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SOUTHEAST ASIA BUILDING

March / April 2021



Jakob Factory

Ho Chi Minh City, Vietnam

PROJECTS Industrial Buildings
TRENDS Drones in Architecture
PLUS Mechanical, Electrical & Plumbing Systems Industry News

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On the Cover: Jakob Saigon Factory, Vietnam. Photo: © Hiroyuki Oki, courtesy of G8A Architects.

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Dear readers, welcome back to another issue of SEAB. We have just entered the Year of the Ox according to the Chinese Lunar Calendar and we hope that the new year ushers in some good changes for everyone.

In this issue of SEAB, you will get to read about industrial building design. Industrial buildings have evolved from conventional looking structures to modern spaces over the last few years due to the innovative ideas of architects. These days, they are not only functional but also aesthetically pleasing and sustainable. See the amazing works of architects starting on page 38 and onwards.

In the trends section, we look at the benefits and challenges of using drones in architecture and how this technology will evolve in the future. Architects, who use drones in their work, share their thoughts with us in an interview.

Enjoy this issue! If you have any comments or questions, email me on seab@tradelinkmedia.com.sg.

Amita Natverlal

MAY/JUNE ISSUE THEMES
- Projects – Hotels
- Trends – Playground Equipment & Design
- M.E.P. Systems (Refer to the media kit)
- Products – Walls & Ceilings (Advertorial)

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Hangzhou Asian Games Park nears completion

Hangzhou, China – 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 amphitheater 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.

The design also includes the infrastructure that will be required to support these legacy uses, enabling the complex to seamlessly convert after the Games end. Though the Games themselves will be serviced completely by public transit, Archi-Tectonics discretely incorporated 645,000-square-feet of parking space underneath the park, supporting legacy uses including major events in the stadiums as well as shopping in the Village Valley Mall, nature walks, and recreational sports leagues. More, custom-designed Solar Wings power an outdoor lighting system, allowing the park to be safely and comfortably used for public recreation at night without increasing its carbon footprint.



South view of the park. Rendering of the masterplan courtesy of Archi-Tectonics.

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.

ASSA ABLOY's award-winning design redefines commercial door hardware

Hong Kong – ASSA ABLOY's ambitious growth strategy is rooted in an uncompromising commitment to delivering new and innovative products. The Group has been investing in research and development. Its 10 design centres across Asia Pacific are driving innovation across its flagship products, including security locks, fire doors, architectural hardware, and smart solutions.



Photo: © ASSA ABLOY

"Our industrial design is dictated by a design-to-value approach," said Henry Lee, Industrial Design Director at ASSA ABLOY Opening Solutions APAC. "We are dedicated to building the best possible solutions for our customers. Our top priority always remains to deliver products that provide the greatest total value over their entire life cycle," he added.

The success of ASSA ABLOY's design-to-value approach and seamless product development is evident in its award-winning Lockwood Brass Core range of commercial door handles. The leading brand recently won the 2020 Good Design Award, one of Australia's most prestigious awards for design and innovation. Launched in October 2019, the range comprises 24 stylish designs that break the commercial door hardware paradigm. Hardware for commercial spaces like schools, public buildings, and care facilities typically prioritize function and compliance over style.



Dawson Vista.

78A Strathmore Ave

The New Wonderland Playground at Dawson Vista was inspired by "Alice in Wonderland" a popular children's classic created by Lewis Carroll in 1865. The whimsical thematic design integrates traditional elements such as slides, seesaw, climbing platforms, and trampoline to encourage families to explore and play together.

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Azerai Ke Ga Bay debuts on Vietnam's scenic southeastern coast

Ke Ga Bay, Vietnam – Azerai Ke Ga Bay, an elegant and secluded oceanfront retreat in southeastern Vietnam, debuted in December 2020 as the third property in Azerai Resorts' growing portfolio.

The 46-key resort, a combination of suites and private-pool suites, succeeds Princess D'Annam Resort & Spa on the same site following an extensive renovation, and is located 180km east of Ho Chi Minh City on a sweeping five-kilometre white sand beach overlooking the East Sea.

Framed to the north by Ke Ga Island, with its historic 1899-built colonial French lighthouse, and to the south by soaring sand dunes, the resort, which officially opened on November 15 2020, cultivates one of the most naturally splendid oceanfront settings in the country.

The guest suites at Azerai Ke Ga Bay evoke a contemporary aesthetic defined by elegance and minimalist design, with 10 units boasting either plunge pools or larger private pools.



Photo: © Azerai Resorts

CapitaSpring tops out, on track for full completion in 2H 2021

Singapore – CapitaSpring, the newest 280-metre-tall landmark rising above Singapore's skyline, has achieved full height, with about 75 percent of the overall construction completed. This puts the 51-storey integrated development, located in the heart of Raffles Place Central Business District (CBD), on track to receive Temporary Occupation Permit in 2H 2021. CapitaSpring is jointly owned by CapitaLand Limited (CapitaLand), CapitaLand Integrated Commercial Trust (CICT) and Mitsubishi Estate Co., Ltd (MEC). To date, about 38 percent of CapitaSpring's 647,000 square feet of net lettable area (NLA) have been committed. Including leases in advanced negotiations, the development is on track to achieve more than 60 percent commitments by completion.

Mr Tan Yew Chin, CEO, CapitaLand Singapore, said: "CapitaLand and our partners are pleased to achieve topping out for CapitaSpring. This construction milestone is made possible only with the support of the authorities and our staff, consultants, contractors, suppliers and migrant workforce. CapitaSpring represents CapitaLand's vision for the future of work with fully integrated core-flex solutions, tech-enabled frictionless user experience and community-centric programming. As COVID-19 changes the norms of work, the forward-looking features of CapitaSpring have strengthened the development's value proposition as a flexible, sustainable and connected workplace ecosystem. Supported by CapitaSpring's prime CBD location, we are confident that the development will enjoy take up rates similar to or better than CapitaLand's 79 Robinson Road project in the Tanjong Pagar CBD micro-market, which is on track to reach 90 percent committed occupancy."



CapitaSpring tops out. Photo: © CapitaLand Limited

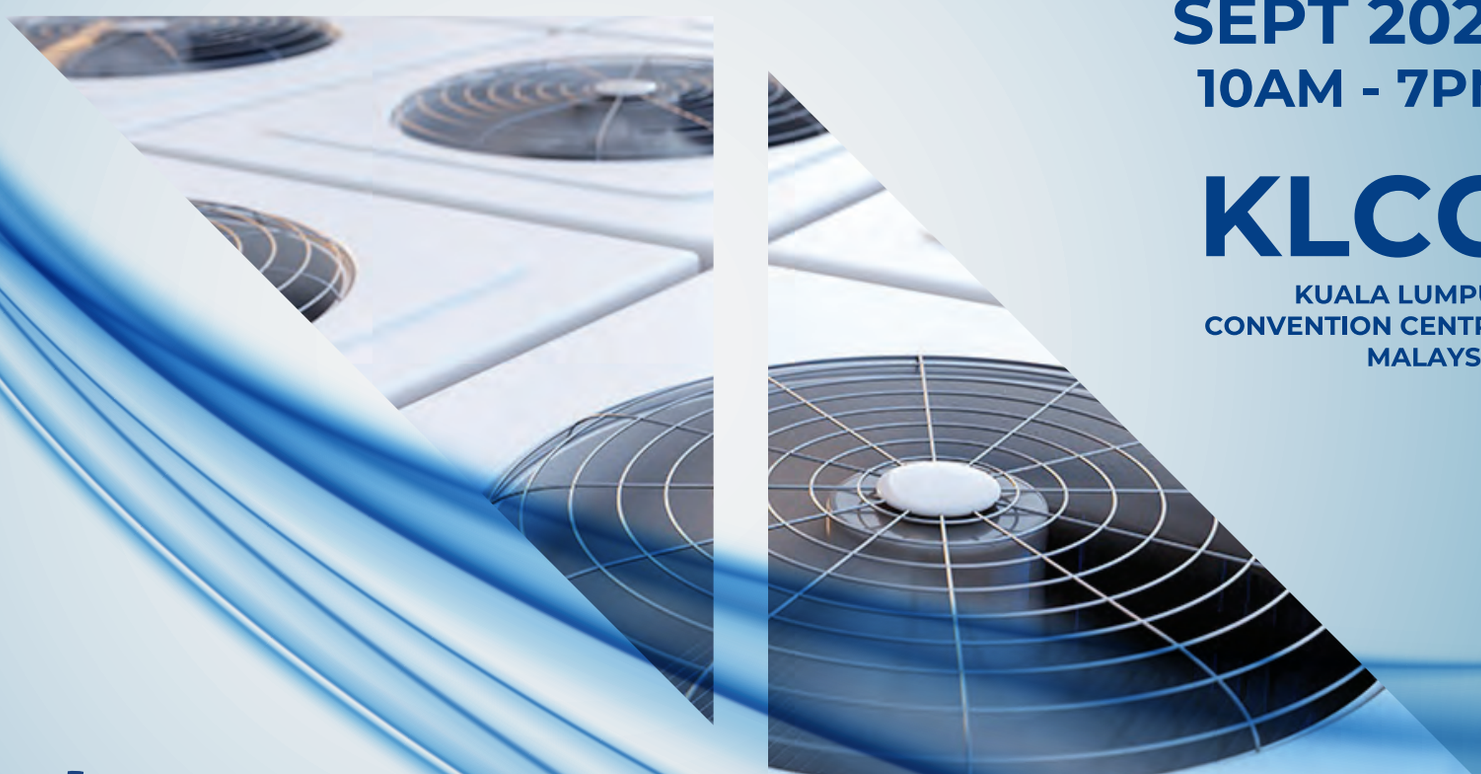
CapitaSpring will offer fully integrated workspace solutions that include the full range of hot desks, meeting facilities, private offices, large enterprise suites and bare shell leases. This will enable it to better support any new, flexible requirements of conventional office tenants as well as the expansion needs of small and medium enterprises in flex spaces. Tenants can also benefit from the flexibility and cost efficiency of a customised workspace solution.

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Public sector to receive support for recovery from construction demand

Singapore – The Building and Construction Authority (BCA) in Singapore projects the total construction demand in 2021 (i.e. the value of construction contracts to be awarded) to range between S$23 billion and S$28 billion. This is an improvement from the S$21.3 billion (preliminary estimate) in 2020 during the ongoing COVID-19 pandemic.

The public sector is expected to drive the construction demand in 2021, to between S$15 billion and S$18 billion with an anticipated stronger demand for public housing and infrastructure projects. Some of the upcoming major public sector projects scheduled to be awarded this year include various contracts under the Jurong Region MRT Line, the Cross Island MRT Line Phase 1 and the Deep Tunnel Sewerage System Phase 2.

Private sector construction demand is projected to be between S$8 billion and S$10 billion in 2021. BCA projects the bulk of private sector construction demand in 2021 to comprise development of the remaining en-bloc residential sites, major retrofitting of commercial developments as well as construction of high-specification industrial buildings to meet business needs.

Due to the impact of the COVID-19 pandemic, which disrupted project implementation schedules, the preliminary figure for construction demand in 2020 indicated a decline of 36.5 percent to S$21.3 billion. This was within BCA's revised forecast of S$18 billion to S$23 billion.

Public sector construction demand dropped from S$19.0 billion in 2019 to S$13.2 billion in 2020, as some major infrastructure projects that required more time to assess the pandemic's impact on resource management and project schedules, were postponed. Meanwhile, private sector construction demand decreased from S$14.5 billion in 2019 to S$8.1 billion in 2020, due to market uncertainties amid the COVID-induced economic recession.



Mr Desmond Lee, Minister for National Development, delivering the opening address at the BCA-REDAS Built Environment and Property Prospects Seminar 2021. Photo: © Building and Construction Authority

Forecast for 2022 to 2025

BCA expects a steady improvement in construction demand over the medium term. It is projected to reach between S$25 billion and S$32 billion per year from 2022 to 2025[1].

The public sector is expected to lead the demand and contribute S$14 billion to S$18 billion per year from 2022 to 2025 with similar proportions of demand coming from building projects and civil engineering works. Besides public residential developments, public sector construction demand over the medium term will continue to be supported by large infrastructure and institutional projects such as the Cross Island MRT Line (Phases 2 and 3), the Downtown Line Extension to Sungei Kadut, the cycling path networks, the relocation of Singapore Science Centre, the Toa Payoh Integrated Development, the Alexandra Hospital redevelopment and a new integrated hospital at Bedok.

The private sector construction demand is expected to improve steadily in the medium term to reach between S$11 billion and S$14 billion per year from 2022 to 2025. This is in anticipation of a gradual recovery of the global economy, contingent on the successful deployment and effectiveness of COVID-19 treatment and vaccines as well as easing of lockdown restrictions.

Construction output

Based on the contracts awarded in the past few years and considering the construction demand forecast for 2021, the total nominal construction output in 2021 is projected to increase to between S$24 billion and S$27 billion, from the estimated S$19.5 billion in 2020. An anticipated improvement in construction demand in 2021 and the backlog of remaining workloads impacted by the COVID-19 during 2020 will support the projected pickup in total construction output.

Although 2020 was particularly challenging for the built environment sector, the industry has shown great resilience. The COVID-19 pandemic has necessitated the industry to rethink the way Singapore builds to overcome the challenges. BCA will continue to work with its industry partners, led by the trade associations and chambers (TACs), to accelerate industry transformation.

The Alliance for Action ("AfA") on Digitalising Built Environment, an industry-led and government-supported coalition, has identified digitalisation as an important enabler to help the industry build smarter. One of the initiatives introduced by the AfA is the introduction of a set of data standards for the Common Data Environment to facilitate more seamless information flow for building projects across digital platforms shared by various building professionals and companies along the value chain (see Annex for more information about the Data Standards).

[1] The medium-term construction demand projection excludes any potential awards of construction contracts for the development of Changi Airport Terminal 5 and its associated infrastructure projects as well as the expansion of Integrated Resorts as their construction timelines are still under review due to the impact of the COVID-19 pandemic.

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Xiamen Stone Fair 2021 – Rethink for A Better Future

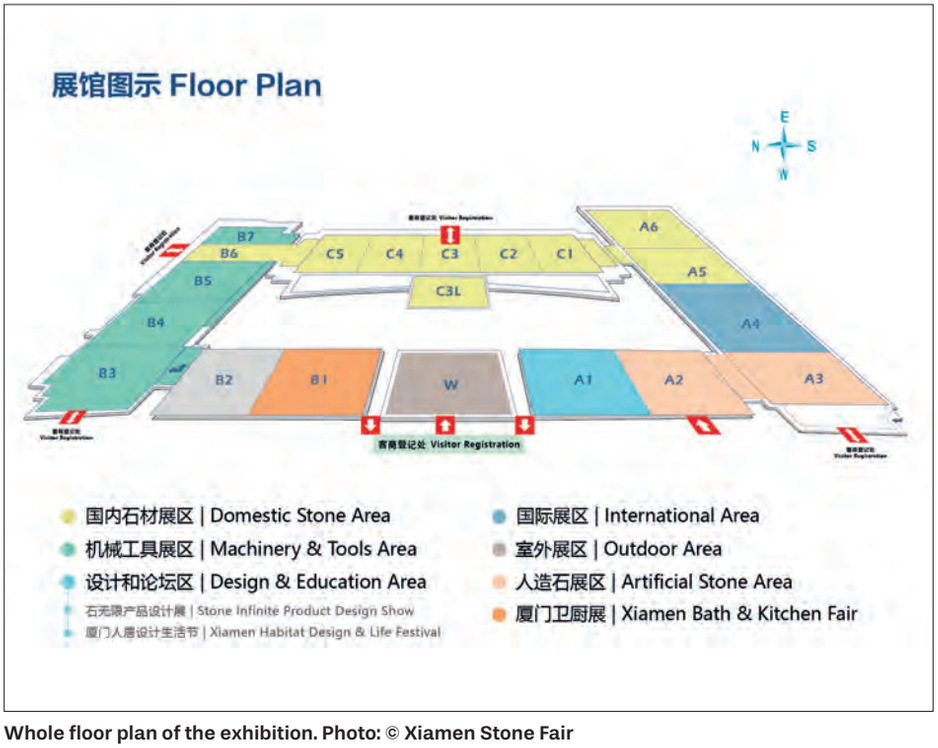
Xiamen, China – Xiamen Jinhongxin Exhibition Co., Ltd. has announced that the 21st China Xiamen International Stone Fair will be held on May 18–21, 2021 in Xiamen, China and they would like to present a new year proposal for the whole community.

In the new edition, Xiamen Stone Fair is planned as 8 exhibition areas: Domestic Stone Area, Machinery & Tools Area, International Area, Artificial Stone Area, Outdoor Area, Design & Education Area, Media Area and Xiamen Bath & Kitchen Fair.

Hall C1–C5, C3L, B6 and A5–A6 display numerous natural stone and stone products from China. Hall B3–B7 is for machinery and tools in which smart manufacturing will be a highlight. International Area is planned in Hall A4–A5 where most national delegations and overseas exhibiting companies will send staffs or agents in China to represent their booths. Hall A2–A3 is organised for artificial stone while Hall W is for stone raw blocks and large machines. Moreover, it is the first try to arrange design & education area in Hall A1 in which Stone Infinite Product Design Show and Xiamen Habitat Design & Life Festival are co-located.

New Plan of Exhibition Areas – to extend the coverage

In 2021 edition, natural stone, machinery, tools and accessories still take a leading part. Besides, in order to truly reflect the current situation and future trend of stone industry, new subjects will be introduced. Keywords like sintered stone, kitchen and bathroom supplies, smart manufacturing, eco-friendly production, customisation and more can be found in the show. International area will see a re-planning. After the announcement, the show organiser will contact overseas companies and actively assist those who will send staffs or agents in China to attend the fair. National delegations from Italy, Turkey and Portugal are under orderly preparations.



Whole floor plan of the exhibition. Photo: © Xiamen Stone Fair

Design Matters – to strengthen the connection

In the past 10 years, Xiamen Stone Fair has cooperated with global famous architects and designers to brand a series of featured events including Global Master Architects Forum, Stone Infinite Product Design Show and other educational sessions. In the upcoming show, Xiamen Stone Fair will make more efforts to integrate global resources and strengthen the linkage of design and stone. A brand new featured event, Xiamen Habitat Design & Life Festival curated by International Habitat Interior Design Association will make its debut at Xiamen Stone Fair. Media of design, house and home industry will join as well to create a buzz. Xiamen Stone Fair has assigned a team to help designer delegations acquire latest trend and quality materials from thousands of exhibiting companies in the fair and customize study tours to visit factories.

A Different Presentation – to broaden the channels

The 3rd Stone Infinite Product Design Show with the theme of "Stones in Daily Life" is structured in 6 sections: Art in Stones, Life in Stones, Artifacts in Stones, Constructions in Stones, Salon in Stones and Tea Break in Stones. The show organiser is honoured to invite Xiaojie as the chief curator, LAU Siu-Hong, Freeman as the visual identity design consultant and Wang Xiangrong as the art consultant.

Industry forums will be held in corresponding exhibition areas to closely focus on hot topics and pain points as well as visualize the installation, conservation and after-sales services.

The digital platform, Cloud Xiamen Stone Fair introduces new marketing modes including video marketing, live streaming, online matchmaking and more. For the first time, Xiamen Stone Fair will go onsite and online to energize the industry.

For more information, visit the website www.stonefair.org.cn.

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Playpoint launches new logo as it marks the company's 20th anniversary

Singapore – Entering 2021, Playpoint is proud to announce that apart from celebrating its 20th anniversary this year, the company has a new brand identity as well.

Playpoint's new identity was inspired by building blocks, which are fundamental units that a structure comprises of and is built upon. The new brand mark comprises of uniquely shaped building blocks, intricately pieced together to form the alphabet "P".



3G Park at Nee Soon South, a project by Playpoint.

"The alphabet represents Playpoint as a whole entity, while the circle that adorns the space beside it accentuates our belief that play spaces can be sophisticated," said Jason Sim, Managing Director, Playpoint (Singapore) Pte Ltd.

Throughout the years, Playpoint's team has grown in numbers. Many, including the people that the company has collaborated with, have contributed to its growth. Individually, these contributions are like separate building blocks. When these contributions stack together and combine, however, they form the whole that is Playpoint. That is what Playpoint hopes to represent with its new icon.

"As a team, we have contributed to Playpoint gradually over the years, stacking our contributions block by block to stand at where we are today," added Mr Sim.

The circle is a symbol of wholeness and totality, which represents Playpoint's approach to building playgrounds. From beginning to end, the company is in complete control of the process, which is carried out under one roof. This enables Playpoint to balance the opposing qualities of "fun" and "resolute" in its work; two halves that make up a perfect whole to represent its attitude to its craft.

"We have fun during the design process, when we let our imaginations run wild and ideate designs that no others can think of. Yet at the same time, we are resolute and determined to never let our works be functional and safe," said Mr Sim.

These two elements unite to form Playpoint's new logo: a representation of the company as a collective. "We are Playpoint, a complete whole that is greater than the sum of our parts," concluded Mr Sim.

MAD-designed Wormhole Library tops out

Beijing, China – The Wormhole Library, designed by MAD Architects, has topped-out in the city of Haikou, China. The milestone was reached at the end of January 2021.

Overlooking the China South Sea, the Wormhole Library is situated within the Century Park along the Haikou Bay coastline. Upon completion it will serve as a multi-functional building, accommodating spaces for reading, and a public rest area for visitors.

The intimately scaled structure is cast of white concrete as a unit. The curved concrete walls not only serve as an organic architectural structure, but also connect the ceiling, ground, and walls together. Holes of varying sizes allow the architecture to breathe, while also letting natural light flood the interior. The grey spaces of the exterior corridors provide shaded spots for passers-by to stop and rest.

Within the library, people interact directly with both the sky and sea. Humans are no longer the dominant beings, and architecture is no longer the dominant vessel. The visitor experience is instead a "glimpse into the universe" – abstract but infinite.

The Wormhole Library allows visitors to read, enjoy views of the sea, and attend open-air performances, temporarily removing themselves from the hustle and bustle of everyday life. As Haikou's next energetic, popular public space, the library will bring layers of color and activity to the city.



Photo by Agovision.

The project is scheduled to be completed and operational in the Spring of 2021.



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Frasers Property receives eight certifications from Singapore Environment Council in recognition of its low-carbon and sustainable initiatives at its commercial buildings

Singapore – Frasers Property Singapore has announced that five of its commercial buildings in Singapore – namely Frasers Tower, Alexandra Technopark, Cross Street Exchange, Valley Point, and 51 Cuppage Road – have received a total of eight certifications from Singapore Environment Council (SEC).

This is in recognition of strong efforts made in implementing building practices and initiatives to reduce carbon footprint and promote sustainable consumption and production. All the five commercial properties have received the inaugural *GreenDNA* certification, which is accredited by the United Nations Environment Programme. In addition, Frasers Tower, 51 Cuppage Road and Valley Point have attained SEC's Eco Office Elite certification for adopting environmentally friendly practices to enhance eco-consciousness among employees.

Mr Jack Lam, Chief Operating Officer, Commercial, Frasers Property Singapore, said: "We have a responsibility to be part of the solution to lower carbon footprint and that means embracing building practices that deliver healthy, resilient and sustainable places for people and the environment. In addition, we remain committed to training and educating our employees on sustainability as we aim to inspire them to consume responsibly. These certifications are a testament to these on-going efforts at our commercial properties."

Frasers Property has an energy management plan to reduce energy consumption intensity by 20 percent at its management offices in Singapore by 2030 as compared to 2015. Besides organising regular educational activities to inculcate the importance of sustainability and communicating energy-saving targets to employees, Frasers Property also has a set of strategies and processes to cut usage of paper, water and electricity as well as promote recycling and reusing of materials. The management offices at Frasers Property's commercial properties adopt systems to monitor, track and manage electricity and water consumption as well as waste generation.



Mr Jack Lam (right), Chief Operating Officer, Commercial, Frasers Property Singapore, receives the GreenDNA certifications from Minister for Sustainability and the Environment of Singapore Ms Grace Fu (centre) on behalf of the company, with Ms Isabella Loh (left), Chairman of Singapore Environment Council (SEC), looking on. Photo: © Singapore Environment Council

In November 2020, Frasers Tower was also the second runner-up and only Singapore building amongst Southeast Asia's top five new and existing buildings in the Energy Efficient Building Category of the ASEAN Energy Awards 2020. This premium commercial development in Singapore's core Central Business District has been recognised for its strong efforts in energy efficiency and renewable energy solutions by ASEAN Centre for Energy, an inter-governmental organisation that represented ASEAN members' interests in the energy sector.

SPRESSER and Peter Besley win architecture competition

Sydney, Australia – SPRESSER and Peter Besley have won an architecture competition for a new permanent public pavilion on Sydney Harbour in Australia.

SPRESSER is an emerging architecture practice based in Australia, founded by Jessica Spresser. Peter Besley is a UK architect working in London and Australia.

Made of recycled Sydney oyster shells, the Pavilion references human gathering by the sea. It is designed as a democratic gathering space under a landscape canopy and acts as a meeting place, a site for events, and a memorable part of the city. Approximately 380 square metres in area, the Pavilion consists of 123 columns, an 8 metres diameter oculus and a smaller free-standing enclosure which contains a stage and bar/servery.

The Pavilion celebrates elements that compose the site: land, sea and sky. Land is expressed through a democratic gathering space under a landscape canopy; its curved envelope analogous to neighbouring coves. Sea is experienced via materiality. Sydney rock oysters are mixed with white concrete, which is then honed to reveal the shell. Sky is understood through a large oculus puncturing the canopy, its perfect circle free of earthly geometries.

At a distance the Pavilion retains a bold statuesque quality due to the simplicity of its elevations being made entirely of columns, and those columns being full height to the thin eave. Up close, a person finds themselves also in a civic scale, this time of the column height with respect their own, and the column families working together in powerful arrays.

The Pavilion is intended to remain for a long time, and become indivisible from the place. It is intended to figure in people's memories as they grow: from child to teenager, to adult and elderly person. The design's distinctive shape, qualities of light, compelling spaces, and oyster texture will all live on in the mind over time. The Pavilion seeks to attach itself to memorable occasions in people's lives.

The Pavilion is due for completion in late 2022.

"We are very honoured that our scheme has been selected from such a strong field of contenders. Personally, this means a great deal as an emerging young architect. The organisers deserve great credit for putting together this blind-assessed, meritocratic competition," said Jessica Spresser.

"In the context of a busy, bustling world city we wanted to make a work that was profoundly still. We hope it has an almost haunting intimacy despite being a decidedly civic building at the same time," said Peter Besley.



Aerial view of the Pavilion. Image: © SPRESSER and © Peter Besley

ZED Lab completes The Cantilever House in Ghaziabad

New Delhi, India – The Cantilever House draws from the regional vernacular and finds expression through a contemporary lens to become a home for a family of four. ZED Lab designed the house in response to the clients' love for the outdoors.

The large cantilevers that the house derives its name from, anchor its design vocabulary, highlighting the scale of the building and breaking its mass through the focus on horizontality. The primary challenge was to design the frame with judicious use of steel for economic viability, given that the cantilevers form a dominant part of the design scheme and a typical one demands adequate steel reinforcement to generate structural integrity.



Photo: © Studio Noughts and Crosses | Andre J. Fanthome

The Cantilever House takes into account the harsh North Indian climate. It employs a series of mechanisms that minimise resource consumption and reduce the building's environmental impact while enhancing the residents' thermal comfort. For example:

- The double-height lobby is flanked by the summer court on the north and the winter court on the south to enable stack ventilation at all times.
- The night-time spaces are characterised by optimum thermal mass to protect the day-time spaces from the south and west sun.
- The north face of the house is glazed to admit diffused daylight and avoid heat gain and glare.

Metaphorically, the house is an oxymoron, serene and cool, with minimalistic decors, yet simultaneously adventurous in its design approach.

The subtle interiors comprise varying shades of browns and greys with a hint of colour that is sprinkled into spaces with the use of coloured dining chairs, cushions, etc. to add vibrancy and liveliness.

The house is full of cozy nooks, designed for maximum comfort and well-being, as well as encouraging responsible living.

Interior design of the first fully-automatic metro stations in the West of China breaks the conventional boundaries

Chengdu, China – Chengdu, the capital of Sichuan Province in Southwest China, is seeing a revolution in its metro station system, with the city's first fully-automatic unmanned metro line officially opening on the 18th December 2020. Chengdu Metro Line 9 Phase I is approximately 22 kilometres long, runs southeast to northwest of the city and consists of 13 underground stations.

The first phase of the line consists of 13 underground stations. The project's construction started at the end of 2016 and is the first unmanned subway line in the west China. The metro line will also be the world's first fully automated, unmanned line in a city area that operates with high-capacity Type 8A trains.

In 2018 and in the bidding stage of the project, Shenzhen-based Jiang & Associates Design (J&A), through design management platform, SOHOVita, collaborated with Sepanta Design in London as co-design partner, to develop the conceptual interior design of the stations. Acting as the executive interior designers of the project, J&A won the bid for the design of all the stations in the first phase of line 9 and the project went under construction in 2019.

The two clients for this project were Chengdu Metro, and China Railway City Development and Investment Group. Supported by their great ambitions for the project, the interior designers decided to take the same bold approach that the construction and operation of the metro line was taking, and create spaces that would entirely change people's expectations of what metro stations can offer them.

"Our main aim in the design of Chengdu metro stations was to 'provoke emotions'. There are some metro stations around the world that do that, but not many. Metro stations in central Moscow are a great example of how to take the design to another level and go beyond the functional and regulatory requirements. Chengdu metro stations are not going to be merely points of transit. They are going to be memorable spaces that offer their passengers an artistic and futuristic expression of their own culture," said Reza Esmaeeli, founder of Sepanta Design and Design Director at Chetwoods Architects.



Jincheng Avenue Station, photo and inspiration. Photo: © CHAPA

Chengdu Metro Line 9 passes through the birthplace of Sichuan Silk Culture and Sichuan Embroidery Culture, as well as many urban ecological parks. The designers wanted to express this culture and the artistry of Sichuan silk and embroidery in the interior design, and let the design reflect Chengdu city's progressive and creative culture.

The Interior Design

The 13 stations were divided into two categories. Four stations of Incubation Park, Jincheng Avenue, Cuqiao and Jitouqiao were selected as 4 'Feature Stations' that would each have a unique concept, reflecting their local environment. The other 9 stations were designed as 'Standard Artistic Stations'



Cuqiao Station – Trains Platform Level. Photo: © CHAPA

that would generally follow the same design, but each would have some local elements to differentiate it from the others.

Studying the rich culture of embroidery and silk weaving in Chengdu, the team created a formal language for all the stations that is based on an abstract interpretation of the embroidery techniques. The continuous movements of the lines, their interweaving, creation of nodes and pattern generation was reinterpreted with forms and texture in the space.

Each Feature Station has a different subtheme based on its location, which is explored and defined by use of its own colour palette, featured zones, bespoke furniture, special activities and choice of materials. Lighting is the key tool in the creation of the desired feeling in all the stations, and is achieved by use of various techniques in each station. Above all, what was most important for Sepanta and J&A design teams was to create design concepts that were fully inclusive and that all the conceptual and functional elements would come together under one organisational form.

DP Architects announces new Chairman and Chief Executive Officer

Singapore – DP Architects and its group of companies announced the appointment of Ms Angelene Chan as its Chairman and Mr Seah Chee Huang as its Chief Executive Officer, with effect from 1 February 2021. This new appointment is part of the leadership renewal and continuity plan for the 1000-strong multidisciplinary design practice, as it moves into its next phase of growth.

Ms Chan, the outgoing CEO, will take over as Chairman from Mr Francis Lee who will assume the position of Senior Director and advisor. During Ms Chan's five-year tenure as CEO, she consolidated DP's strategic growth from a group of architecture-led specialist companies to an integrated multidisciplinary practice. She widened the home-grown practice's international reach to Europe, South Korea and Australia. She heads DP's in-house design advisory board that recommends improvements and solutions to design schemes produced across its 16 global offices. A believer in research as a powerful design driver, she established 10 typology research groups to deepen the practice's design capabilities.

Ms Chan is the designer of the award-winning Sunray Headquarters, Wisma Atria façade transformation and Paya Lebar Quarter in Singapore. While serving as CEO, she continued to design and manage projects, many of them overseas including Bonnevaux Meditation Centre in Poitiers, France; Urban Bricks in Changwon, South Korea; and Northbourne Avenue in Canberra, Australia. A practising architect with over three decades of experience, Ms Chan was the recipient of the President's Designer of the Year Award in 2018. An influential leader in the built environment sector, she sits on the board of Urban Redevelopment Authority, Board of Architects, Professional Engineers Board and Sentosa Development Corporation. She is also the Vice Chairman of Dover Park Hospice.

"I will oversee the group's business development and corporate governance practices, and work closely with Mr Seah and the Board to chart DP's growth and ensure that the group's strategic development goals are met," Angelene Chan, Chairman (DPA).

Mr Seah, 46, joined DP Architects in 2003 and has been a director since 2013. In recent years, he has built a strong portfolio of inclusive and complex community and sports projects designed to invigorate our urban and social landscapes, where he was actively involved in multi-stakeholders and residents engagement. These projects include Singapore Sports Hub, Our Tampines Hub, the integrated community, sports and lifestyle hub; Goodlife! Makan, an elderly activity centre for stay-alone seniors; Heartware Network, a co-working place for a youth charity; and Bukit Canberra, the sports and community hub nestled in a park in Sembawang which will open this year. Mr Seah heads DP Architects' DesignGroup, which focuses on enhancing design innovation, and is one of the key drivers of DP's design research initiatives.



Seah Chee Huang (left) and Angelene Chan. Photo by Juliana Tan, courtesy of DP Architects.

An active member of the architecture community, Mr Seah sits on the council of the Singapore Institute of Architects since 2010; he was elected as its president from 2018 to 2020, during which he led the development of the Industry Transformation Map for the architecture profession. He also served on the Board of Architects (2018-2020) and sits on several design advisory panels and committees for various agencies and design institutions. Mr Seah was recognised as one of the emerging architects in URA's latest edition of 20 under 45.

"I am deeply honoured to be entrusted to lead this transformation," said Seah Chee Huang, Chief Executive Officer (DPA).

Two Aedas projects recognised at the CTBUH Annual Awards

Hong Kong – Aedas received two Award of Excellence for the Best Tall Building categories at the CTBUH Annual Awards this year. They are:

1. SHUIBEI International Center, Shenzhen, China (by Global Design Principal Dr. Andy Wen)

Best Tall Building (100–199 metres) category

Located in China's jewelry trade and processing hub in Luohu, Shenzhen, SHUIBEI International Center is a high-rise landmark that stands 210-metre tall. The project integrates Grade-A offices, a jewelry and lifestyle shopping center, food and beverages, entertainment and various other functions.

Inspired by traditional Chinese bamboos to symbolise prosperity, the podium adopts contours of a wide bamboo leaf and wraps around the commercial portion of the building with a curved outline and LED screen. The design incorporates public space on multiple levels, installing sky gardens, landscaped outdoor staircases and greenscaped rooftop podiums to accommodate work and recreational activities. Extensive greenery is employed as a way to blend into the surrounding neighbourhood and elevate the urban landscape.



Shuibei International Centre. Photo by CreatAR.



Hengqin International Financial Center (IFC). Photo by CreatAR.

2. Hengqin International Financial Center (IFC), Zhuhai, China (by Chairman and Global Design Principal Keith Griffiths and Global Design Principal Dr. Andy Wen)

Best Tall Building (300–399 metres) category

Aedas-designed Hengqin International Financial Center (IFC) stands 339-metres high at the estuary of the Pearl River, overlooking Macau across the water. Located in the propitious Hengqin Island, a future financial district connecting cities in the Greater Bay Area, the development is part of the economic force highlighted in China's latest national development strategies.

The design of the property is inspired by the famous painting 'Nine Dragons', dating from the Southern Song Dynasty. From outside in, the tower ascends from the ground up in a spiraling fashion, invoking the Chinese flood dragon myth as a metaphor for the dignity and grandeur of the region. To symbolise the converging of talents at this new metropolis, the design also creates an ingenious illusion of four towers merging into one. Comprised of Grade-A office, conference and exhibition amenities, commercial apartments and retail space; the building inexorably expresses immense growth, and embodies the district's prosperity.

Envisage crafts a comfortable and healthy office for cement company

Gurugram, India – Today, the definition and function of an office has evolved beyond the traditional standards and wants of a workplace. Amidst this milieu, Office 819 stands out as a space where dynamic and focused design intervention crafts an office for comfort and a healthy work environment.

Office 819 is designed for a company that is invested in the production of cement, and is situated within a larger office complex in Gurugram. A concise design brief called for a workplace that is clean, minimal and most importantly, one that would encourage the teams' physical and emotional well-being. An additional challenge was to create a space to host people and conduct meetings, as the majority of their



Photo: © Suryan and Dang

operations were conducted outside of India and the office therefore, had to be a place to have meetings as well as carry out their daily work. This allowed for the creation of a targeted design intervention with all functionalities, while adding a touch of exuberance to the overall space.

Upon entry, the viewer is greeted with a contemporary reception that is created with a pinch of Art Deco elements, immediately endowing the space with a sense of elegance. The material palette is a balanced mix of textures with fabric, wood, metal and marble used with great advertence. The pendant lights with metal embellishments bring forth a feeling of warmth, while the metallic backdrop and the use of marble on the floor add to the luxurious aesthetic. Despite a relatively compact space, the clean layout creates a sense of spaciousness for the inhabitants with two cabins at the back of the reception lobby, and the master cabin and workstations flanking it on the right.

The executive cabins have been designed with simplicity with an executive table, file storage and minimal ornamentation. A glass partition provides for privacy of conversation while keeping the space open, wherein the large casement window provides ample natural light. The master cabin is designed in a similar fashion, albeit with more space and with the addition of recessed shelves, discussion tables and a sofa. This results in the space acting as a conference room of its own, enabling a professional, yet relaxing environment to conduct business. The colour palette for the cabins as well as for the rest of the space is muted and neutral, ensuring that the space remains unassuming and inviting, while being modern and elegant.

As the core operations of the company take place outside of India, the number of office-goers is limited. Hence only a limited number of workstations have been augmented within the space, with integrated storage units as well as an attached pantry, in order to creatively optimise every inch of space available.

Office 819 is a space that is purposefully crafted with luxury and usability, with its spatial volumes speaking a bespoke design language in order to craft a professional, yet welcoming environment.

Conexus Studio designs BBC Studios and BBC Global News office in Singapore

Singapore — As Singapore settles into Phase 3 of reopening, staff working in the country's BBC outposts can look forward to returning to a new workplace transformed in ways that go much deeper than aesthetics.

Located at 18 Robinson, a mixed-development complex in the city's Central Business District, the new joint office for BBC Studios and BBC Global News was completed in late 2020, after the city's lockdown during the height of the Coronavirus pandemic.

Designed and built in partnership with Conexus Studio, the new 6,491 square feet office is slightly bigger – just 614 square feet – than its previous location a stone's throw away at Springleaf Tower. Yet the space represents a significant move for the two BBC operations in Singapore, shifting away from a fixed desk setup towards a more agile one, as part of the company's move to modernise its workplace. The new office also reflects the company's goal of putting employee experience first, by delighting its users while fostering community and productivity.

With these objectives in mind, Conexus Studio developed a series of settings that supported work-style flexibility and kept people and ideas flowing freely across a high-performing

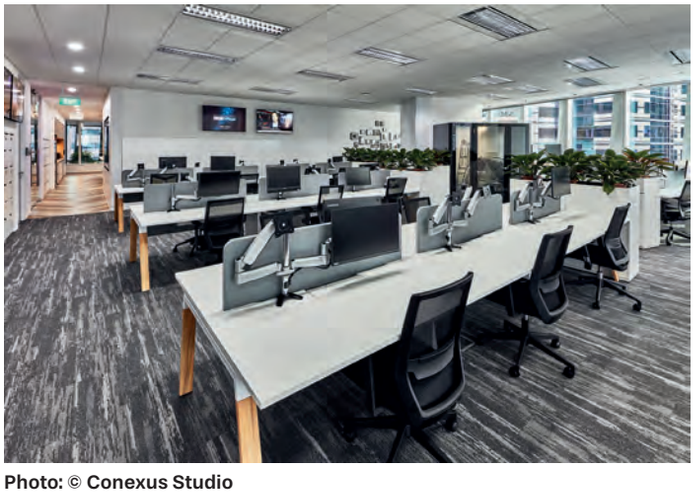


Photo: © Conexus Studio

workplace. "A strategic mix of formal and informal, and individual and group working spaces in turn inspire, rejuvenate, as well as balance personal productivity with collaboration," explains Conexus Studios' Design Director Aviruth Trungtreechart.

CDL pledges net zero operations by 2030 — First Singapore real estate developer signatory of WorldGBC commitment

Singapore — Raising the bar on lowering its carbon footprint for climate action, City Developments Limited (CDL) has become the first real estate developer in Singapore and the first real estate conglomerate in Southeast Asia to sign the WorldGBC's Net Zero Carbon Buildings Commitment. Given the high environmental impact of the Built Environment, the Commitment challenges businesses to take leadership action to reach net zero carbon in operation for every building under their direct control by 2030, and advocates for all buildings to be net zero carbon in operation by 2050.

By joining the Commitment, CDL is dedicated to achieving net zero carbon by 2030 for its new and existing wholly-owned assets and developments under its direct operational and management control. A net zero carbon building is defined as a highly energy-efficient building that is powered from on-site and/or off-site renewable energy sources and offsets. Pledging to the WorldGBC's Net Zero Carbon Buildings Commitment will entail CDL disclosing, reducing and verifying operating Scope 1 and 21 emissions of its managed buildings, including its corporate office in Singapore.

CDL's net zero pledge complements the Singapore government's strong commitment to climate action and sustainability. The latest announcement of the Singapore Green Plan 2030 includes setting ambitious and concrete targets on a sectoral basis and pushing for the adoption of the Building and Construction Authority (BCA)'s Green Mark Super Low Energy (SLE) buildings.

To achieve this ambitious goal, CDL will strive to reduce its carbon emissions, including retrofitting its managed buildings to further enhance energy efficiency and accelerating the transition to renewable energy. The company has also mapped out pathways to achieve net zero carbon in operation by 2030 through:

i. Leveraging smart technologies and emerging innovations to maximise buildings' energy performance.
ii. Achieving 100 percent renewable energy.
iii. Developing a low-carbon investment roadmap.
iv. Phasing out diesel across all operations.
v. Strengthening supply chain engagement to lower the embodied carbon of its developments.
vi. Educating and influencing building users to drive change in mindset and action.

Ms Cristina Gamboa, WorldGBC Chief Executive Officer, said: "The WorldGBC Net Zero Carbon Buildings Commitment provides a framework to take action towards net zero carbon portfolios and is also recognised within GRESB assessments to champion these actions and provide investor confidence in target setting. I would like to commend CDL for signing on to the Commitment, serving as a stellar example for other businesses to follow and inspire more ambitious regulation. The next decade is crucial to realise the ambition of the Paris agreement, so now is the time to act."



The Singapore Sustainability Academy (SSA) has a solar PV panel footprint of 3,200 square feet, extensively covering 4,300 square feet of the building. The PV panels are estimated to generate an annual energy yield of over 60,000 kWh, exceeding the building's annual energy consumption, thus enabling the academy to be self-sufficient. Certified as a Singapore's Building and Construction Authority (BCA) Green Mark Platinum building, this zero-energy facility has been recognized for its various energy-efficient design and features. Photo: © CDL



Since its completion in 1996, Republic Plaza has continuously undergone several enhancements, including major retrofitting of chiller plants and installation of energy efficient lighting with motion sensors to improve the building's energy efficiency. In 2019, Republic Plaza further enhanced its features, such as modernising its lifts and introducing the latest destination control system — both of which are estimated to reduce energy consumption by 18% and increase lift operation efficiency when upgrading works are completed. Photo: © CDL

Mr Kelvin Wong, BCA Chief Executive Officer said: "CDL has always been a strong supporter of Singapore's green building efforts and has played a big part in the co-creation of the Singapore Green Building Masterplan. I applaud CDL's commitment and look forward to more contributions from across the Built Environment value chain in realising our collective goal of a greener and more sustainable Singapore."

L&T first to 3D print a Ground plus One building in India

Chennai, India – L&T Construction, the construction arm of the US$21 billion technology, engineering & construction conglomerate, Larsen & Toubro, announced having successfully 3D printed a G+1 (Ground plus one) Building with reinforcement for the first time in India. With the country aggressively pursuing the objective of creating 60 million houses under the Housing for All by 2022 programme, this achievement will certainly give a huge fillip for the mass housing segment.

"3D concrete printing is one of the technology disruptors with the potential to radically redefine construction methodologies and I am extremely happy that by demonstrating our growing expertise in 3D printing, we are well positioned to push the boundaries of automated robotic construction," said Mr. M V Satish, Whole Time Director & Senior Executive Vice President (Buildings). "3D printing will not only accelerate the pace of construction but also significantly improve build quality," he added.

L&T has 3D printed a Ground + 1 building of 700 square feet feet built up area at their Kanchipuram facility with a special, in-house developed concrete mix using indigenously available regular construction materials. The building was printed with both vertical reinforcement bar and horizontal distributors using welded mesh, that satisfy provisions in the Indian Codes and optimize the cost of construction. Except for the horizontal slab members, the entire building structure was 3D printed 'Cast in Situ' at the job site in an 'open to sky' environment within 106 printing hours, using a fully automated 3D printer.

3D printing is a process, in which the material is printed under computer control to build a 3-dimensional product, typically layer by layer. It is predominantly used in manufacturing industries to print rapid prototypes, complex shapes and small batch production using special polymers, metal alloys etc. 3D printing with concrete is still largely work in progress across the globe.



Photo: © L&T Construction

Earlier in November 2019, the team had 3D printed 240 square feet 1 BHK, in line with typical EWS building layout, to explore the feasibility of this innovative technology.

OMA selected as a winner for competition to design Chengdu's Future Science And Technology City

Chengdu, China – OMA / Chris van Duijn has been selected, alongside GMP, as the winner of the Chengdu Future Science and Technology City Launch Area Masterplan and Architecture Design Competition. The 4.6-square-kilometre masterplan, newly designed for the innovation industry, will be a pilot project to drive the development of the city around the new airport east of Chengdu.

Upon winning this competition, the practices will develop the first phase of the overall masterplan, which will include an International Educational Park in the west, and a Transit Oriented Development (TOD) in the southeast led by GMP.

Located on a site characterised by green hills, the 460,000-square-metre International Education Park will include education program for multiple universities, as well as dormitories, public program, national laboratories and innovation offices. The masterplan and the buildings will follow the site's topography and spatial structure. The buildings will feature landscaped terraces and become an extension of the natural landform of the site.

The centre of the campus will be formed by a valley, and include a landmark complex building. The valley will connect the International Education Park to the Futian metro station and the Aviation College to the northwest. The 80,000-square-metre building will form the heart of the education life and include a university library, student center, auditoriums, laboratories and offices.



International Educational Park designed after competition win of the Chengdu Future Science and Technology City Launch Area Masterplan and Architecture Design Competition. Photo: © OMA

OMA Partner Chris van Duijn: "With this project, we hope to provide an alternative to the typical masterplan, which is based on the traditional car-oriented road network. We intend to create a design rooted in the geography of the site. We hope that connection between architecture and landscape will result in a dynamic environment for education that will inspire innovative ideas."

OMA's design is led by Chris van Duijn, Associate Ravi Kamisetti, and Project Architect John Thurtle.

MEAN designs modular 3D printed annexes for the contemporary home

Dubai, UAE – The 'Majlis' is a predominant spatial typology in Gulf residences. Built typically as an annex to the house, it is a space of social gathering and interaction typically used to receive guests and is designed to be detached from the private quarters of the family in Emirati homes. With the advent of concrete 3D printing technologies, new modular strategies can be envisioned in-line with the challenges and potentials of these technologies to allow for faster, more spatially fluid inhabitations at an ecological and affordable rate. MEAN (Middle East Architecture Network) reimagines the spatial qualities of this typology with 3 options for the space depending on the requirements and lifestyle of its inhabitants:



Photo: © MEAN

Option 1 – Capsule Pod

For this option, the team designed a method of construction that relies on hoist-in-place precast methods for constructing concrete parts. The parts are 3D Printed concrete flat on the ground on-site and lifted to place to be assembled to make up the cylindrical volume of the space. The concrete 'rings' have spaces in between to allow natural light to come in from 3 sides. The space inside is composed of these structural members, which allow for a vast and column-free interior.

Option 2 – Fluid Space

This option takes on the advantages of fluidity that concrete 3D printing methods bring forth. The spatial enclosure is organic and unique, with practical interior gestures such as the recessed seating area and the roof skylight. The space is 3D printed in 2 parts: 1 part for the enclosing walls which serve as a shell structure containing all the programmatic functions needed by the majlis annex, and the other part to construct the roof, which is a radical use of 3D Printing technology.

Option 3 – Folded Walls

The third option explores the idea of walls folding into each other to compose the space. Each wall is 3D printed in concrete on-site in a trapezoidal shape to allow more floor area while achieving a dynamic exterior form. The main wall is printed in a typical smooth finish, while the second wall is printed with undulations to create a textured design feature that celebrates the construction technology. The walls meet at gaps that are glazed to allow natural light into the space and to provide space the doors.

Each annex is fitted with a foyer, a washroom, a small kitchenette, and living areas. With each option, the possibility of having the annex attached or detached from the house has also been examined. Careful consideration had been given to the architectural language of each option to fit into the social lifestyle of contemporary Emiratis as well as the local architecture of the UAE. The three options of the 3D Printed Majlis propose the use of 3D printing for the construction of a novel annex to the contemporary home. As a design exercise, the team at MEAN explored pushing the boundaries of 3D printing in concrete, while envisioning new spatial narratives for the typology of the Majlis.



GuocoLand brings largest garden collection to CBD with Guoco Midtown Gardens

Singapore – Guoco Midtown, the second flagship integrated mixed-use development of GuocoLand Limited ("GuocoLand"), will transform the city's skyline, as well as its landscape, when completed in phases starting from 2022. Building on its strong track record in green and sustainable developments, GuocoLand has upped the ante by introducing a game-changer with the most extensive privately-developed collection of gardens in the Central Business District (CBD).

Known collectively as Guoco Midtown Gardens, 30 thematic gardens and landscaped spaces spanning 3.8 hectares (ha) will turn the 3.2 ha of prime land in the Beach Road-Bugis district into a new leisure destination. The gardens are 'weaved' like a botanic tapestry into Guoco Midtown's built environment, extending from the ground floor to various levels at the podium and all the way to the rooftops of the towers. Ten of these gardens are publicly accessible, providing the community with a chance to immerse themselves in nature and partake in public events – right in the heart of the city.

Mr Cheng Hsing Yao, Group Managing Director of GuocoLand Singapore, said: "Our vision for Guoco Midtown is to bring about a transformation of the neighbourhood into a new business and lifestyle destination in the CBD. One of the new identities of the future 'Midtown' of Singapore is a botanic garden in the city – one that is knitted into the urban fabric of an integrated mixed development."

"The biophilic design of Guoco Midtown also demonstrates how the private sector can play a role in a whole-of-nation effort to contribute to the Singapore Green Plan 2030. Guoco Midtown's city in nature concept is built upon these principles to make our city greener, more liveable and promote a sustainable lifestyle with green transportation and green buildings," added Mr Cheng.

Guoco Midtown is the result of GuocoLand's collaboration with many preeminent design firms. Australia's Denton Corker Marshall led by Design Director Adrian Fitzgerald helms the overall site over at Beach Road, while four-time President's Design Award winner Yip Yuen Hong of ip:li Architects designed the latest addition to Guoco Midtown – the 558-unit Midtown Modern with its twin residential towers and a retail podium.

Ortus Design is the landscape architect tasked with integrating nature into the multiple components of Guoco Midtown, from its office tower, retail clusters to the two residential developments. This is not the first time Mr Chia Jui Siang, Partner at Ortus Design, has collaborated with GuocoLand, having been involved in the landscape design for Goodwood Residence and Martin Modern in his previous employment before setting up Ortus Design.

With a total of more than 350 species of plants, including several rare and endangered native species, these gardens are part of GuocoLand's efforts to create a green destination to connect with the surrounding community through recreation, wellness, in-nature dining, events and placemaking activities. Some of the publicly accessible thematic gardens include a Native Garden of indigenous plants and orchids; Midtown Market with an epiphyte collection that forms a hanging garden above the public space; Forest Giants Walk with its tall tropical forest trees; Water Garden with a fresh waterside plant collection; and Eucalyptus Plaza for people and cyclists to rest.

GuocoLand has long been a strong supporter of sustainable principles, and was awarded the Green Mark Champion award in 2020 by the Building and Construction Authority (BCA) for achieving a substantial number of Green Mark buildings at Gold level or higher. Guoco Midtown's office component and residential tower Midtown Bay are both certified Green Mark Platinum, while Midtown Modern is targeted to achieve Green Mark Gold Plus certification in time.



As a public garden and space for dining, events, and concerts, Midtown Market is anchored by the Network Hub and conserved heritage building Midtown House.
Photo: © GuocoLand

Hyatt opens first hotel in the Cambodian capital



Photo: © Hyatt Regency Phnom Penh

Phnom Penh, Cambodia – Hyatt has blazed new ground in Southeast Asia with the opening of Hyatt Regency Phnom Penh on 6 January 2021, marking the first Hyatt hotel in the Cambodian capital and the debut of the Hyatt Regency brand in the Kingdom of Wonder.

With 247 guestrooms including 43 residential-style suites, the new Hyatt Regency Phnom Penh is set to become the largest internationally branded hotel in the city. Located in the heart of Phnom Penh's cultural and business district of Doun Penh – a 30-minute drive from the airport and within a short walking distance to the Royal Palace, National Museum and the riverside – the latest addition from Hyatt provides business travelers and leisure guests with modern comfort and convenience alongside warm Cambodian hospitality in one of Asia's most captivating cities.

Conceived by award-winning Singapore-based SCDA Architects and leading Thailand-based PIA Interior, the contemporary-meets-colonial interiors of the hotel reflect Cambodia's unique history, seamlessly blending Khmer architectural accents, French colonial influences, and specially-commissioned artworks by contemporary Cambodian artist, FONKi.

As guests pull into the hotel's driveway, they are greeted with a welcoming centerpiece: a beautiful French heritage building flanked by sweet-smelling frangipani trees. Originally built as a colonial villa in the early 20th century, the carefully restored lemon-coloured Colonial House with its wooden shutters, arched doorways and terracotta-tiled roof now serves as the hotel's entrance, providing guests with a nostalgic arrival experience.

Behind the Colonial House sits the newly-constructed 14-storey main building, featuring 247 guestrooms, including 43 suites, all with hardwood floors and marble bathrooms. Starting from 328 square feet (30.5 square metres) for a standard room, the guestrooms balance modern comforts, such as complimentary high-speed Wi-Fi, 65" TVs, Staycast powered by Google Chromecast systems and walk-in rainshowers, with distinct Khmer touches including an intricately carved headboard depicting Bayon Temple, one of the most celebrated temples at Angkor. Each room is also equipped with the Hyatt Mobile Entry technology, enabling guests to use their smartphone in lieu of a room key card. The 1087 square feet (101 square metres) Royal Suite features two ensuite bedrooms, a walk-in closet, a powder room, separate living and dining areas, a pantry, and floor-to-ceiling views to take in the city views.

Chaly Mah appointed Chairman of Surbana Jurong Group

Singapore – Surbana Jurong Group has announced the appointment of Mr Chaly Mah Chee Kheong as its Chairman, with effect from 1 January 2021. Mr Mah succeeds Mr Liew Mun Leong, Surbana Jurong's founding Chairman, who retired in September 2020. The appointment follows the Board's approval of a recommendation by the company's Executive Resource & Compensation Committee.



Mr Chaly Mah. Photo: © Surbana Jurong

Mr Mah will bring extensive board and leadership experience to the role of Chairman of the Surbana Jurong Group. Mr Tan Gee Paw, one of the Board's longest serving directors, commented: "The Board was pleased that Chaly agreed to join us and serve as Chairman, because we see his experience and vision as critical to continuing the journey that Surbana Jurong started under Liew Mun Leong's leadership. Chaly's leadership credentials and his desire to see Surbana Jurong continue its growth journey, delivering sustainable social and economic impact for our clients, appeal to us all."

Mr Mah said of his appointment as Chairman, Surbana Jurong Group: "I am deeply honoured and humbled to be entrusted with this responsibility. Five years after its formation, Surbana Jurong Group continues to fulfil its essential purpose of building cities and shaping lives. It has grown from strength to strength, expanding its influence and presence globally."

UNStudio designs two new stores for OPPO



OPPO's new store in Beijing. Photo: © Chenming & OPPO



OPPO's new super flagship store in Guangzhou. Photo: © Yiyi & OPPO

Amsterdam, The Netherlands – UNStudio has completed a new super flagship store in Guangzhou, as well as a prominent new store in Beijing for OPPO – one of China's leading mobile phone brands and one of the world's leading smart device manufacturers and innovators.

In line with OPPO's forward-thinking move to upgrade their brand, UNStudio's offices in Shanghai and Hong Kong were tasked with introducing a new customer experience that starts from the shops' exterior facades into the retail interiors.

For OPPO as a brand, the stores reflect a new identity for the company in these thriving cities; a visual branding that goes beyond the products and expands the meaning of the 'OPPO experience'. Ben van Berkel: "What we find particularly interesting about these special smaller-scale projects, is that you can first really investigate the client's products, their design aesthetics and technology, and discover ways to reinterpret these qualities into the craft of architecture. This is what we did at UNStudio Asia for OPPO. We re-crafted their information technology aesthetics into the facade, the furniture and the finishes."

Since completion, the super flagship store in Guangzhou has been shortlisted for the Designers Institute of New Zealand's 'Best Design Awards' and A' Design's 'Best of Year Award'.

Marco Buoni re-elected President of AREA

Brussels, Belgium – The Air conditioning and Refrigeration European Association (AREA) members has unanimously re-elected Marco Buoni (ATF, Italy) as President of AREA. He will serve a second term until 2022. Coen van der Sande (NVKL, Netherlands) was elected Vice-President.

A staggering 43 delegates representing 23 (out of 25) member associations, 2 international partners from Thailand and India and 2 guest associations from Switzerland and Africa took part in the autumn meeting of the AREA General Assembly. The meeting was held by video conference. Four longstanding prominent figures left the Board: former Presidents Graeme Fox (BESA, UK), Gerhard Neuhauser (OEKKV, Austria) and Per Jonasson (SKVP, Sweden), as well as Stig Rath (VKE, Norway). Members paid tribute to their outstanding contribution and commitment to the management of the organisation.

Marco Buoni was elected for a second term as President, alongside Grzegorz Michalski (KFCh, Poland), who remains Director. They were joined by four new faces: Coen van der Sande (NVKL, Netherlands) re-joined the Board as Vice-President – a position he held two years ago. Seamus Kerr (IRI, Ireland) was elected Treasurer, whilst Thanos Biris (HUFGAS, Greece) and Mika Kapanen (FREA, Finland) joined as Directors.

AREA President Marco Buoni said: "I salute the leaving board with admiration for the great work we have achieved together such as the AREA Vision 2025, COVID-19 guides, real alternatives training and certification and international cooperation. I am looking forward to reach even greater goals with the new board who has enthusiastically accepted the mandate and the next challenges. At the top of the agenda now is the European Green Deal, the F-Gas regulation review, mandatory certification for alternative refrigerants and the upcoming conservation and distribution of refrigerated vaccines against COVID-19."



Marco Buoni. Photo: © AREA

Zurich Airport International selects Nordic – Office of Architecture, Grimshaw, Haptic and STUP to design "India's greenest airport"

London, UK – In October 2020 the Government of Uttar Pradesh signed the concession agreement with Zurich Airport International (ZAIA) to commence the development of the Delhi Noida International Airport for a period of 40 years. ZAIA received the security clearance from the Union Ministry of Home Affairs to develop the Noida International Airport at Jewar in May 2020, after winning the contract to build and operate Delhi Noida International Airport (DNIA) in Greater Noida in November 2019.

After a three-phase, design competition between June and August 2020, Zurich Airport International has selected a consortium consisting of Nordic – Office of Architecture, Grimshaw, Haptic and STUP as the architects to design the passenger terminal of Delhi Noida International Airport (DNIA) at Jewar 40 kilometres south east of the city.

The winner was selected from three shortlisted teams which also included Gensler / Arup and SOM / Mott McDonalds. The design competition was conducted under exceptional circumstances, and the architects prepared and presented their designs collaborating and communicating remotely.

The design team brings experience from a range of world class airport projects; including Oslo Airport, dubbed the world's greenest airport upon opening, and Istanbul Airport, the world's largest airport terminal under one roof. Zürich Airport stated: The winning design, presented by Nordic, Grimshaw, Haptic and STUP, best fits the defined project objectives: merging Swiss efficiency and Indian hospitality, creating a modern and seamless passenger experience, setting new benchmarks in sustainability for airport terminal buildings in India, envisioning green spaces inside and around the building, offering a concept for a future airport city, and providing flexible expansion options to serve 30 million passengers per year in the future.



Delhi Noida International Airport Arrival. Photo: © Grimshaw

LMN Architects celebrates the opening of the new Mukilteo Multimodal Ferry Terminal in Mukilteo

Seattle, Washington, USA – LMN Architects has celebrated the opening of the Mukilteo Multimodal Ferry Terminal in Mukilteo, Washington. With input from local tribes, the two-storey terminal building, designed in partnership with KPFF Consulting Engineers, replaces the existing terminal built in 1957 and adheres to contemporary environmental and building standards.

The Mukilteo-Clinton ferry route moves more than two million vehicles and nearly four million riders annually in conjunction with State Route 525, the major transportation corridor connecting Whidbey Island to the Seattle-Everett metropolitan area. With proximity to commuter trains via Sound Transit's Mukilteo Sounder Station, the new two-storey terminal building's walk-on ridership is expected to increase more than 100 percent over the next 20 years during peak commute times. The new terminal provides more space for vehicle holding and separates pedestrian and vehicle boarding with an overhead walkway for safer, more efficient loading, especially for people with disabilities.

The building's longhouse form, derived through a close collaboration with numerous Coast Salish tribes, enriches the passenger experience, streamlining circulation and managing large patron flows with intuitive wayfinding. Vertical transportation cores with elevators and stairs at each end of the structure lead to a linear promenade at the upper level, from which entries to the ticketing and waiting area are visible. The waiting room is a daylight-filled space with views to land and sea that help orient ferry riders. Tribal cultural motifs created by local, Native American artists James Madison and Joe Gobin are displayed throughout the building, creating a welcoming atmosphere of regional belonging. In conjunction with the terminal, a new waterfront promenade connects a path from downtown Mukilteo, through the terminal and on to the beach, creating an elevated pathway for public use.

LMN Architects worked closely with the Coast Salish tribes, whose traditional fishing rights encompass the area's coastal waters, to incorporate environmental stewardship into the overall concept. The project's strong sustainability ambitions started with repurposing the brownfield site, which previously housed a U.S. Air Force Cold War fuel depot and pier.



Mukilteo Multimodal Ferry Terminal. Photo: © Benjamin Benschneider

Removing the pier eliminated approximately 10 percent of the Puget Sound's remaining toxic creosote piles. The structural expression combines advanced energy and water conservation, and the longhouse-style shed roof allows for a full array of photovoltaic panels, meaning the facility can return energy to the grid. The roof canopy is made from cross-laminated timber, sustainably harvested and locally sourced. Heating and cooling the concrete-slab main floor with electric heat pumps efficiently provides interior comfort year-round.

A rack-and-pinion window system automatically opens and closes in response to changing conditions, optimizing airflow and comfort. The vehicle holding area features pervious concrete that collects stormwater and filters it through layers of sand before it enters the Possession Sound. Other advanced stormwater treatment systems are used throughout the terminal site.

Howard Fitzpatrick, Principal, LMN Architects, commented: "The design team took the responsibility of building on such a historically significant and sacred site very seriously. While it is impossible to construct a modern facility without impacting the site, our goal was to minimise those impacts, to work with the sun, rain, wind and views that have always defined this coastline to make a building that respects both its site and the culture that has occupied it for thousands of years."

WorldGBC announces 18 new signatories to the Net Zero Carbon Buildings Commitment

London, UK – On the eve of the fifth anniversary of the signing of the Paris Agreement, World Green Building Council (WorldGBC) announced 18 new businesses and organisations as signatories to the Net Zero Carbon Buildings Commitment (the Commitment).

After urging the building and construction sector to #ActOnClimate during World Green Building Week 2020, WorldGBC, together with nine international organisations sent a letter to the COP26 President, Alok Sharma, requesting a dedicated Built Environment Day at COP26. With COP26 delayed until 2021, these 18 new Commitment signatories join a strong cohort of businesses and governments leading the decarbonisation of the built environment.

As the leading initiative focused on climate action in the built environment, the Net Zero Carbon Buildings Commitment continues to grow exponentially. Complementing initiatives such as the Race To Zero and Science Based Targets, the Commitment's signatories take action to achieve an operationally net zero carbon portfolio by 2030 or earlier. For eligible signatories, the Commitment acts as a pathway to membership of the EP100 initiative from the Climate Group, a global initiative for energy-smart companies doing more with less energy.

Cristina Gamboa, CEO of the World Green Building Council said: "As we build momentum to COP26, the growth and impact of the WorldGBC Net Zero Carbon Buildings Commitment signals a leap towards sustainability in the built environment. There are now 128 total signatories, comprising 94 businesses and organisations, 28 cities and 6 states and regions. The businesses and organisation signatories now cover over 9,000 assets, 5 million (tCO2e) of portfolio emissions, 42 million square metres of total floor area and approximately USD 150 billion in annual turnover. Together with our new and existing signatories, we will work to drive sustainable buildings for everyone, everywhere."



Image courtesy of World Green Building Council

The new Commitment signatories welcomed today are: Arup, BAM Construct UK, Bioregional, Built, ISPT, Kojamo PLC, NatWest Group, OP Real Estate Asset Management, Savills (UK) Limited, Stanhope, The Crown Estate, THREE Consultoria Medioambiental, Troup Bywaters + Anders, Willmott Dixon, and WSP UK.

These new signatories are also joined by recently announced Finnish companies Antilooppi, Granlund Oy and Trevian Funds AIFM.

SOM-designed Moynihan Train Hall opens in New York

New York, New York, USA – Governor Andrew M. Cuomo and Skidmore, Owings & Merrill (SOM) recently celebrated the completion of a long-held New York dream. The new Daniel Patrick Moynihan Train Hall, named for the visionary United States senator who proposed the project in the 1990s, officially opened its doors to New Yorkers and travelers from the Long Island Rail Road, Amtrak, the New York City Subway, and the entire northeast region on 1 January 2021. It is one of the most monumental civic projects undertaken in the city in a generation, and transforms the way millions of people interact with one of the world's largest cities.

Moynihan Train Hall expands the Pennsylvania Station complex with a 486,000-square-foot rail hub in the landmark James A. Farley Post Office Building. Situated across Penn Station between Eighth and Ninth Avenues and West 31st and 33rd Streets, it reverses the dark, overcrowded experience that so many commuters have endured for decades. It brings light to the concourses for the first time in more than 50 years, increases total concourse space by 50 percent, and restores the grandeur that was lost with the demolition of the original Penn Station half a century ago.

That original Pennsylvania Station was designed by McKim, Mead & White in 1910. It was a skylit, Beaux-Arts masterpiece that celebrated travelers' arrival to New York City. After its demolition in 1965, only its concourses and platforms remained, and they were all underground in a space downgraded to accommodate only 200,000 people. Five decades later, the number of people passing through the station every day swelled to more than 600,000, while the Farley Building – also designed by McKim, Mead & White in 1913, with a grand staircase and colonnade that echoed the firm's design for Penn Station – had become 95 percent vacant. Residing above Penn Station's tracks, the Farley Building was the perfect place for a new train station.

The new train hall, located in the 31,000-square-foot former mail sorting room, is designed with a dramatic skylight that traverses the entire space – much like the original Penn Station did in 1910. The skylight is arranged in four catenary vaults. To support the structure, SOM uncovered the building's three massive steel trusses, which had been invisible to postal workers a century ago, and chose to reveal them as a major focal point of the design. With a web-like structure, the bolted trusses add an extra sense of lightness to the train hall – establishing a modern look and feel while displaying the workmanship of neoclassical design.

Each of the four catenary vaults is composed of more than 500 glass and steel panels that come together to form a moiré effect. At the edges of each vault, the panels thicken to sustain greater structural loads, while at the apexes, which span 92 feet above the concourse, the panels' depth lightens to enhance the airy ambience of the space. The trusses are each equipped with new lighting fixtures that illuminate the train hall at night. On the middle truss, a new clock – designed by Pennoyer Architects and inspired by the analog clocks that were once prevalent at the original Penn Station – marks the centre of the room.

Along the eastern wall, four large LED screens feature New York State imagery designed by Moment Factory, and help brighten the train hall at night. Hospitality spaces – including ticketing kiosks and information kiosks designed by SOM, Amtrak waiting rooms on the concourse level designed by Rockwell Group, an Amtrak Metropolitan Lounge by FX Collaborative, and a food hall designed by Elkus Manfredi – surround the space on two floors to establish an inviting experience that provides all the amenities a commuter will need. The signage and wayfinding identify the hospitality and platform entries by colour to enable intuitive circulation through the station – an element that has largely been missing in the confusing corridors of Penn Station for the last 50 years.

The interior spaces of the station, including the train hall, share a unified material aesthetic. Drawing inspiration from the existing, historic post office at



Moynihan Train Hall. Photo: Lucas Blair Simpson © SOM

the top of the Farley Building's staircase as well as Grand Central Terminal, SOM designed the station's interiors with Tennessee Quaker marble, a material that evokes that sense of warmth, calmness, and grandeur that are central to the design.

Moynihan Station connects to nine platforms and 17 tracks that primarily service the Long Island Railroad and Amtrak. The station connects directly with the Eighth Avenue Subway, and plans are in the works to connect the entire Penn Station complex, including Moynihan Station, to MetroNorth and AirTrain JFK.

For the long run, Moynihan Train Hall serves as an important precedent for redefining historic architecture. It targets LEED for Transit certification through a variety of measures, from the natural lighting of the skylight to its use of new mechanical systems that improve the air quality within the century-old Farley Building. It adds much needed circulation capacity – not only making commutes more convenient, but also safer, as it spreads the crush of people during rush hours, and enables better social distancing.

ZHA to build Tower C at Shenzhen Bay Super Headquarters Base, China

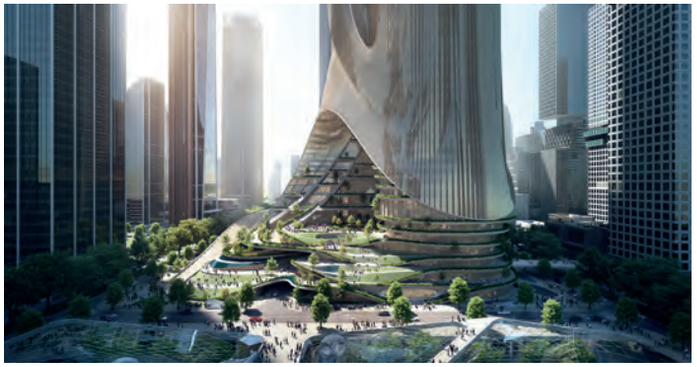
London, UK – Zaha Hadid Architects (ZHA) was announced as the winner of the design competition to build Tower C at Shenzhen Bay Super Headquarters Base.

Shenzhen Bay Super Headquarters Base will be an important business and financial centre in Shenzhen serving the Greater Bay Area of Guangdong, Hong Kong and Macau; integrating clusters of corporate headquarters within a global technology hub accommodating 300,000 employees each day. Including venues for international conferences, exhibitions, cultural and art programmes, the headquarters base will incorporate residential developments, a transportation centre, botanical grasslands, and coastal zone with wetlands. Tower C by Zaha Hadid Architects within the Shenzhen Bay Super Headquarters Base responds to its location at the intersection of the city's planned north-south green axis and Shenzhen's east-west urban corridor. Connecting directly with its adjacent park and plazas which transform into a terraced landscape extending upwards within its two towers, the design invites the public into the heart of the building where cultural and leisure attractions are housed in sweeping bridges that tie the towers together and give panoramic views of the city.

Served by the expanding Shenzhen Metro network, Tower C's stepped podium integrates with the park to create a new public space for this dynamic city that has grown to become a global centre of technology innovation. Uniting the park's landscapes with the civic plazas of the tower's lower levels provides direct pedestrian access and daylight to the public transport interchange below ground. Prioritising pedestrians, the tower's design also includes extensive bicycle parking and charging facilities.

Informed by 3D modelling tools developed by ZHA that optimise efficiencies in architectural massing, orientation and facade-to-floor ratios, Tower C's design is a multi-dimensional vertical city of two towers at nearly 400 metres, providing column-free naturally-lit office space, shopping, entertainment and dining amenities, together with a hotel, convention centre and cultural facilities with exhibition galleries.

The double-insulated, unitised glass curtain wall of Tower C's design steps the glazing as vertical channels for self-shading



Render by Brick Visual.

and incorporates ventilating registers within the channels that draw outside air through operable cavities; providing natural and hybrid ventilation with very effective environmental control for each floor.

Connected with the district's smart management systems that continually monitor external and interior conditions, indoor environmental controls will adjust in real time to reduce energy consumption with high-efficiency equipment and chiller plant optimisation within the district's central networks. The design will also incorporate water-collection and recycling as well as photovoltaics to harvest solar energy for the district.

Aquaponics gardens on all terraced levels will biologically filter contaminants from the local environment and low-volatile organic compound materials will be installed to minimise indoor pollutants and particulates. Continuing the district's ambitions for optimal integration throughout all aspects of the development to increase efficiencies and well-being, Tower C's procurement will also target embodied carbon reductions and recycled materials.

The design of Tower C integrates the city and nature within its central green axis with the transit orientated development (TOD) of Shenzhen's new spine, creating a 'superscape' that will become a tower of the future within the Super Headquarters Base.

Zaha Hadid creates masterplan for Huanggang Port Area in Shenzhen

London, UK – The future Huanggang Port Area masterplan in Shenzhen, China will be an important node of the Guangzhou–Shenzhen Science and Technology Corridor, creating a hub of scientific research and collaboration in industries such as microelectronics, material development, artificial intelligence, robotics, and medical sciences.

Reconstruction of the Huanggang Port building will enable the port's 1.67 square kilometres of parking lots and cargo inspection areas to be redeveloped as a national centre for technology innovation. Located in the Futian District of the city, Huanggang Port currently serves 300,000 people crossing the border with Hong Kong each day. Situated at this key interchange within the Greater Shenzhen Bay region, the new Huanggang Port Area masterplan at Shenzhen Park in the Shenzhen–Hong Kong Science and Technology Innovation Cooperation Zone incorporates direct connections with Shenzhen's metro network.

Centred around two large public plazas, the Huanggang Port Area masterplan defines three interconnected districts: the port hub, collaborative innovation area, and port living zone. The existing Huanggang port management area and public transport interchange at the south western end of the masterplan will be redeveloped as the 'port hub' district with administrative supporting offices and hotels for visiting scientists and researchers. The port's former cargo inspection areas and parking lots will be transformed as the 'collaborative innovation' area comprised of scientific research centres and laboratories as well as a conference centre to host lectures, talks and events that promote the exchange of ideas and collaboration.

The 'port living' district will be located next to Fulin station of Shenzhen's metro at the north eastern end of the masterplan and will encompass residential developments, schools, sports and recreational facilities as well as shopping and dining amenities for those working within the science park. With its base grid established by Shenzhen's existing street layout to the west, the masterplan's central spine is a wide pedestrian boulevard that connects its two primary public gathering spaces: the civic plaza at Fulin metro station in the north east and the large public square in the centre of the administrative hub at the Huanggang interchange in the south west.



Render by Atchain.

A radial secondary grid centered on theses plazas further sub-divides the districts into clusters and creates additional circulation routes for functionality. The design accommodates the future expansion of the research studios and laboratories via shared podiums and bridging skywalks connecting with adjacent buildings. In addition to the two primary civic plazas, each smaller cluster of buildings has its own 'nucleus' of an outdoor communal square ensuring spaces for nature are integrated throughout the masterplan that will also create a green belt of parklands and wetlands along the Shenzhen River.

MVRDV and N-V-O Nuyken von Oefele Architetken win the DAM Preis for Architecture in Germany 2021 for WERK 12 in Munich

Frankfurt, Germany – WERK12 is located on the former Pfanni site near Munich's Ostbahnhof station. For some years now, the area has been developing into an experimental urban district. Circumferential wide balcony walkways and cascading staircases characterise the building on the outside; its fresh, cheeky appearance is given by huge letters with onomatopoeia borrowed from comics on the facade. The open space in front of the building supports its appearance. It is no coincidence that the images of the Dutch Expo 2000 pavilion pop up in the mind's eye: It animated



ARGE MVRDV & N-V-O NUYKEN VON OEFELE ARCHITEKTEN Werk 12, München
Photo: Ossip van Duivenbode, @Ossip

the client to commission the building. Inside, the five-story building offers a high degree of flexibility for a wide range of user requirements. Additional levels are created by retracted galleries in the high rooms. Open installations and exposed concrete characterise the interior. A fitness studio occupies three floors, one of which has a pool. In addition, there are various restaurant uses and office spaces.

The presentation for the DAM Preis 2021 shows current architecture from Germany and remarkable projects by German architectural firms in other countries. For the DAM Preis for Architecture in Germany, the museum has nominated 100 remarkable buildings or ensembles. The nominated buildings for the DAM Preis 2021 had to be completed between the end of 2018 and the spring of 2020. The jury of experts nominated 22 projects for the shortlist of the DAM Preis 2020. From this shortlist, four buildings were nominated as finalists for the DAM Prize 2021, assessed on a jury tour and finally the winning project named.

In 2021, the award will for the fifth time be bestowed by Deutsches Architekturmuseum (DAM) in close cooperation with JUNG as its partner – as part of a phased jury process.

The shortlist covers aspects of housing construction, for example a modular building in Berlin that takes its cue from industrial examples, und a building complex in Nuremberg that cites the predecessor building in its use of ornamental spolia. Childcare centers are likewise featured, with two completely different solutions, the one a refined wooden structure in Ditzingen, the other the conversion of a somewhat unremarkable villa into an all the more refreshing childcare center in Memmingen. Just how varied can administrative buildings be? Indeed, just how can strongly can they foster communication? The head office of drugstore chain dm located in Karlsruhe's Durlach district, which draws on anthroposophy for inspiration, is exemplary in terms of constituting corporate architecture. Not least, special builds that shape the face of the specific location are also shortlisted: They include the high-water protection structure and waterside promenade in Hamburg's Niederhafen and the innovative wooden structure for the Urbach Tower in the beautiful Remstal surroundings, for example.

With the publication of Architekturführer Deutschland 2021 (Architectural Guide Germany) the shortlist, finalists and the prize winning project are presented in a handy printed version. Published by DOM publishers in Berlin, the book is now available.

SNC-Lavalin positions for Engineering Services growth in Asia Pacific and Middle East

Montreal, Canada – SNC-Lavalin Group Inc. is pleased to announce the appointment of Steve Morriss, a seasoned engineering services executive, as the new President for Asia Pacific and Middle East, important and high potential growth areas for the Company. This is yet another important milestone in continuing to leverage global opportunities as a leading integrated professional services and project management company.

"The Asia Pacific and Middle East represent a significant growth opportunity for SNC Lavalin's diversified engineering services offering, including in the infrastructure, transportation and clean energy segments. To further harness that potential and drive growth, we are creating a new senior leadership role with a dedicated regional focus," said Ian L. Edwards, President and CEO of SNC-Lavalin.

"We are extremely pleased to welcome Steve Morriss in this new leadership role. Steve brings decades of global experience and a recognized track of delivering operational excellence and new business growth. I look forward to working with him as we continue to fulfill our commitment to deliver the best solutions to meet the most pressing global challenges of our time," added Ian.



Steve Morriss

Effective immediately, Mr Morriss will lead Engineering Services in these regions unifying and consolidating existing operating businesses and will report directly to the President and CEO. He will also be a member of the Executive Committee.

There is no change to the financial reporting segments of SNC-Lavalin, which include EDPM, Infrastructure Services, Nuclear and Capital as part of the Engineering Services business.

Florim obtains B Corp Certification

Modena, Italy – In December 2020, Florim obtained B Corp certification, confirming the company's recent progress in its path toward genuine sustainability.

The B Corp certification was achieved as the result of an ongoing process begun some time ago, the main stages of which involved the company's transformation to a Benefit Corporation in March 2020, and the adoption of new articles of association amending the business purpose, introducing the commitment to produce, in addition to profit for shareholders, also a positive impact on the environment, territory and community.

Chairman Claudio Lucchese made the following comment: "For us, the transition to a Benefit Corporation was simply the formalisation of a course we have been pursuing for several years now. The inclusion of actions in the company strategy, designed to improve our environmental impact and provide support to employees and territories, is part of the way we've been doing business since well before the concept of "sustainability" became widespread," and today added, "We celebrate this important acknowledgement as a seal of our genuine commitment, not as the end point, but rather as a stimulus for the future."

The Chairman's words are supported by clear facts and numbers: 45 million Euros invested by Florim in green actions and technology since 2012; 45,000 square metres of photovoltaic panels (which generate electrical power for the Italian plants); 100 percent recycling of wastewater, scraps and raw production waste. Not to mention partnerships with the Sassuolo Hospital and Peggy Guggenheim Collection in Venice, in support of health, beauty and art, as well as activities to support youths and the community promoted by the Giovanni Lucchese Foundation.

In addition to these choices, more than 20 international certifications and the publication of a Sustainability Report since 2008.

Four new companies join WorldGBC's Net Zero Carbon Buildings Commitment

London, UK – The WorldGBC announced four new companies as signatories to its Net Zero Carbon Buildings Commitment (the Commitment), signalling global industry leadership to decarbonise the built environment and combat climate change. The Commitment now has a total of 132 signatories, with 98 businesses & organisations, 28 cities and six states & regions. The businesses and organisations signed up to the Commitment now account for over 5 million (tCO2e) of portfolio emissions.

The support and ambition from companies such as these is crucial as WorldGBC and its partners build momentum to a historic 'Built Environment and Cities Day' at COP26. Two of the new signatories, Siemens AG and City Developments Limited (CDL), are active members of WorldGBC's Corporate Advisory Board, and are driving this ambition to accelerate their building portfolios to a net zero future.

Siemens AG

Siemens AG have signed the Commitment as both an owner and tenant of over 2,000 assets to operate at net zero carbon by 2030. The global company focuses on intelligent infrastructure for buildings and decentralised energy systems, automation and digitalisation in the process and manufacturing industries, and smart mobility solutions for rail and road transport. They will continue to implement a decarbonisation plan that incorporates energy efficiency measures, as well as on-site renewable energy infrastructure and procurement of renewable energy for buildings and industrial processes.

CDL

CDL is a global real estate company with a presence in 106 locations in 29 countries and regions. Already recognised as one of the most sustainable global companies, CDL has formally committed to only owning and developing net zero carbon operational assets under direct control by 2030. They will continue to focus on energy efficiency measures to reduce energy consumption in the design, construction and operations of assets. They will also explore adopting 100 percent renewable energy through on-site production and procurement of renewable energy credits or carbon offsetting as a last resort.

Charter Hall

Charter Hall, is one of Australia's leading fully integrated property groups with a AUD$45 billion portfolio of high quality, long-leased assets across the office, industrial & logistics, retail and social infrastructure sectors. With more than 1,300 properties leased to more than 4,500 tenancies they have a longstanding commitment to sustainability and maintain Australia's largest Green Star footprint. By signing the Commitment they have committed to assets under their direct control to operate at net zero by 2030. Charter Hall will make all assets more energy efficient, invest in renewable infrastructure and renewable procurement, whilst offsetting residual emissions through high-quality carbon offsets.

NEO

NEO is a recognised sustainable real estate group in the Philippines with a portfolio of seven 5-star certified office buildings under BERDE, the country's nationally accepted voluntary green building rating system. NEO has set ambitious interim targets of achieving net zero energy by 2025 and an overall 50 percent reduction of carbon emissions from assets within its direct control by 2030. They will achieve these by developing and implementing a zero carbon programme, which utilises 100 percent renewable energy sources and energy efficiency strategies.

SeARCH wins tender for sustainable housing on Haveneiland

Amsterdam, The Netherlands – SeARCH together with care institution Amstelring, sustainability specialist DGMR and healthcare real estate investor Apollo Zorgvastgoedfonds announced they have won a municipality of Amsterdam tender to develop sustainable housing on Haveneiland, IJburg.

This fully circular and energy-neutral residential building, entitled Eyckstaete, will be the first timber residential building to offer sustainable housing for the elderly on IJburg.

Eyckstaete is comprised out of prefabricated timber modules which can be combined to offer diverse housing typologies and greater flexibility as residents age. This housing concept is in line with a sensitive care model which follows the phases of ageing; allowing seniors to live independently while possible, providing care at home as needed and creating a smooth transition to group homes once more complex care is required. Within Eyckstaete, a mix of homes for independent seniors, homes for people with more severe care needs and homes for care workers, are combined with generous common spaces above a lively plinth.

The plinth acts as a connector between the residents and the surrounding neighbourhood, providing facilities for an ageing population and enabling interaction with the wider public. Large vertical voids connect this light, open plinth to the life of residents above and the internal life of the collective spaces is readable in the transparent facade. A passage through the plinth provides access to the central courtyard, where residents of Eyckstaete and the surrounding buildings can meet and relax in a peaceful, green environment.



Photo: © SeARCH

Eyckstaete addresses two complex challenges facing our cities, how to meet the needs of a rapidly ageing population, and how to do so in a sustainable fashion. We are extremely proud to be involved in such an ambitiously, progressive project, providing high-quality timber housing for ageing gracefully.

Dream Office REIT and Humbold Properties unveil 212 King Street West in downtown Toronto

Toronto, Ontario, Canada – New York-based SHoP Architects and Canadian firm Adamson Architects have been appointed by Dream Office REIT and Humbold Properties to design a true mixed-use tower at the northwest corner of King and Simcoe Streets.

Climbing 79 storeys, 310 metres, 212 King Street West is located at the intersection of the Financial District and the Entertainment District, opposite the famed Roy Thomson Hall. Celebrating three prominent early 20th Century heritage buildings, including 212, 214 and 220 King St. W., the tower will take advantage of its location by introducing a mixed-use development. With 588 rental units, over 10,000 square feet of high-quality retail and 660,000 square feet of office space, the project brings significant employment space to the city core.

Drawing inspiration from the history, materiality and character of the existing buildings, the development and design aims to prove that a sensitive, civic-minded approach to skyscraper design is possible.

The selection of SHoP Architects was driven largely by their proven track record when it comes to blending heritage with contemporary design. Of the three projects in New York City's history to be granted permission to integrate a tower into heritage-designated buildings, SHoP is the designer of two: 111 West 57th Street and 9 DeKalb Ave.



Interior of Atrium.

Strengthening access to sustainability

Singapore – Industry players and end-users can look forward to greater access to built environment sustainability, enabled through a new collaboration between Singapore Polytechnic (SP) and the Singapore Green Building Council (SGBC).

The partnership was cemented by a Memorandum of Understanding (MoU) signed in-person at Singapore Polytechnic which was witnessed by Mr. Desmond Lee, Minister for National Development on 11 December 2020. Under the auspices of the MOU, both organisations will work together to enable exchange of technical resources and expertise to efficiently and proactively promote green products and practices to the industry and community through five (5) key initiatives:



Photo: © Singapore Green Building Council

1. Advancement of Greener & More Sustainable Built Environment Materials
2. Understanding the Embodied Carbon of Materials
3. Co-organising of Green Building related Courses/ Seminars/ Conferences
4. Outreach to Institutes of Higher Learning (IHLs)
5. Exploration of joint Research Opportunities in Green Technology

"As we strive to emerge stronger from COVID-19, a key priority will be our efforts to build a more resilient and sustainable built environment. It is heartening to see industry organisations taking the lead to manage sectoral challenges," said Mr Lee, who is also Minister-in-charge of Social Services Integration. "The expertise brought to the table by both organisations – the research & development know-how of SP together with the industry connections of SGBC – will create a powerful ecosystem to enable stronger efforts in promoting sustainable practices to the rest of the built environment."

A key initiative of this collaboration is the advancement of greener and more sustainable built environment materials and products. SP's expertise in the testing of built environment materials will help to enhance SGBC's industry-recognised Singapore Green Building Product (SGBP) certification scheme for green building products, which complements the national Green Mark certification scheme for green buildings. SGBC is also looking into expanding the coverage of its certification programme to address a wider range of construction materials and products in support of Singapore's move towards zero waste. SGBC will work closely with SP to effectively and meaningfully determine the green quotient for such construction products through certification and testing. This will allow the industry greater access to a wider pool of green building materials certified for their environmental performance.

"The urgency to build a sustainable environment for future generations has become more significant and clearer in recent years as we see more enterprises and consumers adopt new business practices and consumption habits respectively in confronting the impact of climate change," said Mr Soh Wai Wah, Principal & Chief Executive Officer of Singapore Polytechnic. "Our collaboration with the Singapore Green Building Council will enable the built environment sector to harness the polytechnic's long-standing research and technological expertise in creating advanced materials as well as to co-develop practical sustainable solutions and products for consumers. This strategic partnership will bring Singapore Polytechnic and local enterprises closer together to support our national vision or creating a low-carbon, sustainable future Singapore."

The second main objective of the MOU is to support the industry in seeking a better understanding of the embodied carbon of construction materials. The built environment is responsible for 40 percent of global carbon emissions, with embodied carbon emissions being especially critical. If embodied carbon emissions are not addressed before the building project moves past the design stage, there is no way for building owners to reclaim lost carbon savings once the building is constructed and subsequently used. Enhancing understanding of embodied carbon would allow both industry practitioners and end-users to make sense of a product's carbon footprint and from there make more informed building material choices, especially when undergoing building and renovation projects.

The Horizontal Skyscraper:
A New Solution to Urban Overcrowding

Text by Sandrine Demas. Photos courtesy of dormakaba.

Since the world's first modern skyscraper was built in Chicago in 1885, high-rise buildings of over 40 floors have become a norm for dense urban centres. Since then, these skyscrapers have become an iconic symbol of urban progress and architectural achievement. Since 2000, global skyscraper construction has risen by approximately 402 percent.

As the United Nations predicts the world population to reach almost 10 billion by 2050, the role of skyscrapers has to continue to evolve in its ability to serve growing real estate needs. However, what if there were novel ways to make skyscrapers a better fit for the evolving and expanding requirements of crowded modern cities?

Completed in 2020 following six years of construction, Raffles City Chongqing in Southwest China has managed precisely that, in a city with a population of over 30 million.

Horizontal Skyscraper Sets New Heights – and Widths

The world's first horizontal skyscraper reaches a height of 350 metres on a peninsula where the Yangtze and Jialing rivers meet. Enveloping a 270-degree view of both rivers, the 817,000 square-metre structure connects a staggering eight operational towers.

At nightfall, four looming towers of the skyscraper are seemingly connected by a glowing beam of light, aptly named the Crystal bridge. The 250-metre long Crystal bridge presents a spectacular unified image of the skyscrapers, creating emphasis on its horizontal development.



Marina Bay Sands in Singapore.

The Crystal bridge is not like unlike Singapore's iconic Marina Bay Sands, in which three towering buildings are connected by a platform consisting of a SkyPark and infinity pool.

The gigantic complex is home to public and private quarters such as offices, residents, restaurants, a massive shopping mall – and of course, sky gardens and infinity pools overlooking the Yangtze and Jialing rivers.

Unorthodox Skyscraper Designs to Take Over Big Cities

It is noteworthy that both Marina Bay Sands and Raffles City Chongqing were designed by Israeli-Canadian architect Moshe Safdie. As a self-declared modernist, Safdie's bold use of dramatic curves and geometric patterns seamlessly delivers his vision of meaningful and inclusive spaces that bring people together.

Safdie expects to see new ways of building skyscrapers, especially as growing urban populations and limited space already forces architects to think outside the box.



Innovative architecture at a glance.

"Rather than just thinking of land as two-dimensional, zoning will start requiring people to connect between one property and another – first at ground level, then above ground," Safdie adds.

Envisioning innovative solutions is not only the job of the architect; without resources to support their ideas, the path to cities filled with creatively efficient buildings remains unclear. At dormakaba, our access solutions are created with not only the users, but the designer, in mind. At dormakaba, versatile and customisable solutions are specially curated to help architects realise their visionary designs. At dormakaba, our goal is to help you clear the path.



Creating stunning projects with dormakaba.

(Adapted from: https://blog.dormakaba.com/the-horizontal-skyscraper-a-new-solution-to-urban-overcrowding/)



Comapa Ham Factory

THE COMAPA HAM FACTORY IN OTURA, SPAIN, SPECIFIED MAPEI PRODUCTS FOR ITS CONSTRUCTION.

The Comapa Group, one of the leading producers and retailers of ham all around the world, has opened a new warehouse in their facility in Otura (Spain). The contractor responsible for the construction of the warehouse wanted to install a seamless floor with very few joints suitable for the food industry.

Mapei Technical Services recommended using MAPEFLOOR CPU/MF, high strength, polyurethane/cement-based mortar used as a multilayered antiskid coating for industrial floors from 3 to 6 mm thick. It provide floors with a high level of resistance to chemicals, good mechanical properties, a non-



slip finish and good resistance to frequent cleaning cycles. The concrete substrate was first mechanically prepared and primed with epoxy resin-based PRIMER SN. The surface was then fully broadcast with quartz sand with a granulo metric size ranging between 0.3 to 0.9 mm to ensure a perfect bond with the next product to be applied.

After applying MAPEFLOOR CPU/MF, which was tinted directly on site with red MAPECOLOR CPU, the surface was fully broadcast with QUARTZ 0.5 while it was still wet. Once the material had completely hardened, any excess quartz sand was removed with a vacuum cleaner.



A coat of MAPEFLOOR CPU/TC polyurethane-cement formulate was applied to provide a protective finish, again tinted with red MAPECOLOR PASTE.

Mapei products

Preparing the substrates: Primer SN, Quartz 0.5

Laying resin floorings: Mapecolor CPU, Mapecolor Paste, Mapeflex PU20, Mapefloor CPU/MF, Mapefloor CPU/TC

Article source: Realtà Mapei International no. 73/2019

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

PROJECT DATA

Project Name: Comapa Warehouse
Location: Otura, Spain
Year of Construction: 2017
Year of the Intervention: 2018
Intervention by Mapei: Supplying products for preparing substrates and laying resin floors
Client: Comapa
Design: Incudi Engineering of Granada
Flooring Contractor: Aplinsa
Mapei Coordinator: Pedro Madera, Raul Burguete, Javier Fortuny, Mapei Spain
Photos: Provided by Mapei



Jakob Factory

THE DESIGN PARTNERSHIP OF ROLLIMARCHINI ARCHITEKTEN FROM BERN AND SWISS-BORN G8A ARCHITECTS HAS CREATED AN INNOVATIVE AND SUSTAINABLE FACTORY FOR JAKOB ROPE SYSTEMS.





The Jakob Factory project offered the design partnership of rollimarchini architekten from Bern and Swiss-born G8A Architects the unique opportunity to propose a highly innovative and highly specific manufacturing space, set to become a design reference for tropical sustainable architecture.

The factory houses the specialist steel rope producers Jakob Rope Systems, a high-quality manufacturing organisation, specialising in custom made steel meshing used for scales of private to industrial usage. The partnership of organisations applied their pillar value of sustainability, both environmental and social, to all phases of the design process, from conception execution and projected project developments.

The 30,000 square metres site area is placed in the centre of an industrial park 50 kilometres north of Ho Chi Minh City, the economic capitol of Vietnam. Ever since Vietnam's economic reform in 1986 the country has seen a grappling rise in national GDP, with industries and populations moving from a primarily agricultural industry to a focused industrial practice. The past 10 years has seen the doubling of industrial parks constructed on city outskirts from the North to the South of the country.

With lightning speed, little regulations and priorities focused on economic gain rather than environmental impact, many of these zones have witnessed highly polluting and detrimental construction practices, transforming the previously porous land to large zones of impermeable slab development.

Proposing an environmentally friendly alternative to the typically horizontally spread manufacturing buildings. Jakob Factory offers an innovative vertical densification strategy, stacking the usable zones on superimposed slats. This robust design avoids unnecessary ground usage negating needless land development, while also offering workers agreeable outdoor spaces. However, the proposition necessitates the imposing facades taking on important functions; having to provide both shading and rain protection, a service previously asked from roofing. Taking reference from the traditional tropical architecture of the



Grégoire Du Pasquier. Photo: © Federal Studio, Régis Golay.

"The Jakob Factory proposal was seen as a unique opportunity for rollimarchini and G8A to propose an alternative to these detrimental practices, presenting a strategically land saving project with focus elements of passive design."

– Grégoire Du Pasquier, *G8A Architects Partner*











region the design has developed with porous facade devised as a lush-plantation "skin", the suspended structure is supported by a two-layer rope network stretched from the ground to the roof. The horizontal geotextile planters not only filter rain and sun, but also contribute to lowering the atmospheric temperature through evaporation, acting as air purifiers and dust particle binders.

The intelligent distribution of work spaces combined with the plantation facade and completely modular interior walls provide a comfortable working space, a pioneering initiative as Jakob Factory becomes the first project in Vietnam proposing completely naturally ventilated manufacturing halls.

PROJECT DATA

Project Name: Jakob Factory
Location: Ho Chi Minh City, Vietnam
Client: Jakob Rope Systems
Architecture Firms: G8A Architects and rollimarchini architekten
Site Area: 30,000 square metres
Built Surface Area: 13,000 square metres
Completion: 2019
Photos: © Hiroyuki Oki



Cangzhou Mingzhu International Clothing Industry Characteristic Town

Y.AD STUDIO HAS DESIGNED A NEW BUSINESS OPERATION MODEL FOR BEIJING'S CLOTHING WHOLESALE AND PROCESSING INDUSTRIES.

After the Beijing-Tianjin-Hebei Integrated Development Outline Plan was upgraded to China's national development plan, Beijing's non-capital functions have been transferred outwards, with the clothing wholesale and processing industries bearing the brunt. Under such background, Cangzhou Dongsu Group took advantage of Cangzhou's geographical advantages to invest in the construction of Mingzhu Trade City and Mingzhu International Clothing Industry Characteristic Town. The whole industry chain has undertaken the pressure from Beijing's Clothing Industry and even transformed and upgraded on top of it, trying to create a new business operation model that integrates design and development, production and processing, wholesale and retail, warehousing and logistics, e-commerce, entertainment and leisure.

This project is located in the Mingzhu International Clothing Industry Characteristic Town of Cangdong Economic Development Zone. The project has been fully launched. It has undertaken the entire industrial chain of R&D, design, processing, and sales of Beijing clothing industry. At the same time, it has also established a clothing research institute and a clothing design institute. Cangdong Development Zone has obvious advantages in this process because there is a lot of unused and undeveloped saline land and it has very convenient

South facade

transportation. The entire town is dominated by the clothing industry featuring the smart manufacturing. The goal is to form a professional clothing industry cluster that integrates industry aggregation and services, industrial park development, clothing design research and development, one-stop sourcing of materials and accessories, financial services, logistics services, marketing services, branding, and exhibition services.

In the initial site survey, the client took y.ad studio, the architect firm, to the site and some completed projects. The client was against relying on too much purely decorations or expensive materials to create spaces and scenes like some other typical real estate projects. They



East facade



North facade



Viewing the hotel and apartment building from the pool.



Viewing the smart workshop from the inner courtyard.

did not want us to deliberately build an "internet-famous spot" or "landmark" by creating catchy architectural form or spaces. Instead, the client team hoped us to approach the design based on functionality and actual situations while avoiding excessive pursuit of perfectionism of materials or craftsmanship. The architect firm was asked to figure out an appropriate solution, and to define the space through the design, aesthetic and atmosphere. The architect firm also imagined this building as a "starting point" to create an open, friendly, natural and attractive public space for communication, leisure and exhibition, which can then extend to the entire industrial park. These ideas are perfectly aligned with the design philosophy of our studio.

Open Space / Three-dimensional Community

There was an existing R&D office building in the southwest corner of the site, which had re-shaped the site from the original square to an L-shaped one. Therefore, the architects needed to not only consider the formal relationship between the existing building and new buildings, but also take care of the circulation between them. Since the volume and height of the existing building are not small, the architects placed the tallest volume in the corresponding northeast corner to balance the overall architectural form of the entire building cluster.



East facade of design studio and fabric library.

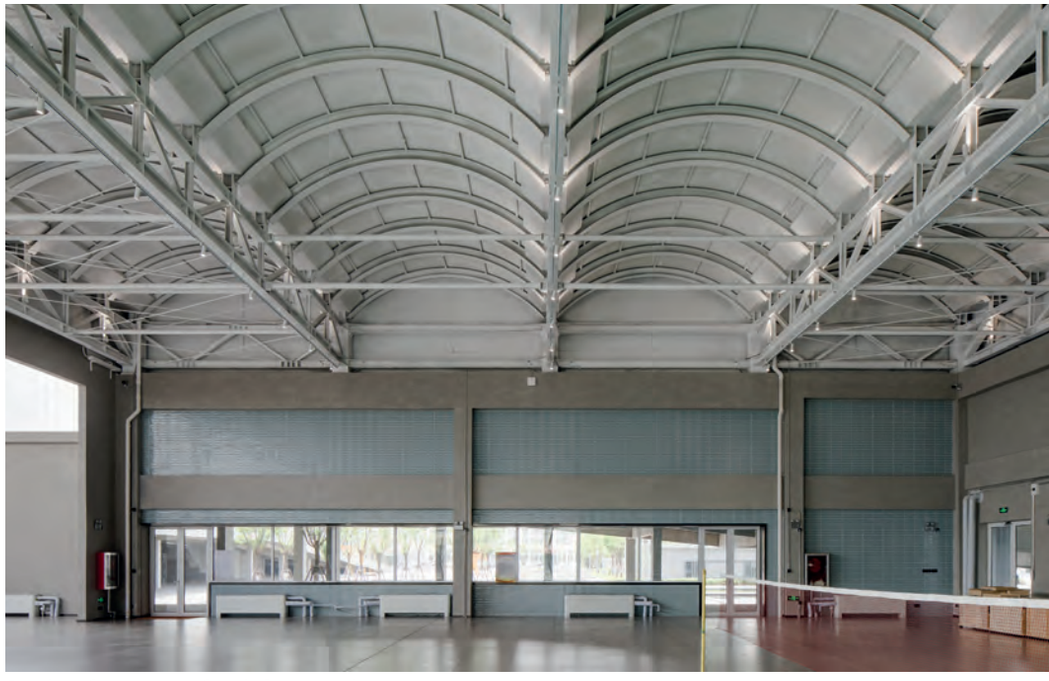


Corridor space

In terms of spatial organisation, the architects stacked the functional spaces, living communities and supporting services with an open entry as connection. The architects intended to create a three-dimensional composite space, where commercial, exhibition, working, living and leisure functions can be integrated into one so as to achieve an ideal scenario of coexistence.

Inward Courtyard / Solid vs. Void

To avoid making the whole building cluster too bulky, the architects tried to construct the space through stagger and intersection of volumes and meanwhile, create many courtyards and open spaces between the building masses. The shift of the solid and void functions as the thread of the spatial narrative, and the in-between spaces enable natural transition between different functional blocks and courtyards.



Steel roof structure of multifunctional activity space.



Translucent glass boxes

Light, Shadows and Structure

Reality is an important concept that the architects wanted to implement throughout the design. They abandoned the excessive decoration and pursued the true presentation of materials and spaces. They also tried to make sure the process was as clear as possible from the functional space distribution in the early stage to the final construction to prevent waste from modification or duplication. Starting from selecting simple and modest materials such as fair-faced concrete, the architects also wanted to avoid too many decorative surfaces so that one-time molding can be achieved. Due to the overall design of the interior and exterior of the building, different types of professions, like structure, MEP and architectural design, can be integrated as much as possible. The structure is almost completely exposed to display its beauty. Natural light and shadows also help shape the space.



Yan Yang

"We adhere to and practice the design principles of "staying thrifty, restraint and integrated, pursuing reality, daily life and natural beauty, and ensuring proper design based on actual conditions."

– Yan Yang, *Founder and Chief Architect of y. ad studio*

PROJECT DATA

Project Name: Cangzhou Mingzhu International Clothing Industry Characteristic Town's Service Community
Location: Mingzhu International Clothing Industry Characteristic Town of Cangdong Economic Development Zone, Cangzhou City, Hebei Province, China
Client: Hebei Mingzhu Garment Culture Co., Ltd.
Architecture Firm: y. ad studio
Project Area: 26,666.8 square metres
Design Period: December 2018 to June 2019
Construction Period: May 2019 to May 2020
Photographer: Peter Dixie (UK) / Lotan Architectural Photographer



Tofu Factory

DNA_ DESIGN AND ARCHITECTURE HAS PROGRAMMED A NEW TOFU FACTORY ON A LINEAR SLOPE FOLLOWING THE RIVER BY THE VILLAGE ENTRANCE.

Caizhai Village located in Dadongba Town, Songyang, is a traditional mountain village built along both banks of a river over the past two hundred years. The village has always been known for its best tofu production in the county region. But the products from the traditional family workshops could not fit into current food certificate standards to be able to sell in supermarket.

A new factory is programmed on a linear slope following the river by the village entrance, as a village collective economic entity on both on soybean supply and a villager union on tofu products, to upgrade the traditional tofu production. The villager union operates the factory to engage family workshops as shareholders of this collective economic entity. In this way, the villagers are the immediate beneficiary and many farmers join the unions as well.





The building volume is spreading along the slope by six production functions: preparation room, grinding compartment, boiling compartment, deep-frying compartment, drying compartment, and tasting hall.

All the production spaces are designed and equipped to upgrade traditional tofu products fitting with food certificate requirements. This will allow the tofu products to sell in city supermarkets and to increase the village economic revenue.

A covered walkway for visitors takes the steps up to observe the traditional tofu making process in sequence, and finally arrive at the tasting hall facing an open plaza to the south and the historical village fabric across the river. Assembly timber structure system is applied to the building as a modern production factory and also creates a dialogue with the vernacular "tenon & mortis" wooden structure in old farm houses in the village.

The factory is both production and exhibition space of traditional heritage for Caizhai village, and has already welcomed groups of primary school students to experience traditional tofu making.

After the completion of Tofu Factory in 2018

The total village inhabitants increased from 1,198 (in 2018) to 1,228 (in 2019). Among them, 20 young villagers returned home and joined the production union/factory. Tourist numbers also increased from less than 1,000 per year to over 2,500 per month now. Fried Tofu price had increased from 20 RMB/kilo (in 2018) to 30 RMB/kilo (in 2019).

In Caizhai Village, tofu used to be produced and sold by each family. Now with the completion of Tofu Factory, families in the village established their own cooperative to make and sell tofu products together. With more organised business structure, tofu products can be sold with higher price. Besides, a soya bean cooperative is also established in the village, which assures the steady supply of local raw materials for tofu-making.





With the new pattern of tofu production, Tofu Factory has become a tofu supplier of nearby schools. Schools also organise fieldtrips and workshops in Tofu Factory, to let students experience the process of tofu production, as part of their general education.

Tofu Factory also attracts much more visitors to Caizhai Village. Several tourist businesses are opened, and many home stay housing programmes have been launched nearby Caizhai.

"Before, our villagers had to retail their own soybeans out to town centre by themselves. Now, the Tofu Factory purchases our soybeans for production. And it is more convenient for us. The price increased a lot as well," said a villager.









Xu Tiantian. Photo: © DnA_ Design and Architecture

"The Tofu Factory is also a shared open kitchen and community space."

– Xu Tiantian, *Architect and Founder of DnA_ Design and Architecture*

PROJECT DATA

Project Name: Tofu Factory
Location: Caizhai Village, Dadongba Town, Songyang County, Lishui, Zhejiang Province, China
Client: Economic Cooperation Limited of Caizhai Village, Dadongba Town, Songyang County
Architecture Firm: DnA_ Design and Architecture
Gross Floor Area: 1,211 square metres
Completion: 2018
Photos: © Wang Ziling

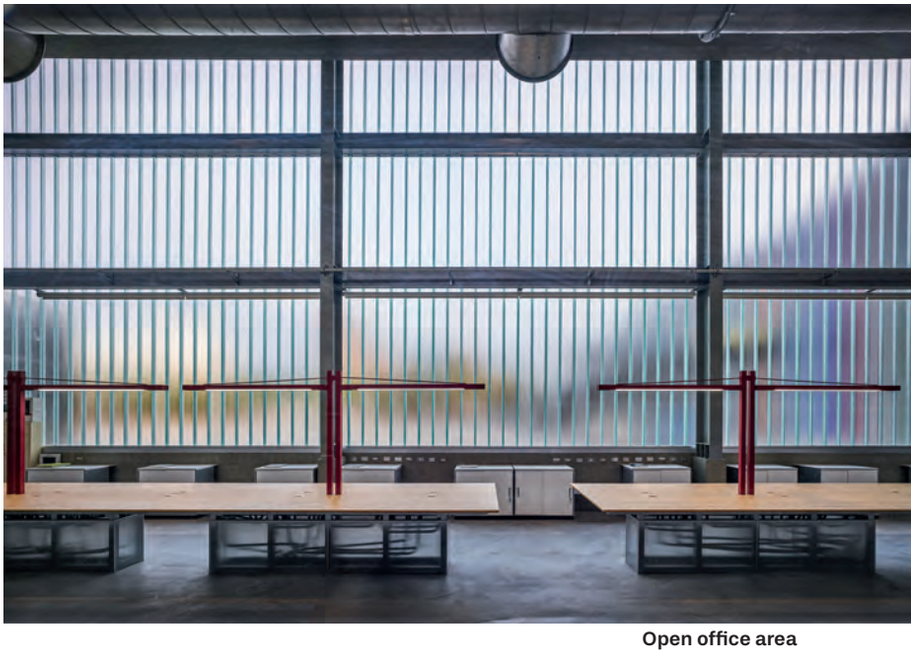


Filter Life Factory

WATERFROM DESIGN HAS MODERNIZED A 30-YEAR-OLD FACTORY IN TAIWAN.



Factory facade



Open office area

The brand specialising in water dispenser production and sales was given a new younger and more fashionable image under the management of the second generation ownership. Waterfrom Design transforms the perspective of space in the 30-year factory as if it were water. Deconstructing the filtration cycle is a complex process, and layers are used to separate spaces based on the concept of "water filtration" in the water making process. Light materials such as barcode glass and mesh are used for partitioning, and vertical and horizontal routes pass through and overlap like the water treatment process.



Office area



Meeting area



Nic Lee. Photo: © Yuchen Chao

"The process of design and its results are difficult to predict, so all the possibilities must be attempted. Only through continuously drawing, creating multiple drafts and versions, can the final answer be found. We maintain the belief that aesthetics comes from approximating what is natural. All the lines of the drawing are not drawn with rulers. The designs I like are not purposefully neat and organized, but to have a little bit of natural lines, which will let us get closer to the space that we want to express. " ***– Nic Lee,*** *Design Director, Waterfrom Design*



Another view of the factory facade.

Table lamps and railings are decorated with bright and saturated colors. The spatial direction and linear rhythm are guided through the layout of work tables, pipelines, and steel beams. The stainless steel block shaped structure at the entrance is polished by hand and glistens like water ripples. The reception counter and outdoor signboard wall are made from cement and have layers of water wave patterns. Along with the wall full of the filtering material activated carbon, as if they begin to tell the story of this space.

Rebirth

The base was originally storage space, the structure and layout of the old building was retained, and the light lemon yellow colour of the fence reveals the ambition for a brand rebirth. Semi-transparent U-shaped glass has replaced the iron sheets and windows at the front, eliminating the common issue of factories being dark. The shifting lights pass through the glass wall and form a variety of rosy colours. Together with the rich colours of the factory wall next to it, they form a modern facade that is minimalism with aesthetic colours. The recycling structure made from transparent plastic sheets becomes a light emitting building when sunlight shines on it, performing the performance art of recycling in the front courtyard.

Fluid

The middle of the space is a laboratory built with glass, the laboratory's table is made from steel, veneer, and hollow boards symbolise the corporate culture of innovation and research & development, showing the dynamic process through a circular route surrounded by lamps. Exposed gray pipes and colored glass that reflect on each other in the block-shaped office space above create a depth of view similar to filters, and increase the spatial depth and temperature of the second floor. The hand-painted curved wall of the hallway and lights hanging in the rest area deconstruct the symbols of water twisting, turning and overflowing.

PROJECT DATA

Project Name: Filter Life Factory
Location: Chiayi City, Taiwan
Client: Forest Spring Enterprise co., Ltd.
Architecture Firm: Waterfrom Design Co Ltd
Gross Floor Area: 900 square metres
Completion: 2018
Photos: © Kuomin Lee



Hankook Technodome

FOSTER + PARTNERS HAS CREATED A SLEEK AND SUSTAINABLE BUILDING FOR HANKOOK, A LEADING MANUFACTURER OF HIGH-TECH TYRES.

Pioneering the latest advances in tyre design, Hankook prides itself on its commitment to quality and rigorous testing. The design of its new research and development facility in the heart of Asia's 'silicon valley' in Daejeon, South Korea is conceived as an expression of these values. The centrepiece of the state-of-the-art facility are the tyre testing and research laboratories, on display to invited visitors and staff to reinforce Hankook's core identity. An integral part of Hankook's new vision for a corporate culture and brand, the 98,000-square-metre facility aims to attract the industry's top talent, providing an inspirational place to work, with light filled offices, advanced laboratories and dynamic social spaces to nurture a culture of openness and innovation. It lays emphasis on informal interaction within the workplace, with central meeting pods for spontaneous team meetings.





The architectural vision was to create a sleek, contemporary and mysterious building with a floating silver roof. Analysis of the existing buildings provided an insight into the testing spaces – one third of these laboratories require isolation pits, so have to be located on the ground floor, and the rest need to be located in double-height areas to accommodate equipment. The building's section was key to resolving this complex spatial puzzle. The building is arranged as five fingers, with parallel office and industrial units.









As well as creating a dynamic, integrated plan that promotes visual connections between different areas, the arrangement is highly flexible to enable future changes in use. Breaks between each finger draw daylight into the heart of the floor plate. In profile, the levels step up from four to seven storeys, in response to the height restriction imposed by an adjacent government site.

The research spaces extend along a top-lit central spine that runs from the restaurant and entrance in the south to the staff accommodation to the north. Glazed oval meeting pods are suspended above the full-height space, which acts as a light well, drawing daylight through the building. The circulation strategy creates a natural divide between public areas and more sensitive product development zones, allowing visitors to follow a tour through the building, from the spectacular lobby, which functions as an exhibition space for the latest product range, along the spine with views into the testing areas, to the parkland outside.

All these different functions are unified beneath the bold gesture of a wide silver roof canopy. The centre has attained a LEED 'Gold' rating, and integrates a number of sustainable design strategies. Waste heat from the research and development centre is used to heat the adjacent dormitory building, which accommodates visitors and staff, and a lake at the southern entrance to the site harvests rainwater for use in cooling. It has also been awarded the Korea Green Building Council (KGBC) Excellent (local) certification.



Iwan Jones.
Photo: © Aaron Hargreaves / Foster + Partners

"The key design objectives for, the Hankook Technodome were two-fold – to reinvent the Hankook Tire's image and to create an integrated working environment for the office and laboratory staff. The spatial arrangement encourages visual connectivity and physical interaction. Testing facilities are on display and circulation and meeting spaces are shared to enhance interaction."

– ***Iwan Jones,*** *Partner, Foster + Partners*

PROJECT DATA

Project Name: Hankook Tire, Central R+D Centre
Location: Daejeon, South Korea
Client: Hankook Tire Co. Ltd.
Architecture Firm: Foster + Partners
Total Site Area: 70,387 square metres
Total Area (Gross): 96,328 square metres
Completion: October 2016
Photos: © Nigel Young / Foster + Partners



Stonex India Industrial Complex

STONEX INDIA'S ADMINISTRATIVE AND INDUSTRIAL COMPLEX IN KISHANGARH HAS BEEN CONCEPTUALIZED TO SERVE AS AN EMINENT LANDMARK IN KISHANGARH.

Instead of erecting a factory-processed industrial shed that focuses on the product and does not communicate with the people who inhabit it, the Stonex factory is developed as a native production-house, geared for excellence and innovation of the global order, while successfully carving out a niche of its own amidst the industrial landscape.

A product of simultaneous interactions between dynamic ordering of principles across varying systems and scales, and responses towards the site, the architecture is an attempt to reinforce the Urbanscape studio's ethos of manifesting the user at the centre of the design process. Drawing inspiration and making reference to the regional Sonpura temple, the building crafts a sense of belongingness and a sense of place by using local rubble as a muse for its own identity. Keeping the worker who inhabits the typical stone processing factory of a similar scale and nature, under harsh working conditions, the design of the complex is an attempt to enable a better work environment. Typically, the workers work in harsh temperatures of around 48 degrees Celsius with scorching sun and dry heat throughout



Factory. Photo: © Suryan and Dang



Factory. Photo: © Suryan and Dang



Factory. Photo: © Suryan and Dang

the day. The production unit is thereby designed to keep the inside space comfortable throughout the day even when the temperature outside are at peak.

The site has been planned in a way that it accommodates maximum built-up area, which is oriented east west in order to achieve north light and maximum solar roof. To keep the pollution levels low, and enable efficiencies of movement, Vehicular access is restricted to one side in order to ensure a smooth movement, where the stone blocks would go into the gantry and to the gangsaw area subsequently. The other side has been landscaped to create a perfect foreground for the entire building.

The orientation and design of the building facilitates climate responsiveness. The hot and dry climate of Rajasthan is combated by the partly sunk mass, staying cool during summers and warm during winters. This is achieved by the natural phenomena of Earth Berming and Earth Coupling. The temperatures indoors are regulated with the help of radiant cooling, allowing for a 60 percent efficiency in the running cost of the building. Also, this has led to HVAC load cutting by almost 40 percent. The floor slabs are additionally radiant cooled to regulate temperatures.

The skin of the Office building sandwiches a puff panel between two laminam panels to further insulate the interiors. The facade is complimented by an enveloping stone screen that is fabricated using the waste stone from a nearby quarry and the stone wastage that is generated on site. This screen provides solar shading from the south-east and west glare. A playful, visual appeal is created by the light and shadow of interwoven stone blocks that appear to be floating at different levels.

The processing plant and display area are both well insulated, using local rubble walls of 550mm thickness towards the east facade and insulated galvalume sheet in the triangular flutters- with a blank facade towards the west. Glazing and lovers at the lower level help the viewer connect visually with the landscaped surroundings while the louvers and glazing towards the north light develop a wind draft to release hot air inside and bring north light inside. While the local rubble masonry facilitates the passive design in order to optimise the climatic conditions, there is also an intent to involve the local masons, and empower the craft and the craftsmen.

Production: The Industrial Shed

Adhering to exigencies of site and logistically sound planning, the manufacturing block orients rather unconventionally in the east-west direction. The finished product of the factory demands uniform lighting throughout the day, with no exposure to direct sunlight. Hence, the orientation is strategically exploited by incorporating complementary systems: North light trusses are introduced to penetrate the complete volume, sloping at a suitable angle of 23 degrees towards the south, providing for ample surface for photovoltaic panels and the resulting solar roof of almost 1MW (sufficient enough to fulfill the power requirements of the factory). Long concrete gutters have been planned to avoid water leakage and facilitate maintenance instead.

Functionality drives the design; the linear production process is used as a design determinant to avoid the workers being forced to do manual lifting, prone to accidents, which is otherwise a common process. Two people can therefore, bring in a 25 Tonne block from one end, process it, display it, and dispatch it on their own. Architecture has opted to campaign human life; by forcing better working conditions, physical and emotional well-being, creating comfort and thereby ensuring better communities and a richer built environment.

Prefabricated white metal flutters give the entire structure a buoyant profile, when looked at from afar. The stone buttresses make the building appear grounded at a more proximal viewing. The sides facing east and west are mostly blank, barring the small windows that connect the occupants with the surroundings. The windows also create a wind draft across the height of the shed expelled through the ventilators along the north light trusses therefore avoiding hot pockets at the top and effectively cooling the building by about 10-12 degrees. The building is designed such that the spaces are used judiciously, allowing for maximum possible green cover and softscaping. Other sustainable measures include the use of bio STPs that recycle waste water and use it for landscaping and flushing toilets, 100 percent rainwater



Factory. Photo: © Suryan and Dang



Factory. Photo: © Noughts And Crosses



Factory. Photo: © Suryan and Dang





Office. Photo: © Noughts And Crosses

harvesting that keeps the groundwater table recharged and soft scraping inside that aids the creation of shaded areas to create a microclimate and keep overall temperatures of the facility low.

Representation: The Office

The design of the building revolves around the concept of mutually respecting the surroundings and nature. The built form is raised and sunk into the ground away from the existing row of trees on site, as a result being derived as linear in form. The entire building has been sunk and irregular shaped courtyards are created to avoid damaging the roots of the existing trees. Consequently, the built mass and the ground is punctured to create sunken courtyards and an amphitheater within



Dinesh Panwar. Photo: © Noughts and Crosses LLP | Andre J Fanthome

"What inspires us is human comfort and the experience that one achieves in a built environment – it may be the visitor, the owner, the labour sweating it out throughout the day or any individual who becomes a part of the campus. Hence, we wanted the building to belong to the place – in terms of the material usage, the weather, and the working conditions, instead of it appearing as an alien structure."

– Dinesh Panwar, *Principal Architect, Urbanscape Architects*



Labour block. Photo: © Suryan and Dang

the earth-cooled lower floor. Being partly underground, the eccentric mass defines a seamless silhouette adorned by screens in stone and greenery climbing up the entire roof in a sweep. The roof wraps around the ground, merging into the landscape to help the building remain cool, while ensuring physical access of the landscape above the roof.

The facade has the bearing of a rubble wall and the fluidity of the metal sheet, expressing the ageless and enduring nature of stone as a material. As an evolution from the primitive manner of construction, the buttress is used to hold the structure together, in a contemporary form. The facade is created with a double glazed structural glazing system along with insulated aluminum panels, and the repetitiveness of the grid makes the entire facade appear dynamic. The stone screen compliments the rubble facade showcasing how technology can help the same stone be used in an array of ways; as a buttress or as a floating element if engineered well. The wastage from the factory has been used for the stone slate that is fixed with SS rods and spacers; this becomes the shading device for the complete office facade.

The design in entirety stands as a testament to the ethos of Stonex – strength and perfection, through their state-of-the-art products and technology while adhering to the brand's humble and rooted approach towards its processes, conceived as an unassuming and environmentally perceptive complex.

PROJECT DATA

Project Name: Stonex India Administrative and Industrial Complex
Location: Kishangarh, Rajasthan, India
Client: Stonex India Pvt. Ltd.
Architecture Firm: Urbanscape Architects
Site Area: 10 acres
Built-up Area: 20,000 square metres
Start Date: August 2017
Completion Date: 2019
Photographers: Noughts And Crosses LLP and Suryan & Dang



Automated Warehousing Facility

THE AKDA TEAM OF ARCHITECTS HAS CREATED A LARGE WAREHOUSING FACILITY THAT IS EQUIPPED WITH A HIGH DEGREE OF AUTOMATION.



Eastern approach.

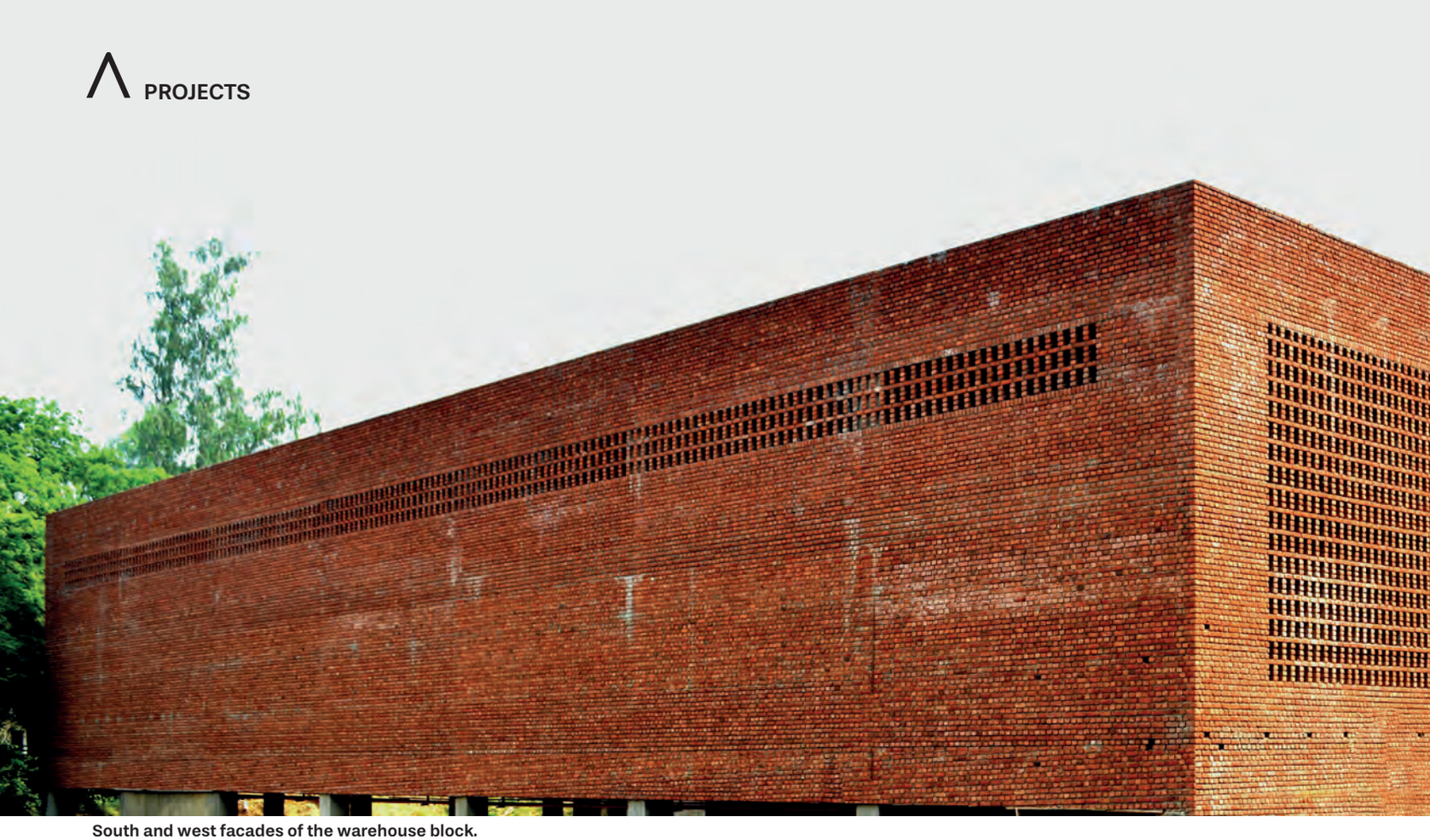


Exterior view of office block north facade.



Exterior view of warehouse from the south.

Surrounded by a rapidly urbanising village settlement, the 7 acre site is on the outskirts of New Delhi in India. The site's existing rocky terrain posed a significant challenge to the spatial planning of the site. The project brief was to create a large warehousing facility that would be equipped with a high degree of automation. With the exception of the office block, the building would have minimal human occupancy. However, a comprehensive environmental and energy strategy became essential required to maintain habitable temperatures throughout the year. Planned in three incremental phases, the 140,000 square feet structure is



South and west facades of the warehouse block.

programmatically divided into three parts – the warehouse, the loading bay and the north-facing office block which is interlocked with the other two. This layout enables easy stacking of future expansion with no loss of efficiency in material/ man movement. Each block is designed from within, the individual requirements dictating the overall dimensions. The office is thin and narrow, facing the north through a glazed wall that brings in optimum daylight. The warehouses are largely square to enable efficiency, and the dimensions of robotic arms and stocking pallets dictate the spatial planning, including the 20' high ceilings. The loading bay provides the interface between the two elements and also the exterior cargo area.

Delhi has an extreme climate and a severely dusty micro-environment, both of which contribute to making buildings notoriously energy-intensive in trying to cool down ambient temperatures to human comfort levels. Traditionally, walls were made dramatically thicker than required for structural integrity, with the intent that the increased thermal mass would minimise heat gain. In modern times, a single skin facade is simply not adequate to reduce the temperature and air-conditioning is mandatory.

Rather than overlay a conventional window-based punctured facade over the structural frame, the warehouse and loading bay are wrapped in a perforated brickwork screen. This screen shades a glazed dust barrier, recessed by 1,200mm from the south and north facades, creating a buffer zone that cuts glare, serves as a utility zone and provides a high degree of passive insulation. The glazed barrier can be opened during good weather for ventilation and during extreme weather to allow for mechanical ventilation. The west facade is mostly blank with only a sliver of brick screen near the ceiling to permit evening illumination and the completely blank east façade faces the loading bay. The exposed brick unifies the various facades and minimises the visual impact of the building on the surroundings.

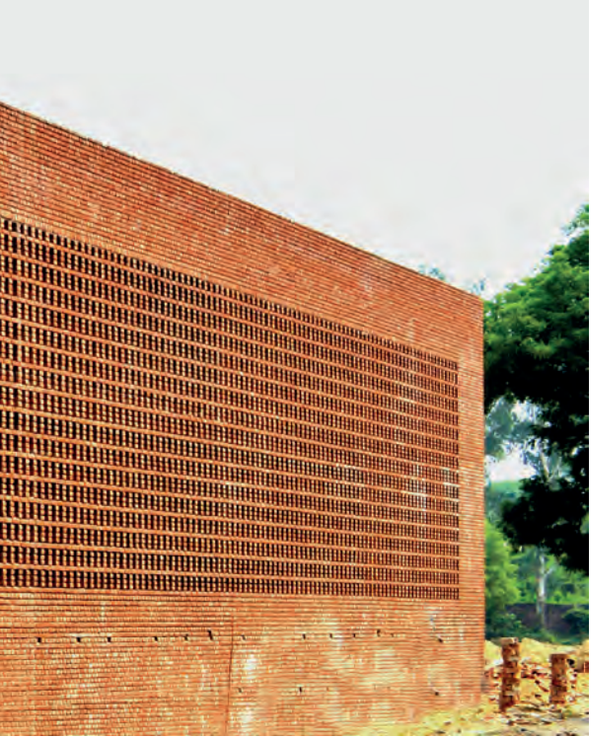
Additionally, the building is set nearly 4 metres within the ground, allowing for the parking, mechanical and canteen spaces to be naturally illuminated while the adjacency to the ground provides thermal insulation. The surrounding site is sloped away from the subterranean floor, saving costly retaining walls and



Amit Khanna. Photo: © Noughts and Crosses LLP | Andre J Fanthome

"The brief was to create a large warehousing facility. Surrounded by a rapidly urbanizing village settlement, the 7 acre site is on the outskirts of New Delhi. A comprehensive environmental and energy strategy became essential required to maintain habitable temperatures throughout the year."

– Amit Khanna, *Design Principal, AKDA*





Interior view of warehouse.



Interior view of cargo bay area.

providing views from within. These sunken areas catch rainwater for harvesting which is diverted to a local well. The roofs are covered with reflective tiling to minimize heat gain and a slim courtyard between the office block and loading bay helps draw out hot air from within the building.

Post occupancy evaluation of the building shows a temperature differential of over 10 degrees between the exterior and interior spaces. As if that wasn't good enough, the light quality within the building is even, cool, bright, but without the glare. Which, in a climate like Delhi, is nothing short of a miracle.

PROJECT DATA

Project Name: Automated Warehousing Facility
Location: Village Anangpur, Faridabad, India
Client: Undisclosed
Architecture Firm: AKDA Team
Built-Up Area: 1,40,000 square feet
Completion: 2014
Photos: © AKDA

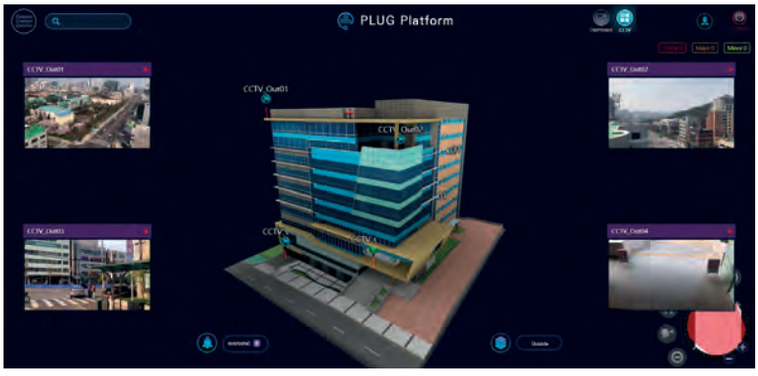
PLUXITY to launch Smart Building Management Platform 'PLUG-platform' based on digital twin technology

Seoul, South Korea – PLUXITY, the company possessing the source technology for digital twin, which was utilised in Seoul City, Busan City, Incheon International Airport, and a newly built city in Turkmenistan, will launch its latest smart building management platform called 'PLUG-platform.'

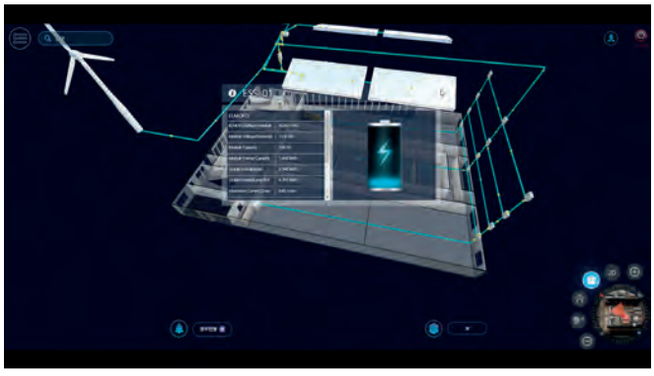
PLUG-platform is an integrated control solution for smart buildings based on 3D virtualization modeling. By integrating controls of all building functionalities such as lightings, environmental sensors, and electric power, as well as closed-circuit TVs and access control devices, the platform allows operators to supervise everything on a 3D map, thereby assisting quick view and decision-making of the high-level manager.

PLUXITY was selected as one of the best-performing companies in the second annual World Smart City Week in 2018 and received an award from the Minister of Land, Infrastructure and Transport. On June 23, 2020, the company signed an agreement with Hoban Construction to invest in digital twin technology and work together to develop it further.

Digital twin is a new technology to "copy" a city, product, factory, or building in digital forms so that the copy can be used to prevent disasters and improve productivity. It is a paradigm-shifting technology that was selected as one of the top-ten Korean New Deal projects announced in 2020.



The CCTV outside the building is managed in conjunction with the 3D map. Photo: © PLUXITY



Monitoring screen of ESS (Energy Storage System) in the building. Photo: © PLUXITY

Dr. Richard A. Bucher named Chief Executive Officer

Easton, Pennsylvania, USA – Victaulic announced the appointment of Rick Bucher as Chief Executive Officer, succeeding John F. Malloy, effective January 31, 2021.

Dr. Bucher was named President of Victaulic in April of 2020, following a June 2019 appointment as Chief Operating Officer. Prior to joining Victaulic in 2009 as Vice President of Engineering, Dr. Bucher worked for 15 years for W.L. Gore, a manufacturer of technologically advanced composite materials. Dr. Bucher received a B.S. and M.S. in engineering from Rice University and a Ph.D. in material science from Virginia Tech.

Dr. Malloy, who will remain Chairman of Victaulic's Board, commented, "Rick has consistently demonstrated the intelligence, judgement and courage to make wise and sometimes difficult decisions while preserving the compassion and concern for everyone associated with Victaulic – employees, customers, shareholders and our community.



Dr. Richard A. Bucher. Photo: © Victaulic

Since joining Victaulic in 2009, Rick has reinforced Victaulic's long-standing commitment to innovation. Under his leadership Victaulic's patent portfolio has grown substantially with the issuance of over 3,200 patents globally while our research and development organization has doubled in size.

Schindler helps modernise Riyadh Airport

Ebikon, Switzerland – Schindler has been selected to fit out with new escalators Terminals 1 and 2, as well as the Royal Terminal of King Khalid International Airport (KKIA) in Riyadh.

The project, to be completed by 2022, includes 74 escalators of the type Schindler 9300, the world's most popular escalator. Scope of the project is to provide a reliable, heavy usage escalator system for the airport that helps transport over 28 million passengers per year.

"It is important to choose the right partner to achieve a positive business outcome. Keeping this in mind, we are glad to have partnered with Schindler on this project that will propel our expansion plans and the overall functioning of the King Khalid International Airport to a whole new level," said Gelban AlGelban, Commercial VP at Riyadh Airports Company (RAC). "We want to ensure travellers are provided with the highest level of comfort and the best experience at KKIA, which is the gateway to the Kingdom. With Schindler as our partner on this journey, we aim to achieve this and more," added Gelban.



Riyadh Airport. Photo: © King Khalid International Airport (Riyadh, Saudi Arabia)

Toshiba Carrier's new VRF Series SMMS-u wins the highest honour at 2020 Energy Conservation Grand Prize Award of Japan

Kawasaki-shi, Japan – Toshiba Carrier Corporation announced that the SMMS-u, its newly launched VRF series, won the Minister of Economy, Trade and Industry Prize, the highest honour in the product and business model segment of 2020 Energy Conservation Grand Prize Award of Japan.

The Energy Conservation Grand Prize Award of Japan is an annual event sponsored by Japan's Energy Conservation Center (JEC) and supported by the Ministry of Economy, Trade and Industry (METI). The government-led programme is designed to commend energy saving efforts that are executed by private companies, autonomous communities and educational institutes, excel others and exemplify as role model as well as products and/or business models with outstanding energy efficiency, aiming to raise energy-saving consciousness in the country's entire population and build an energy-conscious society through the promotion of energy efficiency products.

This marks Toshiba Carrier's 30th honour of the Energy Conservation Grand Prize, including prizes won under the "21st Century-oriented Energy Efficiency and Conservation Equipment and Systems Award (Energy Conservation Vanguard 21)", the previous format of the Grand Prize.



Toshiba Carrier's new VRF Series SMMS-u. Photo: © Toshiba Carrier Corporation

Cleantech Solar powers up three new solar projects at AkzoNobel's Malaysia and Thailand manufacturing facilities



480 kW site in Nilai, Malaysia.
Photo: © Cleantech Solar



240 kW site in Samut Sakhon, Thailand.
Photo: © Cleantech Solar



916 kW site in Chon Buri, Thailand.
Photo: © Cleantech Solar

Singapore – Three rooftop solar PV systems at AkzoNobel sites in Malaysia and Thailand have been commissioned by Cleantech Solar under long-term agreements where Cleantech Solar has funded, built, and will operate and maintain the systems throughout the term of the agreement.

Two of the sites are located in Chon Buri and Samut Sakhon, Thailand and the third site is located in Nilai, Malaysia. The combined 1.6 MW solar power plants saw 7818 panels installed across the industrial coatings sites and are targeted to avoid about 28,000 tonnes of CO2 emissions across the term of the agreement.

Wijnand Bruinsma, Program Manager Sustainability at AkzoNobel, said: "At AkzoNobel, sustainability is one of our core principles. We strive to lead our industry by empowering people, reducing our impact on the planet and consistently innovating to deliver the most sustainable solutions for our customers. That is why we call our approach to sustainable business 'People. Planet. Paint.' It is about focusing on the things we can truly influence. Through our partnership with Cleantech Solar, we are delivering on our ambition to reduce energy use and lower CO2 emissions while increasing our use of renewable energy."

"I am pleased to see another successful multi-country rollout from the Cleantech Solar team, and I would like to extend hearty congratulations to AkzoNobel on achieving another sustainability milestone in the region. Cleantech Solar takes great pride in the fact that we are working together with AkzoNobel, an industry leader and established member of RE100, to make a switch to clean and competitive electricity in order to meet their social, environmental and economic performance targets," said Raju Shukla, Cleantech Solar Founder and Executive Chairman.

Pittsburgh International Airport partners with Honeywell to test air quality improvement technology

Pittsburgh, Pennsylvania, USA – Pittsburgh International Airport announced a partnership with Honeywell to test air quality improvement technology at the airport's newly opened innovation centre, xBridge. Pittsburgh International Airport is the first U.S. airport to deploy Honeywell's Healthy Buildings dashboard and air quality sensing technology, and will use Honeywell Forge enterprise performance management software, to increase public health efforts and improve staff and passenger confidence in travel.

The Honeywell Healthy Buildings dashboard at xBridge measures key indoor air quality (IAQ) parameters such as temperature, humidity, carbon dioxide, particulate matter and volatile organic compounds (VOC). A network of IAQ sensors connected to the Healthy Buildings dashboard provides real-time updates on the airport's air quality performance to help the facilities staff quickly identify and correct critical building controls issues. The dashboard seamlessly integrates into existing systems within the airport. Honeywell Forge software will be used to monitor and address maintenance issues with the airport's air filters.

Launched in 2020, xBridge is a 10,000 square foot innovation centre at Pittsburgh International Airport custom-built to nurture the evolution of the aviation industry and inspire creative solutions to challenges. Based on the success of xBridge pilot systems, PIT may expand the technology throughout the airport. Working in tandem with companies

on initiatives will be a key part of xBridge's success. As the airport itself has become a testing ground for new technology, including robotics and AI, this innovation center will focus those efforts into a space custom-built for ideation, experimentation and collaboration.

"Public health, safety and security are always the top priorities at Pittsburgh International Airport. Working with companies like Honeywell through our xBridge innovation centre allows us to not only test new technologies but also look for ways to solve bigger challenges that will improve the experience for our airline partners, staff and passengers," said April Gasparri, Senior Vice President of Public Safety, Operations, and Maintenance for Pittsburgh International Airport. "The emphasis on air quality has greatly increased due to COVID-19, and airports must look to adjust our facilities for the long term to create safer environments for travelers and the people who make travel happen every day," added April.

The Honeywell Healthy Buildings dashboard can provide operational and passenger benefits to an airport. From an operational perspective, it can visualize information via a single screen to allow the Pittsburgh facilities staff to make real-time decisions based on air quality fluctuations. For example, if increased occupancy creates higher carbon dioxide levels, the airport can immediately respond to improve social distancing or increase airflow to the HVAC system in a specific zone. In the future, travelers will be able to benefit by visually seeing the building health information in a user-friendly dashboard.

Additionally, the airport plans to use Honeywell Forge to conduct condition-based maintenance focused on MERV 13 filters in its air-handling units. By monitoring particulate matter and volatile organic compounds using Honeywell's dashboard, airport personnel will be able to identify filters that require changing based on need versus a maintenance schedule to avoid costly, unnecessary filter changes. Honeywell Forge proactively analyzes building controllers and mechanical assets and provides near real-time insights via intuitive dashboards that can reduce unplanned reactive work on building systems.

Grundfos launches investment-free guaranteed energy savings programme for Thai businesses

Bangkok, Thailand – Grundfos, a leading pump and water solutions manufacturer, has launched a new service model in Thailand that can help local businesses cut energy consumption by more than one-third, achieving greater sustainability at a lower cost while supporting the country's goal of reducing greenhouse gas emissions by at least 20 percent by 20301.

Grundfos Energy Earnings (GEE) is a new shared energy saving programme where Grundfos absorbs the investment cost of replacing customers' current equipment with new environmentally friendly solutions, as well as installation and ongoing maintenance. Under this new self-funding service model, Grundfos and customers will share the realised savings from GEE for five years.

Pumps account for 10 percent of global energy consumption. Switching to newer technology can have a significant positive impact. Advanced pump solutions, which can be used for various applications across diverse segments, are especially suitable for the hospitality industry where hotels, entertainment arenas and other facilities play a critical role in supporting the Thai economy. GEE can also help municipal electricity authorities reduce their energy consumption.

Grundfos is dedicated to supporting Thai efforts to reduce energy consumption, in line with a growing domestic environmental movement where consumers and businesses are becoming increasingly concerned about how human activity is damaging the country's natural and urban environments.

Mr Lewis Brown, Grundfos Regional Service Business Developer, Asia Pacific Region, said, "Sustainability is a very important part of Grundfos' DNA. The pandemic this year has reaffirmed the importance of achieving our climate ambitions,



Photo: © Grundfos

as we are reminded of the impact human activities have on the environment. We are committed to helping our customers to reduce their water and energy consumption to limit their carbon footprint.

Grundfos this year launched GEE with Ramayana Water Park in Pattaya, replacing the existing pumps at Thailand's largest water park and enabling it to reduce its energy consumption by 31 percent. The project will exceed 1,000,000 kWh in savings and 450 tonnes of CO2 emissions – about the same as permanently removing 170 cars off the road.

Financial savings for a customer can reach up to 1.5 million baht per year of cost saving. Grundfos has been present in Thailand for more than 30 years, serving customers that range from large hotels and industrial sites to agricultural businesses and residences.



Drones in Architecture

Architects share with us how drones can be used in architecture, the challenges and the trends ahead.

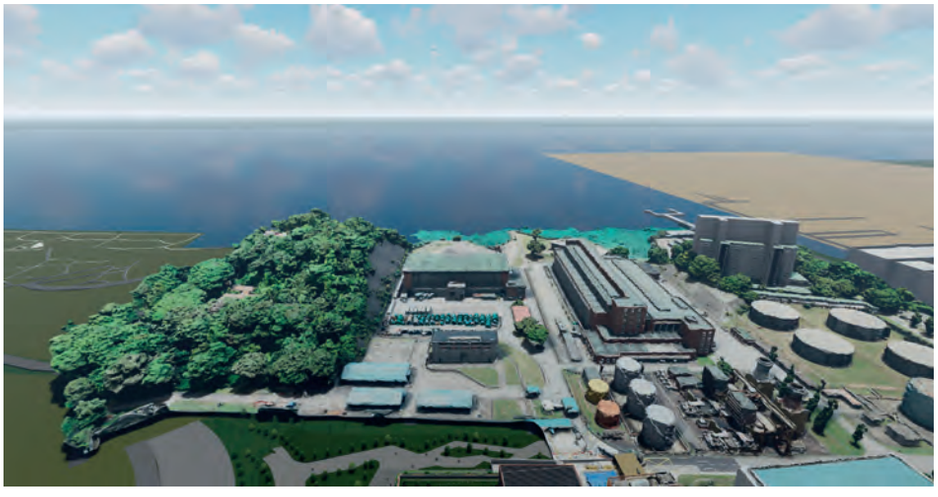
Stephane Lasserre, Principal, B+H Architects, member of the Surbana Jurong Group



Stephane Lasserre. Photo: © B+H Architects

SEAB: What can drones do for architects besides taking pictures?
STEPHANE: Unmanned Aerial Vehicle (UAV) technology and associated software to treat collected data have unlocked a wide range of applications throughout the whole life cycle of a building. These include:

1. **Predesign stage:** Topography and site context can help evaluate the potential and the challenges of a site. The ability to provide an integrated 3D model with all urban elements (infrastructure, buildings, landscape zones, trees, elevation points and so on) when as-built drawings are not available is incredibly valuable to take decisions on site selection. Drones also allow us to access zones that are difficult to survey. Drones bring a level of detail that Google Earth or Open street Maps don't offer, speaking from a designer perspective.



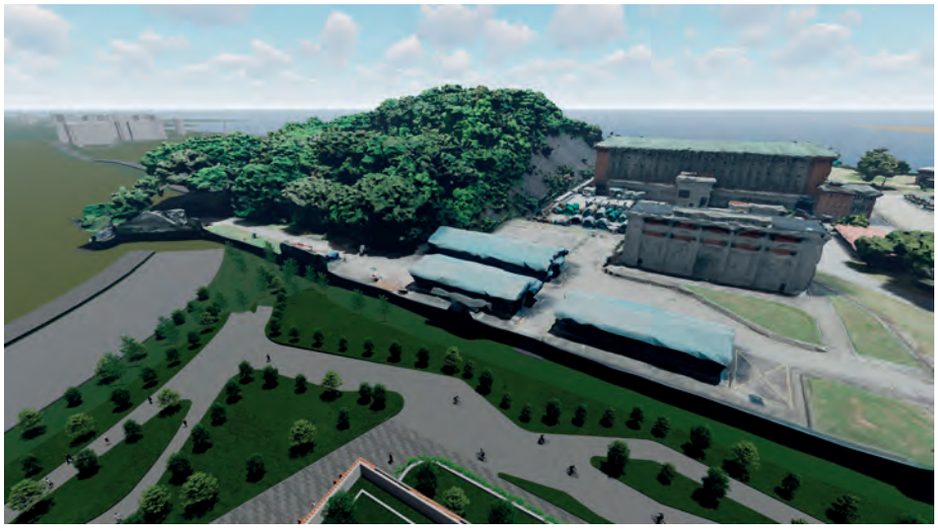
Simulated view from the future roof top bar. Photo: © Surbana Jurong / B+H Architects

2. **Design Stage:** Refined 3D modelling of the context can help understand or view corridors from any point of the project, offer site opportunities and simulate visitors' experience from anywhere with an unprecedented level of realism. We have been using drones during the design of the Singapore Power Grade A office at Pasir Panjang. We were able to:

   - Check at which level tenants get access to sea views, plan sky terraces accordingly and advise the client on prime leasable spaces,
   - Assess the best view from the rooftop bar and therefore take decisions on landscape placement on the roof,
   - Articulate the podium design and material selection with NPark's linear park and the conserved power station buildings surrounding the site (step up massing, corner views, pedestrian experience anticipation).

3. **Construction Stage:** Monitoring of construction activities (automatic or semi-automatic), assist on safety checks with instant video feedback, access to difficult zones, and carrying equipment. Drones can reduce the likelihood of accidents at a worksite.

4. **Post Completion and Marketing:** Provide assistance to generate realistic still images and walkthrough, simulate and feedback user experience, support design narratives and explain zones of the



View from level 5 to test of sea view and Labrador hill park connections. Simulation of future road work. Photo: © Surbana Jurong / B+H Architects

building by obtaining snapshots from any angles.

5. **Maintenance Stage:** Visual check and planning of maintenance, monitoring of operations remotely, perform maintenance operations without human intervention.

6. **Demolition Stage:** For old buildings where drawings are not available drones can assist in visual checks of the current conditions and access unsafe areas.

SEAB: What are the problems of using drones in architecture?
STEPHANE: These relate to two areas:

Precision
Level of details management (LOD) and model sizes can be a challenge. Models appreciated from a distance generally don't have any issues providing an immersive experience. However, at a pedestrian scale, subdivision in surfaces are highly perceptible and therefore can provide a pixelated and faceted experience. This issue generally leads to site modelling rework and manual adjustments to be able to match levels seamlessly.

Architecture Knowledge
Drone surveys don't carry semantics. They only help to create meshes with texture mapping. It is currently difficult if not possible to transform a drone survey into architectural components such as, roads, walls, windows, roofs, fences, pipes, etc. and import to a BIM system as elements. This problem is not new and has been explored for more than 30 years in various research labs. It is a universal knowledge problem where computer conceptual data models are developed to identify what makes a surface a wall and not a roof or a frame a window and not a door. With the development of AI, there are promising perspectives to bridge this gap.

SEAB: How are drones expected to change the future of architecture, landscape architecture and urban planning?
STEPHANE: Drones are expected to change our lifestyle from our doorstep to our streets. This include delivery of goods or even transporting us from one point to another. Technology has already successfully enabled flying driverless taxis and Amazon delivery of packages.

This will affect buildings typologies, in particular residential and office buildings, the way we access premises and commute between them. There is a promise of reducing the number of car ownership too. We can expect interesting changes in the way we connect the public realm with infrastructures with more landscape areas and pedestrian friendly experiences.

As Covid-19 changes the way we use public spaces, we can also imagine that drones will come into play to monitor people density and compliance to rules and design specifications.

SEAB: How has drone technology advanced over the years?
STEPHANE: Drone technology has been made affordable so that everybody can use a drone and even think about it as a transportation vehicle nowadays. It all depends on the purpose, equipment quality, weight and smart features embedded.

Initially Laser surveys were widely used to obtain Point Clouds meshed into surfaces. For a high level of accuracy over a large space laser will still be preferred to photogrammetry survey for photo-realism. The software suite however is continuously evolving to allow more automation and flexibilities to stitch photos and transform them into accurate 3D models.

SEAB: What kind of rules and regulations do you have to follow to use drones in your work?
STEPHANE: Flying a drone is no longer a casual affair. It generally requires approvals from multiple aviation authorities and agencies as well as landowners' approvals. In Singapore there are many areas forbidden to fly over such as military zones or even downtown such as the PSA building zone. As a result, there is always a need for approval from client to share images and data.



Articulation of the podium with the Future N-Parks linear park. Emphasis on heritage buildings with view corridors and contextual materials references. Photo: © Surbana Jurong / B+H Architects

Jeremy Farrington, Architect Director, BDP



Jeremy Farrington. Photo: © BDP

SEAB: What can drones do for architects besides taking pictures?
JEREMY: As designers, technology is intuitively something that we always try to embrace in order to achieve our objectives of developing and delivering architecture and the built environment. We are very keen to use technology to expand our creative tool box and drones certainly fall into this category.

For us, the primary use of drones is for de-risking data collection. The ability to gain a vantage point to obtain visual analysis, LIDAR information, climatic or environmental data, perform building inspections and numerous other forms of data collection – all while avoiding situations that may ordinarily expose our designers or resource to risk – is very important to us.

For BDP Singapore studio and working in Southeast Asia, this is often the case. Recently, on a series of projects in both Indonesia and Cambodia, the relative inaccessibility of our sites caused by physical constraint (urban density, poor infrastructure) or environment constraint (landscape, topography) meant that using drones allowed us to obtain the information we needed to fast track our early masterplan proposals, without the need to put our team and the project programme at risk.

Equally, at the other end of the process where BDP has projects on site, and particularly during the pandemic restrictions where lockdown has limited the access to a broader design and stakeholder team, the use of drones provides us with a platform for acquiring material that can be used for client progress reporting, site inspections, defects resolution and a number of other applications.

This of course is nothing particularly new as an approach. Where we are seeing potential additional benefit and the opportunity is to seamlessly integrated or automate design data into development. This means providing a 3D virtual environment for real time immersive design testing, or progressing BIM work streams and drawn documentation.

SEAB: Are drones easy or hard to use? Describe your experience, if you have any.
JEREMY: Without doubt, the technology of drones has evolved significantly in the past five years. The stability of the devices, the level of automation and 'smart flying' patterns (AI) allows the pilot to focus more on what the drone is looking at than the actual flying itself. Similarly, as every drone pilot will attest, that moment when their transmitter loses connection to the drone whilst it's in some precarious or distant location, is happily becoming more and more infrequent as the radio technology between devises also continues to evolve – even in the most built up of



Survey image of a riverfront development in Jakarta. Photo: © BDP



BDP generated an aerial 3d model using satellite and drone data for the riverfront development. Photo: © BDP

environments such as Singapore.

Whilst that is all positive and certainly has made things easier and more accessible to new pilots; changing drone laws, ever increasing size, weight and complexity of drones themselves, still requires the pilot to have a level of ability and experience to own and operate the device. This is something that is very much reflected in the way that most countries around the world now enforce drone registration and proficiency testing.

SEAB: What are the problems of using drones in architecture?

JEREMY: Even with the most sophisticated of drones, high resolution video and other forms of data harvesting from sites or buildings – it cannot replace the subtleties and nuances that an architect, engineer or designer would pick up on whilst standing in the field, on site, or physically inspecting a building. In many ways, it is comparable to the early days of BIM when the software libraries being used led to an architectural response steered by the software rather than the architect. In the same way, it is important that the use of drones is used to supplement (not replace) architects' wider skills of observation and analysis.

SEAB: How are drones expected to change the future of architecture, landscape architecture and urban planning?

JEREMY: There are two key areas where we expect to see change in relation to drones in architecture (other than as a design tool).

Firstly and most obviously is construction itself. There are growing examples around the world where some form of UAV is being used in the construction process or supply chain. Automated drones are used in smart logistics / assembly warehouses, or automated smart robotics on site for repeated fabrication process. But, in Asia, there are more and more ambitious experimental projects where drones are being tested as part of the construction methodologies – like delivering and installing 3D printed building components.

Clearly we are just at the start of this innovation, but it is inevitable that we will see more growth here – particularly as the drone manufacturers themselves seem to be exploring how their devices can be applied to the construction industry.

The second way may seem more far-fetched, but there is also an inevitability that drone logistics will be part of our life at some point in the near future. All the major online retail platforms are in development of various solutions for drone delivery.

UAV transit also seems inevitable. Like the automobile shaped the thoughts of designers in the modernist era in the early 20th century, it is not inconceivable that the integration of drones and UAVs into design for our homes, places of work, civic and public buildings may help shape the architectural language of 21st century. This may include anything from the design of logistic drone access and drop-off points in domestic dwellings to masterplanning space saving drone airports in the very hearts of our future cities.

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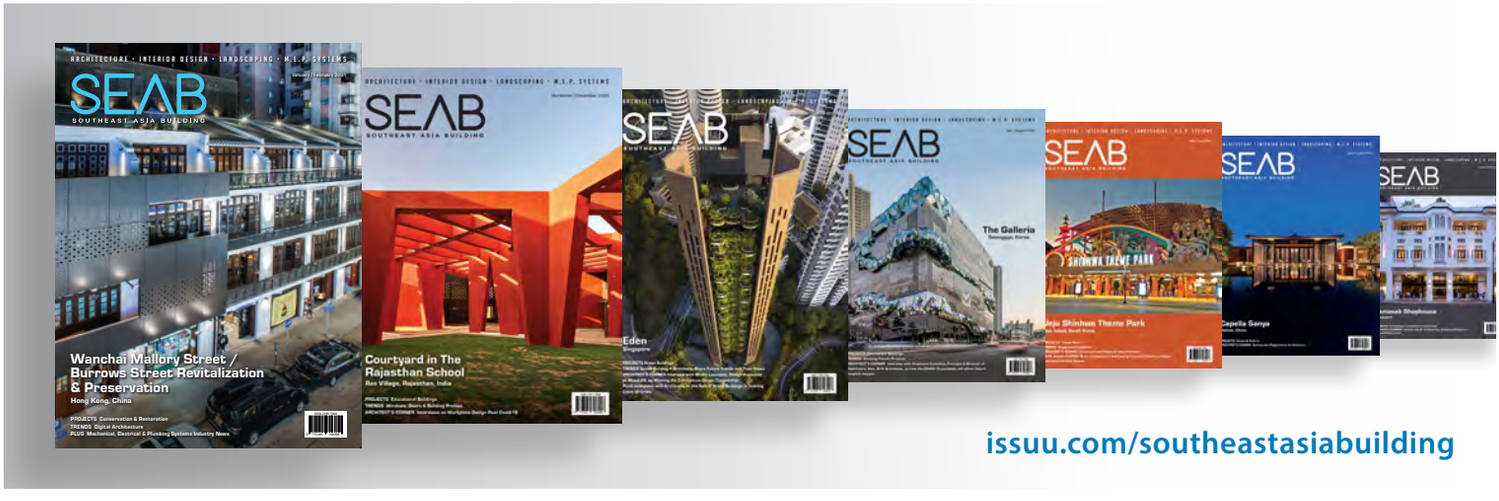
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