry, the company is a true expert in the field.

The company has a range of proprietary internal building protection technologies – all of which are developed and manufactured at the company's site in County Durham – making them one of the few companies to offer a comprehensive range of innovative products.

The company has introduced a new product called the Zinsser Wallpaper Cover-Up, which is a smart way to paint over wallpaper. The Zinsser Wallpaper Cover-up is an all-in-one primer, sealer and stain block. It is high hiding primer that obliterates wallpaper print with a smooth off-white matt finish.



The Zinsser Wallpaper Cover-Up, a smart way to paint over wallpaper. Photo: © Tor Coatings

Advantages of the Zinsser Wallpaper Cover-Up include:

- Obliterates wallpaper print
- No stripping needed
- Prevents blistering of wallpaper
- Blocks water soluble stains
- Use under any coloured emulsion
- Ideal for all types of wallpaper and vinyl wall coverings

For more information, visit www.tor-coatings.com.



First image of the Zinsser Wallpaper Cover-Up application. Photo: © Tor Coatings



Second image of the Zinsser Wallpaper Cover-Up application. Photo: © Tor Coatings



Third and final image of the Zinsser Wallpaper Cover-Up application. Photo: © Tor Coatings

DYSON AIRBLADE™ TAP HAND DRYER | DYSON

Wash and dry at the sink with Dyson Airblade™ technology on tap.

The Dyson Airblade Tap hand dryer washes and dries hands with no need to leave the sink. Infrared sensors pinpoint hand positions and release water from the tap stem. Once hands are wet and drying is requested, integrated circuitry computes the information and activates the Dyson digital motor, creating two high velocity sheets of air on the tap's branches. Using Airblade™ technology, the Dyson Airblade Tap hand dryer sends sheets of 690km/h unheated filtered air towards hands literally scraping them dry. Hands are dry in 12 seconds.

James Dyson said: "Using laser cutting techniques to manipulate marine grade steel, Dyson engineers have created an intuitive, high performance tap. Two branches channel high velocity air to literally scrape water from hands and into the sink - not the floor".

The Dyson digital motor V4: The Dyson Airblade Tap hand dryer is powered by the Dyson digital motor V4 – a power dense brushless DC motor, utilising a bonded magnet encased in a carbon fibre sleeve. It is one of the world's smallest and fully integrated 1600W motors. Using digital pulse technology, it accelerates from 0-90,000rpm in less than 0.7 seconds.

HEPA filter: The Dyson Airblade™ hand dryer passes washroom air through a HEPA filter to remove 99.9 percent of particles the size of bacteria before it is blown onto hands.

Motor bucket design: Key components, including the motor are housed in a discrete package under the sink. Dyson engineers spent over 2,240 hours designing the motor bucket, and worked hard to contain noise – introducing springs to reduce vibration, acoustic foams to absorb noise and expansion chambers to improve sound quality.

Helmholtz silencers: Six Dyson-designed Helmholtz silencers combine to absorb tonal frequencies and reduce the motor tone. The first harmonic of the motor tone, plus the high pitch noise made by the impeller have all been contained and made almost inaudible to the human ear.

Sensor operation: Independent infrared sensors allow the user to have as much water and air as they want according to need. An aerator mixes the water and dispenses water across hands to reduce the volume of water used and the flow rate of water is controlled by motion detection.

Materials: The Dyson Airblade Tap hand dryer is made from 304 stainless steel – an anti-corrosion steel used for the construction of boats. Dyson engineers used specialised laser welding technology to weld tough steel accurate to 0.08mm, using temperatures as high as 1400°C. The laser precision means that there are almost no joining lines – air, water and electrics are contained in a smooth package at the sink.

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



USG STRUCTURAL PANEL CONCRETE SUBFLOOR | USG BORAL

A New Way to Build Floors

USG Structural Panels by USG Boral are high-strength reinforced concrete panels for use in non-combustible construction. Lighter than pre-cast or poured concrete, USG Structural Panels provide a new, easier and more efficient way to build floors. The Structural Panel Concrete Subfloor system consists of steel joists, trusses or framing members, fire resistant board that acts as a ceiling for the unit below and USG Structural Panels applied with mechanical fasteners. The result is a dimensionally stable floor assembly with superior fire performance.

A New Level of Performance

Lightweight Flooring For Modular Construction

USG Structural Panels by USG Boral provide the strength required of flooring and are truly non-combustible. Each 19mm thick, 4 feet wide and 8 feet long panel weighs approximately 68kg (approximately 23kg per square metre). When fastened to metal framing, this lightweight assembly can significantly reduce design loads (when compared to similar buildings with concrete floors), thus reducing overall building costs. This makes it a suitable product for use in Prefabricated Prefinished Volumetric Construction (PPVC) as it significantly lightens the load of the modules. When combined with cold-formed light steel framing, the lower weight of each floor may offer an opportunity to reduce the size of the structural members by up to 10 percent and the seismic design forces by as much as 20 percent.

Fast Installation – Dry Construction

USG Structural Panels install like traditional flooring but at a fraction of the weight. They can be cut easily with a circular saw (safety precautions must be observed) and fastened using self-drilling screws and a screw gun. The panels can be installed in most weather conditions (as job safety procedures permit) and immediately exposed to rain.

Dimensionally Stable

This fiberglass-reinforced cementitious panel will not swell or delaminate (less than 0.10 percent) in the presence of moisture. Tongue-and-groove joints should be fitted tightly without any gaps. Panels will not buckle or warp, even under changing temperature and moisture conditions.

Greener Building

Green building can create environmental, economic, health and community benefits. Structural Concrete Panels are formaldehyde-free and resistant to mould and termites.

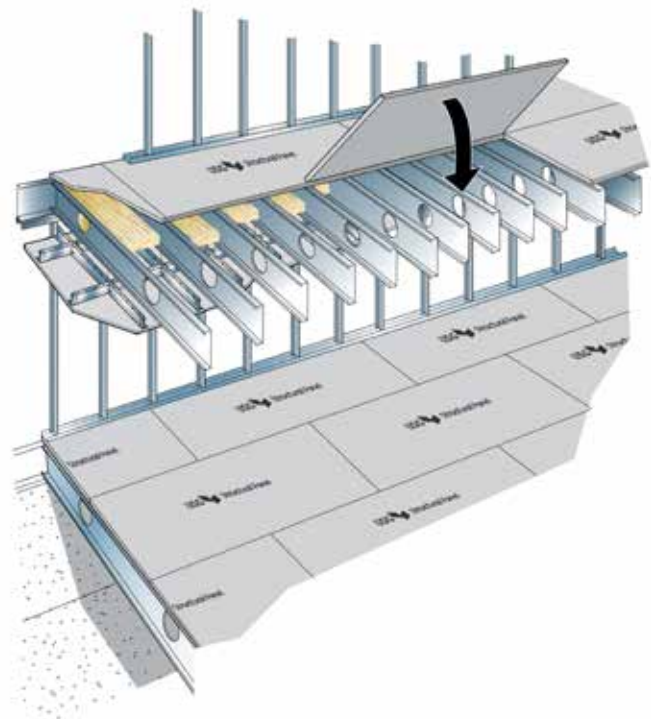
Features and Benefits

- Fire resistant. Panels meet the criteria in ASTM E136-12 for use in non-combustible Type I and Type II construction.
- Flame Spread. The panel yield a flame-spread index of 0 and a smoke-developed index of 5 or less when tested in accordance with ASTM E84 for Surface burning characteristics.
- Sound Acoustical Performance. An assembly that includes Structural Concrete Panels applied over steel framing, covered with carpet and pad, and a single-layer drywall ceiling attached to resilient channels below the framing, can achieve a sound performance rating of 56 STC.
- Mould Resistant. Independent tests by a certified laboratory confirmed no mould growth, recording a rating of 0 (zero) as tested per ASTM G21 and a rating of 10 as tested per ASTM D3273.

About USG Boral

At USG Boral, the company's focus is on delivering innovation that helps its customers work smarter, do more, and build better. USG Boral designs, manufactures and distributes high-performance yet reliable interior and exterior, lightweight building products and systems for residential and commercial environments which include solutions for walls, ceilings, facade, floors, and roof assemblies. For more information, tel (+65) 6272 9272, fax (+65) 6278 5310, email contact-us.sg@usgboral.com or visit www.usgboral.com.

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DOUBLE GLAZED BI-FOLDING WALL SYSTEM | GCC



Double Glazed Bi-folding wall system

GCC has introduced a new Double Glazed Bi-folding wall system, which is innovative, durable and aesthetically pleasing. It has passed SGS endurance test of 200,000 cycles.

Features:

- GCC new framing innovation with screws invisible design
- The quickest installation and installer-friendly design
- Noise and heat insulation
- No floor guide required
- For double glazed panel thickness less than 25mm
- Suitable for indoor and outdoor application

Specification (per panel):

	Max. height	Max. width	Max. weight
Size (mm)	3000	1000	100kg



The Double Glazed Stacking and Sliding Wall System (DGS) is another system from GCC.

For more information, contact GCC at tel (+886) 4 2258 3755, fax (+886) 2258 3753, email gcctw@ms7.hinet.net or visit www.gccintw.com.tw.

COLOURED GROUTS | MAPEI

Mapei is the first company in this sector to use sophisticated 3D imaging to study and develop the colours for its Coloured Grouts range in combination with the latest trends in tile design.

This cutting-edge research has led to the creation of a new colour chart with 50 new shades for grouts and sealants, which are also available in a transparent version. Mapei launched the new coloured grouts at Cersaie 2016.

The range is available for the following products:

- | | |
|-------------------|---------------------|
| - Ultracolor Plus | - Kerapoxy IEG |
| - Keracolor SF | - Kerapoxy P |
| - Keracolor FF | - Kerapoxy Design |
| - Keracolor GG | - MapeGlitter |
| - Keracolor PPN | - Fix & Grout Brick |
| - Flexcolor | - Mapesil AC |
| - Kerapoxy | - Mapesil LM |
| - Kerapoxy CQ | - Fuga Fresca |

The colours are also divided into five different collections: Serene, Traditional, Natural, Romance and Glamour. Mapei's aim is to make it easier to choose the right grout according to the requirements of each particular project and the personal preferences of each client.

To help display the new Coloured Grout lines, Mapei has updated the presentation folders with samples of the colours on offer, with special dedicated versions available for the world of design and for the world of retail: the first folder contains a collection of the colours available for its products Ultracolor Plus, Kerapoxy, Keracolor and Flexcolor, the second folder contains the colours for Kerapoxy CQ while the third folder contains those for Kerapoxy Design.

All the colours for all the products are also contained in a special colour chart and in a dedicated leaflet.

This really is a complete range, the only one of its kind on the market for the vastness of its range of products and the wide choice of colours. A range that meets every requirement in tile laying, whatever the surroundings, whether it is residential, commercial or industrial.

For more information, email mapei@mapei.com.sg or visit grouts.mapei.com.



The new Coloured Grouts from Mapei. Photo: © Mapei

WALL UNITS | GRUPPO EUROMOBIL

The new Freedom system of wall units, developed by Gruppo Euromobil, features original asymmetrical combinations and colour schemes for the internal and external parts of elements with hinged doors. The result is a delicate effect of juggled shapes and colours without forgetting the functionality and elegance provided by distinctive contemporary styling. Freedom is a series of units that can be integrated with all Zalf systems, extending the design possibilities and creating infinite customised solutions.

The Met grey finish created for these units is also new: it presents a texture inspired by the finish and colour of brushed sheet metal, achieved through a pressing process. The panels are in TSS thermo structured melamine and meet CARB phase 2 safety requirements (low formaldehyde emissions).

For more information, visit www.gruppoeuromobil.com.



LAMINATE FLOORING | PERGO

Pergo's latest laminate Sensation: water resistance meets drop-down installation.



Pergo has introduced another innovation in the world of laminate flooring with its brand-new Sensation range. Combining exclusive, natural designs with Pergo's trademark durability, Sensation laminate couples a fully-closed, waterproof surface with an enhanced PerfectFold™ drop-down system that enables quick and easy installation. Durability, beauty and ease of use: these are the three characteristics that lie at the core of the new Pergo Sensation laminate range. "Our goal was to introduce a high-performance, water-resistant laminate floor with a drop-down system for easy installation," commented Laurent Meersseman, R&D director at UNILIN. "Sensation is another step forward for laminate flooring," added Laurent.

Impermeable quality

UNILIN's R&D team has spared no effort to make Pergo Sensation as water resistant as possible. While a laminate surface is water repellent in itself, the joints are often not. Sensation solves this problem in two ways: first, by pressing the bevel into the plank already during production – instead of adding it afterwards; and, secondly, by adding a waterproof AquaSafe coating in the joint making the joint completely water tight.

Because the bevel is pressed down during production, the multilayer TitanX™ surface protection covers the bevels as well. This ensures a fully-closed surface and protects the floor



not only against water, but also against impact, scratches, and everyday wear and tear. This makes Sensation the ideal flooring solution for highly trafficked areas. Sensation is available in two qualities, class 32 and class 33.

‘Sensational’ authenticity

Pergo Sensation laminate isn’t just about performance. A lot of attention has gone into creating 10 unique designs that are truly ‘sensational’ in terms of authenticity. For example, the colour and texture of every design cover all parts of the plank, including the bevels between the floor boards, resulting in an unprecedented natural look. In addition, the planks feature deep, true-to-nature textures and an exclusive, matte finish. Oke Nollet, Design Director: “Details such as these truly improve the authentic look and give your floor a true-to-nature look.”

The power of imperfection

For the creation of the 10 Sensation designs, Pergo drew inspiration from trends in architecture (with materials like oxid and concrete) and fashion (in the colour palette). “One trend we highly focused on is bringing outside inside and vice versa,” explained Nollet. “Wood is used on the façade, while concrete and raw bricks have made their way into the home interior. As our lives are accelerating, we want to stay in touch with nature at home as well: hence the use of botanical prints, warm colours and lots of plants in our interiors. These influences formed the basis for our “Manor oak” and “coastal oak” designs,” he added.

Another trend that also left a mark on the Pergo Sensation

collection is the link between perfection and imperfection. Nollet said: “Today, perfect and imperfect go hand in hand: a dinner jacket with a worn-out jeans, an industrial building with a minimalist sofa ... For floors, a used, weathered look — with worm holes, cracks, knots etc. – gives it a specific character: it expresses imperfection, and makes us curious to know its story. Prime examples of this from the new collection are our “Scraped vintage oak” and “urban grey oak” designs.”

Pining for Scandinavian design

Scandinavian design, with pine as the preferred wood species, remains very popular as well. It is no coincidence that “brushed white pine” is one of the designs that stands out in the new Sensation collection.

Fast and easy installation

Besides offering high durability, Pergo flooring products also have an excellent reputation when it comes to ease of use. Sensation is no different. The PerfectFold™ 3.0 drop-down system enables users to click the planks together in no time using three different methods, including horizontal insertion. As a result, laying these floors is easier than ever, even in places where it is difficult or impossible to tilt the planks, i.e. underneath door frames or radiators. With PerfectFold™, there is no risk of damaging the planks during installation either.

For more information, visit www.pergo.com or contact Teek Leng Sow at tel (+60)12 4132469 or TeekLeng.Sow@unilin.com.

About Pergo

Ever since Pergo invented laminate flooring back in 1977, it has never stopped perfecting it. Over the years, innovative thinking has significantly broadened its portfolio of laminate and, more recently, added wood parquet and vinyl flooring solutions. Having joined forces with the UNILIN Group in 2012, its product offering has become one of the most comprehensive on the market.

KÖMMERLING PERGOLA | PROFINE GROUP

New to the programme: profine offers a pergola set with 16 model variants.

Along with the expansion of their Business Unit for Accessories and Traded Goods "ATG", the profine Group extends its programme for house and window solutions.

A new addition to the ATG delivery programme is a pergola set that has been available to the German market since July 2016 under the product name "Kömmerling Pergola". A corresponding exhibit that was presented by the system provider at the Fensterbau/Frontale exhibition received positive resonance from the exhibition visitors.

The primary material of the pre-configured set is low-maintenance aluminium. Steel is used where necessary at structurally relevant points. The pergolas are up to 7 metres in width, depending upon the variant, the headroom is 2.5 metres.

At the launch, profine offers 16 model variants with the same roof construction but with differing basic structures. These can be customised in various ways, for example by adding side components like blinds, sliding shutters and glazing, as well as powder coating in over 300 colours.



At the launch, profine offers the "Kömmerling Pergola" in 16 model variants with the same roof construction. The "Helios" model is shown here as an example. Photo: © profine

Individual variants

The customer can also set accents with other technical and constructive adaptations. For example with spots integrated into the slats, with LED strips at the sides or with spotlights in the roof frame. Adjustable roof slats, to regulate direct sunlight, shade and protection from rain as required, are the same for all variants.

The slats and screens are operated by remote controlled motors but can also be optionally controlled by sensors. The sensors react to light, wind and temperature. With this option, the slats open at 4° Celsius for example, in order to protect the pergola from a heavy build-up of snow. Other options include concealed drainage and remote control of the lighting system using the remote control for the slats.

Delivery and assembly

Window makers and dealers have the option of having the pre-configured pergola set delivered either on pallets or in cassettes along with their regular delivery of profiles. It is also possible to deliver directly to the building site.

profine has also thought ahead on the subject of assembly: No special tools are required by the specialist company to assemble the pergola and assembly training and marketing support are also offered by the system provider. Last, but not least, the option of an assembly service by profine is also in the planning phase.



Pergola Stratus.
Photo: © profine



Pergola Lux Integral.
Photo: © profine



Pergola Eole. Photo: © profine



Pergola Verteiler. Photo: © profine

For more information, contact profine Hongkong Co., Ltd. at tel (+852) 5628 9909 or email profineHK@profine-group.com. You can also visit www.koemmerling.com.



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WATER AND WASTE MANAGEMENT | SUEZ

Faced with urban population growth, global warming and changing regulations, optimising the performance of sewer and stormwater networks is a priority for local authorities.

Responding to this challenge, SUEZ is launching AQUADVANCED® Urban Drainage (AQUADVANCED® is a registered trademark or a trademark under pending application.), a digital solution that allows local authorities to monitor in real time their sewer and stormwater networks to mitigate the risk of flooding and to control the quality of discharges into the natural environment.

Rising urbanisation and the increase of impermeable surfaces in urban areas have reduced the natural infiltration of stormwater into the soil to 15 percent. The remaining 85 percent flows on the surface, collecting the residues deposited on roofs and roads (fuel, heavy metals, plastics, etc.). Local authorities are faced with the challenge of collecting these polluted waters in the sewerage networks, and of treating them later into wastewater treatment plants to reduce the risks of severe flooding, human and material damage and pollution of the natural ecosystem. Stormwater is responsible for 50 percent of the pollution flowing into rivers and beaches in urban areas.

Aquadvanced® urban drainage to better manage sewer and stormwater systems, prevent flooding and preserve the quality of the receiving water bodies. In response to these challenges, SUEZ is launching AQUADVANCED® Urban Drainage, a digital solution that helps local authorities to manage their sewer and stormwater systems. The tool allows to choose the solution that best meets their needs, from the monitoring of an environment (rivers, the sea, sewerage networks), to the anticipation of flooding events and pollution of the natural environment, and the predictive and dynamic management of the complete sewerage system.

AQUADVANCED® Urban Drainage provides a global, real-time vision of the complete system, based on data from sensors installed both in the network and in the environment (rivers, watercourses, etc.) and on short-term weather forecasts. By centralising and analysing all these data, the software solution can anticipate the hydraulic performance of the network (saturated storage capacities, volumes to be treated, etc.) or of the natural ecosystem (risk of pollution or overflowing watercourses). For certain sewerage systems, the tool can also calculate the best control strategy, and automatically and remotely monitor the system's facilities (storage reservoirs, pumping stations, etc.).

AQUADVANCED® Urban Drainage anticipates the risk of untreated wastewater overflowing into the natural ecosystem, monitors the quality of discharge on a daily basis and helps to protect the environment. Deploying this system can cut the volumes of stormwater that flow into rivers or the sea by up to 45 percent.

The AQUADVANCED® Urban Drainage was presented at the Singapore International Water Week (10-14 July 2016). It has been already introduced in eight European cities, including Bordeaux, the Paris conurbation, Marseille and Barcelona.

For more information, visit www.suez-env.com.



Photo: © SUEZ

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