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March / April 2022

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SOUTHEAST ASIA BUILDING

The Technology Issue

Digitalization in Architecture

ON THE COVER

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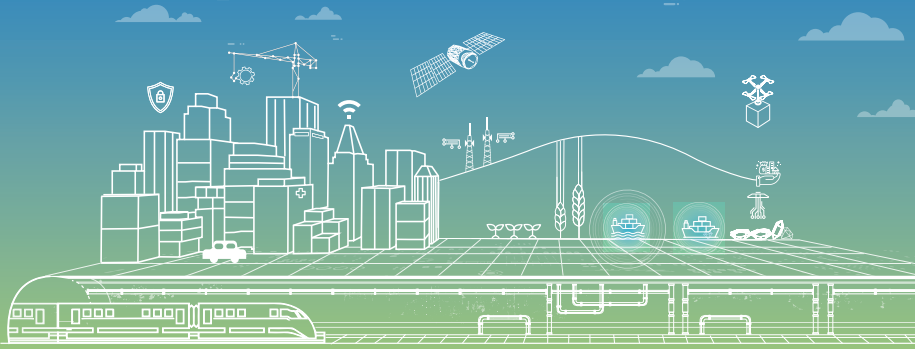


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For exhibition enquiries, please contact Mei Shyan Boo +65 98804126 mei@montgomeryasia.com



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On the Cover: Asian Institute of Chartered Bankers in Kuala Lumpur, Malaysia. Photo: © GDP Architects SDN BHD and photographer Adaptus Design Systems SDN BHD

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Welcome to Mar/Apr issue!

When planning the media kit last year, we asked many of our readers – primarily architects – on what they would like to read from us. Almost all of them said Technology and therefore we decided to explore the impact of Digitalization on the building and construction industry in this issue.

Digital tools like BIM and 3D visualizations are changing the way architects design spaces. They provide many benefits such as time and cost savings and better-looking designs. Many projects around the world are being designed with the aid of BIM and we have showcased some of these projects in this issue.

We have also lined up several interviews with leading architects who share with us the various ways BIM benefits them and how BIM is used in the building and construction industry for example to create sustainable buildings.

I hope you enjoy reading this issue as much as we enjoyed putting it together. Our product showcase section is in the PDF copy. Don't forget to download it from our website: seab.tradelinkmedia.biz.

Amita Natverlal

MAY/JUNE 2022 ISSUE

The Green Issue: Net-Zero Carbon Buildings

This issue explores the strategies to build smart, net-zero carbon building and why they matter in times of increasing urbanization. Includes projects, trends and experts' opinion.

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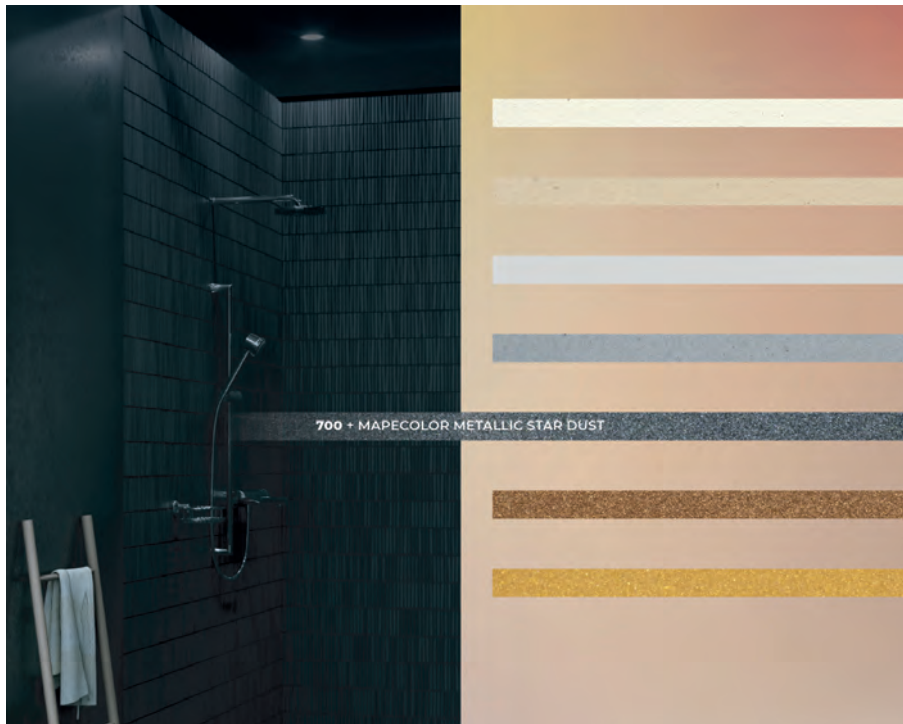


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Kerapoxy Easy Design – Mapei's decorative epoxy grout with more colour and metallised options



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OUT MORE ABOUT
KERAPOXY EASY DESIGN

Singapore – Mapei has introduced its new and improved epoxy grout with high aesthetic qualities for interior and exterior design.

Kerapoxy Easy Design is a two-component, epoxy resin-based decorative grout ideal for grouting ceramic tiles, glass mosaics and stone materials. It is suitable for grouting joints 1 to 15mm wide and can be used as an adhesive.

Kerapoxy Easy Design possesses superior qualities of improved adhesion and no vertical slip. It has excellent resistance to acids and chemicals. It also comes with a bacteriostatic agent that protects against the formation and proliferation of micro-organisms (certified according to ISO 22196:2011) and the formation of mould on surfaces of grouts, making tiled surfaces hygienic and safe. Kerapoxy Easy Design complies with HACCP system and the requirements of EC Regulation on the hygiene of foodstuffs. Furthermore, it has very low emission of volatile organic compounds (VOC) and is classified Ecodecode EC1 Plus by GEV when used for grouting. All these factors keep the environment healthy.

Kerapoxy Easy Design has good workability due to its creamy consistency that promotes faster application. The finish is smooth and compact that is non-absorbent with no shrinkage and no cracks. Its properties of high mechanical strength, resistance to UV rays and atmospheric agents ensures durability and quality.

The wide range of colours brings out the best from any tile system. To achieve an enhanced aesthetic effect, Kerapoxy Easy Design may be combined with MapeGlitter or Mapecolor Metallic. MapeGlitter is a metallised coloured glitter available in silver and gold. The percentage of mix depends on the aesthetic effect and workability desired. Kerapoxy Easy Design may also be mixed with Mapecolor Metallic, a powder pigment based on a very high-quality pearlescent mica, to create a metallic effect. The mix result in metallic effects with different intensity and shades. Mapecolor Metallic is available in 5 colours: Moonlight (similar to platinum), Sahara (similar to gold), Shining (similar to silver), Red clay (similar to copper) and Stardust (similar to dark silver).

Kerapoxy Easy Design can be used as decorative grouting for internal and external tiled floors and walls, worktops, etc. It is highly recommended to grout decorative coverings in environments with high aesthetic value such as homes and commercial environments. Kerapoxy Easy Design can even be used for installing and grouting tiles in damp environments such as showers, bathrooms, swimming pools and thermal facilities like spas. The product is also suitable for an acid-resistant bond and grout to all substrates normally used in the building industry.

Aedas-designed ENOC Future Station Dubai recognised at the A&D Awards 2021

Hong Kong – ENOC Future Station designed by Global Design Principal Ignacio Gomez wins Silver Award under Best Transportation at A&D Awards 2021.

ENOC Future Station is a Petrol Station of the Future located at the Dubai Expo 2020 Site. With sustainability as its primary goal, the project employs principles from bio-mimicry, designing and producing materials that are modelled on biological entities. The service station received the LEED platinum certification – world's first station to receive such honour – validating its performance on metrics such as energy savings, water efficiency, CO2 emissions, etc.

As a true pioneer in fuel retail, it is also the first station in the region to incorporate an on-grid wind turbine for power generation and carbon fibre in the construction of its canopy. An approach which traffics into the past as well as the



Photo by ENOC Group (Photo provided by Aedas)

future, the design nods at nature as well as local historical context, by taking the Ghaf Tree as the Canopy's inspiration. As an endemic species, the Ghaf is a symbol

of sustainability, linking the past to the present and providing a perfect basis for design of an innovative, futuristic and sustainable petrol station.

Soon Su Lin named new CEO of Frasers Property Singapore

Singapore – Frasers Property Limited ("Frasers Property" and together with its subsidiaries, the "Group"), announced the appointment of Soon Su Lin as Frasers Property Singapore's new Chief Executive Officer (CEO) on 24 January 2022.

In this position, which she will assume 1 April 2022, Ms Soon will report directly to Panote Sirivadhanabhakdi, Frasers Property's Group CEO, and will be relocating back to Singapore. Ms Soon will oversee the Singapore operations which comprises Frasers Property Retail – a retail-focused platform – as well as commercial and residential businesses.

"Frasers Property Singapore remains a resilient and important business of the Group. Su Lin has been my choice to take on the Singapore leadership role with her deep knowledge of the real estate landscape. She brings with her a wealth of leadership experience

in development and investment, sharp insight and a strong track record of delivery. She is a great believer in Frasers Property and the role we play in this part of the world. I look forward to supporting her in the transition to her new role," said Panote Sirivadhanabhakdi, Group CEO, Frasers Property.

Ms Soon currently serves as the CEO, Development, Frasers Property (Holdings) Thailand (FPHT), a wholly owned subsidiary of Frasers Property, where she oversees the full spectrum of property development from master planning and concept development to design, construction, project branding, marketing, leasing and sales strategies and investment matters. She leads the development of One Bangkok, a fully integrated mixed-use lifestyle district, and the largest private sector property development under construction in Thailand with a total GFA of over 20



Soon Su Lin. Photo courtesy of Frasers Property Singapore

million square feet. It is a joint venture between FPHT and TCC Assets (Thailand) Co., Ltd. She also led the development and asset management of The PARQ,

the first LEED and WELL Gold certified mixed-use development in Thailand, with a total gross floor area of more than 1.4 million square feet, which completed in 2020.

Ms Soon said: "It is a privilege to be asked to next lead and grow the Singapore business. Frasers Property has a strong and established presence in Singapore with continued potential for growth. I am grateful to be in a company that believes in delivering inspiring experiences for our people,

customers and partners and in making a positive impact in the built environment. I look forward to returning home to continue working with Panote and the senior management team, and to lead a strong team as we continue building a more resilient, future-ready real estate business in Singapore."

Ms Soon has over 30 years of experience in the real estate industry, covering consultancy, investment sales, leasing and property development. Before joining the Group in 2017, Ms

Soon was the CEO for Orchard Turn Developments, which developed and operated the ION Orchard retail mall and The Orchard Residences in the heart of Singapore's Orchard Road. Soon was previously Executive Director of international property consultancy firm CBRE. Ms Soon holds an honours degree in Real Estate (previously Estate Management) and a master's degree in Business Administration, specialising in Marketing and International Business from the National University of Singapore.

JERDE hires Peter Priebe as Chief Executive Officer and elevates Phil Kim to Board Chair

Singapore – JERDE (The Jerde Partnership), an iconic and internationally renowned architecture and urban planning firm, announced that Peter Priebe has replaced Paul Martinkovic as Chief Executive Officer, who has retired after 32 years at the firm. The news came after the announcement of Phil Kim, Managing Director, Asia Pacific who was elevated to Chair of the company's Board of Directors, as well as Mark Liu, Managing Director, China to Board Secretary.

Priebe comes to JERDE from WATG, a large global architecture firm with projects in 160 countries, where he was Chief Operating Officer. He has also served as WATG's Chief Financial Officer and Interim Chief Executive Officer. Prior to joining WATG, Priebe worked at Stantec, a publicly traded planning, engineering and architecture firm where he was corporate controller. "We are incredibly fortunate Peter accepted our offer to become JERDE's Chief Executive Officer. It was important for us to find an internationally respected business executive with the global experience needed to lead our firm," said Phil Kim, Chairman of JERDE. "In addition to his vast experience, Peter's inclusive approach brings renewed energy to our company at a time when we are looking to grow, in a time of great change."

"In our industry JERDE has a stellar reputation for innovative design, creating some of the world's most memorable places," said Priebe. "We have an incredible pool of talent, and I am looking forward to leveraging that expertise to help developers not only create great places, but unlock value in every square foot of design. I am beyond excited to take the baton from Paul. We are definitely, over the next two to three years, looking at diversification and growth to keep up with our clients' demands. We see an opportunity to double down in Singapore to anchor our presence in Hong Kong, Seoul and Ho Chi Minh city, and grow our business and client based across Asia."

Phil Kim and Mark Liu continue to drive the firm's presence in Asia and beyond

A Shareholder and Managing Director of Asia Pacific, Kim leads JERDE's operations in Japan, Korea, Hong Kong, Australia



Phil Kim. Photo: © JERDE



Peter Priebe. Photo: © Ringo Chiu

and S.E. Asia, while Liu serves as the General Manager of JERDE's Shanghai office, growing the firm's presence to brand success in the mainland China market. "Phil and Mark both bring a deep knowledge and history of success guiding projects in North America, Asia, and around the world," said Eduardo Lopez, Design Principal and Shareholder of JERDE. "Their global experience will help navigate the firm and our expanding workload as businesses continue to re-emerge from the pandemic."

As an industry leader with the Urban Land Institute, Kim is a Global Governing Trustee, Co-Chair of the education initiative UrbanPlan, and Chairman of the Hong Kong Council. He expands the firm's vision of experiential placemaking around the world, and is a favoured speaker at conferences all over the world on topics of urban mixed-use environments, retail, urban revitalization, precinct strategy, vertical cities, and the sustainable value of place. "Phil's institutional background, nuanced thinking, and stability contribute are ideal qualities for our Board Chair. Phil knows what works in North America may not work in Asia or Latin America and vice versa," said Lopez.

The Ambassador Seoul – A Pullman Hotel reopens after top to bottom renovation

Seoul, South Korea – Pullman Hotels & Resorts announced the highly-anticipated reopening of The Ambassador Seoul – A Pullman Hotel after a comprehensive 18-month renovation. Since first opening in 1955, the hotel has been a pioneering force in the country's hospitality scene, renowned for its heritage and welcoming service. With a fresh new style and name, The Ambassador Seoul – A Pullman Hotel continues to drive enriching experiences in the Korean metropolitan city.

Located in the heart of Seoul, the hotel offers panoramic views of the iconic landmark Namsan N Tower and boasts easy access to city hall, central business districts and Gangnam. The Pullman brand's vibrant energy can be felt throughout the property, including the new fourth floor outdoor swimming pool where guests can recharge and refuel.

Garth Simmons, CEO of Accor Southeast Asia, Japan and South Korea, said: "We are delighted to reopen The Ambassador Seoul – A Pullman Hotel and welcome our guests back with an inspiring and energizing atmosphere perfect for a metropolitan destination such as Seoul. The refurbished hotel promises to deliver an upbeat experience and a hyper-connected space in the centre of vibrant Seoul, where history and modern culture intertwine. The Ambassador Hotel Group has been our honourable partner for 35 years, and we are delighted to bring this

property to life once again. With our local expertise and know-how, this heritage hotel will undoubtedly further enrich the city's hospitality landscape."

The Ambassador Seoul – A Pullman Hotel incorporates design and colours inspired by Namsan Mountain's four seasons. Exclusively curated for VIP guests, the Club Ambassador Lounge offers private check-in, check-out services, and a happy hour with attentive service to work and relax in comfort.

The property's six restaurants and bars are the most notable features in this refurbished hotel. The King's, a restaurant which has always been a fan favorite since its opening as the first hotel buffet in South Korea in 1975, returns with its traditional and authentic Korean, Asian and European brasserie-style fare, as well as the buffet's signature Peking duck and king crab with various menus. The Lounge & Bar located on the first floor serves a stylish afternoon tea and signature cocktails in a traditional Korean settings with a modern interpretation. Hao Bin offers traditional and authentic Cantonese cuisine made from the finest ingredients, for a selection of healthy dishes curated by Hao Bin's Master Chef, Hou Deokjuk. 1955 Groceria, the gourmet grocery dining concept, offers fresh produce, charcuterie, hotel-branded products, and takeaway menus. The Pool House Terrace is a semi-rooftop space where guests can savor brunch and light snacks



Photo courtesy of The Ambassador Hotel Seoul – A Pullman Hotel.

poolside in an exotic atmosphere.

A standout feature for the meetings and events crowd is the hotel's Namsan Room, located on the 19th floor, a creative meetings and events space adorned with a dome-shaped glass window. A connecting room allows for further versatile meetings and events. In addition, five meeting rooms of various sizes are available for business and private events. The Grand Ballroom can accommodate up to 400 people, while The Board Room and Legacy Room provide the perfect space for private events or meetings.

The hotel's wellness centre features modern amenities and programs including an indoor swimming pool, an indoor golf driving range, a fitness, yoga and Pilates studio, and sauna facilities. Professional trainers are available to support guests with their exercise routines through various personalized training programs, while the Kids Room will delight families during their stay.

The largest ibis Styles in the world set to open in Thailand

Bangkok, Thailand – Accor, one of the world's leading international hotel operators, has signed a management agreement with Golden Asset Company Limited to open ibis Styles Bangkok Twin Towers. The initial phase of the hotel is set to debut in quarter-three 2022 with the 666-key hotel set to become the largest ibis Styles property in the world upon its official opening in 2024.

ibis Styles Bangkok Twin Towers will be located in the city centre within a short distance to business districts and shopping landmarks such as MBK, Siam Paragon and Siam Discovery. The hotel offers convenient access to the Old Town, cultural attractions and the airports. Following the refurbishment, the rebranded property will offer three restaurants, collection of meeting rooms, an outdoor swimming pool, fitness centre, and spa.

LWK + PARTNERS wins four International Design Awards 2021

Hong Kong – LWK + PARTNERS has announced that four projects have won The 15th International Design Awards 2021, one of the industry's most respected and well established global design awards. On receiving the prestigious award once again, LWK + PARTNERS is deeply grateful for the recognition it receives for elevating human experience and spreading positive influence to people and communities around the world.

MixC Dongguan Songshan Lake District Mixed Use Development, Dongguan, China

Architecture Categories – Conceptual (Honorable Mention)

Designed by Ferdinand Cheung's team, this mixed-use project is conceived as a catalyst of urban transformation from sub-urban industrial landscape to a robust lifestyle and cultural hub. It seeks to serve the community with high-quality apartments, ample and energising public spaces, as well as convenient commercial facilities.



MixC Dongguan Songshan Lake District Mixed Use Development, Dongguan, China. Photo: © LWK + PARTNERS

Zijing Paradise Walk, Hangzhou, China

Architecture Categories – Retails, Shops, Department Stores, Mall (Honorable Mention)

Also designed by Ferdinand Cheung's team, this shopping mall takes inspiration from the local Hui-style architecture with a culture and wellness theme and features a diverse mix of retail and community amenities housed in interlocking spaces. The shifting and cantilevering of forms not only offer a series of hanging gardens, but also generous sheltered space along pedestrian sidewalks.



Zijing Paradise Walk, Hangzhou, China. Photo: © LWK + PARTNERS

Aoti Vanke Centre, Hangzhou, China

Architecture Categories – Commercial Building (Honorable Mention)

This innovative working hub challenges conventional workspaces by externalising human activities to a fluid and highly permeable field of semi-outdoor space. Ferdinand Cheung's team designed this project around a central courtyard and reinterprets the podium-tower typology by rotating each level of its elevated podium to a different degree to create myriad walk spaces for people's enjoyment.



Aoti Vanke Centre, Hangzhou, China. Photo: © LWK + PARTNERS

The Riviera Sales Gallery, Shantou, China

Architecture Categories – Museum, Exhibits, Pavilions and Exhibitions (Honorable Mention)

This sales gallery impresses visitors with a bespoke façade design inspired by the elegant form of traditional Chinese folding fans, giving rise to a picturesque envelope. The building mass is strategically subtracted to open up a wide, progressive archway for a slanted roof that descends from height towards the water.



The Riviera Sales Gallery, Shantou, China. Photo: © LWK + PARTNERS

LTA Awards civil contract for design and construction of Pasir Ris East Station under Cross Island Line Phase 1

Singapore – The Land Transport Authority (LTA) has awarded the civil contract for the design and construction of Pasir Ris East station, under the first phase of the Cross Island Line (CRL1), to Singapore Engineering & Construction Pte. Ltd. – Sinohydro Corporation Limited (Singapore Branch) Joint Venture. This contract is valued at around \$363 million.

Singapore Engineering & Construction is one of Singapore's most established civil engineering and construction specialists. The company's previous projects included the construction of Tai Seng Facility Building which serves the Downtown Line and the widening of Keppel Viaduct.

Sinohydro Corporation Limited is a hydropower engineering and construction company which has been involved in a wide range of infrastructure works locally and abroad. The company is currently constructing Napier and Marina South stations for the Thomson–East Coast Line.

Construction works for the CRL1 Pasir Ris East station are expected to start in the second quarter of this year, with passenger service expected to commence in 2030.

CRL1 Pasir Ris East station is located along the busy roads of Pasir Ris Drive 1, in the vicinity of residential blocks and community amenities. To mitigate the impact to residents and motorists, staggered stages of traffic and utilities diversions will have to be implemented to facilitate the construction works. Safety measures will be taken when carrying out Earth Retaining and Stabilising Structure and excavation works, which are expected to be approximately 25 metres deep, to ensure stability of the ground and surrounding structures. LTA and the contractor will closely monitor the works to ensure that they are carried out safely with minimal impact to the nearby stakeholders.



Artist Impression – CRL1 Pasir Ris East station. Photo credit: LTA

Surbana Jurong Group ranks 14th among architecture firms globally

Singapore – The World Architecture 100 (WA100) 2022 has ranked Surbana Jurong Group 14th among the world's top architecture and design firms in terms of the number of fee-earning or registered architects employed. Surbana Jurong Group currently employs over 1,000 employees in its architecture and design practice worldwide, including 639 architects. According to the WA100 2022 survey, the Group employs the highest number of architects in Southeast Asia and is one of only two Singapore-headquartered firms listed in the ranking.

An annual ranking of the world's largest architecture practices, WA100 is published by Building Design, a leading source of news and insights that keep architects up to date with key issues affecting their profession. As a global urban,



Connect@Changi (credit: Connect@Changi)

infrastructure and managed services consulting firm, Surbana Jurong Group is already recognised as one of the world's top multidisciplinary consultancies. The Group was ranked 24th in the 2021 ENR Top 225 International Design Firms. The Group's design and architecture business includes Atelier Ten, an award-winning environmental design consultancy specialising in sustainable and innovative design solutions; SAA Architects, one of Singapore's leading architecture firms; and Sino-Sun, one of China's top privately-owned design firms. Another member company, B+H, a global architecture and design firm headquartered in Toronto, ranks 67th in WA100 2022. Together with its member companies, Surbana Jurong offers best-in-class, sustainable architectural and design services for urban and infrastructure projects globally.

Mr Wong Heang Fine, Group Chief Executive Officer of Surbana Jurong



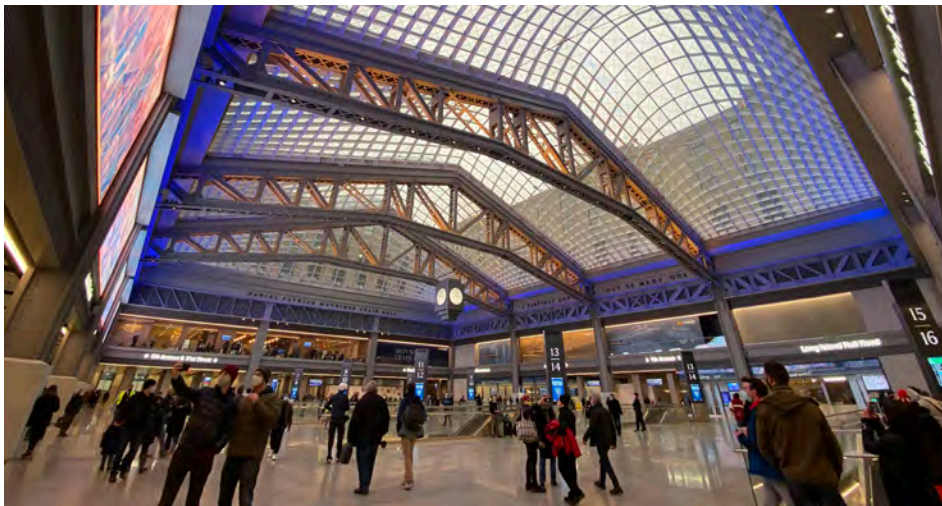
Golden Waterfront City (credit: SAA Architects)

said: "These rankings reflect our focus on building design talent across the group. While we continue leveraging individual brands and their unique advantages, we're tapping on

our collective strengths, scale and resources to give our talent access to project opportunities around the world. We're also investing in advanced tools to enable them to drive innovation and sustainability in the built environment. The WA100 2022 rankings demonstrate our progress in this endeavour."

Notable projects which the Group completed in 2021 include Connect@ Changi, the world's first purpose-built short-stay and meeting bubble facility designed to support safe business exchanges, that is now used as a COVID-19 Treatment Facility; Golden Waterfront City, an urban planning project by SAA to create an integrated waterfront city in Putuo, Shanghai; 601 West Hastings, one of downtown Vancouver's most striking commercial developments designed by B+H, and Moynihan Train Station in New York, the redevelopment of a historic building where Atelier Ten is leading its sustainability design to achieve a Leadership in Energy and Environmental Design (LEED) gold certification.

Mr Lee Kut Cheung, Chairman of Surbana Jurong's Global Architecture and Design Council, said: "The collective expertise and experience of Surbana Jurong Group's architects and designers enable us to compete with other international firms and offer the best creative services to our clients. To nurture and develop our talent, we foster a culture that enriches and engages them, inspires them to discover new design solutions and encourages them to share knowledge."



Moynihan Train Station (credit: Atelier Ten)



601 West Hastings (credit: B+H)

CapitaLand, Mitsui and Tokyo Tatemono mark the official opening of 79 Robinson Road

Singapore – 79 Robinson Road, the latest Grade A office development in Tanjong Pagar central business district (CBD) near the upcoming Greater Southern Waterfront, marked its official opening on 14 January 2022. The opening ceremony was officiated by Mr Desmond Lee, Minister for National Development & Minister-in-Charge of Social Services Integration before an audience of about 100 persons who took part in-person or virtually, including representatives from the building owners, consultants, contractors and tenants.

The 29-storey building with a net lettable area of about 518,000 square feet is jointly owned by CapitaLand Investment Limited (CLI), Mitsui & Co., Ltd. and Tokyo Tatemono Co., Ltd. Designed by American firm Gensler in collaboration with Singapore's DCA Architects, it is a recipient of the Building and Construction Authority (BCA) Green Mark Platinum Award – one of the highest green accolades for buildings in Singapore.

79 Robinson Road is home to some 16 multinational companies from diverse sectors such as banking, legal, insurance & financial services, business consultancy, IT, aviation, media and telecommunications. They include Allianz, BOC Aviation, EFG Bank, Equinix, Ericsson, Howden Insurance, Landesbank Baden-Württemberg and William Grant & Sons. The Sky Village on Level 27 and Level 28 – an exclusive duplex office space curated for a single tenant – is occupied by Boston Consulting Group.

Complementing the building's core workspace offerings, Bridge+, CapitaLand's flexible workspace and community platform, operates 56,000 square feet of collaborative spaces at 79 Robinson Road that are also accessible by tenants of the building. To date, 79 Robinson Road has secured close to 93 percent in committed occupancy.

Mr Chris Chong, CEO of Retail and Workspace (Singapore and Malaysia), CLI, said: "The successful completion of 79 Robinson Road during COVID-19 would not have been possible without the support



79 Robinson Road, the latest Grade A office development in Tanjong Pagar, marked its official opening today. At the ceremony, guest-of-honour Mr Desmond Lee, Minister for National Development & Minister-in-Charge of Social Services Integration (first from left) slotted a piece of acrylic to complete a building sculpture in the likeness of 79 Robinson Road. He was accompanied by (from left to right): CapitaLand Investment Group CEO Mr Lee Chee Koon, Tokyo Tatemono Asia Managing Director Mr Ryutaro Nishimura, Mitsui & Co. (Asia Pacific) CEO Mr Koji Nagatomi and CapitaLand Investment Chairman Mr Miguel Ko. Photo: © CapitaLand

of the authorities and our joint venture partners Mitsui and Tokyo Tatemono. We are delighted that our esteemed tenants have chosen this building as their new address, attracted by its excellent connectivity, premium building specifications, sustainable features, core-flex offerings and strong focus on wellness and community. We are heartened by the strong leasing interest in 79 Robinson Road, as well as in the newly completed CapitaSpring, which reflects CapitaLand's ability to meet evolving workspace needs amidst robust demand for quality workspace in prime CBD locations."

Mr Shinichi Kikuchihara, Chief Operating Officer of Corporate Development Business Unit, Mitsui & Co., Ltd., said: "79 Robinson Road marks our second collaboration with CapitaLand in Singapore after Galaxis in one-north, and we are very pleased with the success we have achieved through the partnership. Together with our joint venture partners, we warmly welcome our tenants to this new office landmark in Singapore's CBD."

Mr Fumio Tajima, Managing Officer and Overseas Business Division Director of Tokyo Tatemono Co., Ltd., said: "79 Robinson Road marks our first joint venture project in Singapore and a Grade A office development in the CBD, which we've worked on hand in hand with CapitaLand and Mitsui. As work norms change, an office has to be more than



79 Robinson Road is a 29-storey building with a net lettable area of about 518,000 square feet. It is a recipient of the Building and Construction Authority (BCA) Green Mark Platinum Award – one of the highest green accolades for buildings in Singapore. Photo: © CapitaLand

just a workspace to attract and retain talented individuals. We are therefore pleased to integrate lush greenery, community spaces and environmentally friendly features here in order to create more holistic and fulfilling workplace experiences for our tenants."

Javier Quintana de Uña selected as CTBUH's new Chief Executive Officer

Chicago, USA – Javier Quintana de Uña has been selected as the next CTBUH Chief Executive Officer.

An architect with a Ph.D in Tall Buildings, he has been a leader of an award-winning global architecture firm, dean of a prominent academic institution, head of a successful non-profit research foundation, and a passionate and committed leader at CTBUH over the years – all of which make him an ideal fit for advancing CTBUH's strategic priorities.

As a deeply involved member and leader at the Council over the years, Javier was honoured in 2020 as a CTBUH Fellow for his exemplary work in the industry and for his many contributions to the Council. His loyalty to the mission of our organization, his leadership of the CTBUH UK chapter, his commitment and conscientiousness, and his exceptional professional and academic background make him ideally suited to take on this new role and guide CTBUH through its next genuinely exciting chapter.



Javier Quintana de Uña. Photo courtesy of CTBUH.

goettsch partners completes Mennica Legacy Tower in Warsaw

Chicago, USA – Global architecture firm Goettsch Partners (GP) announced the completion of Mennica Legacy Tower, a new 115,000-square-metre, two-building office complex in Warsaw anchored by mBank, one of Poland's largest banking institutions, and leading co-working provider WeWork. Located at the intersection of Prosta and Żelazna streets in the CBD, the 35-storey and 10-storey office buildings open to a large, landscaped plaza, with a pedestrian path that winds between them. The project was developed by an affiliate of Golub & Company LLC and Mennica Towers GGH MT Sp z o.o. S.K.A., and delivered in collaboration with Epstein, a design firm with offices in both Chicago and Warsaw that served as the architect and engineer of record, as well as the structural and MEP design engineer.

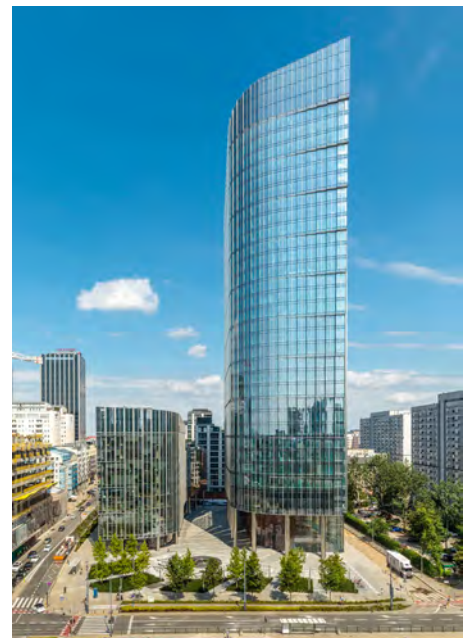
Part of a newly approved master plan in the CBD of Warsaw, the development is divided into the taller main tower on the east side of the site and the smaller building on the west side. The project includes approximately 80,000 square metres of Class A office space, a conference centre, fitness centre and ground-level retail, as well as four levels of underground parking and ancillary services. Large, public open

spaces around and between the two structures provide outdoor seating and a variety of landscape features.

"The project is much more than a signature new office complex," said James Goettsch, FAIA, chairman and co-CEO at GP. "Integrally connected to its central urban plaza, the development creates a unique 'sense of place' that enhances the public realm of Warsaw."

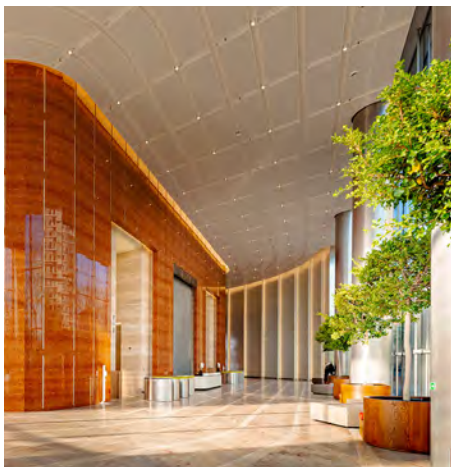
The overall massing and shape of the complex was guided by the local master plan. More than 60 percent of the site is dedicated to outdoor public areas, exceeding the plan guidelines. The stepped arrangement of the two buildings, as well as the sculpted, sloped top of the tower, specifically respond to requirements that allow daylight into adjacent residential buildings.

The main tower features rounded corners on the northeast and southwest sides that help to reduce the visible length of the east and west facades; on the opposite corners, the tower incorporates a strong vertical edge. The southeast and northwest corners are each further distinguished by a vertical recess that breaks up the building's mass and introduces a dominant feature. The southeast corner, in particular, steps outward in three-floor increments as



Mennica Legacy Tower looking north. Photography credit: © Sebastian Deptuła, Anatomia Formy

it rises, opening the recess to the sky and creating a dynamic profile that becomes a glowing beacon at night. A sloping screen wall at the building's top enhances the profile, and the textured, saw-toothed facades give the enclosure an ever-changing appearance



Mennica Legacy Tower Lobby. Photography credit: © Sebastian Deptuła, Anatomia Formy

as one moves around the building.

"The tower's unique profile helps define it as a city landmark," says Joachim Schuessler, GP design principal. "Its stepped, curved façade further distinguishes it in the skyline from all angles.

A three-storey lobby with a cable-supported enclosure utilizes a transparent glazing that blurs the boundary between interior and exterior space. The tower core is clad with large stone slabs that accentuate the solid mass of the core, in contrast to the lightness of the building's lobby. The 2,000-square-metre tower floor plate provides an almost column-free

space with 11- to 13-metre lease spans and a 1.35-metre planning grid.

The complex's triple-glazed, high-performance facade with integrated operable panels supplies fresh air to occupants and combines state-of-the-art building enclosure technology with an appealing aesthetic. Large landscaped outdoor terraces on the fifth level of the main tower and the eighth level of the west building provide exterior amenity spaces with sweeping views that engage the city.

Officially completed in November 2020 with photography recently released, the complex marks GP's first completed project in Poland.

Vietnam Green Building Council rejoins WorldGBC

London, UK – The Vietnam Green Building Council (VGBC) has rejoined the World Green Building Council (WorldGBC) as a Prospective member.

VGBC was established in 2007 by WorldGBC Founding Members, and is recognised as the first non-profit organisation to promote green and sustainable buildings and construction in Vietnam. Derived from a programme of Green Cities Fund, Inc. (an international non-profit organisation based in California, USA) the Green Building Council (GBC) has grown significantly and now supports a wide professional network throughout the country. In addition to this, VGBC was officially recognised by the Ministry of Construction of Vietnam in March 2009.

VGBC is working towards its vision – "to be Vietnam's focal point promoting Sustainable Construction, leading to a healthy, resilient, and climate safe built environment" – by implementing its strategic plan and missions.

Dominika Czerwinska, Director of Engagement and Networks, World Green Building Council said: "I am thrilled to welcome VGBC to the network. Their addition to the movement can only make us stronger, as they share their expertise and best practices in the Asia Pacific region. Likewise, we are proud to support VGBC through our network and we are greatly looking forward to working with them and their members as we continue our journey to creating a sustainable built environment around the world."

Phan Thu Hang, Chair, VGBC, said: "We feel proud to be part of the global network of WGBC. Climate change is happening now; I truly believe that in order to face the global challenges, we need collaboration on a global scale. We commit to working alongside WorldGBC towards our common goals. Business as usual is no longer an option. We want the new buildings to have low operational and embodied carbon, using renewable

energy as well as recycling resources which are designed to be reused; buildings that are healthy, and resilient for users and communities. We encourage green building practices through promoting LOTUS as the accreditation system of choice in Vietnam."

Tom Miller, co-founder of VGBC, said: "When visionary architect Le Cuong and I met in 2006, we recognised the impact which climate change would have on Vietnam and we decided to do something about it by creating an organisation which would help Vietnam to face the climate crisis. Led by its founding Director Dr. Jalel Sager, the Vietnam Green Building Council (VGBC) developed unique and effective methods for green building based upon Vietnam's particular needs and environment. It is my hope that VGBC will continue to flourish and offer effective guidance as Vietnam continues its struggle to meet the challenges of providing a healthy and safe environment for its citizens. VGBC is indebted to the World Green Building Council for its support and looks forward to a long and fruitful partnership. Special recognition is due to the many individuals on the Board of Directors, consultants and dedicated employees and volunteers who have carried the weight of the organisation over the years."

VGBC has become a focal point in Vietnam in promoting and practicing green buildings and sustainability since its establishment in 2007. The organisation constantly collaborates with the Vietnam Ministry of Construction and Institutes, Universities and International Businesses to develop LOTUS rating tools for new development requirements i.e. buildings, industrial parks and communities.

The GBC continues to evolve as a socially responsible organisation and align its mission with WorldGBC's global strategy, to accelerate the uptake of a sustainable built environment for everyone, everywhere.

BIM Adoption – Levels of BIM In All Countries

BIM is being adopted by countries in different ways and at different levels. In this article by bimspot, the company takes a look at how the BIM process is being implemented around the world.

BIM is an intelligent process in construction and planning that is rolling out across the globe. This 3D model-based process gives architects, builders, engineers, and other construction professionals the ability to work more efficiently and effectively. This covers planning phases as well as managing buildings and infrastructure.

■ **The United Kingdom**

The United Kingdom is a world leader when it comes to BIM. In fact, the UK government has mandated BIM in every government construction project. This means that only companies that are BIM level 2 compliant are able to take on government projects. Any project that is funded by the central government is required to produce collaborative 3D BIM.

It is this massive push from the government that the adoption of BIM processes has become so popular around the UK. It has seen a massive shift towards BIM, with some of the highest year-on-year growth patterns for its adoption.

While BIM is mostly popular among large companies and projects, it is becoming apparent within smaller

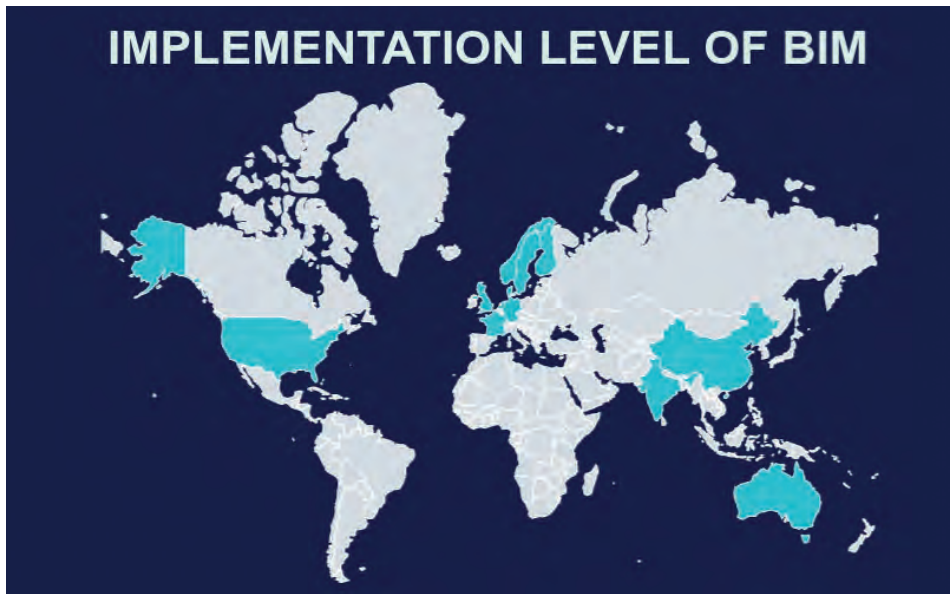


Image courtesy of bimspot.

organisations too. BIM seems to be the future of construction in the UK, and it is being recognised and adopted at a rapid scale.

■ **Europe**

It is important to look at the EU as a whole when it comes to the implementation of BIM. This is because the EU realises that creating standardised practices and

collaborating across borders will help to drive this process across different countries.

Europe is another key player in the global BIM movement. There is a definite movement towards creating a balanced understanding of the practice.

As the EU is such a tight-knit set of countries, having a singular understanding of the process makes

sense. However, expansion and a consistent drive for the implementation of BIM is being seen across the region.

■ France

The French government launched a research and development program in construction to help develop BIM standards within infrastructure development. This then led to a standardised French BIM roadmap as well as the country mandating BIM.

■ The Netherlands

The Netherlands also has one of the highest BIM adoption rates in the world. There are a number of standard practices and protocols set in place here. There are some major public clients that are responsible for the adoption and growth of the Netherlands BIM push.

■ Germany

Germany is another country that has developed a national BIM strategy. This has been done through standardising processes and advocating for BIM as a mandatory procedure in public infrastructure projects.

■ Scandinavian Countries

The Scandinavian countries, like Finland, Norway, Sweden and Denmark, have also placed emphasis on BIM practices. The adoption in Sweden is particularly high. Several guides on the best practices have already been published. Denmark has BIM mandates for state clients and their universities are teaching BIM to students.

■ Other

Other European countries worth mentioning in the BIM discussion would be Spain, Norway, Austria and Italy. These are all places that understand the value of BIM and are working on rapid growth and promotion of the process. This is mostly being driven by governments and public projects within these countries.

■ Singapore

BIM is a key technology used in Singapore. With a focus on developing a smart nation, Singapore sees the benefits of using BIM in construction. To promote the use of BIM, the Building and Construction Authority (BCA) made it compulsory to submit BIM plans to get regulatory approval.

■ India

While India has one of the world's fastest-growing construction sectors, it has been slow to adopt BIM. In recent years, India has started to recognise the advantages and cost-effectiveness of BIM and has started to implement it at the design level.

■ The USA

BIM implementation in the US is simply based between contractor and client as there are no government mandates for its use. Although, the US General Services Administration (GSA) has had a programme in place since 2003 for the use of BIM in Public Buildings Service projects.

Some large institutions in the US are making use of BIM to design, construct and manage their facilities. One example of this is the US Navy. They are the first federal government agency to use BIM for electronic operation of their facilities. Another example is the US Army in which the Construction Operations Building Information Exchange (COBie) standard was developed to manage information assets.

With rapid technological innovations and some incredible BIM usage in the states, this is definitely a country that shows massive growth potential in this area.

■ China

Although, as China is a large country, there is still a lot of room for BIM to grow and become standardised across the board. The Ministry of Housing and Urban-Rural Development (MOHURD) has been working on growing BIM technologies and implementing the process more and more since 2001.

China has seen the value and potential of BIM, now it just needs to start increasing its adoption nationwide. For example, Hong Kong has an incredible BIM adoption rate and is comparable to the UK in terms of its BIM standards.

■ Australia

Australia certainly shows an interest in the technology-based approach to construction and development. The country has seen a rise in the BIM process for public infrastructure projects, as well as in the private sector.

Australia's main issue is that there is no standardised method or consistency in the BIM practices used. This has to lead to different levels of BIM adoption in different areas of the country.

Final thoughts about BIM adoption in the world

Utilising the latest technology can offer huge amounts of value to all kinds of industries. Within the broad field of construction, BIM is there to help improve and streamline the process. This can be utilised by different professionals that collaborate on singular projects.

It is interesting to see how the world has been adopting BIM in different ways. While there is a general shift towards higher rates of BIM adoption, countries take different approaches. It is clear though that the world is rapidly following the BIM model to make construction more efficient and cost-effective.

About The bimspot Technology

bimspot offers a technologically disruptive cloud solution for the collaborative understanding of BIM projects. For the first time it is possible to combine all digital data of building models in a software-neutral way in a single Database with an Open API. This approach enables holistic analytics and generates focused and context-based insights about BIM projects. For this purpose, a machine learning framework was specifically developed in order to optimise data quality. Designed as a self-service offer, the focus is the intuitive and collaborative work between all stakeholders on any device. (www.bimspot.io)

BIM Studios Empower Clients

As BIM technology becomes the norm in the AEC community, architecture firms are equipping themselves with the necessary skills to offer better services to their clients. RMJM is one firm, which has invested in its own Digital Delivery Unit called RMJM DX. Text courtesy of RMJM.

RMJM is one of the largest architecture, interior design, engineering and urban planning firms in the world. Since RMJM was established in 1956, it has seen (and often participated in) some of the most significant architectural transformations of the last three generations. From 1970s camel racing grandstands in Dubai to terminals in Russia's busiest airport in 2019, RMJM has worked on some truly unique and iconic projects, including the record-breaking Lakhta Centre, the LEED award-winning Khoo Teck Puat Hospital and the world's first and only rotating boat lift, the Falkirk Wheel.

RMJM DX – Digital Delivery Unit

RMJM has its own Digital Delivery Unit called the RMJM DX studio. With over 30 years' of experience delivering projects using BIM, RMJM DX empower clients, contractors and consultants by turning ideas into images and bringing together hopes and realities to produce a fully realised design.

The studio provides first-class BIM services across multiple sectors, including luxury residential, mixed-use, aviation and healthcare. In doing so, the studio helps clients to visualise the evolution of a project from design through to operation, assisting them in



Elite Retail and Residences in Saudi Arabia. Image: © RMJM

the decision-making process.

RMJM DX follows a rigorous process of assessment, planning, validation and action. Upon commission, the studio's team of BIM experts assess the project status quo and, amongst other services, carry out an analysis of IT conditions and shared BIMs. Following this, the team produces a BIM Execution Plan (or BEP) to ensure a high quality, timely delivery and to be intertwined with Client's vision and requirements.

The team at RMJM DX manages

the entire BIM process for its clients, as well as providing support and advice on data management through innovative workflows and plug-ins. They also supply skilled personnel on the ground according to the client's needs. Alongside this, RMJM DX offer expert training on BIM tools, including Autodesk Revit (architecture, structure & MEP), Autodesk Navisworks and Trimble Vico Office.

In addition to supplying these services, RMJM DX collaborate with entrusted

partners to provide clients with PDM and Business Workflow Automation, Facility and Asset Management Solutions, Virtual Reality and Visualisation, Mobility and Cloud Solutions, GIS, Laser Scanning and LIDAR, Development of BIM Apps and Plug-ins, ERP Solutions and Implementation and BIM Content Development.



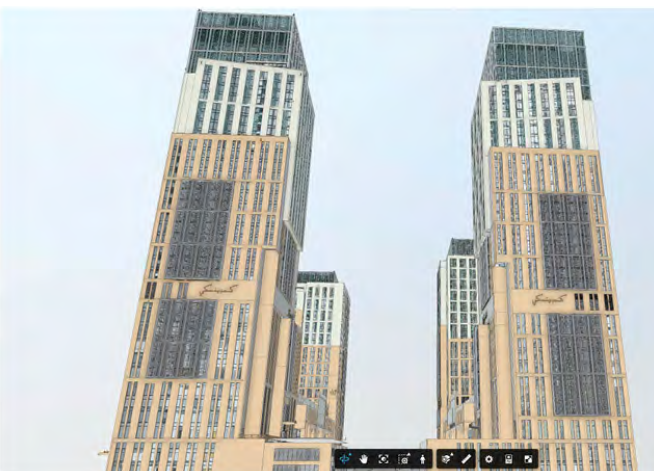
Mohamed Salah. Photo courtesy of RMJM.

"BIM has been a "game-changer" for the architectural community in the last few years, however, it is just the beginning. The global BIM adoption and consistent data-rich digital delivery emerging everyday will inevitably enable the integration with current and future technologies advancing the AEC's Industry Digitization Index. Architecture Design is evolving as Digitalization is taking a wider deployment everyday in the Architecture Design," said Mohamed Salah, BIM Manager, RMJM.

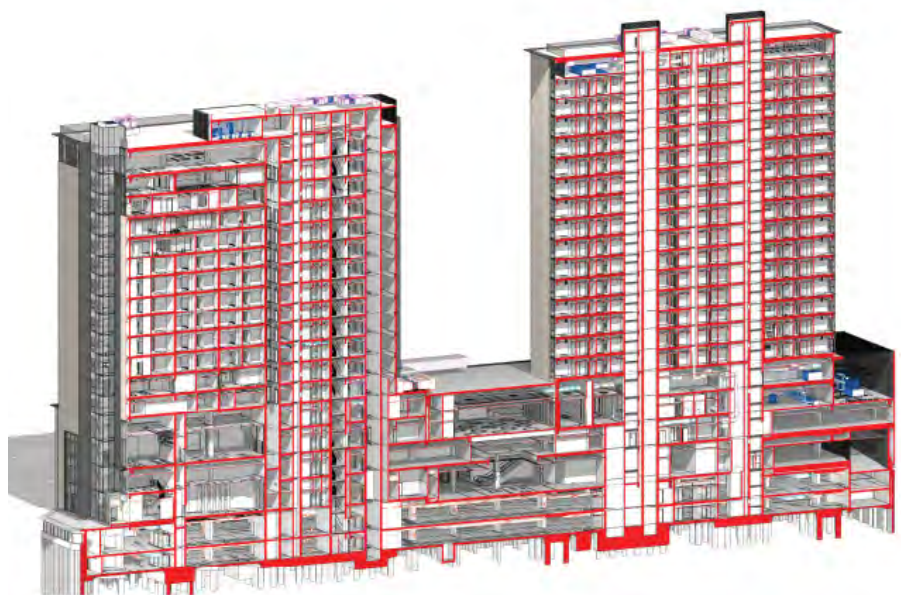


2

1 & 2: Innovation Hub in UAE. Images: © RMJM



Confidential project in Saudi Arabia. Image: © RMJM



Confidential project in UAE. Image: © RMJM



The pool is hosted in a building styled like an enormous oyster to honour the United Arab Emirate's pearl diving legacy.

Deep Dive Dubai

Reliable, high-tech product ensure a safe plunger into the deepest pool in the world and in nearby underwater space.

The latest addition to the city's thriving sports and adventure activities scene, Deep Dive Dubai is the place to be for all aqua enthusiasts. Opened in July 2021, the recreational centre's 60-metre-deep pool is certified by Guinness World Records as the world's deepest swimming pool for diving. The pool, part of the new Deep Dive Dubai attraction, has stolen the record from Poland's Deepspot, which has a depth of over 45 metres. Besides, it holds 14.6 million litres of freshwater, enough to fill six Olympic-sized swimming pools. Deep Dive Dubai is located in Dubai's Nad Al Sheba neighbourhood and features a sunken city (complete with an abandoned streetscape, an apartment, garage, arcade) that divers of all levels can explore, guided by mood lighting and ambient music. The building's facade is styled like an enormous oyster to honour the United Arab Emirate's pearl diving legacy and the Emirati pioneer's bravery. With an onsite dive and gift shop, a restaurant and meeting spaces that can host up to 100 guests, Deep Dive Dubai also promises to become a dynamic new venue for events.

Deep experience for a deep pool

Due to its long-time experience in building materials for sports venues and swimming pools, Mapei was

involved in the construction works and supplied products for waterproofing the substructure of the building, as well as completing the water features and the indoor and outdoor facilities. Moisture sensitivity tests were conducted in Mapei laboratories resulting in adhesives of a certain class being recommended. KERAFLEX and KERAFLEX MAXI S1 were chosen as the most suitable adhesives for bonding stone coverings in common areas and outdoor areas. For the installation of mosaic tiles on marine plywood in the changing rooms, KERALASTIC T two-component, polyurethane adhesive was chosen due to the nature of the substrate. The mosaic tiles in the pool were bonded with KERAPOXY adhesive. The special white and yellow gold coloured glass mosaic called for an attractive and high-quality finish, so Mapei proposed a special system made up of KERAPOXY DESIGN decorative, acid resistant epoxy grout, and MAPEGLITTER metallic coloured glitter, to grout joints. As for the other areas of the pool, joints were grouted with KERAPOXY epoxy grout.

Waterproofing below ground level

A few viewing galleries of the pool are located deep below the ground level and needed perfect waterproofing. The challenge of these operations, which had to be completed below ground level, were successfully met by using MAPEPLAN TU S, a synthetic waterproofing membrane manufactured by Polyglass (a Mapei Group's subsidiary), and IDROSTOP PVC BEC 32 ME, a PVC waterstop distributed on the UAE market by Mapei Construction Chemicals.

Mapei Products

Bonding stone and mosaics:

Keralex Maxi S1, Keralastic T, Keralex, Kerapoxy

Grouting joints:

Kerapoxy Design, Mapeglitter, Kerapoxy

Waterproofing below ground level:

Idrostop PVC BEC 32 ME, Mapeplan TU S by Polyglass (Mapei Group)

Article source: Realtà Mapei International 88/2021

Photos provided by Mapei.



Photo credit: <https://deepdivedubai.com/>



AICB
INSTITUTE OF CHARTERS

GDP Architects counts on Vectorworks to design Asian Institute of Chartered Bankers

GDP Architects designed the Asian Institute of Chartered Bankers (AICB) with the design platform Vectorworks Architect. Article adapted from the Planet Vectorworks blog (<https://blog.vectorworks.net>) and written by Vectorworks Content Marketing Writer Alex Altieri.

The AICB building in Kuala Lumpur presents a façade that's nothing short of captivating. Its overlapping panels are based on songket fabric weaving, a pattern that belongs to Malaysia.

The songket -inspired pattern links commerce and culture tastefully and unabashedly, a nod to the idea that commercial buildings must respect the regions where they're built. It would've been easy to design any old pattern for the façade, but GDP Architects not only understand the distinct footprint left behind by such a substantial building – they embrace it.

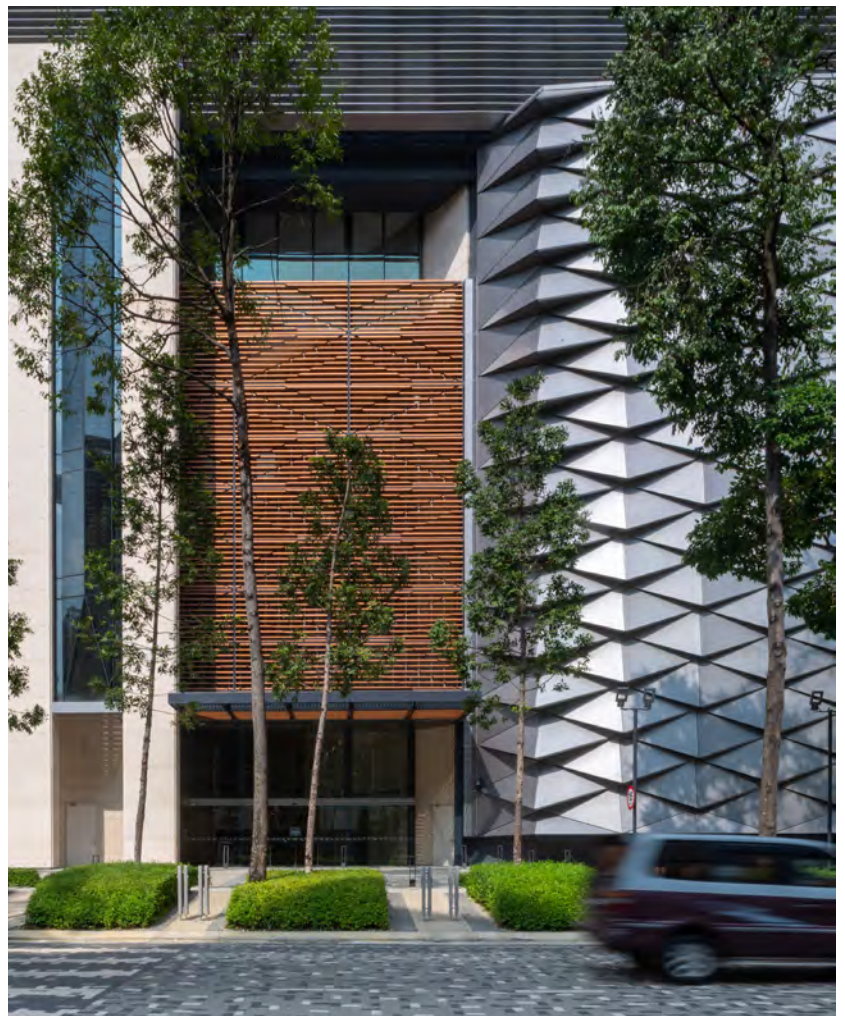
The pattern can be seen throughout the façade, so much so that the firm labels the diamonds an overall motif for the project. The images below show a layered *songket* pattern that's presented much differently than on the aluminum-paneled auditorium.

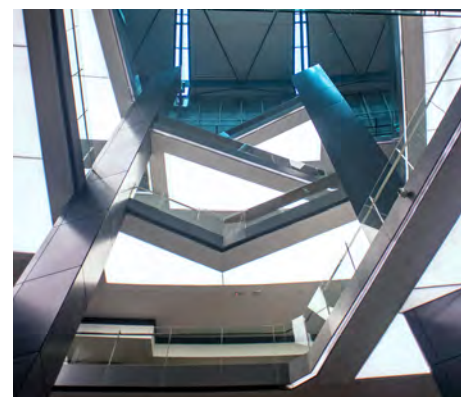
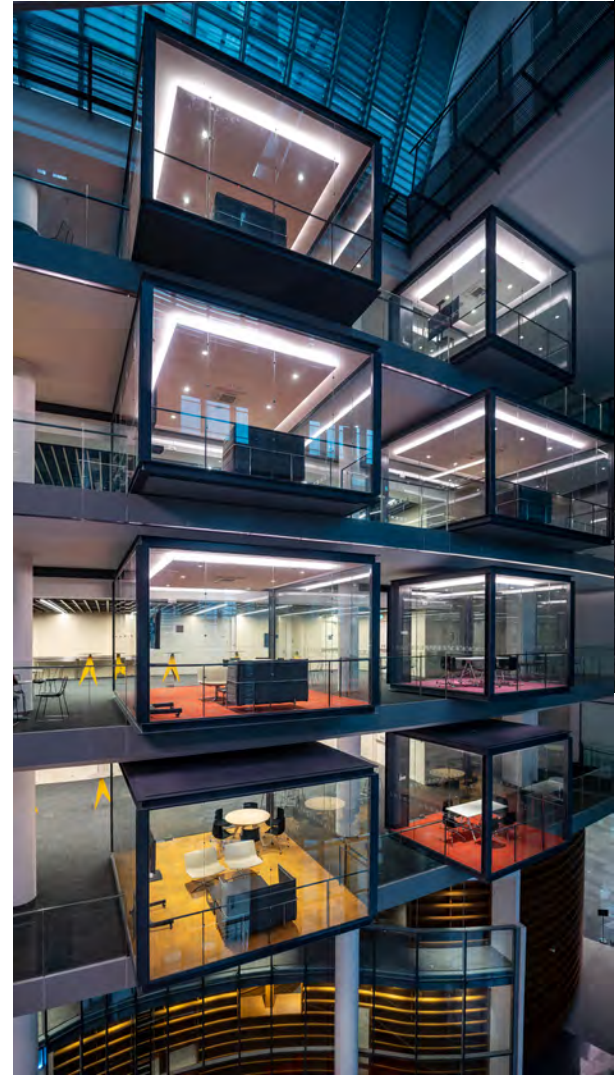
The aluminum diamonds serve both form and function. In tropical Kuala Lumpur, they redirect rainfall off the building to preserve it from natural wear as well as invite natural light into the building.

A closer look at the AICB Building

Here are the facts:

- It's built on a 3.16-acre site.
- The gross area is 514,359 square feet.
- The net area is 325,621 square feet.
- The office stands 12 storeys high.
- The training centre stands 6 storeys high.





Selecting Materials

The architects focused on the building's presence in the Kuala Lumpur skyline. The 12-storey tower is made of glass and aluminum, offering both elegance and durability. Other material selections include sandstone in the training podium and solid aluminum panels in the auditorium. The architects selected warmer-toned materials for street level to appeal to passersby.

Addressing Site Constraints

The architects had to design around the

fact that the site faces KTM trainlines and a major car traffic artery, which introduce noise disturbances to the site. The building form is slightly inclined to reduce sound from these sources, and pocket gardens and vertical greenery line the building to further absorb noise.

1 Building, 11 Agencies

The building is home to 11 different agencies, which was a vital design consideration for the architects. There needed to be areas that encourage collaboration as well as rooms for each



agency to operate independently. This explains the inclusion of several "breakout rooms" – pictured below – which take a stylistic approach to sequestered spaces.

Design without limits™ with Vectorworks

The AICB building leaves no question in your mind that Vectorworks is a product of a very sophisticated design process.

The project team consisted of 19 people – six project managers, three associates, six architects, two interior designers, and two focused on 3D and organisation. That's a lot of people to coordinate for one project.

According to GDP Architects CEO Kamil Merican, roughly 90 percent of the office uses Vectorworks. The software helps GDP from early concept phases all the way to implementation. They incorporate Grasshopper and Rhino into their workflow as well for specific design needs; this geometry is then carried over into the Vectorworks design hub.

"The tools of Vectorworks are simpler and easier to handle, and in terms of graphics, it's much better than other design softwares," said Merican.

GDP worked with several consultants including C&S, M&E, and landscape architects. Most consultants used AutoCAD. Merican reports that the file exchange process was painless – it simply involved importing or exporting DWG files to and from Vectorworks.



GDP Architects CEO Kamil Merican.
Photo courtesy of GDP Architects.

GDP Architects incorporate Grasshopper and Rhino into their workflow as well for specific design needs; this geometry is then carried over into the Vectorworks design hub.

About Vectorworks

Vectorworks, Inc. is an award-winning design and BIM software provider serving the architecture, landscape architecture and entertainment industries in 85 countries. Built with designers in mind since 1985, Vectorworks software offers you the freedom to follow your imagination wherever it leads you. Globally more than 685,000 users are creating, connecting and influencing the next generation of design with Vectorworks on Mac and Windows. Headquartered in Columbia, Maryland, with offices in the UK, Canada and Australia, Vectorworks is a part of the Nemetschek Group. (www.vectorworks.net)

PROJECT DETAILS

Project Name: Asian Institute of Chartered Bankers

Project Location: Kuala Lumpur, Malaysia

Architect: GDP Architects

Software: Vectorworks Architect

Completion: 2020

Photos: © GDP Architects SDN BHD and photographer Adaptus Design Systems SDN BHD



Tianjin Chow Tai Fook Financial Centre at night.

World's seventh-tallest building created with BIM digital design technology

The 530 metres-tall Tianjin Chow Tai Fook Financial Centre is a modern design marvel.

Ronald Lu & Partners (RLP) is committed to advancing architectural design in the digital age, implementing cutting-edge technologies to design a better life at every opportunity. With SOM as the design architect and RLP as the executive architect, the 530-metre-high Tianjin Chow Tai Fook Financial Centre ("the tower"; "the Centre") perfectly demonstrates how digitalisation is improving architecture.

The seventh-tallest building in the world and the third tallest in China, this recently completed tower is a testament to RLP's extensive skills in using building information modelling ("BIM") technology to design and execute world-class structures. The Centre is made up of four basement levels and five podium levels, topped by a 103-storey tower and also includes the K11 shopping mall, the K11 ATELIER office, a five-star hotel and serviced apartments.

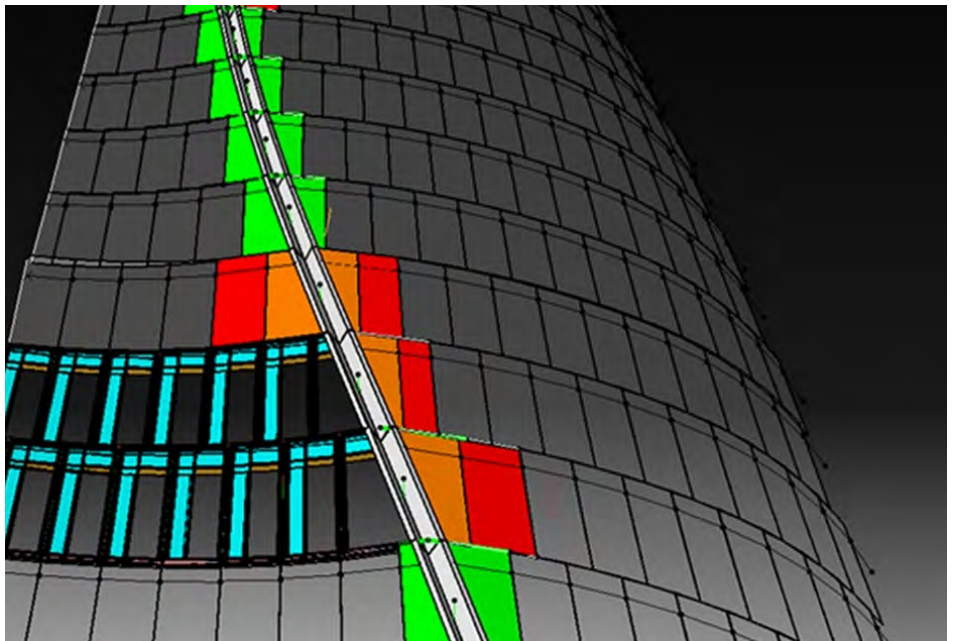
Architects use digital modelling to improve efficiency and accuracy, especially during the design and construction of ultra-complex buildings like the Centre, as it increases accuracy and reduces resource use. In this case, BIM significantly reduced the time and cost of the tower's construction, and played a vital role in optimising its striking, crystal-clear hyperboloid winding glass curtain wall.

At the start of the construction process, experts estimated that at least 1,308 pieces of independent asymmetric insulating glass units (IGUs) would be required for its unique curtain wall structure, formed by the intersection of eight irregular curved surfaces.

However, after performing BIM analysis and using repeated data modelling, the number of independent IGUs needed for the curtain wall was reduced to 476 – a decrease of over 60 percent. This not only saved an enormous number of resources and significantly reduced costs; it avoided the risks inherent in fabricating and transporting these glass panels. Additionally, the optimisation of end-unit segmentation and joint cladding further simplified the construction process. Due to this sophisticated BIM analysis and implementation, the project was completed a full four months ahead of schedule.



Tianjin Chow Tai Fook Financial Centre façade close-up. Photography by Ronald Lu & Partners.



Tianjin Chow Tai Fook Financial Centre BIM drawing by Ronald Lu & Partners.



Tianjin Chow Tai Fook Financial Centre. Photography by Seth Powers.

BIM helped create the iconic facade system of the Centre, making it into a world-renowned skyscraper.

The Centre has been recognised as one of the most complicated skyscraper designs and structural systems ever designed in China, combining both rigidity and flexibility to counter the effect of winds and seismic activity. In delivering this incredible "vertical city", the architects leveraged the sophisticated talents of experts in digital modelling and collaborated with top domestic and foreign partners.

Traditional building design still largely relies on two-dimensional technical drawings; BIM extends these designs into three-dimensional geometry. BIM also incorporates information about time, cost, asset management, sustainability, and other important considerations that technical drawings cannot. As the technology has evolved, BIM's multiple advantages in terms of construction schedule coordination, clash detection, spatial relationships, geospatial information, quantities and properties of building components, and many other factors have become more apparent and increasingly indispensable.

Bryant Lu, Vice Chairman of RLP, has been a champion of BIM for more than a decade. He said: "Over the past few years, BIM has become widely used in the fields of architecture, engineering and construction. Governments have also introduced BIM-related standards and policies to support these sectors



Tianjin Chow Tai Fook Financial Centre. Photography by Seth Powers.

and help accelerate their practices into the digital age. At RLP, we have experienced the many advantages of BIM first hand: integrating cross-departmental information resources, optimising construction times, ensuring economic costs are kept down, and

solving complex structures. BIM helped create the iconic façade system of the Centre, making it into a world-renowned skyscraper. This success reflects RLP's persistence, perseverance and professional advantage in cultivating our BIM proficiency over the past 15 years."

PROJECT DETAILS

Project Name: Tianjin Chow Tai Fook Financial Centre

Project Location: Binhai District, Tianjin, China

Design Architect: SOM

Executive Architect: Ronald Lu & Partners

Local Design Institute: East China Institute of Architectural Design and Research Institute

Developer: New World China Land

Gross Floor Area: 389,980 square metres

Building Height: 530 metres

BIM Software: Autodesk

Completion: 2019



Bryant Lu, Vice Chairman of Ronald Lu & Partners.



Render of Masterplan – South View Park.

Hangzhou Asian Games Park, designed using BIM, wins praises

Two stadiums designed by Archi-Tectonics have topped out at Hangzhou Asian Games Park, bringing the 116-acre complex - which the New York-based architecture firm also masterplanned - closer to completion.

The Tennis Table and Field Hockey Stadiums – both 5,000 seats – will anchor the mile-long park and host competitions for the 2022 Asian Games, the largest international multi-sports competition after the Olympics. Once the Games end, the stadiums and park will adapt to new uses, becoming a signature public recreation complex for the city of Hangzhou.

Planning for legacy use drove the design of the park and stadiums from the earliest stages. At the outset of the project, Archi-Tectonics studied legacy public programming options to ensure the complex remains an active centre of urban life for decades to come, designing the park and buildings to easily accommodate these future uses. The Tennis Table Stadium, for example, is designed with a hybrid seating system that combines stadium and amphitheatre seating styles, enabling it to host both sporting events and – after the Games – concerts and other performances. The Field Hockey Stadium will be adapted for outdoor gatherings like night markets and open-air concerts.

"Without a plan for the future, projects like this risk becoming white elephants – unused, expensive to maintain, and



Winka Dubbeldam, Founding Principal of Archi-Tectonics. Photo: © Archi-Tectonics

disruptive to a city's fabric," said Winka Dubbeldam, Founding Principal of Archi-Tectonics. "We planned Asian Games Park with Hangzhou's future in mind, designing it to become a fixture of daily life in the neighbourhood, support continued urban growth, and make for a more sustainable and resilient city."

Archi-Tectonics received the commission for Hangzhou Asian Games Park after winning an international invited design competition. The firm

developed the masterplan and designs in collaboration with !Melk Landscape Design and Thornton Tomasetti Engineers. Construction is scheduled to complete in 2021.

Table Tennis Stadium

The architectural centerpiece of the complex is the 365,000-square-foot Table Tennis Stadium with seating for 5,000 guests. The design of the stadium is inspired by the Cong, an ancient Chinese jade-stone artifact associated with the Hangzhou region that takes the shape of a square tube with a circular bore. Using this geometry as a starting point, Archi-Tectonics embarked on a parametric design process to determine an optimal shape allowing the stadium to efficiently convert from a sports arena to a performance venue. The final design creates a bamboo clad bowl that merges arena and amphitheatre seating schemes, allowing the stadium to adapt the central viewing layout preferred for sporting events into an asymmetric, stage-centered configuration for performances. Secondary program spaces like restaurants, VIP lounges, and retail areas are incorporated throughout the building, creating a layered and dynamic environment that – more than just a container for viewing sports



Render of Table Tennis Stadium – Bird's eye view.



Render of Table Tennis Stadium – Arena interior.

Archi-Tectonics used BIM in coordination with the structural engineer and local fabricator to test how different module dimensions impacted the cost, constructability, and visual effect of the facade.

or performances – serves as a fully-equipped events and entertainment destination.

The stadium features a diagrid facade, an innovative approach combining lateral- and gravity-load bearing resistances into a single diagonal grid

system that eliminates the need for columns. The curving facade encloses a sweeping, light-filled lobby that wraps around the entirety of the building and accommodates large crowds entering and leaving. Archi-Tectonics used BIM in coordination with the structural

engineer and local fabricator to test how different module dimensions impacted the cost, constructability, and visual effect of the facade. The final design – which uses 10" x 20 metre straight glass panes to achieve the curving effect – is optimized for materials efficiency and ease-of-construction.

Field Hockey Stadium

At the opposite end of the park, the 5,000-seat open-air Field Hockey Stadium is defined by its translucent wing roof. Inspired by the structure and materiality of the traditional oil-paper-and-bamboo umbrella, the wing roof shades the stands, field, and entrance plaza while introducing a sculptural element in the park. Working closely with structural engineer Thornton Tomasetti, Archi-Tectonics prototyped and tested several iterations of the wing roof, arriving at an ultra-lightweight structure that makes possible its 410-foot free span.

PROJECT DETAILS

- Project Name:** The Tennis Table and Field Hockey Stadiums at the Hangzhou Asian Games Park
- Project Location:** Hangzhou, China
- Architect:** Archi-Tectonics
- BIM Software:** Autodesk, Bentley Systems, ProjectWise and Synchro
- Completion:** 2022
- Photos:** © Archi-Tectonics



Render of Field Hockey Stadium – Stadium.



Achieving lifecycle success with a Digital Twin at TÜV SÜD

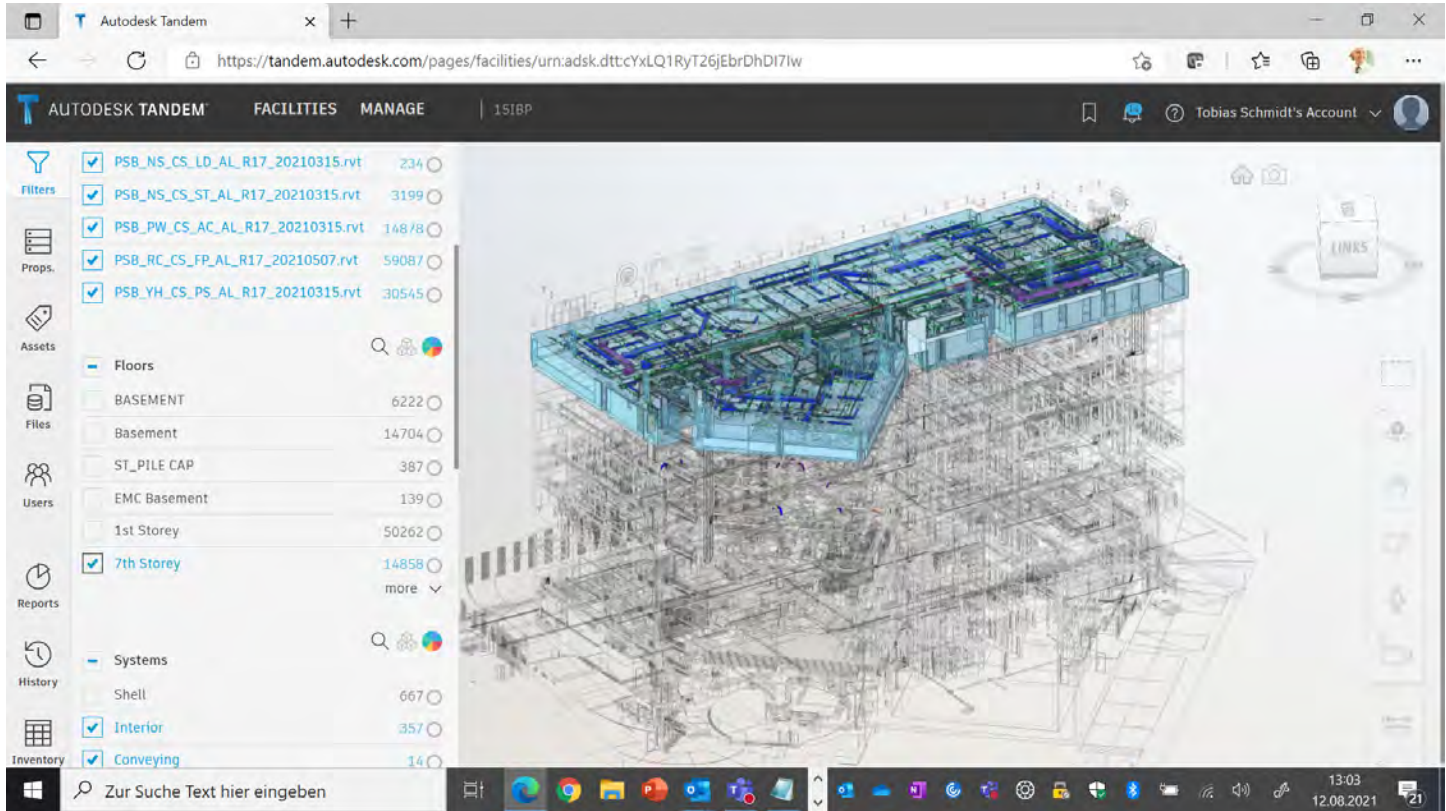
Autodesk solutions optimized the design and construction phases of TÜV SÜD's ASEAN headquarters in Singapore. The building showcases the financial, safety and sustainability success of a lifecycle embracing Digital Twin technology merged with TÜV SÜD's Digital Lifecycle expertise, resulting in significant gains for users. Text by Autodesk.

TÜV SÜD is a universally recognized brand for safety, security, and sustainability. Reflecting its heritage of German engineering and technical excellence, TÜV SÜD has grown to become a globally recognized Digital Transformation expert in the Architecture, Engineering and Construction (AEC) sector, helping governments and industries pace the excellence of buildings across the entire asset lifecycle.

TÜV SÜD is guided by its belief that digitalization across a building's lifecycle clearly focuses on achievements that can be measured in safety, quality, and sustainability gains, as well as in performance and productivity benefits.

TÜV SÜD made a bold decision in 2017: to objectify the importance of Digital Building Lifecycle Solutions in its newly built 18,900 square metres ASEAN headquarters in Singapore, known today as TÜV SÜD @ IBP. This project highlights the impact of digital methods such as Building Information Modelling (BIM), Common Data Environments (CDE) and Computer Aided Facility Management (CAFM) towards both the project and the building.

"We believe that Digital Prototyping and Digital Twin principles are a prerequisite for a successful building lifecycle and for a safe and sustainable asset operation that will last for decades. The design phase is the core of the asset lifecycle to virtually construct, simulate and optimize the



building design for construction and operation," said Tobias Schmidt, Global Manager for Digital Lifecycle Solutions in the Real Estate & Infrastructure division of TÜV SÜD.

Going beyond known market practices

TÜV SÜD @ IBP is a brownfield project located on a structurally difficult area and features a sensitive Electromagnetic Compatible Laboratory that should not have been affected during the project.

Keeping all the relevant stakeholders across all the lifecycle phases located in various countries was one of the most critical prerequisites for the project. That is why TÜV SÜD implemented digital information management with BIM based on ISO 19650 as a standard, by leveraging on Autodesk Construction Cloud as the core project platform.

With this Common Data Environment and the lifecycle-embracing Exchange Information Requirement (EIR), TÜV SÜD implemented all construction and operation relevant use cases into the design stages for both Shell & Core and for the Fitout design.

These requirements included Design for Maintainability (DfM), Design for Building Safety as well as all required energy and sustainability optimizations towards the Singapore Green Building Mark.

The authored Project Information Models in native Revit were also built up to serve as a later resource for the Digital Construction Inspection. This allowed for monitoring of both construction progress and tolerances as well as "Built as Planned" compliance, e.g., through implementing Scan2BIM overlays.

For Facility Management and CAFM tools, the Revit models



were also authored and checked to be the 'Single Source' for various As-Built documentations in IFC and COBie format for the later internal and external contracted Facility and Asset Management.

This complexity of use cases for design, construction, and operation, together with the required high maturity of the Revit-based Project Information Models as well as the necessity for excellent export qualities towards IFC and COBie however posed a major challenge as many local Consultants and Contractors were not ready to digitally deliver a project at that level.

Together with TÜV SÜD's internal BIM management as well as the Sustainability, Construction and Facility Management

experts onboard, Nakano as the nominated contractor integrated all the use cases specified by TÜV SÜD.

Building a digital twin

From the commencement of the project, Autodesk solutions were adopted as the native ecosystem by the project team that comprised real estate experts, financial specialists, BIM experts, construction experts, and facility managers within TÜV SÜD.

"We chose Autodesk as the most efficient project ecosystem to cover all core trades, such as architecture, MEP and structural engineering being processed in a single native environment," explained Tobias Schmidt. "Also, Revit is a very flexible core data source and information management basement, e.g. to extract other open formats we needed for simulations, cost counting, construction inspections and facility management, such as IFC, gbXML and COBie."

As the successful project outcome,

TÜV SÜD delivered the planned Building Lifecycle Solutions and optimizations with the interdisciplinary use of Autodesk tools achieving the following technical KPIs:

- Reduction of the facade's thermal value: with BIM and BIM-based simulations, an achieved Envelope Thermal Transfer Value (ETTV) of 32.40 W/m², which is even 35 percent better than Singapore's current code requirement
- Lighting costs improved by 51 percent over local code requirements
- Energy savings due to optimized and fully balanced aircon and ventilation systems with energy savings of 17 percent higher than the code requirements

Starting building operation by January 2021, TÜV SÜD's digital prototype has resulted in a 'touchable' Digital Twin in Singapore with many use

cases across design, construction and commissioning implemented.

About Autodesk

Autodesk is changing how the world is designed and made. Our technology spans architecture, engineering, construction, product design, manufacturing, media and entertainment, empowering innovators everywhere to solve challenges big and small. From greener buildings to smarter products to more mesmerising blockbusters, Autodesk software helps our customers to design and make a better world for all. (www.autodesk.com)

PROJECT DETAILS

Project Name: TÜV SÜD's ASEAN headquarters

Project Location: Singapore

Software: Autodesk

Completion: January 2021

Photo credit: Autodesk





Deutsche Bahn Brick and Tower combine masonry and plasticity in the facades as a reference to the history of the formerly industrial areas of the Europaviertel. © Lars Gruber, Darmstadt

Schmidt Ploecker Architects relied on BIM to complete DB Tower on time

For the design of both the brick and the tower, the architects relied on allplan, which proved its worth throughout the entire project thanks to its wide range of application options. Text courtesy of allplan.

More and more buildings are being constructed without knowing who the future user will be. This requires a high degree of flexibility in design and execution, because the future building must reflect the widest possible range of conceivable uses. The renowned Frankfurt office, Schmidt Ploecker Architects, was faced with precisely this challenge. On the site with the catchy name "Brick" and "Tower" in the Europaviertel in Frankfurt am Main, they had designed and developed – together with the owner and investor – flexible solutions in order to be able to react as broadly as possible to a future tenant, who was not initially available. Then, in 2017, an occupier was found in the form of Deutsche Bahn, who wanted to use the entire "Brick", located in the eastern part of the property, as a closed block development. There was also great interest in the 16-storey high-rise tower that closes off the development

on Europa-Allee to the west. The prerequisite: both buildings had to be completed quickly by the move-in date of summer 2020.

Efficient work under a high-pressure deadline

For Schmidt Ploecker Architects, the major challenge was to complete the DB Tower on time. When Deutsche Bahn was announced as the tenant, a plan already existed, but it had to be completely revised due to their specific requirements. The subsequent construction period therefore quickly shrank. Less than two years elapsed between the revised planning and the move into the two buildings. This tight schedule was made possible by a high degree of prefabrication and consistent lean construction management in the Tower area. For the design of both the Brick and the Tower, the architects relied on Allplan, which proved its worth throughout the entire project thanks to

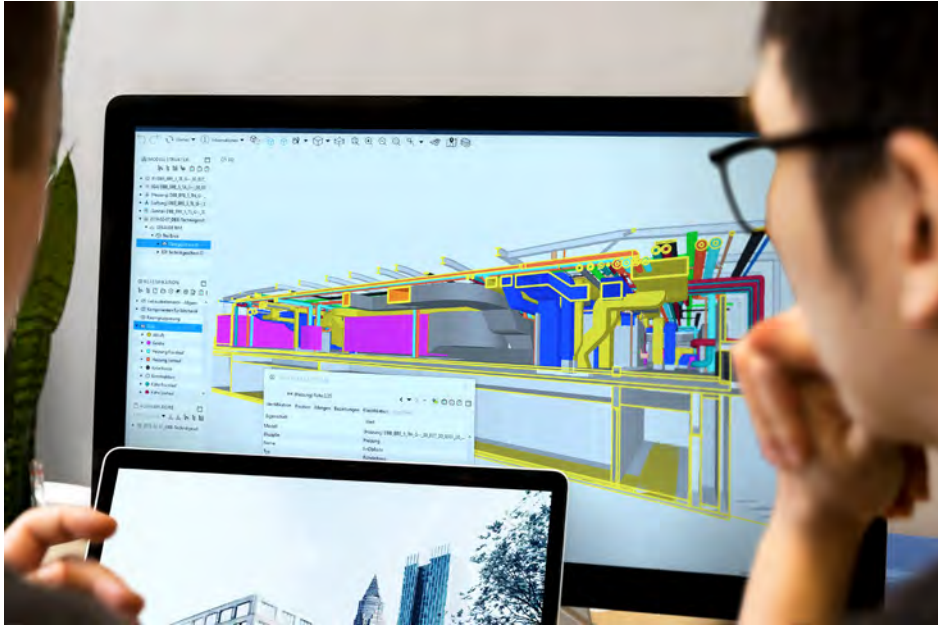
its wide range of application options. "Allplan is very powerful and requires precise preparation in advance. The benefits, especially in the collaboration with the other specialist planners involved, only come into their own if we get together in good time during the project and coordinate the requirements with each other. In the past 10 years that we have been using the software, we have therefore optimised a great deal for ourselves," said Schmidt Ploecker's Managing Director, Jessica Schauer.

Integrated planning promotes collaboration

Integrated planning across disciplines and with common standards and requirements is one of the recurring themes in all the projects of the successful architects' office. The importance of this is increasing, which is also due to the growing complexity of the projects since the office was founded 10 years ago. The interaction



General view of Deutsche Bahn Campus – consisting of DB Brick and Tower along Europa-Allee. © Lars Gruber, Darmstadt



Virtual 3D collision testing. On the screen: the Brick technology story. © Schmidt Ploecker Architects

of 10 or more planning participants is not uncommon, and therefore requires increasingly comprehensive sets of rules for collaboration. This takes the form of a common modeling quality standard, a uniform and binding Common Data Environment (CDE), and, above all, the BIM execution plan. However, this approach applies to open BIM projects, which are always implemented with a large number of model-based specialist plans. The DB Tower was not completely BIM-based. Nevertheless, BIM had a high priority. Schmidt Ploecker Architects used their building model primarily for the calculation of areas, volumes, and quantities, the room book, or for the creation and maintenance of the window and door lists. In their own office, Little BIM came into play, so to speak. The planning partners involved worked in parallel with their own software solutions, with 3D-based building services planning and structural engineering. An open BIM process took place, at least in part. The data exchange between the partners took place on the basis of 2D plan files and via the open IFC exchange format.

Consistent continuation of planning

Schmidt Ploecker Architects work with digital planning methods on a daily

basis. Above all, they are essential for the definition of internal office standards, the planning quality itself, and the exchange with the specialist planners in the projects. Here, the office invests a lot of time and manpower in the consistent digitalization of its own processes. Today, Schmidt Ploecker Architects are able to map the quality management of their planning completely using models. But 3D planning can also be used for other purposes. "In the case of the Brick and DB Tower, we developed an FM cadaster in which defined attributes of the individual components



Model of Deutsche Bahn Tower. © Schmidt Ploecker Architects

were consistently included. This is very important for operations, for example, for determining maintenance intervals for technical fixtures or calculating the areas in the building that need to be cleaned," said BIM professional Öner Tiryaki, who is responsible in the office for BIM implementation in the projects and the company's own processes.

High model quality for optimal planning exchange

Christopher Mück, deputy project manager in the DB Tower project team, focuses not only on technical standards but also on cooperation and quality standards during the partnership. "We always see each project as an overall planning team. What is created is always a team effort and developed together with our partners. In the same way, we coordinate our own work with the specialist planners. We see ourselves as partners in an integral process. There were therefore no personal agendas that would have stood in the way of joint planning in the DB Brick and DB Tower project," he explained. Managing Director Jessica Schauer describes the process further. "This also applies with regards to the use of 3D planning. The façade design and its interaction with the supporting structure was a particularly important point in which our cleanly set-up architectural model became very important. We sent it to the structural engineer as an IFC file directly from Allplan. We absolutely wanted to do without supports in designated areas and therefore handed over the 3D design to him as the basis for his calculations," she added.

About Allplan

Allplan is a global provider of 3D BIM design and detailing software for precasters, rebar detailers, civil and structural engineers. (www.allplan.com)

PROJECT DETAILS

- Project Name:** DB Tower
- Project Location:** Frankfurt am Main, Germany
- Architect:** Schmidt Ploecker Architects
- Software:** Allplan
- Completion:** 2020

How 3D architectural visualizations can transform architecture



Roderick Bates

Roderick Bates, Head of Integrated Practice at Enscape, explains the benefits of 3D architectural visualizations and how architects can incorporate them in their design workflow.

SEAB: Enscape is a leading developer of real-time rendering and design workflow technology for the Architecture, Engineering and Construction (AEC) industries. How is your technology used in architectural design?

Roderick: Enscape is first and foremost used as a workflow optimization tool during architectural design. Essentially, this means Enscape is used, in real-time, as a translator of BIM and CAD model data into a visually realistic and intuitively understood model. This not only enables architects to understand how their designs will exactly look once built but also allows them to easily and effectively communicate their designs to other parties involved in building design and delivery, including clients, designers, engineers, and contractors.

In addition to this critical design workflow function, users also leverage Enscape to create renders, VR experiences, and exportable panoramas during the design process. These visualizations put a project in its best light and are frequently deployed for internal and external design reviews, public engagements, etc.

SEAB: One of the most recent developments in the architecture field is 3D architectural visualizations. What are these and are they different from BIM?

Roderick: While BIM platforms are 3D, they aren't what most people describe as visualizations. Instead, they are tools for design authorship and the collection of critical information necessary to construct a building. 3D visualizations, on the other hand, are about communication, and specifically communicating designs in a way that makes them tangible, in a visual, immersive, and experiential sense, before the building exists in a physical sense.

SEAB: What are the advantages of 3D visualizations for architects?

Roderick: Visualization creates an effective medium for communication. A high-quality render sent to a client or a real-time visualization of a BIM model provides ways for the design intent to be communicated in a manner that is easily and quickly understood, with no translation or interpretation required. For architects, this means that decisions are made faster and aesthetic opportunities can be identified. Conversely, mistakes are avoided before the design progresses to the point where undoing them is both costly and time-consuming.

SEAB: What is the future of 3D architectural visualizations?

Roderick: When I think of the future of architectural visualization, I see the visualization interface becoming much more data-rich, encompassing not only information related to how something looks, but it will also become the vehicle by which more complex data, such as product specifications and architectural details will be communicated. The platform will be inherently easy to navigate and will offer the potential to become a far more effective means of sharing critical project data across a broad array of stakeholders without the need for specialized knowledge.

SEAB: Recently, Enscape and Chaos, a world leader in photorealistic rendering technology merged. Together, the merger will establish a global leader in the 3D visualization and design workflow software sectors, with a focus on the AEC, Visual Effects (VFX) and Product Design verticals. What kind of design possibilities will this merger open up to architects?



Enscape renderings credit: Vilhelm Lauritzen Architects and Liljewall Architects



Renderings credit: Enscape

Roderick: The possibilities are still being fully mapped out, with far-reaching implications. However, in the short term, the focus will be to offer a true end-to-end visualization workflow for our customers. This means that all project visualization needs, from rapid, real-time rendering to producing photorealistic scenes, can be addressed through a single portfolio of products and a design workflow to maximize efficiency and

eliminate redundant work.

About Enscape

Enscape develops high-quality real-time rendering, visualization, and virtual reality software for the global AEC industry. Enscape integrates design and visualization workflows into one and gives designers the power

to create realistic renderings based on their existing planning data and easily produce videos, panoramic images, and VR simulations. Enscape software is compatible with Revit, SketchUp, Rhino, Archicad, and Vectorworks and is used by renowned architecture firms in over 150 countries. The company operates from offices in Karlsruhe (Germany) and New York (USA). (www.enscape3d.com)

BIM Benefits For Architects



Angela Spathonis
Photo credit: Gensler



Vignesh Kaushik
Photo credit: Gensler

BIM software offers great advantages to the architecture, construction and engineering community. In this interview, Angela Spathonis, Principal and Managing Director of Gensler and Vignesh Kaushik, Regional Design Technology Director, Asia Pacific, Middle East and Greater China of Gensler tell us the benefits and the key challenges to its adoption.

SEAB: Can you briefly touch upon the benefits of BIM for architects?

Angela and Vignesh: Our increasingly complex world offers an ever-expanding number of factors to consider when designing. Environmental influences, constantly evolving business models, and a new generation of employees can all mean rapid change for the way space is used.

At Gensler, design is the heart of our offering, globally. The opportunity to develop solutions that are informed, purposeful, and compelling is the overriding reason why our architects have embraced integrated delivery so enthusiastically. Yet every project we design and implement with our clients is part of an ongoing relationship that is rooted in collaboration and trust. Our BIM models are designed to be digital twins of physical spaces, but they are also used to visualize and analyse the complex symphony of data created

by the network –thereby serving as a tool to inform the future of spaces.

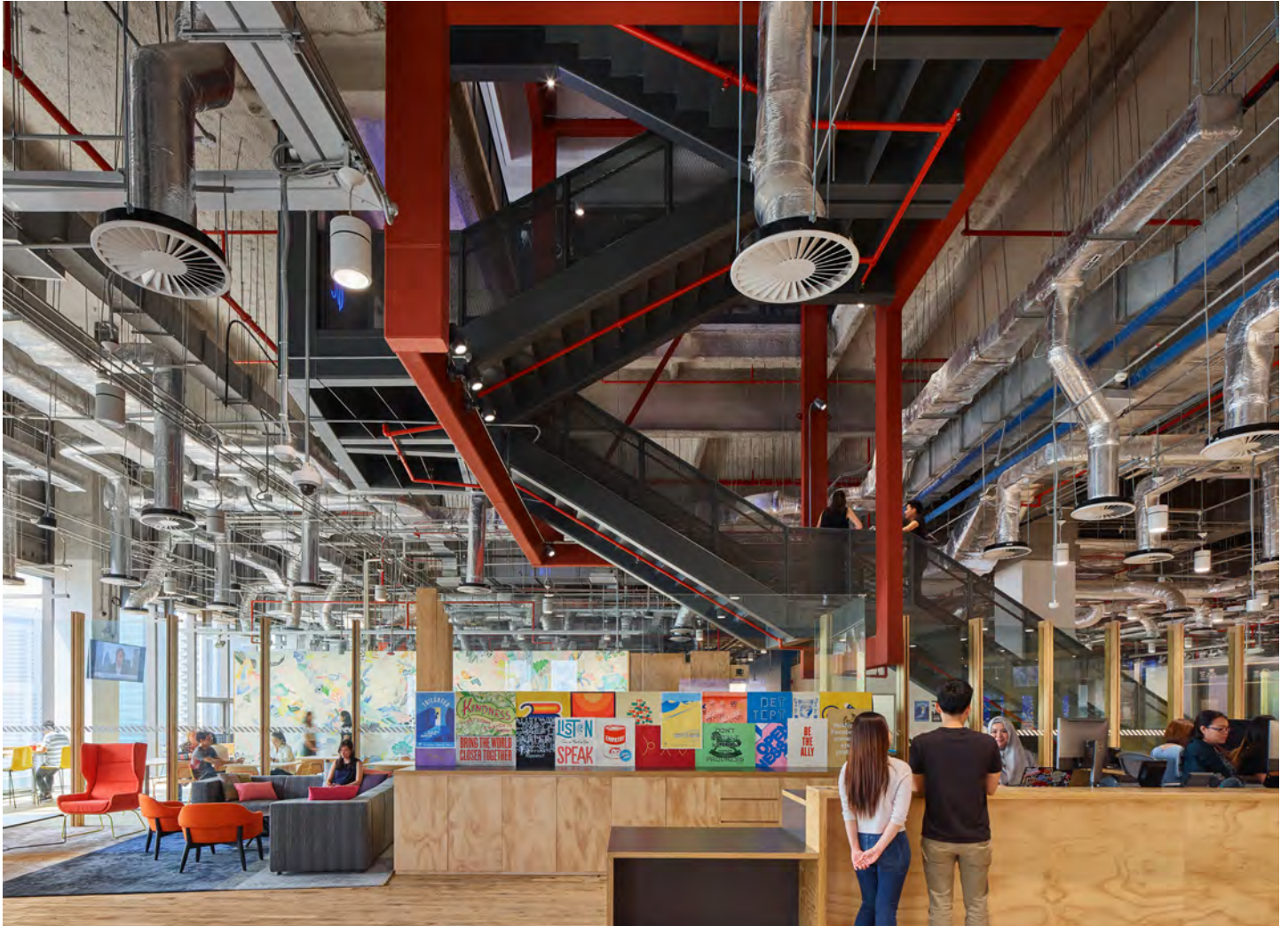
Gensler's predominant line of business involves architectural design projects which includes placing a great extent of building elements into a complete BIM model for virtual visualisation before project sign-off. Previously, this involved considerable manual efforts and also generated errors due to maximum human intervention. Using BIM, architects can deliver projects in a reduced time frame. Not only does this cut costs and resources, but architects are also able to accommodate clients with tight deadlines due to faster turnaround times. Additional benefits include round-the-clock design collaboration and quality control. It allows us to communicate design intent clearly to the client and collaborate with other stakeholders like structural and MEP engineers in real-time. This leads to reduced

errors, inconsistencies and ensures predictable outcomes and highly reduced risk at the construction site.

SEAB: Can you share with us a notable project where you were able to present your BIM capabilities?

Angela and Vignesh: Design is the heart of Gensler's offering, worldwide. The opportunity to develop solutions that are informed, purposeful, and compelling is the overriding reason why our design teams have embraced integrated delivery so enthusiastically. Yet every project we design and implement with our clients is part of an ongoing relationship that's rooted in collaboration and trust.

The headquarters for Meta APAC is a landmark project that sets a new benchmark for Meta's office projects globally. Located in Marina One in Singapore CBD, this project truly reflects Meta's core values whilst incorporating the Singapore culture through its



Meta APAC Headquarters. Courtesy of Gensler. Photography by Owen Raggett.

design. The Gensler team used the Meta global workplace guidelines as the main framework and took design cues from Singapore's urban structure for this multi-phase project by creating a series of neighbourhoods with supporting facilities within each neighbourhood. The design and documentation of this project was completed using BIM modelling software, which integrates the mechanical, electrical and structural components. This permitted early cost modeling and clash detection, keeping the project on budget and on schedule. Security was one of the client's primary goals, so the structure's materials project solidness and opaqueness throughout, reflecting the primary design concept: creating "a city within a city". This project was achieved through the successful collaboration of many Gensler offices including Singapore, Tokyo, Bangkok, Sydney, Bangalore, San Francisco and Austin.

SEAB: What are the challenges in implementing BIM to a client's project?

Angela and Vignesh: Gensler sees building architecture and designing spaces at a turning point. Wherever you look today, there is a desire for higher performance. Our architects have access to more innovative materials and

technologies than were on the market even 10 years ago. The availability of sophisticated new building skins, systems, components, and strategies opens up an array of new possibilities when it comes to higher performance.

At the same time, the increasingly technical nature of building design means that project teams have to stay abreast of a burgeoning number of innovations – including the ways in which they collaborate with others in an increasingly integrated design and delivery process. All of this makes up-front research more critical than ever. We're informing design thinking with analytical thinking. That's changing the way that Gensler designs buildings and spaces.

The greatest departure from older practice involves energy modelling – computer simulation of building performance. While early generations of design software simply mimicked the process of designing by hand, building information modeling (BIM) enables designers to overlay three-dimensional building information with climate and other site-specific data to predict how a building will perform over time. For example, a building can be analysed under scenarios for a year's worth of weather conditions, yielding a valuable prediction of its actual performance.

BIM Creates Sustainable Buildings



Frederico Ramos. Photo: © Aedas

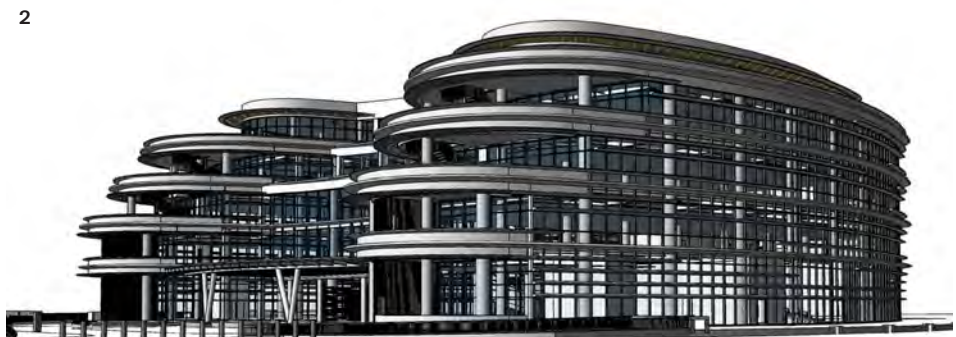
BIM technology is a vital tool in making buildings green and to tell us more, Frederico Ramos, Aedas Principal in Singapore, shares with us his thoughts on how BIM can be utilized to achieve successful sustainable buildings.

SEAB: How has BIM changed the way Aedas designs and builds its projects?

Fred: As a company with a global presence, Aedas benefits from both earlier BIM adopters such as the US, UK, Hong Kong and Singapore, as well as more recent players such as Mainland China, Dubai, Vietnam, Philippines, or Malaysia, allowing us to develop an array of bespoke solutions for BIM / VDCO / IDD that address each market and project particular requirements.

Our contact with different BIM standards, such as ISO 19650, the UK BIM framework, Singapore BCA BIM guide, US BIM forum LOD and VA Standards, enriched our processes under this wider umbrella that has often proved advantageous to projects and clients.

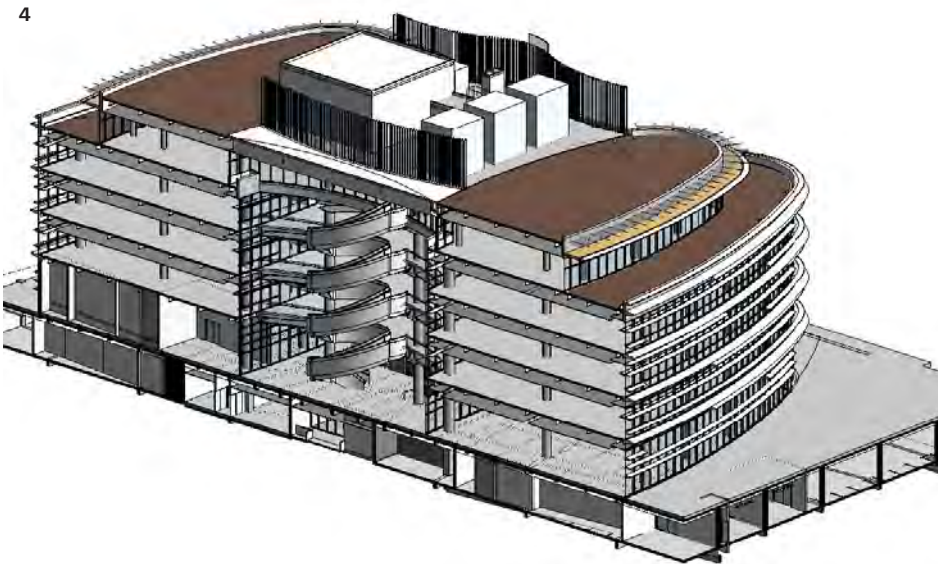
From our initial experiences back in the mid-2000s to today, BIM has played a transformational role in the way we design and build our projects. On its initial stage, BIM allowed a leapfrog in buildings form exploration focusing on buildability and documentation of these new/highly complex forms; with the 2008 economic crisis, BIM focus shifted towards project economics, with more nations mandating BIM and developers demanding for it. While responding to emerging BIM standards, which on its one contributed to increasing models' quality, our BIM teams started also to incorporate



Photos 1, 2, 3, 4: Sinarmas Land Headquarters Building in Jakarta, Indonesia. Photos: © Aedas



3



4

parametric design for both process and projects design optimization, leading to several international awards in BIM computational design in the earlier/ mid-2010s. As BIM markets matured during mid/late 2010s and entering 2020s, our approach evolved as we embraced more and more BIM goals and dimensions, IDD, Automation, Simulation, Digital Twins, BIM to field, etc., all creating a solid knowledge base and experience in our teams for us to leverage on BIM to design and build our projects.

Looking at BIM beyond just traditional BIM, we have been holistically understanding the AECO Sector

Digitalization as an opportunity for transformation evolving digital platforms, exploring new business models and promoting new culture behaviors. It is about replacing manual processes and finding new efficiencies through new digital platforms and technologies. Levering technology to generate new models and ways of working that foment a creative working culture that allows designers to focus on value-added tasks to continue developing amazing designs that inspire our clients and enhance the communities we work for.

SEAB: How does BIM help to create sustainable or even greener buildings?

Fred: Buildings have a large impact on the environment, sources estimate that buildings daily operations (buildings live cycle) can account up to circa 30 to 40 percent of greenhouse gas emission, 30 to 40 percent of solid waste generation, 20 percent of all water consumption and 25 to 40 percent of total energy usage worldwide.

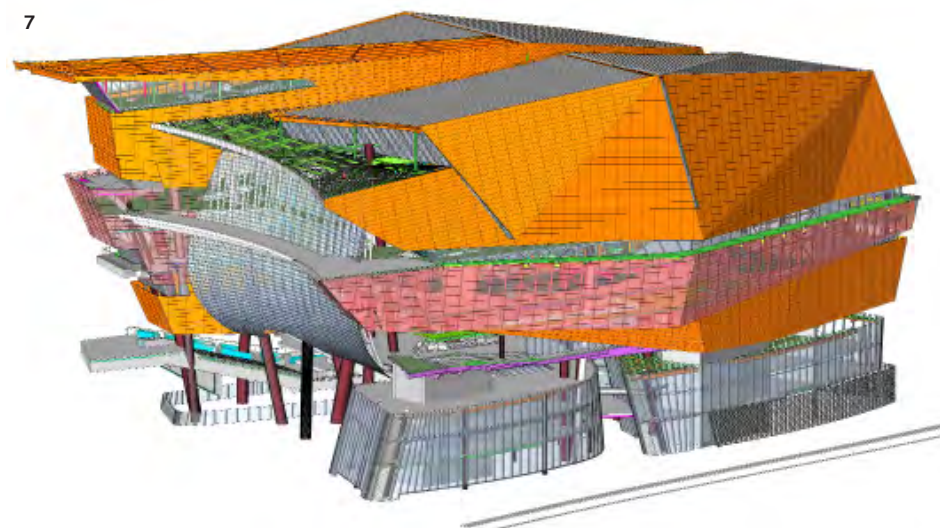
Over the last 3 decades, the way the industry understands sustainable design has been evolving. From Green Buildings, we evolved to embrace the idea of Super Green buildings, Energy Neutral / Net Zero, and even Positive / Plus Energy buildings.

We moved away from the energy-centric idea of sustainability, by adopting the Circles of Sustainability Methodology to embrace the idea of "full spectrum" sustainability, including social, economic, political and environmental sustainability, understanding that full sustainability can only be achieved by the combined effort of all these factors.

Responding to this, in the last decade, the industry expanded the notion of sustainable buildings to include the concepts of Biophilic Design and Wellness that focus on emulating nature to create buildings that enhance users' health; and even the concept of Ecopuncture that looks at the potential role of each new building in the transformation of our cities landscapes towards an eco-friendly environment that seamlessly integrate Grey (built environment, buildings, roads, etc.), Green (landscape, greeneries, fauna, flora, etc.), Blue (water bodies, rainwater management, wastewater, etc.), and RED (energy) infrastructures to form the building environment for better communities.

Focusing on BIM plays a paramount role (or better said, it can play a paramount role if used to its potential) in creating sustainable and "greener buildings". A BIM-based process can be used to facilitate sustainable design at several levels:

- Building orientation studies – the selection of a good orientation can reduce energy costs, and capitalize on cross natural ventilation for increased users confront;
- Building massing analysis – studying the building form allows



Photos 5, 6, 7, 8: The Star Performing Arts Centre in Singapore. Photos: © Aedas

us to optimize the building envelop for optimal thermal performance, increased views quality and ensure users proximity contact with nature (with studies demonstrating the therapeutic benefits from such proximity/exposure);

- Day-lighting analysis – by studying daylight versus solar gains, we can optimize lighting systems, design windows to reduce energy consumption, and mitigate glare for users increased comfort;
- Water management – BIM can be used to optimize rain harvesting systems and reduce water needs in a building;
- Energy Modeling – Model simulation can help reduce energy needs and analyze how renewable options can contribute to reducing operations carbon footprint;
- Building materials and waste – BIM-based design validation can prevent 4.4 to 15.2 percent of construction waste that might have been generated without using BIM.

Particularly in places of large urban expansion where buildings lifespan is often smaller than building materials, such as Asia and Southeast Asia, BIM can also facilitate "Circular Construction", by using existing buildings' digital twins as "materials banks", leveraging built assets as a material repository, extending the lifespan of durable building materials.

At Aedas we use BIM and VDCO technology to facilitate sustainable design and support our designer's vision. By "thinking globally and acting locally", we aspire to create "Constructed Ecosystems" and "Sustainable Communities" that are rooted in "circularity", integrating Gray, Green, Blue and Red Structures, while enhancing urban biodiversity and promoting populations wellness.

SEAB: What are the key barriers of BIM in sustainable building projects?

Fred: We see an exponential increasing number of players adopting BIM, to a point that in many markets BIM become the "by default" process for design & construction; and we also see more and more in the academia embedding BIM into their curricula. In fact, recently I came across an article on how the BIM had reached the tipping point. With all this context one would imagine that we will be close to realize the "BIM promise".

There is no doubt that BIM is now understood by the industry as a must, and although I'm every day amazed by the industry achievements and progress in BIM, I'm also aware that we as industry are still far from realizing BIM's full potential.

It goes without saying that each project is a case, and therefore each project will have its specific challenges. With that said, it is also possible to observe communalities of challenges/barriers across projects and regions. Many of the barriers are probably not sustainable building specific but BIM related barriers - hardware, latency, resources, standards,

steep learning curve, costs, inadequacy for frontend design, etc. But I believe we should move the discussion from the conventional BIM implementation challenges to the field of the industry transformational disruption.

As we expanded on BIM usages and dimensions, project data has also exponentially increased, with the "I" in BIM becoming more and more relevant, to a point that conventional decision processes and project management tools are starting to be challenged. Information management function is quickly expanding and evolving to a point that it is no longer foolish to consider future scenarios where it will overtake conventional buildings project management.

Data sizes and data structure are becoming more common discussion topics; and more and more we tend to relay on AI and ML for data mining and to inform data driven decision making process, requiring a new type of players that have a people person personality, a mix of data scientist and funky designers, able to leverage both cognitive and artificial intelligence.

Especially in the context of ISO 19650, the project teams are to adopt transparent real-time 24/7 collaboration aligning the interest of all parties involved in a "no-disputes" culture.

New processes, skills shift, transition to fabrication and assembly, a one-team mentality - all are required to overcome BIM barriers in sustainable Building projects, and all lead to what I would say is the key barrier of BIM in sustainable building projects and all projects: the mindset change associated with the paradigm shift arising from BIM.



The National Art Gallery Conservation: BIM blends old and new efficiently



Janardhanan Sounthariya.
(Image credit: CPG Consultants)

CPG Consultants successfully completed the conservation works of The National Art Gallery in Singapore. Subsequently, with Integrated Digital Delivery (IDD) as a key thrust in the life-cycle of a building project, CPG Consultants continued to help develop the 3D Building Information Modelling (BIM) of the project as an advancement of the Digital Asset Delivery component in IDD to facilitate integrated operations and maintenance. To tell us more, Principal BIM Specialist from CPG Consultants, Ms. Janardhanan Sounthariya explains how the firm harnessed digital technology to realise the project. Images courtesy of CPG Consultants.

SEAB: Can you share with us a few details of this project?

Sounthariya: The National Gallery Singapore (NGS) is an integration of the historical former Supreme Court and City Hall buildings. The physical redevelopment of the National Gallery Singapore into a 64,000-square-metres refurbished art museum is a design by Studio Milou Singapore in partnership with CPG Consultants.

The Building and Construction Authority (BCA) implemented the BIM Roadmap in 2010 with the aim that 80 percent of the construction industry will use BIM by 2015. This is part of the government's plan to improve the construction industry's productivity by up to 25 percent over the next decade.

The NGS project was one which was at the forefront of advancements in the built industry as the client had very early on, recognised the benefits of adopting 3D BIM technology for the building cycle's operations phase. Concurrent with the redevelopment works, the client was already planning for 3D BIM to start soon after the physical redevelopment was completed.

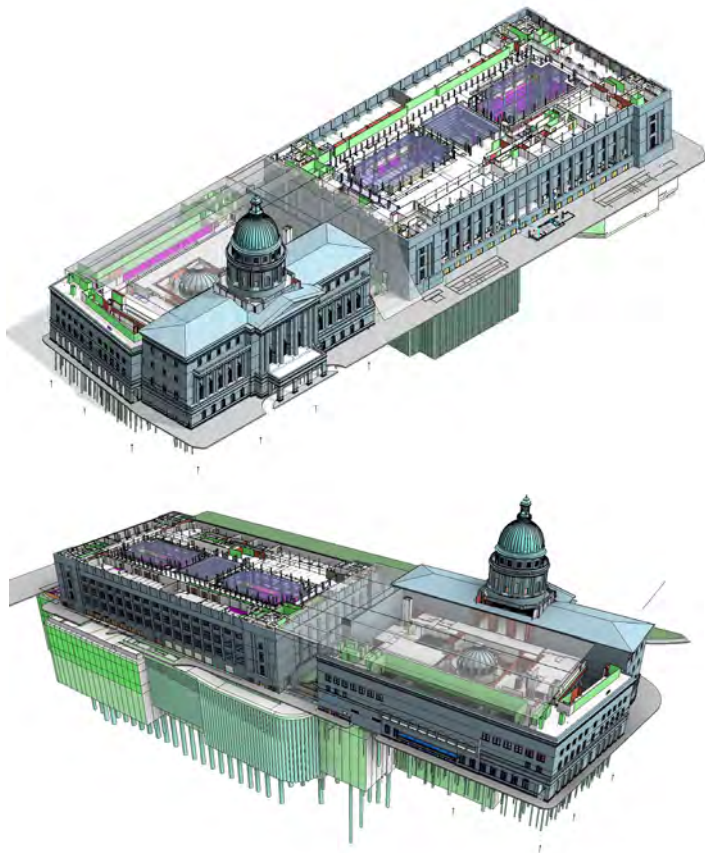
The intent of the 3D BIM was to

- Provide to-scale visualisation and ability to walkabout within the model
- Integrate Architectural, Structural and Mechanical & Engineering (M&E) information within the 3D model
- Extract and produce meaningful coordinated drawings (i.e. floor and reflected ceiling plans, sectional & elevation drawings, details drawings etc.)
- Further integrate with the Facilities Management (FM) system in the future for storing and extracting data, including linking operation, Maintenance and Asset data to the 3D As-built Model

SEAB: What role did BIM and IDD play in the project and how did it benefit you?

Sounthariya: Integrated Digital Delivery (IDD) helps to integrate work processes and connect stakeholders working on the same project throughout the construction and building life-cycle. This includes design, fabrication and assembly on-site and the operations and maintenance of buildings.

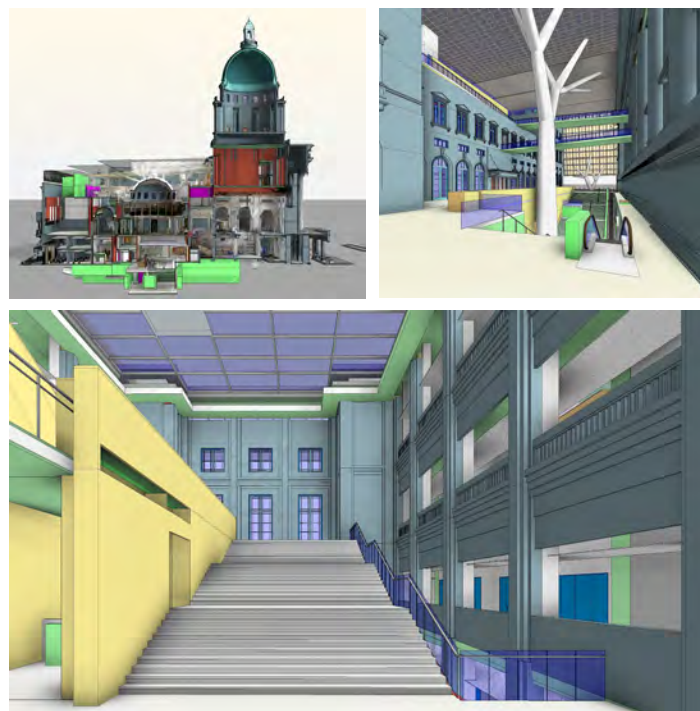
IDD builds on the use of Building Information Modelling (BIM). BIM modelling helps accurately



Views from different angles of the Former Supreme Court and City Hall Blocks in BIM Model. (Image credit: CPG Consultants)

document the monuments' intricate architectural details within the newly built structures.

To record the architectural details of the existing structure by BIM required the BIM As-Built Model to be developed from 3D point cloud laser scans to review and verify the building elements modelled. Point Cloud Technology can build a 3D



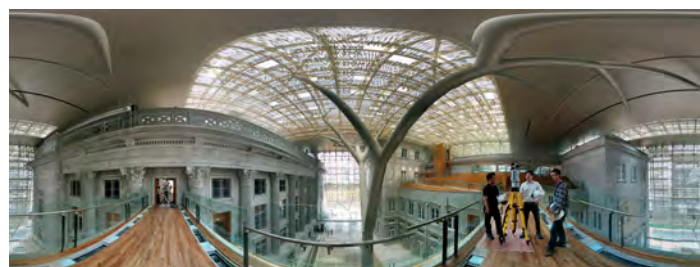
Screenshots of in-progress As-Built BIM Model. (Image credit: CPG Consultants)

representation of any object or space using a laser to collect "points" placed on visible surfaces, documenting and capturing real-world objects and translating them to a more accurate digital representation. This was particularly important in merging the architectural details of the newly built structures within the existing two monuments.

With the point cloud data, the team could develop the model textures and adaptive BIM components, focusing on the critical items such as the columns which requires the high level of 3D geometrical details.

With such modelling, NGS can use these models for physical exhibition planning and digital exhibitions that will utilise the realistic walkabouts within the 3D model. A rendered panorama of some key gallery areas spaces was prepared for future digital exhibitions to create a truly immersive environment.

Our CPG BIM team benefited from the insights gained through the BIM technology used in the NGS project as we could leverage the knowledge to implement similar VR review processes in other projects. Our team also had the opportunity to utilise the point cloud technology to its fullest, adding on to our experience in accurately translating the point cloud information to an accurate BIM model.



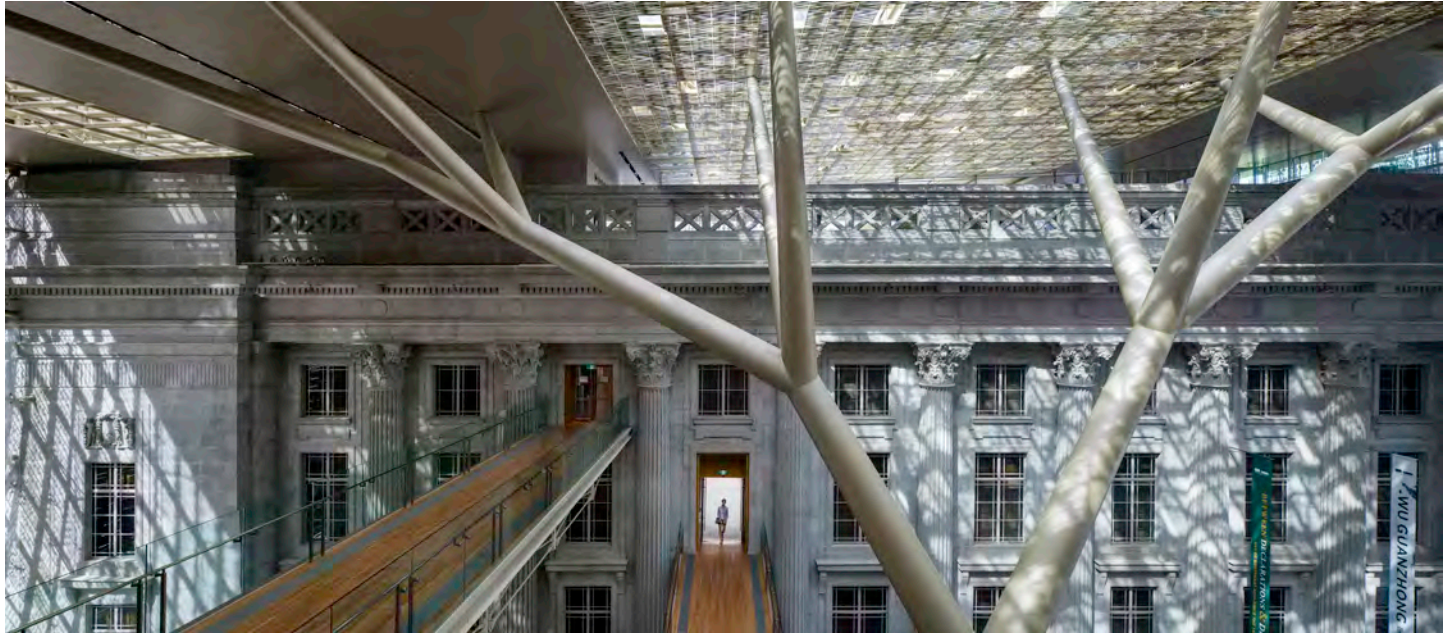
Sample panoramic image of National Gallery by CPG BIM team. (Image credit: CPG Consultants)

SEAB: Were there any challenges you faced?

Sounthariya: There were several challenges. An interesting one was the difficulty in translating some complex structures into BIM models, such as the unique "tree columns". These tree column design elegantly supports and integrate the former Supreme Court and City Hall Buildings at the roof level through the use of a linear draped canopy. We didn't have explicit references from shop drawings and also as-built drawings, so our team used the appropriate coordination system gathered from the point cloud data sets after creating and cross-referencing to the 2D as-built drawings to ensure accuracy. Moreover, special attention is needed for the critical items which require high-level 3D geometrical details. The CPG BIM team employ best practice strategies to ensure that the model is optimised and well balanced in terms of visual clarity against file size.

In addition, NGS also identified the potential of using BIM to help with their Facility Management (FM). This was the basis of today's "Digital Twin". When using BIM to help with NGS's facilities management, our challenge was to manage the existing assets and operation work orders defined by NGS's current FM system.

The CPG BIM team explored ways to link and import data back to the BIM model in order to maintain a holistic BIM+FM "As-Maintained Model." We were able to use BIM to dive deep



Unique "Tree" columns in the National Gallery Singapore. Image credit: CPG Consultants

into the FM system and proposed the use of dynamo scripts to automate data integration to the BIM Model. As this process entails vast amounts of data to be imported back to the BIM model, the BIM development team explored the option of utilising scripts through the use of Dynamo to automate the process of data import.

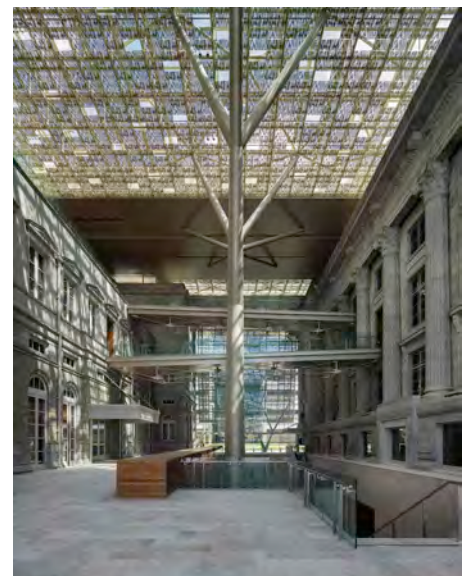
By doing so, we support the FM system to integrate with the building management system, BIM and financial systems etc. This will help make information of NGS facilities and assets comprehensive at a glance. The holistic BIM+FM "As-Maintained Model" provides more benefits to the client than the traditional way of 2D documentation of building plans that were often separated from facilities assets information.

Very often, the challenge of embarking onto IDD technologies is not just on the service provider but also for the clients who have to take over the tools. As a multidisciplinary consultancy beyond just the disciplines of Architecture, Engineering and Construction, we were able to use our knowledge of computational BIM for scripting and Facilities Management to create a user-friendly environment for the client to be able to experience the benefits of BIM in the operational phase.

SEAB: As the Principal BIM Specialist, what are your priorities in bringing new technology and tools in the company?

Sounthariya: Working in CPG, the company has a comprehensive value chain that covers the full lifecycle of building facilities: from design, construction, through to operation. The NGS project was my first major project after joining my current company. With an experienced BIM team to support me, I was able to learn and develop my skills in BIM. Collaboration was key to achieve deliverables. This is why as the Principal BIM Specialist now, I am also keen to share knowledge internally within my organisation to build up the capabilities for the implantation of IDD from Digital Design to Digital Fabrication and Digital Construction and thus Digital Asset Delivery & Management.

In recent years, we are actively identifying relevant digitalisation and technological application throughout built environment lifecycles. Currently, our BIM team is also adopting and exploring digital technology innovations such as a common data Environment (CDE) through the use of Autodesk construction cloud, use of Virtual Reality (VR) for Design Review and Data-Driven Processes, all of which will increase productivity and help support smart



Unique "Tree" columns in the National Gallery Singapore. Image credit: CPG Consultants

buildings for our clients.

As the Principal BIM Specialist, I am passionate about finding out the latest technologies, regulation and associated BIM standards and to merge them with my company's protocols and standards. To deliver the correct information to the correct people at the right time and ensuring that integrated digital delivery meets the client's expectation and CPG standards is what gives my job meaning.

How BIM Works

Sarabjit Singh, Architectural Designer and Founder of Villa Ortiga in Delhi, explains how BIM works and how digitalization has transformed the face of architecture.



Sarabjit Singh. Photo courtesy of Villa Ortiga.

Building Information Modeling (BIM) is a process that significantly improves the manner in which architects and engineers design and thereby construct buildings. It is a comprehensive CAD model that uses CAD mock-ups to broaden the scope of information that is provided to the system. Furthermore, because the quantum of information provided to the software has been increased, the construction time of the project is reduced and thus the overall efficiency is increased.

BIM helps create an ecosystem wherein all the involved agencies can work simultaneously and share real-time information from the very first day till the very last day of construction and design. With BIM authoring tools, architects can create a digital 3D model of the building, allowing them to understand better how the building will look and operate in reality. Likewise, with the intel provided by this intelligent system, architects can now design at a much faster pace and with much greater efficiency. It is also greatly helpful in monitoring and thus modifying the design to eliminate human errors that would have otherwise been hard to predict ahead of time. The system enables one to make informed decisions which too can easily be conveyed to the clients or investors in a very detailed fashion and with high accuracy.

The BIM system helps forecast the costs, project timelines and errors, thereby mitigating the extra time that would otherwise be spent on rework. It helps companies lower their insurance costs and minimises the opportunity of claims. It also helps prevent wastage of material and human resources by predetermining mistakes and presenting us with a much more effective workflow.

This smart system helps clients such as developers, high earning professionals and investors better understand the intricacies of the project cost in accordance with real-time changes and modifications made in the design such that they can plan their finances in tandem with it.

BIM helps create an ecosystem wherein all the involved agencies can work simultaneously and share real-time information from the very first day till the very last day of construction and design.

This revolutionary process provides individuals with the opportunity and the platform to enhance their design skills and receive hands-on experience related to the various stages of design and construction. It has laid the foundation for a digital transformation and is the foreseeable future of design and project management.

About the author

Sarabjit Singh is the Founder and Architectural Designer at Villa Ortiga, a leading multi-disciplinary boutique architecture and interior design firm based in Delhi that creates experiences in the form of high-end, refreshing new spaces with an international appeal. In 1992, he was handpicked by Prince Charles to study at his premier Prince of Wales's Institute of Architecture in London. Thereafter, he continued his architecture and design education from the highly revered Oxford School of Architecture in Oxford, UK. Seeking to creatively bridge the gap between the demand and supply of unique global architectural and interior design styles, Sarabjit established Villa Ortiga in 1997. Since then, the practice has thrived exceedingly with hundreds of projects spread across India and abroad. (<https://villaortiga.com>)

INTERVIEW: Mr Francis Leung, Senior Vice President ASEAN, AS APAC, dormakaba, Shares His Role & Plans For The ASEAN Region



Francis Leung takes over as dormakaba ASEAN's new SVP, as of July 2021. (Photo credit: dormakaba)

In July 2021, dormakaba appointed Mr Francis Leung as Senior Vice President ASEAN, AS APAC. Prior to this appointment, Francis was the Senior Vice President of dormakaba China North Asia, AS APAC, and was based in Hong Kong. He moved to Singapore to join the local office and to carry out his new leadership role. SEAB connected with Francis to learn more about him and his plans for the ASEAN region.

SEAB: It's great to speak with you Francis. Would you tell us a little about yourself?

Francis: Thanks for having me. Well, I've been with dormakaba since 1992, so about 30 years now. It has indeed been exciting! As you mentioned, I am from Hong Kong, and I previously headed dormakaba China North Asia. During my time there, I oversaw the successful expansion of dormakaba in the China market. Today, there are more than 20 offices across China serving the region. I also had the privilege of being at the forefront during the merger between DORMA and Kaba in 2015 – an unforgettable experience as two giants in the industry became one dormakaba.

Of course, it is difficult to handle work without play. Outside of work, I enjoy farming and scuba diving. My wife and I rented a very small plot back in Hong Kong, and it was truly amazing to see life burst forth in this tiny space in the middle of the concrete jungle.

SEAB: It's been about 6 months since you've taken over the role at dormakaba ASEAN. How has the transition been?

Francis: I took over the role in July 2021, and formally moved to Singapore in the later part of October. My wife came over from Hong Kong recently as well. Moving to Singapore began a new chapter in my life, right from the flight! It was the first time I had been able to travel since the pandemic began, and the multiple COVID tests and nearly-empty plane made it quite an experience.

First and foremost, I made it a priority to familiarize myself with my team, business partners, and customers. The diverse locations within the ASEAN region made virtual meetings a necessity. Indeed, I spend most of my days in Teams meetings!

Singapore is of course, not new to me, having travelled here many times in the past, both for business and for pleasure. However, there's a world of difference between being a tourist, and actually living here. In the past months, I've enjoyed going to the many shopping malls in Singapore, looking for good food, and going for walks and exploring the city. I am a firm believer that the fastest way to assimilate into a new environment is to experience its culture. I have had the opportunity to experience the Chinese New Year celebrations in Singapore, and they are so very different from Hong Kong. In Singapore, we gift oranges and bakkwa. In Hong Kong, we focus our gifts on cookies and snacks. It has definitely been interesting so far, and I'm looking forward to more of such experiences in the near future.

SEAB: What do you hope to accomplish for the domestic market and the ASEAN region?

Francis: dormakaba ASEAN has spent the last months strategizing and planning for increased and sustainable growth for the road ahead. With the new growth strategy in place, we hope to ensure our products and solutions are curated and adapted to our local needs, and in doing so, solve our customers' pain points, and increase our market share in both vertical and horizontal markets.

SEAB: What major challenges do you foresee facing, particularly as we are still feeling the impact of the pandemic?

Francis: Unfortunately, COVID19 is still a part of our lives, and has led to a lot of business and economic uncertainty, particularly in the hospitality market as travel has been greatly limited by the pandemic. In addition, planning, and implementation of strategies has been dependent on virtual meetings. Fortunately, dormakaba has a strong, dedicated IT team to support this, so we have managed, for the most part. However, I believe that face-to-face workshops and customer/partner meetings are irreplaceable in building relationships and rapport, and I hope that in-person meetings can soon resume in the near future.

SEAB: What innovative products can we expect to see from dormakaba over the next few years?

Francis: The pandemic has spurred the development of touch-free solutions. In order help reduce the rate of infection and safeguard lives, dormakaba has embarked on this journey as well. Another recent focus has been digitisation, particularly when it comes to IoT technology. IoT technology can allow for remote monitoring, access, and maintenance. One such product is our EntriWorX Ecosystem which simplifies collaboration

between all trades and optimizes processes throughout the entire building life cycle.

SEAB: Are there particular guiding principles in your life you would like to share?

Francis: I firmly believe that there can never be "too much" communication. Communication is essential for success, and is crucial in any community, from large multinational organisations to small teams.

I also value team achievements over an individual's success. As they say, we are worth more than the sum of our parts. As a leader in the organisation, I strive to lead by example, promoting openness, transparency and fairness.

I provide multiple avenues through one-on-one discussions, fireside chats, and townhalls to encourage my team to make their voices heard. I also encourage continuous improvement. Sticking to the status quo and keeping to our comfort zones is detrimental to growth. As a strengths coach myself, I strongly advocate trainings for my team, be it in sales, product expertise, or leadership.

I am fortunate to have inherited such a motivated and capable team. With excellent planning and timely execution, I am looking forward to the results that our new strategies will bring!



dormakaba's EntriWorX Ecosystem optimizes processes throughout the entire building life cycle. (Photo credit: dormakaba)

INTERVIEW: KJ Jawa, Chairman & Managing Director, Daikin Airconditioning India Discusses New Plant Investment & Air-Con For Green Buildings



Kanwal Jeet Jawa. Photo: © Daikin

SEAB: Daikin India has set up its third manufacturing hub in Sri City, Southern India. What were the reasons for investing in the third manufacturing facility?

Jawa: With Indian showing huge potential for air-conditioning needs across residential & commercial segments, there is an opportunity for explosion in the AC category as the current AC penetration still remains at 6-7 percent penetration, leaving 90 percent market still underserved without the right product & price.

With infrastructure & housing development, ACs have now become a necessity to enhance human productivity & maintain a better quality of life.

We aim to leverage the third factory to serve this rising domestic demand in addition to our exports plans to Africa, Central Asia & SAARC countries that share a common weather pattern with India.

SEAB: What kind of market position does Daikin India hold in India and in the export market?

Jawa: In last 11 years, Daikin has established itself as the volume player across every category and emerged as the fastest growing AC brand in the country. Powered by more than 10,000 channel partners, Daikin India

is perceived as the Superior & Reliable Japanese brand that is available at India prices. Daikin achieved the leadership position in the overall HVAC market and now gunning towards becoming the Absolute No. 1 player.

Our entry into exports in the last few years have met with a very warm reception from across the new geographies. India having a gained a reputation of a stable manufacturing hub is helping global customers accept & approve – India Made Products. Daikin is gradually creating the fundamentals of a robust business across all new geographies and infusing investments towards – distribution, product, brand, service, supply chain & Innovation.

SEAB: Green buildings are becoming the norm everywhere. In what ways can air-con manufacturers provide sustainable cooling solutions?

Jawa: The evolution and expansion of India's building stock has a critical role to play in its battle against climate change. Accounting for more than 40 percent of the country's total energy consumption, energy use from buildings is increasing at 8 percent annually. If conventional inefficient building practices continue, buildings would account for over 70

percent of emissions by 2050, thus posing a major threat to India's green ambitions.

According to the International Finance Corporation (IFC), 70 percent of the buildings required by 2030 are yet to be constructed in India. If India were to embrace the concept of green buildings to meet this huge demand, it would be a win-win for the environment and the economy.

The green buildings market in India is currently at a nascent stage of development, with only 5 percent buildings being classified as green, though the overall green building footprint has crossed 8 billion square feet with more than 7,000 projects. This shows the huge potential lying in the country. While this might come across as a challenge at the outset, it does open up a wide array of opportunities for the development of green buildings.

Given the pandemic and its aftershocks, the appeal of green buildings has increased for the occupants of residential houses as well as workspaces. Post-Covid, individuals are expected to become all the more cautious about their health, well-being and comfort, and would want to live in buildings that have a better ventilation



Daikin Factory Ph II in Neemrana, Rajasthan, India. Photo: © Daikin

system, ample daylight and fresh water availability.

Demand for air-conditioning is expected to increase many folds from current levels by 2050 driven by economic development and Daikin's social mission can be found in mitigating the impacts of global warming wherever possible while providing a comfortable air environment to people around the world. Under Daikin's Environmental Vision 2050 we are tackling challenges

associated with the reduction of greenhouse gas emissions to net zero. Through the development and spread of products & services that contribute to energy conservation and the mitigation of global warming, Daikin aims to reduce the world's greenhouse gas emissions.

SEAB: What kind of challenges do new green buildings give to air-con manufacturers?

Jawa: The green construction sector

in India currently lacks the technical expertise to execute projects & the funding to pay for construction. These remain the biggest barriers to building green, and require an entrepreneurial-regulatory approach. In short, India's growth has to be green. Also, it is important to mention, that India's GDP projected to rise by \$406 billion by 2050 and more than 43 million jobs will be created, as the Asia's third-largest economy leaps towards a net zero target.

ENGIE Refrigeration GmbH expands its product portfolio

Lindau, Germany – After its launch on Monday, 28 March 2022, the new SPECTRUM Water will be available worldwide – both as a water/water heat pump for condenser leaving water temperature of up to +68 degrees Celsius and as a water-cooled chiller for brine applications providing up to -10 degrees Celsius. This will allow the refrigeration and heating specialist to reach new customers and areas of application, especially in the heating supply field. As a heat pump, the new SPECTRUM Water is suitable not just for commercial and industrial heating applications, but also for integration into heat networks, district solutions and housing development concepts.

ENGIE Refrigeration has played a pioneering role in the international refrigeration industry for many years – above all with its QUANTUM Air and QUANTUM Water chillers. The company from Lindau on Lake Constance, Germany, is now increasingly working on innovative solutions for the heating sector as well.

As Jochen Hornung, CEO of ENGIE Refrigeration, said: "At ENGIE Refrigeration we expedite the transition to climate neutrality. We focussed on this aim when developing our SPECTRUM Water. And we achieved it in exemplary fashion: as an ecologically

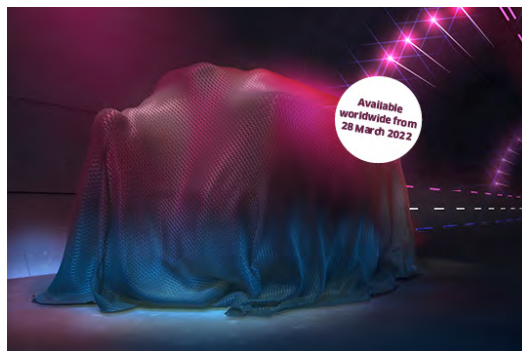


Photo credit: ENGIE Refrigeration

sustainable alternative to boilers that run on fossil fuels, our new SPECTRUM Water heat pump contributes to the decarbonisation of heat generation. We help our customers achieve their own climate targets, and through this collaboration we play our part in the heating transition and help the world achieve its 1.5-degree target."

The new SPECTRUM Water is based on the technology of the QUANTUM Water, which is currently the most efficient water-cooled chiller on

the international market. Accordingly, the SPECTRUM model features innovative technology components, oil-free compressors with magnetic bearings, flooded shell and tube condensers, an open-flash economizer integrated as standard, and an intelligent Siemens S7 PLC; as a result, it offers outstanding energy efficiency, operational reliability and power density. The oil-free machine design guarantees stable performance and efficiency throughout the system's service life, along with low maintenance requirements. As with the QUANTUM Water, digital features will be available to increase user-friendliness and serviceability, among them the option of using smart control to operate the machine from a mobile end device, and an integrated interface with the CoolCare remote maintenance software.

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Share it with us!

Email seab@tradelinkmedia.com.sg



Aliaxis strengthens its position in the United States by acquiring Harco

Brussels, Belgium – Aliaxis SA, global leader in the manufacturing and distribution of advanced piping systems, signed an agreement to acquire Harco, a producer of fittings located in Virginia, USA.



Harco fittings. Photo credit: Harco



Harco office. Photo credit: Harco

This move is part of Aliaxis' "Growth with Purpose" strategy. Through this acquisition, Aliaxis further expands its presence in the United States. Harco, a US manufacturer of gasketed fittings, brings more than 55 years of industry expertise. Harco's annual revenues were roughly \$75 million in 2021. The transaction is subject to customary regulatory approval.

CEO Eric Olsen commented: "Harco is a well-established brand in municipal, irrigation and agriculture end-markets. With this acquisition, we will continue to strengthen our presence in the US. Harco will be part of IPEX, Aliaxis' leading brand in the region, and will result in an expanded product portfolio to a broader customer base. We are pleased to welcome Harco to the Aliaxis family."

Chubb and CriticalArc SafeZone® announce global partnership to deliver safety everywhere

Middlesex, UK – Chubb's global business and CriticalArc have joined forces to enable SafeZone®, CriticalArc's award-winning cloud-based safety, security and emergency management solution to be offered to Chubb customers through its connected services offering, Chubb VisiON+. Chubb is a part of API Group, a global, market-leading business services provider of safety and specialty services.

The investment by both companies in the development of a streamlined, cohesive offering delivers far reaching benefits to customers. As a key supplier in the remote monitoring sector, Chubb has been extending support for its service with more fluid, hybrid working models. Meanwhile, CriticalArc's SafeZone provides powerful new capabilities, with its 'Safety Everywhere™' concept, helping organisations comply with standards such as BS8484 in the UK for lone worker safety. SafeZone lets them manage the safety of their people wherever they have a duty of care, regardless of geography, with a whole suite of services from lone worker emergency assistance and real time location services.

SafeZone supported by Chubb, is designed to bring peace of mind to all individuals 24/7, either working at an office, remotely or both, regardless of whether their employers have their own security response teams.



Photo courtesy of Chubb.

The solution can be configured so all alerts are responded to solely by Chubb's expert monitoring team, the organisation's own responders or a combination. Because of this, the solution is suitable for a wide range of people including field workers, healthcare and care workers visiting patients and remote workers of all types. It can also be used by universities to protect students, government and healthcare associations.

An app-based solution, SafeZone makes it easy for users to call for help via their smartphone and to share their location in real time with operators at Chubb's security monitoring centres. In critical situations they will be directly connected to the appropriate response team for the most efficient emergency assistance.

Integrating Chubb's global scale and local expertise with SafeZone's cloud-based, SaaS technology, helps enterprises and organisations with large sites instil confidence in employees' personal safety. Customers further benefit from Chubb's consistent and fast response monitoring teams, bolstered by SafeZone's highly scalable distributed command

and control environment.

"We are excited to announce Chubb's partnership with CriticalArc, which has enabled us to set a new standard for the industry when it comes to personal safety. CriticalArc's offering perfectly complements our 24/7 Chubb VisiON+ service which focuses on using data and insights to take the right actions at the right time. Together, we can respond to alerts quickly, bringing improved connectivity, responsiveness and overall peace of mind," commented Frederic Peyrot, Global Customer Solutions & Innovation Director at Chubb.

"This partnership is genuinely a first-of-its-kind for the market, and great news for organisations looking to offer their work force *Safety Everywhere™*," said Darren Chalmers-Stevens, Group Chief Operating Officer and Managing Director EMEA/APC, CriticalArc. "The depth and breadth of Chubb's global reach into multiple industries will enable organisations around the world to take advantage of Chubb's and CriticalArc's unique capabilities as we continue to innovate."

Large, touch screen interface for Simplex 4100ES and 4010ES control units



ES touch screen display. Photo courtesy of Simplex.

Singapore – The ES Touch Screen Display (ES TSD) for Simplex 4100ES and 4010ES fire alarm control units makes using Simplex systems simpler, faster and more intuitive. It is a great option for facilities where quick access to information and aesthetics are essential.

The large 8" (20cm) screen shows a wealth of information, allowing

operators to quickly assess what's happening. It also vastly reduces scrolling when viewing event logs, point lists and other system information. The ES TSD can also be configured as a remote annunciator.

The ES TSD supports several display options, including; First and Most Recent Event (followed by list of first 6 events); Most Recent Event (followed by list of

first 7 events); and First 8 Events, for easy compliance with local requirements.

Like all Simplex products, the ES TSD is built for reliability. The display includes redundant control for critical functions using both soft and hard keys. If the touch screen or soft buttons should fail, the hard buttons remain available – and vice versa – providing you with an extra layer of safety.

Voltas builds Covid-19 compliant hospital wards in KDMC Hospital, Mumbai

Mumbai, India – Voltas Limited, the undisputed market leader for Room Air Conditioners in India, has been taking proactive measures and initiatives to help the nation fight against the COVID-19 pandemic. As part of these concentrated efforts, Voltas continues to ensure the upkeep of essential services and upgrading of medical facilities to make them Covid-19 compliant.

Continuing to deliver on Voltas' promise towards a sustainable tomorrow, the Central AC BU at Voltas in Mumbai successfully commissioned 11TR x 16 nos Water cooled package with R407C refrigerant in the COVID Blocks of Kalyan Dombivali Municipal (KDMC) Hospital, Mumbai in February 2021.

This project solution by Voltas has benefitted 305 hospital beds that have been reserved for Covid-19 patients in KDMC Hospital. Voltas has been instrumental in the nations fight against the pandemic. In the last one year, the Company has built multiple Covid-19 compliant wards impacting over 25000 hospital beds and 100 hospitals across India.

Mr. Pradeep Bakshi, MD & CEO, Voltas Limited said, "As an organisation, Voltas has always been committed to nation building. Even when the economy came to a standstill, Voltas employees worked diligently on the front lines of the Covid-19 pandemic. Our Operation & Maintenance (O&M) teams have been providing real time services to the Essential Services sites where customers need the operation, maintenance and breakdown support".

As one of the leading providers of integrated end-to-end solutions in electromechanical projects, Voltas contributes to nation-building through execution of engineering projects for Buildings, Industry and Infrastructure.

Over 2020, Voltas has also helped in the conversion of



Photos credit: Voltas

existing medical facilities such as AIIMS, Bhatinda, and Guwahati Medical College and Hospital to convert standard wards into Covid-19 isolation wards using smart ventilation solutions. This includes building test centres to predictive maintenance of Chillers in Hospitals and Pharmaceutical companies that make life-saving drugs, thus impacting millions of lives. At Coimbatore the company has built a test centre at Kovai Medical College and Hospital to help the state contain the Covid-19 outbreak. Earlier a part of the academic block, the centre is now being used as an isolation ward for Covid-19 patients, after carrying out the necessary HVAC modifications. Similar conversions were undertaken by Voltas at M R Bangur Hospital and Gauhati Medical College and Hospital, which is also one of the facilities across the country being upgraded to strengthen India's fight against the pandemic.



Photo credit: Voltas

GEZE IQ box Safety - TÜV-certified protection for power-operated windows

Leonberg, Germany – With the IQ box Safety, GEZE is launching a TÜV-tested solution for the closing edge protection of power-operated windows up to protection rating 4.

High safety specifications for power-operated windows

Power-operated windows that are opened and closed via a motorised drive can make a significant contribution to a healthy indoor climate and to increasing indoor air hygiene in the building. Due to their classification within the European Machinery Directive, they must comply with stringent safety standards. Therefore, the individual specifications for power-operated windows in the building need to be determined at an early stage. This not only involves technical aspects: guarantees must also be provided that the solution is safe for all users of the building during day-to-day operation. This is particularly relevant in buildings such as schools, kindergartens and hospitals, as well as in buildings that are open to the public, such as meeting venues and retail spaces. Here in particular, it must be ensured that improper use of the windows or carelessness do not result in injury. With IQ box Safety, the door, window and safety specialist GEZE offers a safe solution for all the demands placed on a power-operated window. The manufacturer supports architects, planners and building managers with demand analysis in the area of automated natural ventilation, and provides customised advice.

GEZE IQ box Safety: TÜV-tested safety for power-operated windows

IQ box Safety is suitable for protecting closing edges on automated power-operated windows in connection with all



Photo provided by Geze.

24 V GEZE IQ windowdrive drives. IQ box Safety enables simple and quick connection of various safety edges and non-contact sensors. For each window, one IQ box Safety connects up to four window drives and two locking drives. It is suitable for applications in the area of natural ventilation and smoke extraction (smoke and heat extraction system and SHEV) and in connection with the GEZE IQ box KNX. The GEZE IQ box Safety module is TÜV-tested, and complies with the EN ISO 13849-1 and 2 standards. As such, it meets the most stringent protection demands for power-operated windows in accordance with risk assessment under the Machinery Directive.



Photo provided by Geze.

Plug-and-Play solution: connect, plug in, done

Installation and commissioning of the GEZE IQ box Safety is incredibly easy: the top hat rail mounting with plug-in terminals is easily connected to the GEZE window drive and other GEZE IQ boxes. The pre-programmed sensor inputs enable speedy and straightforward commissioning of the system. DIP switches to switch the sensor inputs on and off are easily accessed on the front of the IQ box. An LED display indicates the operating status of the sensor at all times. The small dimensions enable the IQ module to "vanish" into a control cabinet or specifically prepared surface-mounted casing. The product thus offers planners and architects a high degree of flexibility regarding both the positioning of the system and the functional design of ventilation and smoke and heat extraction windows.



Photo provided by Geze.

For more information, visit www.geze.sg.

Roppe Corporation announces new products added to list of GREENGUARD Gold Certified Products

Fostoria, Ohio, USA – Roppe Corporation announced that two more of its products have been certified by Underwriters Laboratory as GREENGUARD Gold. US-made Roppe Pinnacle Rubber Base and Pinnacle Plus, the profile version of the well-known Pinnacle PVC-free base formulation, are now certified. To be awarded certification, Roppe's products went through a comprehensive certification review and analysis of chemical emissions. GREENGUARD Gold certification must be renewed on an annual basis.

Roppe's Pinnacle products are known for exceptional durability and dimensional stability and are constructed from a thermoset rubber compound that meets ASTM-1861 requirements. Pinnacle Rubber Wall Base is offered in 70 colours and five toe profiles. Pinnacle Plus is offered in the same 70 colours and 15 architectural profiles. Pinnacle Rubber Base products are manufactured to the highest standards for commercial installation.

Roppe's GREENGUARD Gold Certified rubber products are free of phthalates, halogens and PVC, and are the only flooring products free from Red List Chemicals that are proven to be harmful to humans. Recognised and referenced by over 400 building codes, rating systems and procurement policies worldwide, GREENGUARD Certification requires that products meet some of the world's most rigorous and comprehensive limits for low emissions of volatile organic compounds into indoor environments.

Roppe GREENGUARD Gold certified products include: Roppe Rubber Tile, Envire Rubber Sheet & Tile, Roppe Rubber Stair Treads, Roppe Rubber Stair Tread with DuPont™ Kelvar® fiber, Roppe Northern Timbers Luxury Vinyl Tile, Roppe Northern Parallels Luxury Vinyl Tile, Health & Learning Vinyl Tile, Pinnacle Rubber Base, and Pinnacle Plus Rubber Base.

For more information, visit www.roppe.com.



Photo: © Roppe



Photo: © Roppe

Armstrong Flooring wins four 2021 GOOD DESIGN® Awards for Design Excellence

Lancaster, Pennsylvania, USA – Armstrong Flooring announced that four products – Exchange™ Luxury Flooring, Theoren™ Luxury Flooring, Empower™ Rigid Core, and Rest & Refuge™ Rigid Core – were awarded the prestigious GOOD DESIGN 2021 Award.

Honoured for quality design of the highest form, function and aesthetic, these awards recognize products across multiple flooring types (LVT and rigid core), as well as on both the commercial and residential sides of the business. Each product features Diamond 10® Technology, which offers category-leading scratch, stain, and scuff resistance.

In November and December 2021, the 71st GOOD DESIGN jury convened to select over 1,100 product designs and graphics from over 50 nations worthy of the GOOD DESIGN Award for their Design Excellence. Founded in Chicago in 1950 by Eero Saarinen and Charles and Ray Eames, GOOD DESIGN remains the oldest and the world's most recognized program for design excellence worldwide.



Exchange™ Luxury Flooring. Photo courtesy of Armstrong Flooring

For more information, visit www.armstrongflooring.com.

Lapitec, the completely “silica-free” sintered stone

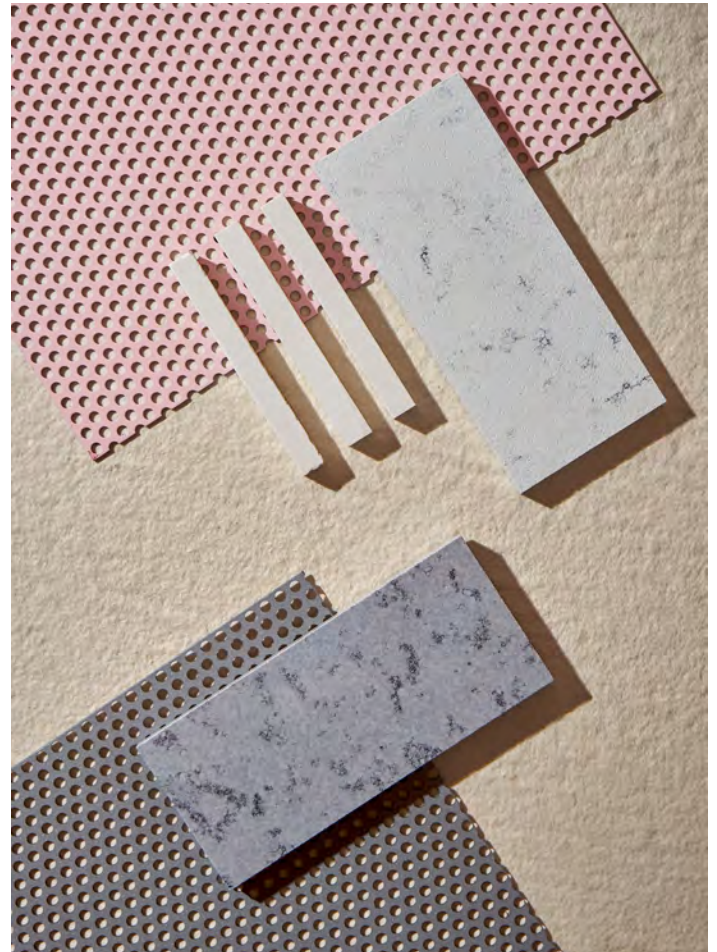
Vedelago, Treviso, Italy – While some countries still allow certain amounts, others – such as the United States and Australia – have already introduced strict regulations prohibiting the use of crystalline silica in all materials, making this one of the most widely discussed topics in the construction and architecture spheres in recent months. Inhalation of dust containing crystalline silica, which is naturally present in all clay, granite, quartz and sandstone, can cause silicosis and other chronic respiratory diseases.

In 2021 Lapitec committed to eliminating crystalline silica from its product range, and in 2022 it is now officially silica free. The Italian company had already begun the process with the colours Bianco Assoluto, Nero Assoluto and the Musa collection, and can now add the remainder of the range. Composed of a mixture of 100 percent natural minerals and already free of resins, digital prints and other petroleum derivatives, the Lapitec family of surfaces has now achieved an additional objective in terms of sustainability and safety, without sacrificing any of its performance characteristics.

“We have been experimenting for a long time, and have invested significant resources over the past decade to achieve this outstanding result, which we are very proud of,” commented Marcello Toncelli, the third generation of the family at the helm of the company. “Using natural minerals, we have found a way to synthesize a new mineral that we have called Biorite®. A Lapitec exclusive that, together with the other components of the mixture, makes the material completely ‘silica-free’ and safe for fabricators, installers and anyone mechanically processing the material, starting with our own workers.”

Biorite® joins the list of inventions registered by Lapitec which, thanks to the advanced technologies of the parent company, Breton S.p.A., boasts more than 25 patents. These advances make sintered stone a unique material, resistant to sudden changes in temperature, frost and high temperatures, impacts and scratches, and equally suitable for indoor and outdoor use thanks to its pore-free surface and “full body” composition, without the use of digital prints.

And so this new year brings another milestone: “Before the invention of Biorite® only a few colors in the collection had zero crystalline silica. But today we are able to extend this feature to our entire range. Ours is above all a natural and sustainable product, which cares for people and the planet.”



Marcello concluded. “The ability to create certain raw materials internally also makes us more autonomous, allowing the company to respond to the current shortage of raw materials that is paralyzing the global market.”

Lapitec is currently used all over the world for architectural, interior and product design projects, in facades, floors, swimming pools, kitchens, bathrooms, decor, yachts and much more.

For more information, visit www.lapitec.com.

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New designer brand for handle and knobs lands in Singapore

Singapore – As part of the EDL Group's effort to expand their product offerings, they have secured a partnership to become the exclusive distributor of Viefe handles and knobs. Based in Spain, Viefe is an innovative manufacturer of designer accessories. The company currently operates in more than 45 countries, with the Southeast Asian region now part of its growing reach around the world.

Exploring handles and knobs were a natural complement for the company. Originally a laminate supplier, these materials are used for interior carpentry, and a key piece of furniture in the home is the cupboard – this is where handles come in.

"We liked Viefe for its collaborative approach to design, working with designers from all over the world who offer innovative ideas for their products. Their designer hardware offers quality at an affordable price point, sitting comfortably in the 'premium affordable' gap in the market. This is a market segment shared with EDL's customer base and product offerings," said Eleanor Lim, Marketing Director, EDL.

There are limited options for designer accessories in the local market. Viefe represents a welcomed addition, with a smorgasbord of selection created in collaboration with handpicked designers.

"The cupboard represents much more to us than simply a piece of furniture with handles. They are pieces of furniture that offer refuge, a place where we store our clothes and objects with personal meaning and give a glimpse into our life history. It's the place where we keep the most visible parts of our personality, a place that we open day after day thinking how we are going to present ourselves to the world. Viefe, through the use of knobs and handles, have accompanied customers in making of these daily decisions," said Viefe.

The Viefe design process starts with thinking about the details of each space, how people live there and how their products can make lives easier – whilst always following the latest trends with materials, finishes and shapes. The collection strives to create personality using accessories which manage to project a unique, yet plural aesthetic style.

GRAF

A family of handles and knobs with a modern, industrial aesthetic. It has a mesh like texture, ensuring a firm grip when you pull on it. Available in stainless steel look, dark brushed brass, and brushed black.



JEY. Photo courtesy of Viefe.

HEXXA

The most unique and innovative design in our collection, Hexxa is an integrated handle with two sides presenting a slight inclination. This creates a visual effect that is modern and ground-breaking. Available in mat white, mat black, metallic grey and metallic brown.

For more information, visit www.edleuro.com/viefe.



GRAF Knob. Photo courtesy of Viefe.

JEY

Jey handles are characterised by their functionality, elegance and sophistication. The handles can be perfectly integrated to each piece of furniture for clean, subtle design. Available in three colours –stainless steel look mat white and black.



HEXXA. Photo courtesy of Viefe.

Tarkett and Ragn-Sells aim at transforming Estonian ash piles into carbon negative raw material for vinyl flooring by 2025

Paris, France – Tarkett and the Swedish environmental company Ragn-Sells, have announced a collaboration aiming at developing carbon negative mineral fillers for vinyl flooring by 2025. The calcium is extracted from ash piles in Estonia and the calcium carbonate is produced using carbon capture technology.

During the last 50 years, Estonia has incinerated oil shale rock to produce energy. As a result, more than 600 million tons of oil shale ash have been disposed of in nature, heavily impacting the environment. Ragn-Sells has developed a patented solution transforming ash into useful mineral fillers using carbon capture technology. Several hundred thousand tons of mineral fillers, most of them calcium carbonate, are used by Tarkett for their vinyl flooring solutions every year.

The calcium carbonate currently used by Tarkett is already carbon neutral. With the calcium carbonate produced by Ragn-Sells, it is expected to generate a carbon negative footprint. The partnership with Ragn-Sells will contribute to achieving Tarkett's 2030 objective of reaching 30 percent of recycled content in its raw materials, ultimately reducing the company's carbon footprint.

"Today's society is based on an unsustainable use of natural resources. Ragn-Sells is committed to bringing more resources back into the loop. To close these material loops,

we need to collaborate with other stakeholders in the value chain," said Pär Larshans, Sustainability Director at Ragn-Sells Group. "Tarkett is an excellent example of a company that shares our vision and commitment, and we very much look forward to developing our collaboration," continued Mr Larshans.

"For Tarkett, this project has the potential to produce flooring with raw materials that contribute to the clean-up of the environment in Estonia while capturing carbon dioxide. As a result, our vinyl flooring will have a lower carbon footprint and an increased amount of recycled content. This is exactly the kind of innovative and robust partnership that we believe will pave the way for a circular and carbon neutral society," said Arnaud Marquis, Chief Sustainability Officer at Tarkett.

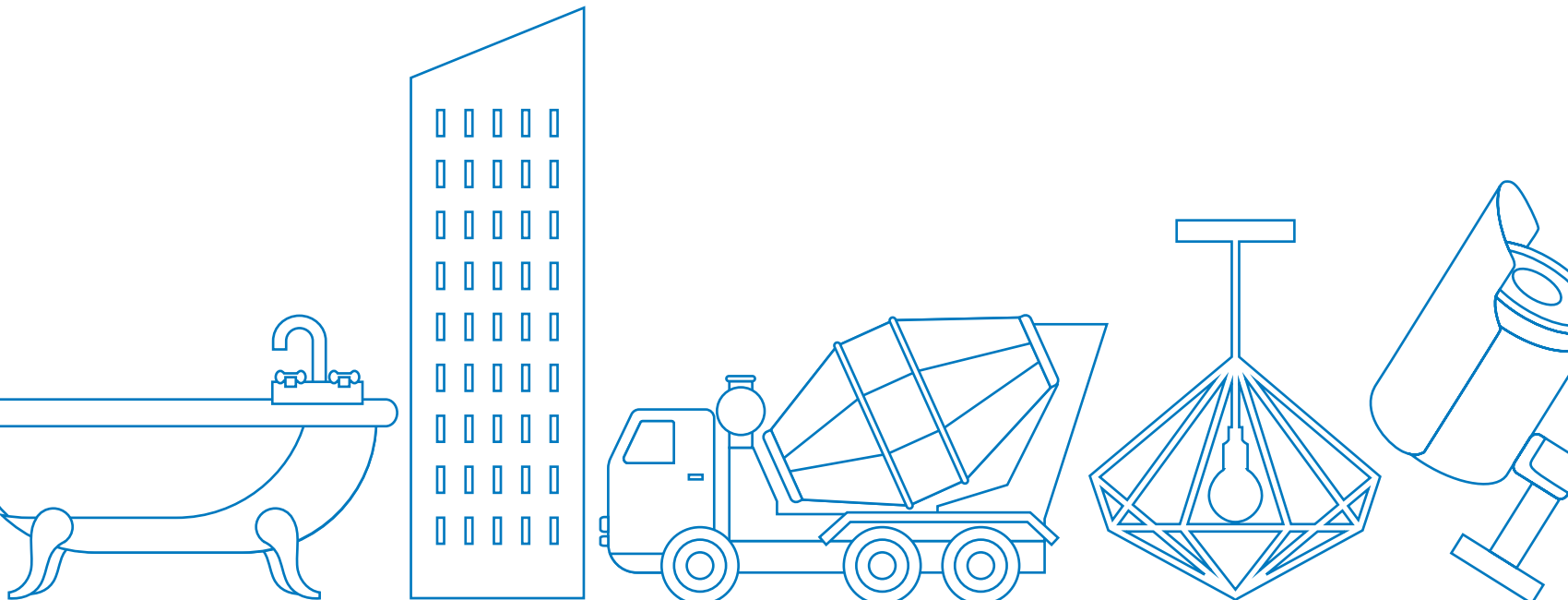
Carbon footprint of calcium carbonate in Tarkett flooring

The calcium carbonate currently used by Tarkett already has a carbon neutral footprint of 0.006 kgCO₂eq per kg (cradle-to-gate). With the calcium carbonate produced by Ragn-Sells, it is expected to generate a carbon negative footprint of -0.4 kgCO₂eq per kg (cradle-to-gate).

For more information, visit www.tarkett-group.com.



Photo by Ragn-Sells Estonia.



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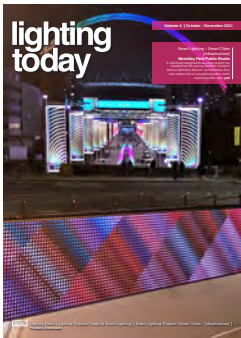


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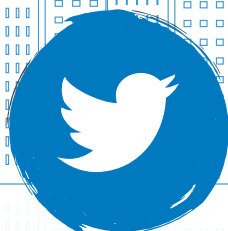
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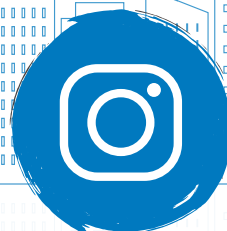
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Kitchen + Bathroom Indonesia (Edition 2)	21–24 Sept 2022	Jakarta	Indonesia	www.kitchenbathroomindonesia.com	IBC
ConsBuild ASIA 2022	28–30 Sept 2022	Bangkok	Thailand	www.consbuild-asia.com	59
WORLDBEX 2022	31 Aug –20 Sept 2022	Manila	Philippines	www.worldbex.com	61

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