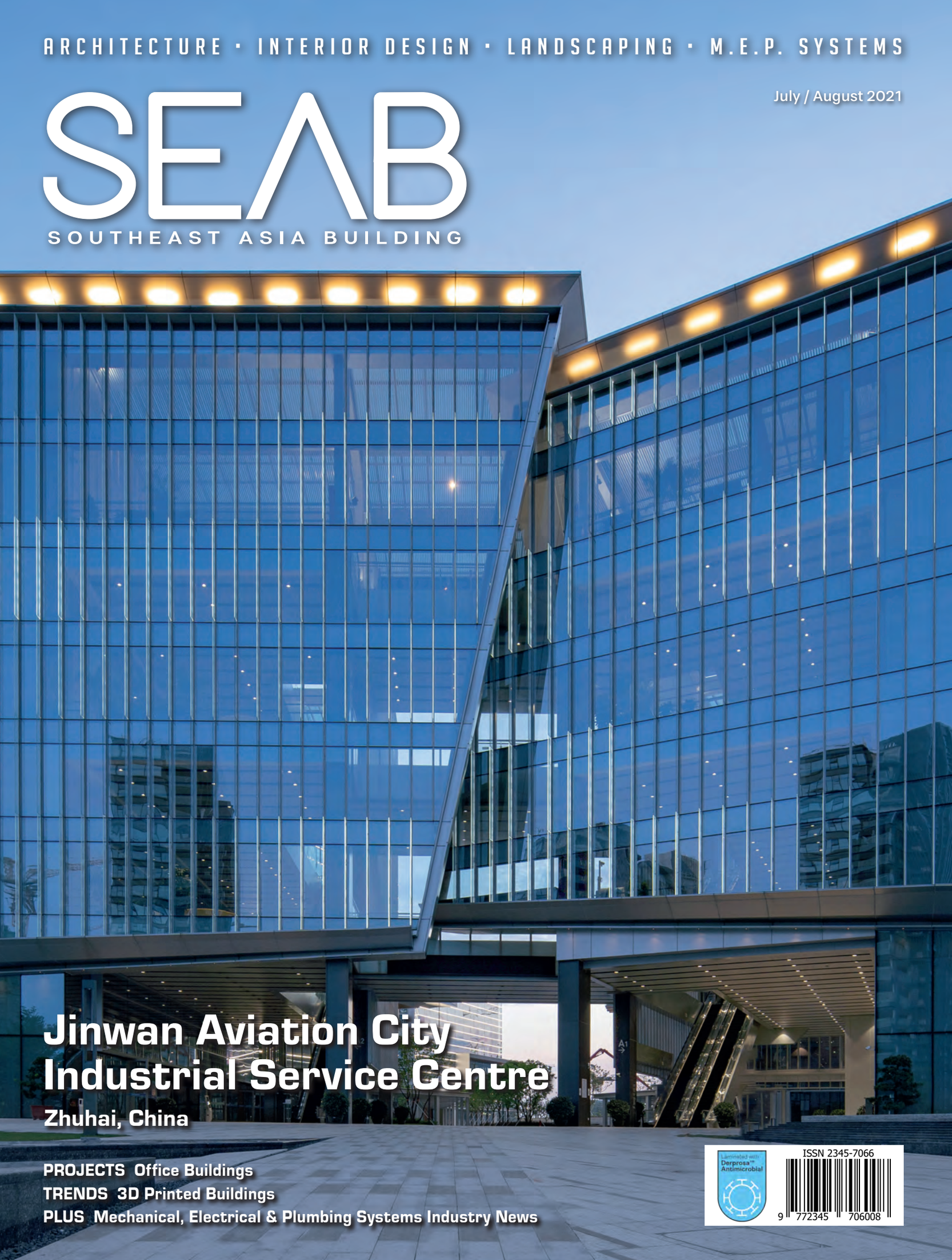
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SOUTHEAST ASIA BUILDING

July / August 2021



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Zhuhai, China

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TRENDS 3D Printed Buildings
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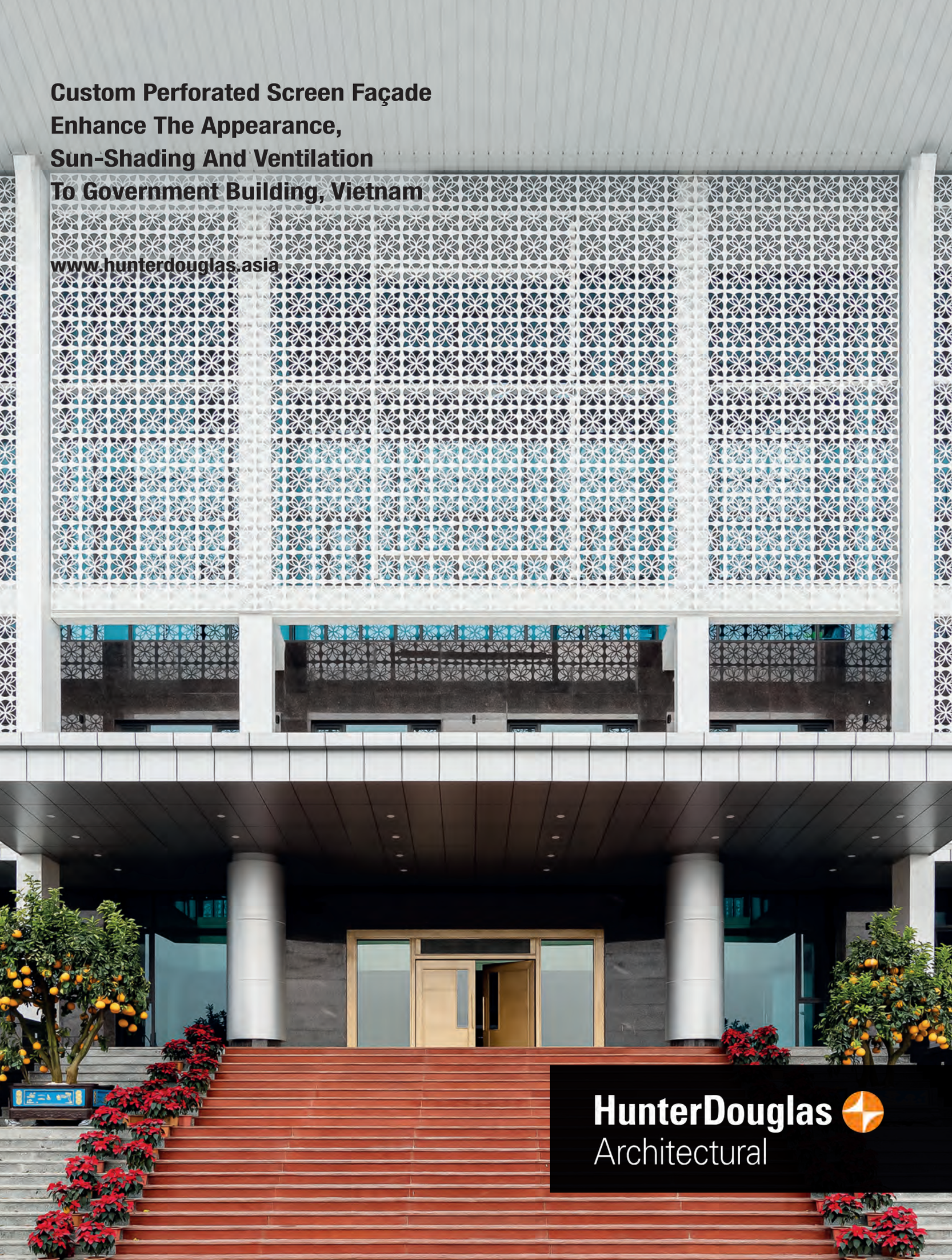
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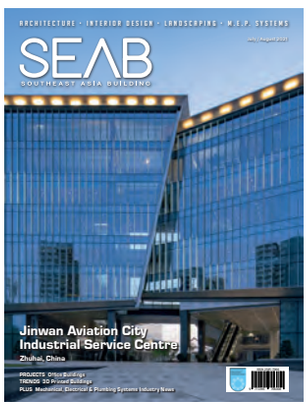
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On the Cover: Jinwan Aviation City Industrial Service Centre in Zhuhai, China. Photo: © Zhang Chao

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Hello readers of *SEAB!* Here's the July/Aug issue which you have been waiting for. The theme is on Office Buildings – a popular area of work for many architects. This is because they can not only show how functional the office space can be, but they can also make office buildings an iconic landmark in the city. You can read all about the different designs and building materials used in the projects, inside.

In the trends section, we have explored the topic on 3D printed buildings. 3D printing technology is already widely used in USA and Europe because it is possible to print faster, cheaper and more sustainably than traditional construction. In Asia, the trend has just started picking up but the future looks promising for the technology. Take a look at the 3D printed building projects inside and find out what architects have to say about the technology.

Have a good month ahead and see you again. If you have any comments or feedback, write to me at seab@tradelinkmedia.com.sg.

Amita Natverlal

SEPTEMBER/OCTOBER ISSUE THEMES
. Projects – Green Buildings
. Trends – Zero Energy Building
. M.E.P. Systems (Refer to the media kit for topics)
. Products – Green / Recycled Building Materials (Advertorial)

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Create decorative surfaces with Mapefloor I 320 SL Concept

Singapore – Mapefloor I 320 SL Concept is a self-levelling epoxy coating with a coloured granular finish that can be used to create abrasion-resistant floors.

The material is self-levelling which makes it quick and easy to apply, therefore reducing the time required to carry out work and minimising production down time. Its resistance to abrasion is higher than traditional self-levelling systems. Moreover, it is resistant to most aggressive chemical products. It is easy to clean and sanitise the surfaces using Mapefloor I 320 SL Concept.

To apply, ensure that substrate is sound; free of crumbling and detached portions, dust and no presence of rising damp. Apply combined primer and quartz sand on the surface. Next, mix two components of Mapefloor I 320 SL Concept and pour it on the floor up to at least 2mm thick and apply with a straight trowel. The final step is to go over the surface with a spiked roller while the product is still wet to remove any trapped air. The finished surface will turn out smooth and seamless. Colour pigments can be added to Mapefloor I 320 SL to form highly decorative surfaces on floors and even countertops.

Its aesthetic and functional finish makes it suitable for use in general public areas such showrooms, bars, hotel lobbies, offices, classrooms, clinics. It can also be applied on floors in the industrial and civil environments, such as laboratories and warehouses as it is suitable for medium to heavy loads.





Application of Mapefloor I 320 SL Concept on floors.



Beautiful coloured granular finish on countertops.



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Fernando Zobel de Ayala lauds 26-year legacy of outgoing CEO Jaime Augusto Zobel de Ayala and sets strategic priorities as the incoming CEO and President of Ayala Corporation

Manila, Philippines – On April 23, 2021, after the company's Annual Stockholders Meeting and as announced last December 2020, Ayala Corporation (AC) transitioned the position of Chief Executive Officer from Jaime Augusto Zobel de Ayala to Fernando Zobel de Ayala, who has been designated President and CEO. Jaime Augusto Zobel de Ayala will focus on his role as Chairman of the Ayala Board. Jaime and Fernando will continue to represent Ayala, retaining their current roles, as Chairman or Vice-Chairman, in the subsidiary boards of various Ayala group companies.

In his remarks, Fernando lauded Jaime for the latter's outstanding leadership and track record of creating shareholder value in his 26 years of tenure as CEO. "Since 1995, our market capitalization expanded more than sixfold; our net income similarly grew more than six times. Since 1995, we rewarded our shareholders with dependable returns that averaged at 15 percent per annum. Over that period, we cumulatively paid P118 billion in dividends to our common shareholders."

Beyond the stellar financial returns, Fernando also cited and thanked Jaime for his strategic five-point legacy which Fernando said will serve as a firm foundation for Ayala Corporation's future sustainable growth:

(1) Stronger, expanded and balanced portfolio mix. In the last 26 years, Ayala made massive and transformative investments in real estate, banking, telecommunications, energy, water, health, education, and logistics where large societal gaps exposed opportunities to serve a broader, more inclusive set of customers, generate meaningful returns and improve our risk-resilience;



Fernando Zobel de Ayala, President and CEO. Photo: © Ayala Corporation



Jaime Augusto Zobel de Ayala, Chairman. Photo: © Ayala Corporation

(2) A culture of relevant and relentless innovation where Ayala's inspired teams sparked new or enhanced solutions to remain relevant to the dynamically changing needs of customers;

(3) Rigorous financial management discipline, thus enabling decisive investments to capitalize on opportunities and generate attractive returns, while strengthening risk-resilience especially in times of crises, including the current COVID-19 pandemic;

(4) Championing the alignment of Ayala's corporate ambition and goals with world-class standards for sustainability; and environmental, social, and corporate governance; and

(5) Placing Ayala at the forefront of the evolving role of corporations to address society's pain points—to create inclusive and sustainable prosperity for all stakeholders and to aid in nation-building.

"As incoming President and CEO, I aim to build on the firm foundation that Jaime established, guided by our core strategy of maintaining leadership and relevance in the markets we serve," Fernando said. "To support this, we will place greater emphasis on our portfolio strategy with a sharper focus on optimizing returns from existing businesses, a highly disciplined approach on capital deployment; and explore opportunities for value realization initiatives to fund future investments."

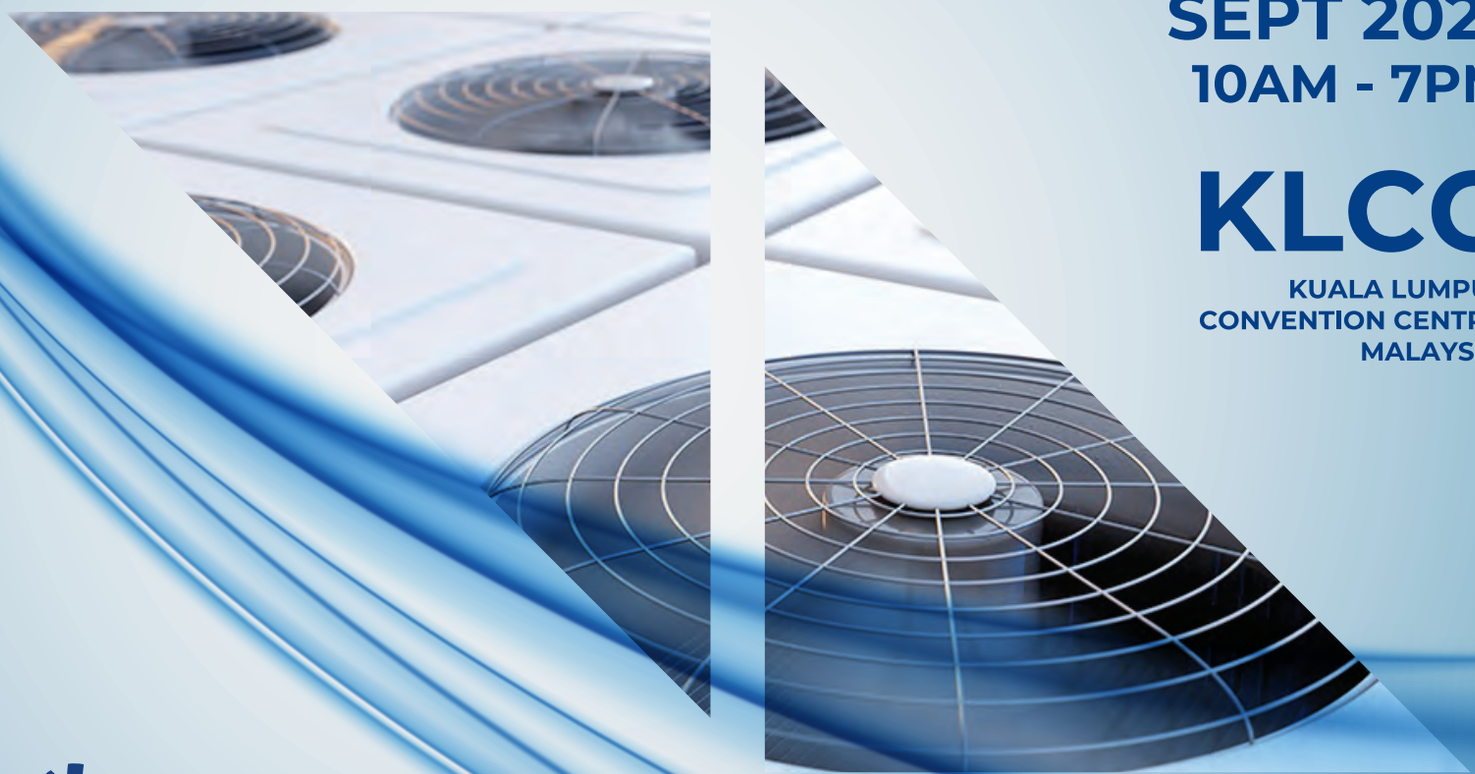
Fernando said that Ayala will continue to support the expansion of its core value drivers – Ayala Land, BPI, Globe, and AC Energy, while scaling up its healthcare and logistics businesses through AC Health and Entrego. In total, Ayala Group is allocating a combined capex of P196 billion in 2021.

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Burwood Brickworks recognised as the world's most sustainable shopping centre

Melbourne, Australia – Frasers Property Australia's quest to create the world's most sustainable shopping centre at Burwood Brickworks has been fulfilled. The International Living Future Institute (ILFI), the global authority which administers the Living Building Challenge® (LBC®), announced Burwood Brickworks has formally achieved Living Building Challenge® Petal Certification.

The LBC® is the most advanced measure of sustainability in the built environment. It requires developments to have a net positive impact by challenging them to operate as cleanly, beautifully and efficiently as nature's architecture. Using the motif of a flower, the LBC® is organised into seven performance areas called Petals.



Photo: © Frasers Property

The Petals independently audited and now achieved by Frasers Property for this Certification refer mainly to the built form of Burwood Brickworks – namely the Place, Materials, Health & Happiness, and Beauty Petals.

The remaining three Petals – Water, Energy, and Equity – relate to the centre's operation over time, and these have been impacted by COVID-19 trading restrictions and lockdowns. These Petals must also be independently audited, based on 12 months of operational data, for the centre to achieve full Living Building Challenge® Certification.

Assuming an undisrupted 12 months of 'typical' operation, Frasers Property is targeting achieving Certification for the three remaining Petals in late 2022.

No other retail centre development globally has ever attempted the LBC®, making Frasers Property the first organisation in the world to achieve Living Building Challenge® Petal Certification for a retail centre.

"This was a benchmark-altering aspiration that we knew would push us, and the industry, to create buildings that deliver a net benefit to the environment and the community. Reaching Petal Certification was certainly challenging and the pathway to achieve the remaining three Petals, and therefore full Living Building Challenge® Certification, will continue to challenge us, as it should," said Anthony Boyd, CEO, Frasers Property Australia.

"We're grateful to our family of retailers at Burwood Brickworks for embracing the LBC®. For some retailers, the requirements of the LBC® necessitated a complete re-imagining of their fitout and operations and then, a few months after the centre's opening, COVID-19 hit," he added.

Mixed-use urban intensification is the key to designing better living for older people in Southeast Asia, says BDP

Singapore – A new report from global design practice, BDP explores how intensifying underutilised development sites across Southeast Asia enables the design of high quality homes where people can age in place, in multi-generational communities.

Statistics from the United Nations show that by 2030, 60 percent of the world's older population will reside in Asia. Additionally, in the last year, the Covid-19 pandemic has created a seismic shift in the care and wellbeing of the region's older generations.

As we move towards recovery, global, interdisciplinary design consultancy, BDP has published an independent report which provides a framework for supporting the design and creation of greener, healthier, more equitable housing for older people in South East Asia.

'Reimagining Age-Friendly Living' considers how the design of more affordable houses and apartments that meet the physical and mental wellbeing requirements of older individuals would allow people to remain in their communities for longer, if not, for their entire lifetime.

Andrew Loke, Architect Director at BDP Singapore explained: "Rooted in Filial Piety, cultural expectations

in almost all South East Asia nations are that older adults are cared for at home by their families and local communities. 'Reimagining Age-Friendly Living' considers the benefits of designing accessible purpose built multi-generational apartments within mixed use developments and how this could better support the changing health and wellbeing needs of older adults."

"Our new report recognises the regional, socio-economic distinctions that affect age-related policies and changes to care systems and identifies a framework that supports smart design and construction techniques for all types of new homes. The key is to use underutilised spaces across the region to design places that fulfil the needs of an entire community and ensure everyone can live longer, better lives," he added.

"Physical and mental wellbeing has never been so important and the aim is to design and create places for a mix of uses but where people can feel comfortable that their needs are met as they grow older. We have the space – now is the time to start thinking holistically about how we create multigenerational and meaningful places that's work for older people," he concluded.



Image: © BDP

To read the report, visit www.bdp.com/age-friendly-living/.



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New leadership team for Arup Australasia accelerates sustainability agenda

Sydney, Australia – Kerryn Coker and Kate West have been appointed as new co-Chairs for Arup in Australasia, and Murray Kretschmer as Chief Operating Officer, with plans to enhance the firm's focus on sustainable development including climate services. Kate and Kerryn will succeed Peter Chamley who is retiring after a distinguished career in global senior management and as the leader of highly complex infrastructure projects. Murray takes over from Bruce Tanner who will move to a new executive role after seven years as COO. Committed to leading with social purpose and driving positive change in the industry and with clients, Kate and Kerryn said their ambition is to help shape and create more resilient, liveable places with an end-to-end approach to sustainable development.

"Every country in the region is facing significant, complex challenges. We want to engage more deeply with our growing number of like-minded clients and partners as advisers and creators of great design which can reduce carbon, offer clean energy solutions, minimise waste, create resilience to shocks and stresses and provide lasting social value," said Kerryn and Kate.

"We are no longer 'a firm of engineers'. We are a consulting firm of specialists covering more than 90 disciplines. We are economists, digital technicians, climate, sustainability, energy and water specialists, technical advisers, asset managers, urban planners and architects as well as engineers; we are larger and more diverse, and our strength is being able to work as one innovative integrated Arup," said Murray.



From left to right: Kerryn Coker, Kate West and Murray Kretschmer. Photo: © Arup Australasia

- Kerryn is leading the implementation of Arup's Sustainable Development Strategy in Australasia and is a member of the Global Sustainable Development Executive. With a background in façade engineering, she has successfully delivered complex projects and led multidisciplinary teams in the UK and Sydney. Most recently the Leader of the NSW Buildings Group, she is an advocate for diverse teams and received the Consult Australia Champions of Change Female Leadership Award in 2019.

- Kate has led the successful Consulting Group in Western Australia for four years, following a career with Arup based in Melbourne, the UK, Ireland and most recently Perth. A structural engineer with a Master's in Architecture, Kate is a passionate STEM advocate. In 2017 she received the Crystal Vision Award from the National Association for Women in Construction and in 2018 she was awarded the 40U40 Business Leaders Award in WA from Business News.

- Murray is the Australasia Infrastructure Leader, respected for his industry knowledge, business expertise and ethos of inclusive and accountable leadership. A civil engineer, he has delivered innovative solutions with a focus on sustainability and renewable energy within complex infrastructure projects across the region and in China, the UK and Ireland.

RSDA designs Vurve Signature Salon with biophilic elements

Chennai, India – A destination for relaxation and rejuvenation, Vurve Signature Salon located in Palavakkam, Chennai enunciates splendour in both design and experience. RSDA, a multidisciplinary design firm delivering architecture, interior design and strategic services across India, have envisaged the two-storeyed space to radiate opulence that serves as an exquisite escape from the humdrum of the city, housing various services that the users can avail.

The entrance to the salon is through an iconic red door that rests against the subtle facade. The lift lobby encountered at the entrance leads to the first floor of the salon. Parametric forms combined with a vibrant theme create an exclusive experience for the visitors while endowing the salon with a distinct identity. The main hallway is a softly lit space with a parametrically-designed ceiling perched on top. The warmth of the wooden floor and concrete textured wall is balanced by the use of bright yellow paint on the ceiling. Grey undertones used on the walls along with warm lights and textures create an earthy vibe, providing a serene ambience to the space.

The interior layout of the salon steers away from the traditional box-like arrangement; animated forms have been employed to break the monotony of the cuboidal spaces. The carefully detailed elements are articulated as a design response to functional and architectural requisites. The main styling table has been fabricated as a continuous design element flowing through space, creating fluidity. Coated in yellow paint, the



Photo: © Kunal Daswani

table has also been perceived in a parametric configuration. Originating at the waiting area, the table traverses onto the styling area with seating on both sides. Continuity has been maintained through the use of yellow paint of the counter continuing on the floor, extending onto the counter bar table and ultimately fusing into the ceiling. The parametric design of the table is also reflected on the ceiling suspended on top. The organic forms of the elements have been tailored to maximise the functional and spatial utility. Overhead ceiling-suspended lighting fixtures have been strategically placed to illuminate the spaces, whilst functioning both as task and accent lighting for the salon.

To enhance the rejuvenating experience, biophilic elements have been infused into the design. Plants placed on the counter and on metallic frames against the wall in the waiting area imitates context of our natural surroundings. The walls of the rooms on the upper floor have been equipped with live green wall cladding, naturally lit through a skylight. A terrace garden for recreational activities has been conceived in the design. This outdoor area thrives as a live design element maintaining indoor views as well as providing insulation to the building against heat. The design of the salon re-establishes the connection between humans and nature by means of biophilic design elements and views to the terrace garden.

An innovative material palette has been conceived – hues of grey and brown have been observed as the overall colour theme. Sustainable materials such as Rubber wood which is considered superior in quality and is environmentally-friendly is used for the reception desk. Rustic brick cladding used for vertical surfaces, compliments the intensity of the yellow paint that is used for the counter and the ceiling.

An attempt has been made to create a holistic experience for the users, through intricately planned design interventions. Distinctive forms and materials have been employed to disrupt monotonous and traditional practices. The integration of efficient configuration and exquisite interior aesthetics can be seen across the design.

Aurecon makes a strategic investment in Malaysia's GCU Consultants Sdn Bhd



GCU Leadership Team. Photo: © Aurecon

Sydney, Australia – Leading international engineering, design and advisory company Aurecon announced a strategic investment in Malaysia's GCU Consultants Sdn Bhd (GCU), a move that will strengthen the company's regional presence and expertise. This took effect from 1 April 2021.

William Cox, Chief Executive Officer at Aurecon, says the investment in GCU is an important step in the company's growth ambitions and creates a direct presence in one of South East Asia's most important economies.

"There is strong alignment between our companies and when we first looked at GCU, we were impressed with its technical excellence, professionalism and success," he said.

"Malaysia will be one of South East Asia's most active markets in the years ahead and with GCU joining Aurecon, we will be able to expand our work in the country and lead the industry through innovative engineering solutions that solve complex challenges and bring ideas to life."

According to The Economist Intelligence Unit and the World Bank, Malaysia's GDP is projected to grow by 4.4 percent and 6.7 percent respectively.

Factors contributing to growth include the government's budgetary support of RM69 billion which will accelerate new and ongoing infrastructure projects such as the Mass Rapid Transit Lines 2 and 3, East Coast Rail Link projects and other rail sector investment in the country. The Penang Transport Master Plan is another flagship infrastructure programme that will present significant infrastructure development opportunities for the engineering and construction sector.

With Malaysia's engineering sector expecting ongoing growth, Aurecon is now well placed to help the country bring to life its most ambitious engineering projects. In recent years, Aurecon has completed some of Asia's most striking developments, including the Hong Kong West Kowloon Station; Vincom Landmark 81 Tower in Vietnam; the Shanghai Tower in China; Dau Tieng 1 and 2 PV Solar Power Plant Project, South East Asia's largest solar power plant; and the Mauritius Metro Express.

Dar Al Arkan brings world's first villas with Versace Home interiors at Shams Ar Riyadh

Riyadh, Saudi Arabia – Dar Al Arkan, a leading real estate company in Saudi Arabia, has announced a unique collaboration that will bring the world's first ever villas with interiors by Versace Home to the Kingdom's Shams Ar Riyadh project.

Versace Home's outstanding design and craftsmanship will augment the extraordinary 'Upside Living' design of the limited-edition luxury villas which will be built overlooking the historic and natural setting of Wadi Hanifa.

In an exclusive model of innovative design, the entrance and living areas will dominate the first floor, together with floor to ceiling windows which will flood the living space with light and make a feature of the spectacular views over Wadi Hanifa, meanwhile the bedrooms and family rooms will be repositioned on the ground level, creating an overall space that combines elegance and practicality.

The villas have also been designed for a smarter life incorporating the latest hi-tech throughout and setting a new benchmark for residential technology. Lighting, heating and air conditioning will be engineered to provide a more enhanced, ambient lifestyle controlled by motion sensors, a sophisticated security and surveillance system will be fully integrated, together with a smart home entertainment system including a home theater and smart kitchen appliances will be standard. The emphasis will be on creating luxury and sophistication in every detail.



Photo: © Dar Al Arkan

Situated overlooking Wadi Hanifa with easy access to the city's prime lifestyle destinations and top attractions. The villas have been designed to make the most of their natural setting and offer a new way of living in comfort, luxury and privacy.

Founder of Gensler, M. Arthur Gensler, Jr., FAIA, passes away

Singapore – Art Gensler, an architect and visionary who propelled a small practice into one of the largest and most admired firms in the industry, has passed away peacefully at home in Mill Valley, California. He was 85.

Art was an industry icon and entrepreneur with the vision that we not only design spaces, but we do so with the understanding that they have the power to shape how we experience the world and who we become within it. During a 65-year career, his gift to the firm was an ethos that has allowed Gensler to continue to grow and prosper. That ethos was distinguished by a belief in collaboration, support of design education and career advancement, respect for individuals, dedication to clients, and endorsement of sustainable design. All these values blended to form the unique and lasting culture he established at his namesake firm. His vision of a collaborative culture that emphasises a selfless client-first design approach has become a characteristic Gensler trait, and has helped propel the firm to global prominence long after Art stepped down as CEO in 2005 and Chairman in 2010.



Photo: © Gensler

After Art's retirement from the board, he remained a constant presence in the firm, renowned as a mentor to our next generation of leaders. Art made a profound difference in the lives of many people in the firm and the local, national, and international community. Of all the architects of his generation, Art Gensler stands out as the preeminent firm-builder. He founded and built a collaborative practice that has had wide influence on the profession and become the industry benchmark fora well-run, conservatively managed business. Born in Brooklyn, New York in 1935, he completed his Bachelor of Architecture degree from Cornell University's College of Architecture, Art, and Planning in 1958, during which time he met his wife of almost 60 years, Drucilla (Drue) Cortell Gensler. The couple married in 1957 and moved from New York to San Francisco in 1962. In 1965, Art and Drue co-founded M. Arthur Gensler Jr. & Associates, Inc. with James Follett. They started the business in a one-room office with just one draftsman and $200 in the bank.

Art started the firm with a focus on work that fell below the radar screen for many architects – space planning and interiors. In the process, he virtually created interior design as a new category of architectural practice, bringing it to a new level of professionalism.

Under his leadership, the firm was pioneer in the practice of interior architecture, playing a significant role in developing client understanding of the value of the profession. Early in his career, he recognised the need for a new architectural discipline that came to be known as tenant development. Beginning with the Alcoa Building in San Francisco, the firm developed the programming practices that have become the framework for interior architectural projects throughout the profession.

In 2010, Art stepped down as the firm's chairman – putting the Co-CEO model in place that still exists today with Andy Cohen and Diane Hoskins leading the firm. Art spent his later years giving back to the community and his alma mater, serving as a Trustee of the Buck Institute for Aging, San Francisco Museum of Modern Art, and the California College of the Arts. Recently Art, along with his family, gifted $10 million to Cornell University's College of Architecture, Art, and Planning (AAP) – a gift that will sustain AAP's thriving New York City-based programme, which was a long-time dream of Art's.

Art is widely credited, awarded, and recognised with elevating the interior design practice to professional standing. The reputation he helped the firm secure as a model for the architectural profession led to its being the Year 2000 recipient of the American Institute of Architects' Architecture Firm of the Year, the Institute's highest honour to a collaborative practice. Accomplishments throughout his storied career include being named a Fellow of both the American Institute of Architects (FAIA)and the International Interior Design Association (FIIDA), and a professional member of the Royal Institute of British Architects. He received a Design Futures Council Lifetime Achievement Award in 2016. A charter member of Interior Design magazine's Hall of Fame and a recipient of IIDA's Star Award, he also received Ernst & Young LLP's Lifetime Achievement Award and the Cornell Entrepreneur of the Year Award.

The Yanmar Group works towards decarbonization for a sustainable future

Osaka, Japan – With its Brand Statement of A SUSTAINABLE FUTURE, Yanmar Holdings Co., Ltd. is undertaking a range of activities in pursuit of a decarbonized society, from development of new energy sources to realising zero-emissions from its headquarters, the YANMAR FLYING-Y BUILDING.

Yanmar's long-standing efforts towards realizing a sustainable society include the development of bio-gas cogeneration systems that convert sewage and waste food into clean energy, generation systems that utilise waste cooking oil and a demonstration plant that realises sustainable energy from rice husks for a resource recycling agriculture.

In 2021, the company has accelerated its efforts towards realisation of a hydrogen-based society with a partnership with German company 2G, a leading provider of hydrogen-powered cogeneration systems. In other developments, in March of this year, Yanmar completed tests of its hydrogen fuel-cell boat where a polymer electrolyte fuel cell (PECM) system was successfully installed into a Yanmar demonstration vessel.

Yanmar continues to pursue collaborations towards decarbonation with partners in Yanmar's business domains of the land, the sea and the city.

Looking towards the middle of 2021, Yanmar will announce a comprehensive Group-wide decarbonization strategy and present commitments to the realisation of a decarbonized society, while accelerating its decarbonization activities.



Photo: © Yanmar Holdings Co., Ltd.

ICRAVE completes the LAVO restaurant on top of Marina Bay Sands

Singapore – ICRAVE collaborates with TAO Group Hospitality to bring the LAVO brand to life in Singapore. Perched 57 storeys atop the roof of the iconic Marina Bay Sands, LAVO Singapore is the third outpost of the wildly successful Italian-American restaurant concept based in New York and Las Vegas, and marks TAO's first venture in Asia.

ICRAVE was tasked with designing an environment that evoked a centuries-old Italian bistro, but without feeling out of place in such a futuristic location. Designed as a series of rooms that provide a warm backdrop for brunch, a cocktail, vibe dining, or even a big night out, LAVO seamlessly switches from restaurant to lounge to nightclub.

The design of the space draws on ICRAVE's design for LAVO New York. Reclaimed subway tile, custom-painted and aged light fixtures, antique mirrors, tobacco-stained plaster, and warm, brick-lined interiors create the feeling that the restaurant has been there for centuries, and also establishes a connection with its North American outposts.

To celebrate its new location above Marina Bay Sands' cantilevered sky garden, however, LAVO Singapore features floor-to-ceiling windows that offer guests panoramic views of Singapore's skyline. The design also highlights LAVO Singapore's greenery and open views, with a sprawling terrace and lush garden entrance, framed by a light timber trellis.

LAVO Singapore is anchored with two bars, one inside and one outside, which allows for cocktails and views throughout the space. A fully-equipped DJ booth sits between the lounge and the dining area, allowing guests to take in the music anywhere in the space. Custom branded sightseeing binoculars, a LAVO-branded Instagram sculpture, and a custom gelato cart complete the vibe-dining experience.



Photo: © ICRAVE

ICRAVE's design leverages this unique location, creating a space that maximizes the view of the city while still staying true to the LAVO brand's ambience and concept. At 57 storeys above ground with 180 degrees views of the city, LAVO is the ideal place to take in the Singapore skyline.

CDA Architects designs 'the spatial stimuli' office for themselves

New Delhi, India – Inter-disciplinary architectural and design firm CDA Architects has designed a new office and design studio for themselves.

The Spatial Stimuli in New Delhi is an office and design Studio for the inter-disciplinary architectural and design firm CDA Architects. It is designed to be a 2,400 square feet rectangular open layout that reflects the firm's commitment to designing spatial experiences with strategies that enhance lives.

The design has been devised from tracking the customary movement of the various end-users of the space, which helps with the zoning while catering to function, privacy, and aesthetics in spatial planning. The office is conceptualised in terms of orientation and curved shapes that are free from rigid lines. The entrance is greeted by a waiting area, which is an inviting and soothing space.

The raw-exposed concrete and a seamless curved section are fused with pops of yellow furniture, which creates a playful and comfortable atmosphere. The project display book panel is a showcase of the firm's portfolio, which encompasses all project typologies undertaken by the firm. The display panel makes a statement right along the entrance, with a thin layer

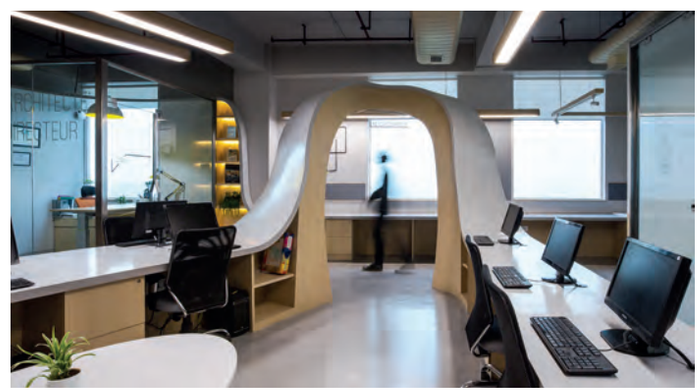


Photo: © Surya and Dang

of moss emerging from the ceiling framing it. Visitors are welcome to flip around pages to explore the portfolio in detail.

The entrance waiting room orients the visitor directly into the meeting room without intruding on the privacy of the studio space. The director's cabin is placed at the far back in the South-western corner allowing the central studio zone to be the focal point. The studio space is surrounded by an open-loop that diverges along with the East orientation, housing staff workstations. An exciting feature that accentuates the studio experience is that the table loop pulls up like a "cloth" along the axis, allowing people to walk around under it.

The experience of passing through a flexible loop symbolises "enlightenment," which happens to house a small design library with shelf compartments underneath the loop. Built out of oakwood, the curved 'Enlightenment' tunnel is a stimulus that is meant to evoke a dialogue in the user's mind. This visual axis extends into the waiting room via a thin linear puncture in the wall, creating a seamless, coherent vista.

The open floor plan and design with no ceilings and extra clear glass make the office expansive and functionally resourceful. The design of the meeting room carries forward the 'stimulus' of the studio in the form of a vertical panel seamlessly blending into a floating ceiling. The studio also has several flexible elements such as sliding white-boards which doubles up as privacy screens for the meeting room.

Colours in the space remain neutral with tons of white and grey, which further lightens and airs the space and complements the wooden loop. The yellow peppered in-between adds a joyful ambience to the raw concrete walls. The various wall displays further enhance the visual appeal and invokes motivation to be creative.

Understanding human psychology and the impact of spatial surroundings on the mind played an essential role in the design process. The design of the office is an interior play that creates an aura of energy through the form and the materials. Spatial Stimuli aims to provide a space that fosters architectural dialogue, creativity, and design; with unfolding and unraveling spaces, the design of the office intends to connect users.

Habitap launches in Indonesia with the unveiling of its smart home system at Savyavasa

Singapore – Habitap, Asia's first fully integrated smart living management system, has officially launched in Indonesia with the unveiling of its AI-backed smart home system at Savyavasa, a luxury residential development. Marking the firm's second Asia market outside of its headquarters in Singapore, this regional expansion follows the launch of its Philippines operations earlier this year, with a new regional development centre that extends the capabilities of Habitap's customer support team and technological innovation.

Savyavasa, developed under a joint venture between Jakarta Setiabudi Internasional Group (JSI Group) and Swire Properties, aims to create a secure environment where people can unwind and connect within a private community in shared social spaces. It will be integrated with Habitap's smart living platform, changing the way residential communities work, live, and play through artificial intelligence and the internet of things. Most notably, Habitap offers the first-ever residential technology integration that goes beyond standard smart living features, exploring a grander vision of a seamless lifestyle.

Habitap allows each Savyavasa unit to be equipped with a reliable Smart Assistant, called Handy, enabling residents to easily interact with their community. Residents will be able to control and manage their home via the Habitap mobile app or through messaging platforms such as WhatsApp. Channelling the latest technologies in Artificial Intelligence, Handy is built to be intuitive and understandable to everyone. From inviting guests and reserving facilities, to checking and operating appliances and ordering daily amenities, Handy can do it all with a simple click of a button, from wherever residents are at any time of the day. Habitap and Handy's integration within each apartment unit truly extends the limits of comfort and future home living.



Savyavasa balcony. Photo: © Savyavasa

Skycatch announces new technology initiatives to achieve climate-resilient infrastructure globally

Singapore – Skycatch, a drone mapping and 3D analytics platform, has announced that its new global initiatives for helping companies and governments worldwide approach new ways of using their frontier digital twin technology to build and maintain climate-resilient infrastructure.

"Digital twin technology is helping construction and mining companies worldwide reduce CO2emissions by preventing design inconsistencies and providing complete transparency of the project across the board," said Christian Sanz, Founder and CEO of Skycatch.

With the world's most populous and fastest-growing economies, Asia-Pacific emits the largest volume of greenhouse gas, producing about half the world's carbon dioxide according to the IMF. Skycatch is rapidly expanding across Asia and Pacific, which currently accounts for half its market. The company plans to collaborate with ADB Ventures and its partners in Japan, China, Indonesia, the Philippines, and Thailand to make infrastructure projects – including those for renewable energy – more resilient and leverage those solutions throughout the region.

"Asian Development Bank (ADB) aims to play a catalytic role to enable technology in infrastructure projects, which result in reduced carbon footprints and increased safety and operational efficiency," said ADB's Daniel Hersson in a recent TechCrunch article.

"The enterprise-grade Skycatch technology for capturing, processing and analyzing high accuracy 3D drone data is a critical part to accomplishing that mission."

Skycatch's drone-based computer vision platform for the construction and mining industries reduces more than 30 percent of the rework by preventing design inconsistencies and providing complete transparency of the project.

"Companies can use digital twin technology to help detect and prevent mistakes from happening during the building process to minimise waste," said Sanz.



Photo: © Skycatch

"At Skycatch, we're on a mission to revolutionize operational and cost efficiency in infrastructure-related projects worldwide through our drone-based 3D computer vision technology."

Skycatch recently closed its Series C round funding, culminating on $25 million raised, led by ADB Ventures and Wavemaker Labs. Other new investors include 12BF, Falkon and Gaingels.

"ADB's Sydney-based team is already piloting Skycatch drone-based technology in a project to create highly accurate digital twins of an infrastructure upgrade project during its construction phase. This has the potential to use the technology throughout entire life cycle of an infrastructure project enabling project implementation that is safer, more efficient, avoid rework, and reduce overall project carbon footprint," said Lotte Schou-Zibell, Regional Director of the Asian Development Bank's (ADB) Pacific Liaison and Coordination Office in Sydney.

PPG completes COLORFUL COMMUNITIES project at Yuhong Primary School in Jiading District of Shanghai

Shanghai, China – PPG announced the completion of a COLORFUL COMMUNITIES® project at Yuhong Primary School in the Jiading District of Shanghai, China. The event brought together nearly 30 volunteers from the PPG Jiading plant, who spent more than 70 hours beautifying the school's walls.

PPG provided more than $45,000 (approximately RMB 298,000) to assist with the project, including 195 gallons (702 litres) of SEIGNEURIE™ exterior paint by PPG. The company also donated books; teaching aids such as whiteboards, earphones and portable hard drives; and COVID-19 control and prevention supplies, including surgical masks and antibacterial hand sanitizer.

The *Colorful Communities* programme provides PPG volunteers and products along with financial contributions to bring colour and vitality to communities where the company operates around the world, such as in the Jiading District,

where PPG has a manufacturing facility.

The Yuhong Primary School educates more than 170 students with a staff of 10 teachers. Most of the students are from migrant worker families and studied in an outdated environment with limited access to educational resources. The school's beautification will create a colourful and engaging environment for the children.

"We're grateful for what PPG has done to help renovate our school," said Ye Hui, principal, Yuhong Primary School. "Students really love PPG's graphics and colors. The design concept conveys peace and hope, inspiring students to enjoy studying and appreciate life."

Colours used for the project are from the "Be Well" PPG 2021 Palette of the Year, which represents optimism and nostalgia. The design theme is "Homes of Hope" and features graphics to depict the children's homes. The use of green as the primary colour represents new beginnings and the freshness of spring.

"Migrant workers play an essential role in the development of the Jiading District, but they face quite a few challenges in regard to their children's education," said Kenny Zhuang, PPG operation manager, Jiading plant. "We want to improve their school environment and enhance the learning experience for these children through beautification projects and the donation of teaching aids and medical supplies. It is also our hope that through our support, these children can embrace life in a better way."



Photo: © PPG

"Children are our future. By offering our help, we want them to feel loved and cared for and more motivated in their studies," said Cathy Yan, PPG general manager, corporate and government affairs, Asia Pacific. "PPG places great importance on education. We will continue to conduct more *Colorful Communities* projects on the school's campus, fulfilling our purpose of protecting and beautifying the world."

Azelis and BASF announce a new distribution agreement in CASE Australia and New Zealand

Singapore – Azelis is delighted to announce its new distribution agreement with BASF, effective immediately, for their dispersions, additives, and resins range in Australia and New Zealand (ANZ). These products are commonly used in CASE (coatings, adhesives, sealants, and elastomers) and construction. This partnership strengthens Azelis' lateral value chain, reinforcing its leading position in the ANZ CASE market.



Photo: © Azelis

Highlights & rationale

- Azelis' technical resources, laboratory service, digitalization investments, and supply chain excellence were key deciding factors in BASF's selection.
- Azelis' commitment to sustainable practices is in line with BASF's vision of combining economic success with environmental protection and social responsibility.
- This partnership builds upon the very successful relationship between BASF and Azelis for the CASE industry in the Americas, in Turkey and some African countries.
- This new mandate is consistent with Azelis' corporate strategy of growing organically with its strategic partners through sales excellence and a strong focus on innovation.

NUS engineers repurpose excavation waste to produce greener, stronger concrete

Singapore – Concrete is the most consumed man-made material on Earth. Each year, about three tonnes of concrete are used per person. While the environmental impact of man-made materials like plastics has been widely publicised for decades, the dramatic effects of concrete on the environment have been far less talked about.

Concrete is made up of water, cement, and a filler such as sand. The cement industry alone is responsible for about 8 percent of the world's carbon dioxide emissions, and the production of concrete consumes 10 percent of the world's industrial water. Furthermore, the amount of cement produced every two years is more than the amount of plastic produced over the past 60 years.

These environmental considerations led Associate Professor Pang Sze Dai and his team from the Centre for Advanced Materials and Structures at NUS Civil and Environmental Engineering to focus their efforts on developing greener, more sustainable concretes, with an aim to reduce this immense impact.



From left: Dr Du Hongjian, Assoc Prof Pang Sze Dai, and Mr Anjaneya Dixit from NUS Civil and Environmental Engineering with the raw materials, processed clays, and the finished concrete product. Photo: © National University of Singapore

Swapping out scarce sand for common clay

Singapore is undergoing urban development at a rapid rate. Inevitably, this requires vast amounts of concrete, which in turn, creates a huge demand for water and sand – resources that the city-state lacks. But now, Assoc Prof Pang and his team have come up with an ingenious solution to this pressing problem.

In their study, published in *Construction and Building Materials* on 10 December 2020, the NUS team showed that they could drastically reduce the amount of sand needed in the concrete mixture by using a common clay material that can easily be obtained as waste from excavation works.

The researchers first obtained excavated waste clay from construction sites in Singapore. The waste clay was heated to 700°C to 'activate' the clay to enhance the bonding ability in concrete. The activated clay was used to replace up to half the fine sand powder typically used in concrete. The researchers were then able to produce ultra-high-performance concrete (UHPC) - an incredibly strong type of concrete that can reduce the size of the structural elements, and potentially reduce the amount of concrete used.

Upcycling waste clay

Replacing the fine sand powder is triply advantageous as this material is expensive, has a large carbon footprint, and is carcinogenic with prolonged exposure since it contains silica. In addition, the NUS team also found that replacing part of the sand filler with activated waste clay did not have a significant effect on the strength of the UHPC.

Tunnelling and foundation works, which are common in Singapore, generate a large amount of excavation waste materials. Disposing of this waste clay is problematic as land-scarce Singapore has limited available space for landfill.

"Our discovery not only reduces the consumption of valuable resources but also promotes a circular economy with the utilisation of waste clay. It opens an avenue to transform this waste into a potential resource," explained Assoc Prof Pang. This is the first time low-grade waste clay has been used as fillers in concrete. "Globally, low-grade clay is abundant. Its multi-faceted utilisation in concrete as fillers can not only help curtail the carbon footprint of concrete but also reduce the cost of concrete production," said Assoc Prof Pang.

Further research

The team is now looking into using waste clay for more concrete applications. Their latest work published in the *Journal of Cleaner Production* on 1 February 2021 has shown that the use of waste clay resulted in substantial improvement in the durability of concrete. This means that by incorporating waste products to improve the circular economy, the team can also improve the performance and longevity of concrete.

Other than the use of waste clay, the NUS research group is also exploring other waste materials to replace the filler in concrete, and the use of sea-water and sea-sand to reduce the reliance on valuable freshwater and river sand imports in Singapore.

"My team and I are also looking at partially replacing cement with waste clay. By using concrete as a carbon capture material, we can further reduce its carbon footprint," said Assoc Prof Pang.

Blink Design Group completes design of Roku Kyoto

Singapore – Designed by BLINK Design Group, an internationally recognised award-winning design company, ROKU KYOTO, LXR Hotels & Resorts, the first LXR resort under the Hilton brand in the Asia Pacific is set to welcome guests in Fall 2021.

Inspired by the beauty and simplicity of Japanese culture and craftsmanship, the new luxury benchmark features 114 guestrooms and suites, exclusive restaurants and a spa. The Japanese aesthetic has been woven seamlessly by BLINK into the resort's design and referential to an area of stunning natural seclusion at the foot of the Takagamine mountains. ROKU KYOTO redefines the pinnacle of prestigious escape in Kyoto; home to the notable and idyllic Japanese gardens, historic architecture and authentic tea houses.



Photo: © ROKU Kyoto

Named after the traditional craftsmanship of handmade paper, ROKU KYOTO pays homage to Japanese culture. BLINK has integrated aspects of traditional Kyoto with a contemporary design ethos into the interior design to realise a modern interpretation of Kyoto. "Holding a strong belief in creating memorable spaces and taking every guest on a shared journey made by people and place, we are thrilled to work with LXR Hotels & Resorts to create an authentic experience at ROKU KYOTO which illustrates a great respect to Kyoto's rich heritage and culture. Each space in the resort is inspired by various traditional Japanese elements with the aim of connecting people, culture, and nature," Clint Nagata, Founder and Creative Partner of BLINK shares.

Evocating the natural beauty of the resort's surroundings, BLINK skilfully executes the concept of "beautiful things are born from a beautiful environment" into the interior design and infuses the Japanese aesthetic in all areas of the resort. Appreciating the mindful design touches by BLINK, ROKU KYOTO guests will be able to immerse themselves in the deep charms of Kyoto, which still retains a rich and varied history and culture narrative whilst welcoming an unconventional aesthetic.

Morphosis reimagines the skyscraper with Hanking Center

Shenzhen, China – Global architecture and design firm Morphosis has completed work on Hanking Center, a mixed-use complex with a commercial office tower and retail centre located in Shenzhen, China. At 359.8 metres tall, the 65-storey tower is defined by its pioneering steel structural system and a detached-core configuration which positions the tower's primary core on the building's exterior. This radical rethinking of the typology promotes higher efficiency and adaptability of interior floor plates, enhancing the tower's ability to service the varying needs of its occupants. The detached-core configuration also allows for an innovative approach to internal circulation and the creation of social and work spaces that seamlessly integrate public and private domains. Completed in 2018 with a gradual opening that continues into 2021, the tower is the firm's first supertall skyscraper and houses 1.8



Photo: © Zhang Chao

million square feet of facilities. As of 2021, Hanking Center is the tallest detached-core building in the world.

"As a typology, skyscrapers tend to emphasize shape as the primary differentiator," said Pritzker Prize-winning architect and Morphosis Founding Partner Thom Mayne. "Instead, we focused on lived experience within the city. The delamination between the circulation core and the office spaces within the tower generates a threshold, an intensification of the urban landscape as part of the day-to-day."

Project Director and Morphosis Partner Eui-Sung Yi added: "Hanking Center continues the firm's tradition of creating buildings that reflect the spirit of the cities in which they are located and that are also deeply integrated within its urban fabric. As Shenzhen continues to grow, we are proud to contribute a striking new icon for the city that mirrors its own ambitions."

Hanking Center's slender profile redefines Shenzhen's skyline, emerging elegantly above a low-rise retail podium that also features angled facets, shadowing the form of the tower above. A series of glass sky bridges and steel mega-braces knit the offset core to the main body of the tower, creating dramatic connections in the sky that allow for efficient circulation routes within the tower. At ground level, the Center is accessible by multiple entrances and is set within a landscaped public plaza, ensuring a permeable site that invites the public into the retail podium.

Designed as an incubator for the city's rapidly developing high-tech industrial sector, the tower has been constructed to enhance the flexibility of interior spaces to meet the needs of start-up firms and their evolving spatial requirements. By shifting the primary movement and service cores outside the main body of the tower, Morphosis' design significantly minimizes the building's structural footprint while maximizing open spaces inside the tower.

The tower's open floor plates allow for ample penetration of light which in turn creates healthier work environments with enhanced natural light and airflow. In addition to the tower's structural innovations, Hanking Center rethinks the traditional commercial office building by integrating the office tower and its podium.

Shenzhen Bay Cultural Plaza in China by the Oval Partnership

Hong Kong – The Oval Partnership has unveiled its competition-winning masterplan proposal for the Shenzhen Bay Cultural Plaza in China. Shenzhen Bay Cultural Plaza is poised to become a world-class culture-led mixed-use development in the Bay Area. The project is located at the Houhai district of Nanshan, Shenzhen, comprising a dozen of land parcels dissected by major thoroughfares. The Oval Partnership's winning concept is to stitch these pockets of land and surrounding urban fabric back together, bridging the hinterland with a new coastline the Bay, connecting transit and culture, landmarks and open spaces, places and people. Digital Placemaking was employed from the inception of the Shenzhen Bay Masterplanning process. Connectivity, pedestrian flow, and hybrid visual field metrics were leveraged to optimise footfall along with point-of-interest clustering analysis providing predictive analytics to fine-tune the proposal and enhance the value of the project.

Central to the success of the Shenzhen Bay Cultural Plaza was the need for astute cultural positioning and robust cultural strategies. From the outset, The Oval Partnership collaborated with cultural entrepreneur cum creative consultant Philip Dodd of Made in China. In this youngest city of China and perhaps the youngest urbanisation, the young do have time. Manmanlai, or 'take it slow' underpins the masterplan concept. Collaborating with local educators, the cultural landscape of Shenzhen was surveyed, from which a multi-layered strategy of mixed primary uses are woven along a contiguous public realm, to form 'Villages' of diverse characters and offerings: Field, Terrace, Townhall, Lighthouse and the Bay.

Shenzhen Bay Cultural Plaza is one of the first applications to benefit from The Oval Partnership's Digital Placemaking methods from the project's first moments. This toolkit was developed by The Oval Partnership as an invaluable resource for evidence-based urban planning evaluation, enabling designers to integrate place and people data analytics. Design iterations could be tested in real-time by the team, generating comparative analyses of connectivity, point-of-interest clustering effects, sightlines, pedestrian flows toward devising the optimal masterplan. "We aspire to create a vibrant public realm that is diverse, walkable, and rich in cultural offerings," The Oval Partnership Director Sada Lam said. "It is a creative urban endeavour – our architectural expression is 'absent' – such that the architecture forms a framework to empower stakeholders in the neighbourhood to co-create what will become Shenzhen's next world-class hub, one that her people are a part of and proud of."



Bird's eye view of the Shenzhen Bay Cultural Plaza in China. Photo: © Oval Partnership

XJTLU showcased at Venice Architecture Biennale 2021

Suzhou, China – A world-leading exhibition in Europe is providing the stage for students at Xi'an Jiaotong-Liverpool University to dream big and create futuristic living spaces, exploring the theme of courtyard gardens.

XJTLU was the sole educational institution chosen to include work in the China Pavilion of the prestigious Venice Architecture Biennale 2021 titled 'How will we live together?' and open from 22 May to 21 November this year in Venice, Italy.

"Given that our international University's home city of Suzhou, China, has an unparalleled collection of historic 'Yuan'er' courtyard gardens, it is fitting that our students have been invited to share futuristic work drawing on their concept," said Richard Hay, Associate Professor in the Department of Architecture in XJTLU's Design School. Hay, the coordinator and curator of XJTLU's work at the Venice Architecture Biennale, described the event as an opportunity for architects and designers from all over the world to present and showcase their work – either built, unbuilt or theoretical – in a mixture of physical and immersive digital experiences.



Student work by Xiangli Liu. Image courtesy of XJTLU

"This is a unique chance for architecture, industrial design and other XJTLU students to showcase their talents and let the international community know who we are," Hay said, "I'm really pleased with the great support and response from our students and tutors."

Various countries from around the world are displaying projects in pavilions in Venice's Giardini and Arsenale. Projects in the China Pavilion, including the XJTLU students' work, explore the "Yuan'er" theme. Yuan'ers are China's courtyards that date back centuries and are world-renowned both as places of beauty and reservoirs of cultural meaning, said Hay.

"The Yuan'er theme fits under the overall Venice Architecture Biennale's theme of 'How will we live together?' in which architects are asked to consider how people with different viewpoints and from different economic strata can harmoniously co-exist," he said.

Hay added that the concept of these courtyard gardens, around which cities were built, provides students with the opportunity to create provocative digital images of newly imagined courtyards.

UK FTA paves the way for greater global skills mobility

Sydney, Australia – The Architects Accreditation Council of Australia (AACA) has welcomed the announcement this week of a new free trade agreement between Australia and the United Kingdom.

AACA CEO Kathlyn Loseby said a deepening of the ties with one of Australia's closest allies and trading partners is one of mutual benefit and paves the way for a range of further measures that will capitalise on the benefits for professionals in both nations. "We congratulate both the Australian and UK governments on reaching this important agreement and thank DFAT for the inclusive and constructive role they have facilitated for us as part



AACA CEO Kathlyn Loseby. Photo: © Ali Nasseri

of this process," said Ms Loseby.

In addition to the substantial benefits trade liberalisation will deliver for both producers and consumers, the FTA also opens up critical opportunities for a range of professionals, including architects. "Under the terms of the FTA, professionals will benefit from provisions to support mutual recognition of qualifications and greater certainty for skilled professionals entering each of our respective labour markets. "This new arrangement enhances the global exchange of skills, expertise, collaboration and employment opportunities – something we have not had with the UK for decades," added Ms Loseby.

The AACA, with DFAT's authorisation, is in the final stages of negotiating a Mutual Recognition Arrangement (MRA) that will 'recognise the professional credentials of architects registered in the United Kingdom, Australia, and New Zealand' and 'support their mobility by creating the opportunity to practise beyond their borders'.

The MRA will 'facilitate the registration of an architect registered in the United Kingdom as an Australian architect or New Zealand architect; and the registration of an Australian architect or New Zealand architect as an architect in the United Kingdom.'

Instigated under the leadership of former AACA CEO Kate Doyle, the MRA is the culmination of years of engagement work with the New Zealand and United Kingdom Architects Registration Boards.

"While COVID-19 has put a halt temporarily to international travel and migration, we are forging ahead with this MRA so that when Australia's borders re-open both our architects and our communities here will be poised to benefit from a much more straightforward skills recognition process," said Ms Loseby.

The MRA is due to be concluded early in 2022.

10 Design expands footprint with Singapore Studio

Hong Kong – International architecture practice, 10 Design, is pleased to announce the opening of a new design studio in Singapore. It is established to support the practice's ongoing and new projects in SE Asia.

Ross Milne, CEO of 10 Design, said: "The board's decision to further expand into SE Asia and establish a design studio in Singapore was a natural progression in our business growth strategy. We have been fortunate to work with clients in the region who are committed to design excellence and interested in our innovative and design approach. Our current SE Asia portfolio extends across Vietnam, Cambodia, Malaysia, Indonesia, Philippines, and Myanmar. Opening the Singapore design studio truly marks a pivotal point in our growth, and will provide our clients with a greater level of on-the-ground design and delivery services in SE Asia."

10 Design has also announced the appointments of Peter Barrett as Partner – Master Planning and José Cláudio Silva as Design Partner to lead the Singapore studio.

Peter brings over 28 years planning and urban design experience and has been based in SE Asia since 1997. His diverse portfolio includes master planning projects and urban design studies for green-field and urban renewal sites globally with a strong focus on SE Asia. José has over 18 years of design and delivery experience across SE Asia and internationally. He has led the design of a wide spectrum of building typologies and delivered numerous iconic projects. His experience encompasses all phases of a project cycle from concept design through to documentation and site supervision.



José Cláudio Silva, Design Partner. Photo: © 10 Design



Peter Barrett, Partner – Master Planning. Photo: © 10

Barry Shapiro, Managing Partner – Asia of 10 Design, commented: "We are delighted that Peter and José are joining our new Singapore studio. Their experience and extensive regional market knowledge will significantly enhance 10 Design's architectural and master planning services across the region, providing expertise in mixed use developments, retail, office, residential, hospitality, transport, education, cultural, and civic projects."

CTBUH announces 2021 Best Tall Building Worldwide and Category winners for annual awards program

Chicago, Illinois, USA – The Council on Tall Buildings and Urban Habitat (CTBUH) is pleased to announce the winners of the 18th Annual CTBUH Awards Program. These winning projects – comprising tall buildings, urban developments, and technical innovations – competed for winning distinctions at the 2021 Tall + Urban Innovation Conference from 18 to 20 May, which took place virtually. The CTBUH Awards Jury has named Vancouver House, Vancouver the "Best Tall Building Worldwide," in addition to naming Category Winners across 29 award categories.

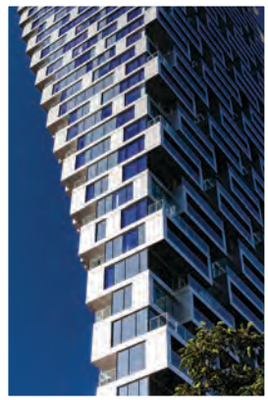


Photo: © Ema Peters

Described by Best Tall Building Jury Chair Karl Fender, Founding Partner, Fender Katsalidis Architects, as a "formally striking building brilliantly conceptualised to enhance its surroundings from a seemingly improbable development site," Vancouver House was recognised for its inventive inverted massing concept, which functions as a gateway to Vancouver, and its meaningful engagement with the community via a richly programmed podium. The residential building sits at the main entrance to Vancouver on a tight, triangular site where a major bridge forks in three directions upon reaching downtown. A 30-metre setback from the busy area ensures residents can enjoy views free of noise and traffic, and which are still exposed to maximum sunlight. From its canted clusters of green roofs to a playful mixture of cool and warm tones and materials, the tower's exterior and interior are animated with movement, creating a vivid template for urban living.

Vancouver House was selected from the "Best Tall Building" track, which falls into five height thresholds: under 100 metres, 100–199 metres, 200–299 metres, 300–399 metres, and 400 metres and above. Additional categories include: Urban Habitat, Innovation, Renovation, Interior Design, and Construction, alongside five categories focused specifically on Engineering achievements. The program also features functional designations including Best Tall Office, Mixed-Use, and Residential Building, and five regional Best Tall Building Awards. Notably new this year is an interactive Audience Awards program, where attendees cast their votes in each category.

"With nine new categories and Award of Excellence Winners from both 2020 and 2021 presented in an all-virtual format, this year's Tall + Urban Innovation Conference is truly unlike any prior year in capturing the global urban landscape of today," said Fender. "The international recognition of these outstanding projects not only encapsulates the innovation and ingenuity of the industry but demonstrates a vibrant and resilient vision of the future city."

For the full list of recognised projects, visit www.ctbuh.org.

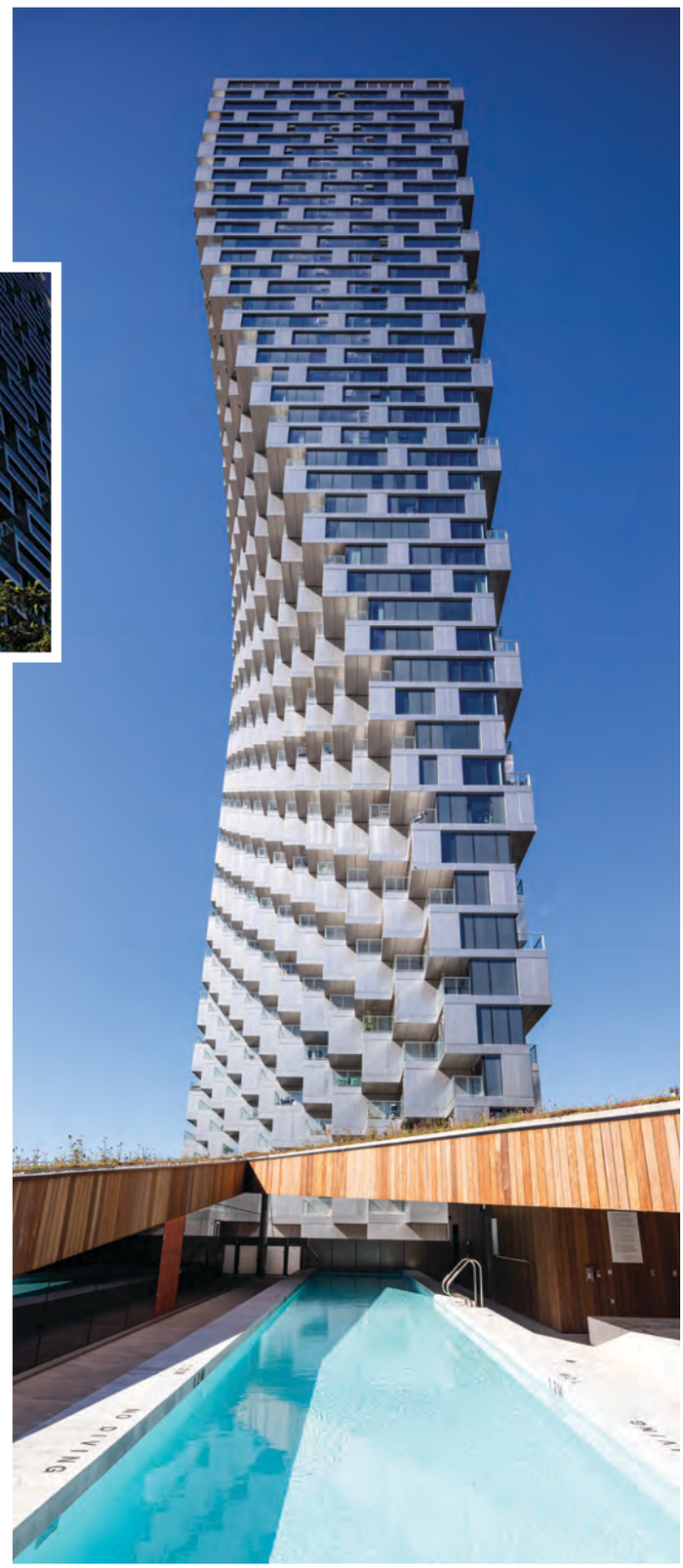


Photo: © Ema Peters

SOM and TranSystems lead redesign of Chicago's State / Lake Station



Rendering: © CDOT



Rendering: © CDOT

Chicago, Illinois, USA – The City of Chicago, Chicago Department of Transportation (CDOT) and Chicago Transit Authority (CTA) has revealed preliminary designs for the city's State/ Lake elevated station and Red Line Connection in the heart of downtown. The design is led by SOM, TranSystems and a diverse local consultant team with expertise in transit anad historic preservation, and informed by input from neighbouring property owners, as well as civic and preservation organizations. The station is the second busiest in the CTA network, located at a vital junction within the Chicago Loop and serving six of Chicago's eight train lines, with further connections to pedestrian and bus routes.

The proposed State/Lake Station design includes wider safer platforms, a sweeping glass canopy to protect passengers from the elements, a new accessible fly-over connection bridge, new elevators for riders of all mobilities to the elevated and Red Line platforms, and public realm enhancements at street level.

Improvements to the station's structural design will open up the intersection below, removing obstructive columns, and enhancing safety for pedestrian and vehicle traffic along State Street. The design also includes street-level lighting upgrades, wider street corners, an improved pedestrian crossing and an accessible connection to the plaza to the north. "The new State/Lake station will be a gateway to downtown for Chicagoans and visitors alike. As one of the most visible stations in the CTA network, the design is reflective of both its location and the needs of riders, with a soaring glass canopy, comfortable spaces for passengers, and fully integrated accessible design for riders of all mobility levels," said Scott Duncan, SOM Design Partner.

A glass canopy with a bird friendly frit pattern provides shading in the summer and protection from harsh Chicago winds in the winter while allowing ample daylight into the station. The transparency and lightness of the structure draws upon Chicago's history of structural innovation, from bascule bridges and early skyscrapers, to the John Hancock Center and Willis Tower. It is also highly structurally efficient, minimizing obstructions to provide expanded views of the Chicago Theatre marquee, adjacent historical buildings and architectural landmarks along the State Street corridor. Historic materials from the existing station are functionally integrated into the design along with other educational elements to provide a connection to the past and the future.

"The new State/Lake Station station, while providing an iconic presence, will improve safety and access for transit users and improve the street level for pedestrians, cyclists, and motorists," said TranSystems Project Manager Michael Lev. "CTA riders from every neighbourhood in the City and passersby will be able to enjoy this new, beautiful station."

Archi-Tectonics complete 512GW Townhouse

New York City, USA — Archi-Tectonics converted a long and narrow industrial structure in SoHo into a spacious and flexible 8-storey family home. The size of the space was doubled by adding a 4-storey structure to the original townhouse, and by unifying the two volumes with a 3d envelope: the Climate Skin.

Climate Skin

The townhouse is inscribed within the Climate Skin, a spacious lattice envelope made of lightweight steel and folding panels clad with Trespa™ slats. When closed, they appear as one smooth surface, but when opened, they fold out like feathers of a birdwing. Like an intricate lacework dress, the sheathing changes character and appearance at different times of the day and view angles, and serves as both filter and amplifier between the privacy of the house and the public streetscape. The Climate skin does not stop at the facade, it wraps up and over the multi-level roofs, creating a private outdoor 'room' with green roofs and outdoor dining.

Extensive prototyping assisted in optimising the movement of the trellis panels. This way, the façade can fold and slide open depending on the residents' changing needs, as well as simultaneously connect to and enclose from the outdoors.

This unique facade also poses interesting solutions for sustainability. By making the Climate Skin operable, residents can adjust ventilation, light, shade, and temperature so that the building naturally adapts to environmental conditions. In warmer months, the Climate Skin reduces interior radiation and lowers the need for air-conditioning. In colder months, opening the Climate Skin increases interior radiation and reduces the need for heating.



Facade. Photo: © Archi-Tectonics

Interiors

Inside, the project pays respect to the building's history by restoring the existing brick and up-cycling materials. The black steel in the original building is used throughout the house, such as in the staircase that runs through all eight stories of the house lit from above by a glass roof. At the top the stairs turn 90 degrees and move up to the bulkhead where we find a perfect meditation spot, with its window box penetrating the Climate Skin, overlooking SoHo.



Trellis open. Photo: © Archi-Tectonics

To enhance the building's small floorplates spatially, each floor contains a program connected through double-height voids, such as between the kitchen and dining area, and between the study and master bedroom. These allow for spatial interlacing and long views throughout.

Double-height windows, a skylight, and a dramatic south-facing continuous window slot bring ample light into what could otherwise be a dark and narrow living space. Altogether, these highlight the sensation of extreme verticality and transform mundane everyday tasks into a dynamic spatial experience.

Impact

This Urban townhouse represents an innovative approach to densification in a city challenged by housing shortages and skyrocketing prices. The conversion not only provides residents with a diversity of elegant living, working spaces and generous outdoor areas, but also respects the existing characteristics of the city and poses a potential future for urban living. The Climate Skin's adaptability to environmental conditions represents a rethinking of the residence's footprint on the environment, and reduces energy costs. It anticipates future, more sustainable design approaches to urban living.

CHYBIK + KRISTOF ARCHITECTS unveil completed Zvonarka Central Bus Terminal

Brno, Czech Republic – CHYBIK + KRISTOF ARCHITECTS & URBAN DESIGNERS announce the completion of the redesigned Zvonarka Central Bus Terminal in Brno, Czech Republic. Self-initiated in 2011, this redesign and restoration project saw the architects actively engage in preserving the existing Brutalist structure – a steel supporting frame and concrete roof – and its original architectural identity, reflecting CHYBIK + KRISTOF's commitment to perpetuating architectural heritage. Stressing the station's central role in the city and region's sociocultural fabric, they address the urgency to rethink the use of a decaying transportation hub and public space. Placing transparency, and access, at the root of their design, they have transformed the bus terminal into a functional entity adapted to current social needs. Underlining the social awareness that consistently informs their projects, CHYBIK + KRISTOF affirm architects' responsibility in acting as agents for positive social change.

Akin to the internationally renowned Hotel Praha and Transgas buildings in Prague, Brno's Zvonarka Central Bus Terminal, built in 1988, has long been considered one of the notable remaining examples of the Czech Republic's Brutalist architectural heritage. Dominating much of post-war architecture, Brutalism or "béton brut" – referring to the exposed concrete architecture that simultaneously celebrates progressiveness and experimentalism – has long polarized architects and scholars alike, among whom CHYBIK + KRISTOF. Like notable figures from Zaha Hadid to Kengo Kuma, they have consistently advocated for the preservation of Brutalist architectural heritage, citing its intriguing aesthetic and raw material qualities. With many such structures demolished or threatened in recent years – among which the now demolished Hotel Praha (2014) and Transgas (2019), the controversial Robin Hood Gardens (2017) in London and the Burroughs Wellcome Building (2021) in the United States, CHYBIK + KRISTOF affirm their engagement for their protection, placing the Brutalist Zvonarka Bus Terminal building as a local case-in-point of such circumstances.



Exterior view of the Zvonarka Central Bus Terminal, Brno, Czech Republic. Photography by alex shoots buildings. Courtesy of CHYBIK + KRISTOF Architects & Urban Designers.

Designed in 1984 and built in 1988, the Zvonarka Central Bus Terminal has continuously acted as the region's main bus station for intercity transport. In 1989, the building was privatized, with only the first phases of construction complete, and resuming its role as a bus station. Recognized as a Brutalist heritage site, its high maintenance costs led to little upkeep, driving to its gradual deterioration. In 2011, CHYBIK + KRISTOF grew aware of the station's decaying conditions. Eager to advance a positive alternative to a seemingly irrecoverable space, they reached out to its private owners with an elementary redesign proposal. Drawing wide public attention through social media, their initiative prompted a conversation between local private stakeholders and public authorities – and after a fouryear-long collaborative exchange, the required funding was attained in 2015, notably through the project's recognition as a European funds project. In 2021, ten years later, the architects now unveil the restored and redesigned transportation hub and public space – a preserved Brutalist heritage site and reconfigured functional space, attentive to both its history and to evolving social needs.

The Zvonarka Central Bus Terminal mirrors CHYBIK + KRISTOF's profound social awareness in conceiving their projects. First identifying the ongoing social dynamics, they engage with diverse stakeholders – architects, public entities and private partners, local and external. Adopting a holistic sociocultural and technical approach, they ultimately bring forward a user-centered, conscious design – one that moves beyond the mere construction process. Stressing the station's role as the point of entry into and departure from the city, they outline the significance of this transitional space, as transportation hubs increasingly come to act as windows onto cities. All-the-while conceiving a functional redesign receptive to users' needs, the architects cultivate the station's essence as the city's social nerve, envisioning how to further integrate it in the surrounding urban fabric and invite new social dynamics within it.

"The role of the architect begins prior to the first sketches. Fully understanding the social dynamics at play in every project is at the heart of our practice," stated co-founder Ondrej Chybik. "With this in mind, we as architects assume a crucial role in both the inception and materialization of a project – we are here at the beginning, in the middle, and at the end. Instigating a dialogue; resolving the existing shortfalls – social, economic, cultural, and deeply political; bringing forward innovative and inclusive solutions – it is our responsibility to step out of our studios and onto the streets," added Ondrej.

Inauguration underground bicycle parking Leidseplein in Amsterdam

Amsterdam, The Netherlands – Under the Kleine-Gartmanplantsoen, one of the busiest squares in Amsterdam right next to the Leidseplein, the underground bicycle parking Leidseplein designed by the architectural studio ZJA has been inaugurated. The forty lizards of Blaauw Jan, a work of art by Hans van Houwelingen have returned to the park and watch over the bicycles in the parking. On one hand the lizards of the work of art are integrated in the design of the bicycle parking. And on the other, the bridge over the Lijnbaansgracht, designed in the characteristic style of the Amsterdam School, is also a leading visual element in the design of the bicycle parking and its entrance.

ZJA, together with Ballast Nedam, was awarded the contract by the municipality of Amsterdam for the construction and design of the bicycle parking Leidseplein under the Kleine-Gartmanplantsoen. By bringing all bicycles underground, a spatial, green square has been created above ground. This has been designed by landscape architect Ruwan Aluvihare of the municipality of Amsterdam, and provides space for visitors to the Leidseplein. Thus, a renewed meeting place for the city has been created.

Erik Smits, project architect at ZJA: "Before the Leidseplein underground bicycle parking garage was built, the Kleine-Gartmanplantsoen was full of bicycles. Bicycles have now been brought underground and a new place to stay has been created on the square above for visitors to walk or enjoy the sun between the bronze lizards in the park or on one of the terraces. In this way, the square has become part of the city again."



Spacious and light bicycle parking Leidseple in Amsterdam. Photo: © ZJA

Perkins&Will promotes three New York-based staff to leadership roles



Jennifer Graham. Photo: © Perkins&Will



Matthew Malone. Photo: © Perkins&Will



Rachel Rose. Photo: © Perkins&Will

New York City, USA – Global architecture and design firm Perkins&Will has announced the promotions of Jennifer Graham and Matthew Malone to principals of the corporate interiors, and science and technology practices, respectively. Additionally, Rachel Rose, firmwide director of communication, has been promoted to associate principal.

"Our latest promotions reflect the strength of our leadership within the New York studio of Perkins&Will, as well as the industry. They're our way of celebrating the individuals who make a remarkable impact on our work and culture through excellence and innovation," said Bill Harris, Managing Director. "We are thrilled to recognize the contributions of Jennifer, Matthew, and Rachel," added Bill.

Grimshaw wins Shenzhen Transport Hub Competition

London, UK – A design consortium led by Grimshaw, alongside Mott MacDonald, China Aviation Planning and Design Institute (AVIC CAPDI) and Beijing Urban Construction Design and Development Group (BJUCD) has been selected as the winner of an international competition for Shenzhen Airport East Integrated Transport Hub.

The multi-disciplinary design team also includes schlaich bergermann partner (sbp), Atelier Ten and Gross Max. Sponsored by China National Railway Corporation Limited and Shenzhen Municipal People's Government, the project is undertaken by Shenzhen Metro Corporation Limited as the tenderer. The Grimshaw team was announced as winner following an assessment by a bid evaluation committee of 13 experts in urban planning and design, architectural design, aviation, railway, urban rail, and integrated transportation.

The brief called for an aspirational vision to create an integrated intermodal transport hub to act as a new urban gateway and landmark for the Greater Bay Area. It also set out the need to be safe, green, intelligent and humanistic, integrating the latest technologies to set a new benchmark for similar projects around the world.

The winning proposal will improve the journeys of thousands of daily commuters– providing effortless transfers between high speed rail and other public transport modes. The hub will also provide connections and terminal facilities for passengers travelling to and from Shenzhen Bao'an International Airport, making it one of the most integrated transport interchanges in the world.



Artist's impression: © Grimshaw

The transport interchange will be a catalyst for the transformation of the whole east terminal area into a vibrant, people oriented new commercial and cultural district for Shenzhen. The master plan has been designed to promote active travel through provision of intuitive routes, active frontages and enriching landscape features. Passengers will enjoy breath-taking arrival and departure experiences as they transit through the hub where the flowing architectural forms and naturally daylit spaces will help to guide people on their journeys through the interchange.

The project will be an exemplar of environmental sustainability and will achieve LEED Platinum and Chinese 3 Star rating through a highly economic architectural solution that uses materials efficiently and maximises repetition of components.

The design takes its inspiration from the Mangrove, a tree that has special significance for the city of Shenzhen and is one of the planet's most effective carbon absorbers. The team developed a strong set of design principles enabling a harmonious and unique development delivering operational, experiential and ecological excellence. The natural form of the tree's diverse root eco-system, which thrives where waterways converge, inspired the journey passengers will take, both above and below ground, landside and airside, while its bio-diversity will be in harmony with the hub's exciting mix of uses.

Jolyon Brewis, Grimshaw Partner said: "We are often inspired by the transfer of geometries and forms from nature into architecture. We have applied this approach to the master plan and



Artist's impression: © Grimshaw

interchange design at Shenzhen Bao'an Airport which is directly inspired by the mangrove tree. Not only does this have symbolic value as an important tree to Shenzhen, but it has led us to a solution for the building that is highly efficient. It will also be a wonderful place for people to occupy and travel through. We hope it will lift the spirits of millions of Shenzhen citizens, as well as those who visit this incredible city."

Anne Kerr, Mott MacDonald China Managing Director said: "We are delighted our team has been selected to contribute to the next generation of travel within this exciting area – which is an important hub and connection in terms of people and goods. We are passionate about the development of integrated transport solutions that deliver better social outcomes through greater connectivity. By combining our global and local expertise in aviation, surface transport and the built environment, this project is a unique opportunity to create a world class, sustainable and passenger – centric hub that supports the continued development of the Greater Bay Area – and one that we are honoured to be part of."

Dave Richards, Atelier Ten Director said: "We are thrilled to be a part of this fantastic team designing such a significant and aspirational piece of transport infrastructure for Shenzhen. This competition winning proposal builds on work that we have been doing with the team at Grimshaw for many years on biophilia, form and skin to 'manage' comfort and expectations through the manipulation of light, sun and air in the in-between spaces that transport interchanges generate. The evocation of biophilic influence through the underlying mangrove forms serves to reinforce the connection to nature in this very busy city. We look forward to developing and evolving this LEED Platinum project with Grimshaw and the rest of the team in the months ahead."

LMN Architects designs new classroom building at the University of California Santa Barbara

Seattle, Washington, USA – LMN Architects is pleased to celebrate the design and beginning of construction of the new Classroom Building at the University of California Santa Barbara. The project will increase campus classroom capacity by 35 percent, providing 2,000 seats in contemporary instructional spaces over four floors in the centre of the University's iconic shoreline campus.

The University of California Santa Barbara (UCSB) has begun construction on a new 90,000 square feet Classroom Building designed by LMN Architects on a central site adjacent to the Library along Library Mall. The project will be the first new classroom building on campus since 1967 and will provide additional active learning space with 2,000 seats in 5 lecture halls, 3 active learning flat-floor rooms, and 20 flexible classrooms. The Classroom Building is designed to be a porous structure that opens at every face to welcome the university community, intertwining the life of the building with the surrounding campus and spectacular natural environment.

"As a top-tier research university and member of the prestigious American Association of Universities, UC Santa Barbara has been long overdue to update its teaching capabilities," commented Gene Lucas, Chair of the New Classroom Building Committee for the University. "As a campus with a reputation for pioneering interdisciplinary teaching and research, this new classroom building will provide spaces that encourage collaborative education and promote faculty-student interactions. Every classroom is designed to facilitate active learning, an experience our students are clamoring for, and our faculty is excited to provide. LMN has done an outstanding job of designing a building that not only provides this capability but integrates well with both the campus architecture and our beautiful Pacific Coast setting."



Rendering: © LMN Architects

Stephen Van Dyck, Partner, LMN Architects, commented: "Together with University leadership, we have envisioned a building and surrounding public spaces that are open and welcoming. Drawing on the coastal climate and spectacular natural setting to create a place that will be among the most heavily used on campus. The building's site and design represent a major step forward towards the goals of the University's Long Range Development Plan, anticipating the eventual extension of Library Mall to the south and realizing the eastward extension of Pardall Mall, ultimately linking several of the campus' most significant shared buildings along these major public spaces."

Crystal Bridges Museum of American Art reveals plans for major expansion designed by Safdie Architects

Bentonville, Arkansas, USA — Crystal Bridges Museum of American Art today revealed plans for an expansion that will increase the size of the current facilities by 50 percent. Adding nearly 100,000 square feet to the 200,000-square-foot facility, the expansion will allow the museum to showcase its growing collection and welcome more visitors to experience the power of art, in an inclusive environment. Envisioned to support Crystal Bridges' commitment to free access to art for all, the new space will increase capacity for presenting art and exhibitions, educational and outreach initiatives, cultural programming, and community events.

"It's wonderful to see how our community, our region, and travelers to Bentonville from across the nation and around the world have embraced Crystal Bridges, and enjoyed the experience of being surrounded by art, nestled in nature, and immersed in Moshe Safdie's architecture," said Alice Walton, Crystal Bridges founder and board chairperson. "With the number of visitors we welcome annually, it's timely to enlarge our building and make sure more people can access these offerings. Having Safdie Architects expand on its original Crystal Bridges design with this new addition will create a unified experience for enjoying art, nature, and architecture."



Close aerial of Crystal Bridges looking north. Rendering: © Safdie Architects

Ten years after completing the original design for the museum, Safdie Architects has returned to create a seamlessly integrated expansion that resonates with the existing pavilions and outdoor spaces. New structures will house additional galleries, educational facilities, event spaces, a café, and new indoor and outdoor gathering spaces. Extending the long-term partnership between Crystal Bridges and Safdie Architects, the design continues the deep integration of art, architecture, and nature that has become synonymous with Crystal Bridges.

The project is currently in the design development phase with construction commencing in early 2022 with the goal of completing construction in 2024. As a precursor to the expansion, a reconfigured main lobby and courtyard, also designed by Safdie Architects, will be completed in May 2021.

"It has been a joy to see Crystal Bridges' enthusiastic reception by the public. We are honored to be back and working with the museum to realize a series of new facilities which will enrich the diversity of the museum experience," said Moshe Safdie, founder of Safdie Architects.

Sports complex Aquapelle: where residents of Capelle (NL) come together for sports and exercise

Rotterdam, The Netherlands — Sports complex Aquapelle is the new meeting place for sports and exercise in Capelle aan den Ijssel, the Netherlands. The building houses two swimming pools, a large sports hall and a canteen. MoederscheimMoonen Architects and Wehrung Architecten led the design of the building which opened its doors in 2020.

The campus-like building is located near the center of the city and is a place where many different groups come together. School sports and other sports associations can practice at the same time thanks to the partition walls in the sports hall. The pools are used by swimming clubs, where the young and the elderly can take a variety of lessons. The 25-metre competition

pool is multifunctional thanks to the movable floor, atmospheric lighting and an extensive sound system. The target group pool has warmer water and a pliable bottom, so that it can be used as an instruction- and therapy pool.

In the design, the bottom of the basin has been raised to ground level, so that the level of the pool water is on the first floor. The canteen is centrally located on this floor, between the sports hall and the swimming pools. The vibrant heart of the building contains a lot of glass for visual continuity between the sports floor and both swimming pools. The interior has a fresh and sustainable appearance due to the use of wood, which is reflected in both the sports hall and the swimming halls.

The plinth of the building is embedded into a green slope. The entrance is located at the corner of the building with a large concrete staircase going up to the first floor. The inviting canopy construction at this entrance welcomes visitors from afar. The facade is designed with natural-looking and robust cladding.

Various sustainable techniques have been used to generate and recover energy. For example, an installation concept has been developed which operates completely with electricity, so that no CO_2 is emitted. Heat recovery is also used for the (swimming pool) water and the air. The cooling load is reduced by cleverly positioned transparent facade surfaces and providing sun protection. In addition, almost 1000 PV panels have been placed on the roof to generate energy. This energy mainly goes to heating the swimming pool since the rest of the building is substantially energy efficient thanks to the LED lighting with motion detection. Together with the chosen materials, a sustainable building has been created.



Photo: © MoederscheimMoonen



24 European cities join drive to renovate buildings and deliver on climate objectives

London, UK – On 11 May 2021, the WorldGBC's Europe Regional Network announced that 24 cities across Europe, including the capital cities Madrid, Rome and Zagreb have joined the European Union (EU)-funded BUILD UPON2 project. These cities will work with national Green Building Councils (GBCs) and project partners BPIE and Climate Alliance to develop and implement a Framework that allows them to track and measure a wide range of benefits of building renovation, from energy efficiency to tackling energy poverty and creating jobs.

A total of 32 cities are now using or building capacity to implement the BUILD UPON2 Framework, which is a crucial tool to deliver the EU's Renovation Wave, an ambitious plan to at least double the bloc's renovation rate by 2030, on the local level. In this way participant cities can play their part in achieving the EU Green Deal's goal of climate neutrality by 2050.

By tracking the diverse environmental, social and economic benefits of renovation, this network of local governments can share renovation best-practice and feed into the national Long Term Renovation Strategies, which are a legal requirement for all EU member states.

The cities involved in BUILD UPON2 are the latest in a growing trend that sees local authorities taking a leadership role on climate change, often with greater ambition than their respective national governments. In the runup to the COP26 UN Climate Change Summit in November 2021, where BUILD UPON2 will be showcased as part of the Cities and Built Environment Day co-convened by WorldGBC, this bold statement of intent from European local governments will help increase the pressure on world leaders to take decisive action.

Stephen Richardson, Director of Europe Regional Network, World Green Building Council: "Getting all our buildings to net zero is crucial for the EU to reach its goal of climate neutrality by 2050. And there are lots of wider benefits to renovation, such as tackling energy poverty, stimulating local economies and creating jobs, which also make it a key part of the recovery from the COVID-19 pandemic.



Zagreb City. Photo courtesy of World Green Building Council

The BUILD UPON2 project shows that by starting at the local level, cities can be accelerators of the Renovation Wave. The Framework that the GBCs, project partners and cities are developing is a tool that can help cities and local authorities track and optimise their renovation programmes and achieve climate targets. The data that cities are collecting with the BUILD UPON2 Framework can also strengthen the business case to unlock more finance for renovation."

The cities and local authorities joining BUILD UPON2

Croatia
City of Zagreb, City of Sveti Ivan Zelina, City of Karlovac

Hungary
Municipality of Budavár, Municipality of Kispest

Ireland
Kilkenny County Council, Cork City Council, Laois County Council

Italy
City of Brescia, City of Pesaro, City of Rome

Poland
Ruda Slaska, Gliwice, Siemianowice Slaskie

Spain
Zaragoza, Madrid, Sestao

Turkey
Sakarya, Gaziantep, Bursa, İzmir

UK
Cambridge City Council, Essex County Council, Hammersmith & Fulham (London borough)

The Architecture MasterPrize, a global architecture award, launches its 6th annual edition

Los Angeles, USA – The Architecture MasterPrize (AMP) is pleased to launch its 6th edition. The AMP 2021 submissions are now open and will celebrate and promote the very best architectural design, landscape architecture, interior design, architectural product design as well as a new program for 2021, architectural photography.

Entrants may be located anywhere in the world and submissions are encouraged from both established and emerging studios and individuals. Architects, designers, photographers, and design students from all over the world are invited to submit their most innovative work for a chance to gain international exposure and make global connections through the internationally recognised award.



Zhi Art Museum by MOZHAO ARCHITECTS.

Introducing the Architecture Photography MasterPrize (APMP)

This year, the organiser is excited to announce a brand new programme for architectural photography to honour the best photography of the built environment. The Architecture Photography MaterPrize (APMP) aims to celebrate the best in architectural photography across the globe. The award recognises outstanding work of photographers and their ability to capture and document architecture, interior design, and architectural details.

Benefits & recognition

AMP 2021 winners will receive extensive media coverage, the AMP trophy, a certificate of achievement, a winner's seal, a feature in the online gallery, and the Architecture of the Year book, among other benefits.

Judging process

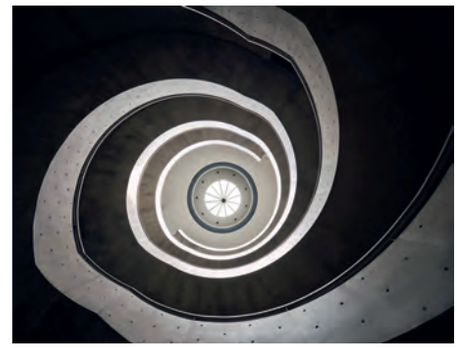
Entries will be assessed by a diverse jury panel of top industry professionals, made up of designers, architects, curators, photographers, and academics from around the world.

"The Architecture MasterPrize program draws some of the most creative and innovative works by the leading architects from all around the world. The award-winning works, ranging from the smallest interior spaces to the high-rise towers to the city designs, illustrate the design sensibilities and thoughts shaping our industry today and provide a view into the emerging trends that will shape the future of architecture. With the submission of so many outstanding works each year, judging the projects is difficult but also one of the most inspiring tasks," said Lawrence Kim, Director of A+U LAB, professor at Pusan National University, and AMP Juror.

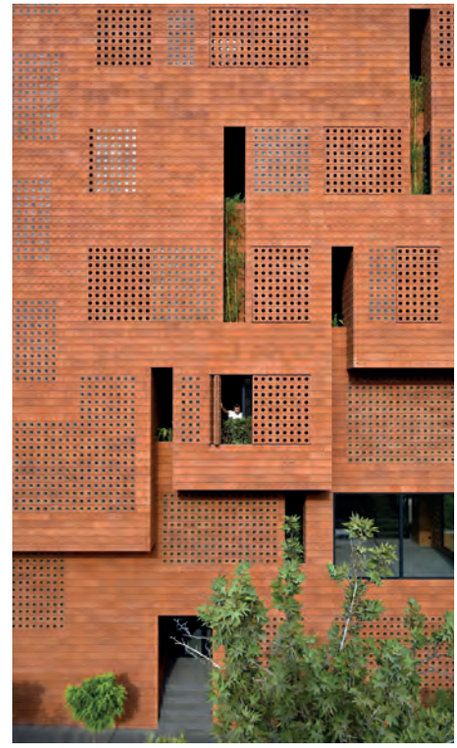
Past winners

Each year, the AMP attracts submissions from leading architects and designers from around the world. See below the AMP 2020 Design of the Year category winners:

- He Art Museum by Tadao Ando Architect & Associates – Architectural Design of the Year
- Nocenco cafe by VTN Architects (Vo Trong Nghia Architects) – Interior Design of the Year
- Thammasat Urban Farm Rooftop by LANDPROCESS – Landscape Design of the Year



He Art Museum by Tadao Ando Architect & Associates.



KOHANCERAM by Hooba Design Group. Photo credit: Deed Studio

The AMP 2020 full list of winners in Architecture, Interior Design, Product Design, Landscape Design can be viewed at https://architectureprize.com.

The submission deadline is June 30, 2021. For full details on categories, judging, pricing and deadlines, visit https://architectureprize.com.

Singapore Interior Design Festival (SIDFest) is back with its most creative and immersive edition yet



Photo: © Society of Interior Designers (Singapore)

Singapore – The Singapore Interior Design Festival (SIDFest) is back after a year's break and will boast it's most creative and immersive edition yet.

From interactive, multi-sensory showcases that are set to thrill visitors, to discussions on key emerging issues facing the design world today, SIDFest will appeal to both design novices and seasoned professionals.



Photo: © Society of Interior Designers (Singapore)

The festival, at the National Design Centre (NDC), was officially opened on Thursday 17 June 2021 by Minister in the Prime Minister's Office Indranee Rajah, who is also Second Minister for Finance and National Development. The month-long event will be opened to the public from June 18 to July 18.

"SIDFest is a key platform to profile our local designers. I am glad that the Society of Interior Designers Singapore (SIDS) is continuing to look at ways to engage our designers and develop the field of interior design professionally," said Minister Indranee.

Beyond the theme for this year's festival, Optimised/Optimism also captures the resilient and innovative spirit of Singapore's interior design community. Into its third edition, SIDFest was cancelled last year due to the Covid-19 pandemic and was postponed for a month this year after Singapore entered a state of heightened alert.

SIDS persevered with the planning of the festival. Working closely with the NDC, it created a compelling showcase that shines the spotlight on Singapore's emerging design industry, while reflecting NDC's overarching, curatorial theme of Casting Hope.

In some ways, the pandemic served as a catalyst for many positive changes and initiatives in the design industry. Said



Photo: © Society of Interior Designers (Singapore)

SIDS President Keat Ong: "It has brought the important work of our designers to the forefront. In a post-Covid world, elements like better ventilation and air circulation have become magnified. Wellness-focused design also becomes more important as people spend more time at home, and at times in isolation.

The issue of design in a post-Covid world will be one of the major themes at SIDFest. It will be discussed at the SIDS Symposium, which is supported by the International Federation of Interior Architects/Designers (IFI) and will be attended both physically and virtually by IFI delegates and the international design community. The subject will also be touched on at the Asia Roundtable, which will feature industry leaders from 15 countries and territories in the Asia-Pacific region.

The topic will further be explored at the Generation Next showcase, which will feature works from Singapore youth who were tasked to improve, rethink and tackle issues of today – while creating an impact on tomorrow. Issues range from social to environmental ones, including the topic of the day – living with the new norm in a post-pandemic world. The highlight of the festival is set to be the Design By Numbers showcase, which will occupy NDC's main atrium space.

Said Festival Director Dennis Cheok: "For Design By Numbers, we carved out a grid of 1.5 metres by 1.5 metres, established the rules of the game, and it was basically carte blanche for each of the creatives and brand partners. "From experiential tunnels, a glass corridor with brush strokes, to an installation exploring the metamorphosis from sand to quartz, it's all quite excitingly varied and with very intriguing results. It'll be a multi-sensory treat SIDFest will also see the unveiling of the inaugural SIDS 20 Under 45 Awards. 20 Under 45 is both a showcase and an awards ceremony recognising the works of some of the most promising young interior designers in Singapore.

Said DesignSingapore Council Executive Director Mark Wee: "This edition of SIDFest with its theme of 'hope and optimism' offers the public an uplifting and exciting view into the future of work and live environments in a post pandemic world. We believe that in such difficult times, the festival will offer fresh ideas and new designed experiences that we can all look forward to. We welcome all of you to the NDC to be inspired by what the interior design community has in store."

Added Prof Ong: "SIDFest 2021 promises to be our most engaging and exciting festival yet. Whether you are a lover of good design or just curious to see how spaces could evolve in a post-Covid world, there will be something for everyone."

Intercontinental Doha The City is a GREEN KEY hotel

Doha, Qatar – The Qatar Green Building Council is the national operator for the Green Key in Qatar. The Green Key award is a leading standard of excellence in the field of environmental responsibility & sustainable operation within the tourism industry.

The Intercontinental Doha The City Hotel is awarded its first Green Key award. The hotel put great effort to adhere to Green Key requirements and to bring environmental management and education to guests and staff. The hotel invested in water efficient fixtures and devices to comply with Green Key requirements to reduce the hotel's water consumption.

The hotel introduces lucky bamboos in guest rooms in an attempt to reconnect guests with nature with the benefit of purifying air to enhance indoor environmental quality, in addition to making guests feel at home. To reduce waste generated, the hotel reuses partially consumed toiletries in guest rooms in heart of house floor cleaning before sending them to the recycling facility.



Photo: © QGBC and Intercontinental Doha The City



Michael Chng, Senior Vice President of dormakaba ASEAN

Remaining flexible and open to change is key to overcoming challenges: Mr Michael Chng

Mr Michael Chng is the Senior Vice President of dormakaba ASEAN. Since joining the company two years ago, he has played an important role in restructuring the business with his team members. He has even won several projects for the company under his leadership and direction. In this issue of *SEAB*, Mr Michael Chng tells *SEAB* about his role and dormakaba's role in sustainably digitizing the future.

SEAB: Tell us more about yourself.

MICHAEL: Over the course of my career, I have had the privilege of working in various organisational types, such as MNCs (public listed, and family owned, etc.), JVs, and SMEs, etc. These experiences, accompanied with my time in the power industry in various functions, such as sales, marketing, general management and senior management, have been instrumental in my shaping my role as Senior Vice President of dormakaba ASEAN.

SEAB: What are some of the challenges that you and your team faced over the past two years?

MICHAEL: In general, there has been a slowdown in the construction industry. This is accompanied by an increased acceptance of "good enough" products, and increased competition from local suppliers. As dormakaba's emphasis has always been on the superior quality of our products, these industry trends have been interesting as we put our best foot forward to meet the challenge.

As I am sure has been case for most in these trying times, the current global pandemic has had its impact on our business activities, particularly as our operations are deeply rooted in the construction industry. In addition, keeping our customers and our employees safe and engaged has been at the core of our priorities. Thanks to our dedicated team, the quality of our products and service has not lapsed, and has continued to receive glowing reviews from our customers.

SEAB: What have been your greatest accomplishments since joining the company?



Proud moment for dormakaba ASEAN — winning the SBR award in the midst of the global pandemic. Photo: © dormakaba

MICHAEL: Over the last two years, we are proud to have improved engagement and enablement, even as the pandemic continues to hang over us. We have also shifted to a vertical-focused and solution-based selling approach, which allows us to offer our products as entire solutions to match our customers' needs. This has allowed us to secure iconic projects throughout the region.

In addition, we are proud to have won an award from the Singapore Business Review, which recognises the hard work our team has put in to set us apart from our competitors.

SEAB: dormakaba has a long history in the industry, and established presence here in ASEAN. How do you encourage your team to adapt and adopt new practices along the way?

MICHAEL: As with any corporation, it is crucial to remain open to change. My team and I have always recognised this as a contributing factor to success. As such, even in the midst of the pandemic, online sessions were held to communicate the need for agility in our business decisions, incorporating the Agile framework to quicken the learning and adaptation process.



Michael strongly believes in encouraging his team to stay open-minded and motivated. Photo: © dormakaba

We also encourage all employees to keep an open mind at all times. In exploring every possibility, the focus was to be on "how to" rather than "why not". Projects here at dormakaba are not only led by senior staff; junior team members are also encouraged to lead small projects and share across various teams and functions. This allows us to identify and cultivate new talents, and foster teamwork. We have found that these practices not only cultivated new ideas and perspectives, but also ensured they were also more readily voiced, heard, and realised.

SEAB: There has been a growing trend towards digitalization. How do you view digitalization and what steps has dormakaba taken to keep up with this trend?

MICHAEL: dormakaba has always deeply invested in the innovations of the digital sphere. At dormakaba, we strongly believe that consistently upgrading without compromise on the safety and security of our systems and data is key to retaining the trust of our customers, both current and new.

An example of dormakaba's commitment to incorporating digital innovations into our products would be our best-in-class Legic Connect cloud technology. With this technology, users are able to securely receive updated credentials on their mobile devices in order to gain access to hotel rooms, residential units, university accommodations and other protected facilities such as laboratories, server rooms, remote utilities, and commercial buildings.

In addition, we are one of the first companies in our industry to exploit the possibilities of the Internet of Things, making us a pioneer in digitization.



dormakaba's exivo allows users to control access control from their mobile devices, and can be seamlessly integrated with users' existing access control solutions. Photo: © dormakaba

Our solution 'exivo' is a web-based access solution for small and medium-sized businesses that allows them to easily plan, configure, individualize and install an access system and then assign access rights dynamically. The solution runs on a central platform and is designed for mechanical as well as electronic applications.

We have also recently released our home security solution for your home – True Access Solutions (TAS). Compatible even with other smart IoT devices and smart home systems, our TAS ensures that homes are safely secured when owners are at home or even when they are away.



Control of your home security system at your fingertips, whether you're home or away with dormakaba's TAS. Photo: © dormakaba

SEAB: Sustainability has become an increasingly important topic. What are your views on sustainability and how is dormakaba addressing sustainability?

MICHAEL: Sustainability is a critical topic that has rightfully gained increasingly importance in today's business environment, and even more so into the future. Beyond just our environment, sustainability has permeated other areas such as human, social, and economical. Staying ahead, dormakaba has increased our focus in these areas, and has already kickstarted the process of putting forth even more aggressive targets towards sustainability in all aspects.

The dormakaba sustainability strategy provides a clear vision of how we can continue to develop our business in a way that benefits our employees, our customers, society, the environment and dormakaba as a company. By having an open and collaborative dialogue with our stakeholders, we have identified key areas of focus across global and local levels: transparency, process and production, people and products. By ensuring dormakaba and its business partners adhere to the regulations, we aim to continue to create material and energy-efficient products with sustainable practices, without compromising on quality.

SEAB: What advice would you like to give to readers in the trade?

MICHAEL: Stay curious. Persist. Be bold. Be agile. Digitalization will change the business landscape in the very near future. Innovation beyond just products is crucial in staying ahead of the game.



AirAsia Office

AirAsia Office in Sepang is plain awesome and Mapei was proud to be involved in the project.

AirAsia is a Malaysian low-cost airline and the largest in Asia in terms of number of passengers carried and size of the fleet. The company's main hub is KLIA2 airport in Sepang, Malaysia. A new home for AirAsia's global headquarters, nick-named "Red Quarters" (after the logo's colour) and located near KLIA2, was opened in November 2016 housing a staff of over 2,000.

Construction work on the 6-storey building to house the company offices, as well as a restaurant, canteen, coffee shop, car park, gymnasium and other service areas, started in May 2015.

Mapei systems were chosen for 15,000 square metres of flooring in the entrance hall, coffee shop, bar and work stations that would provide aesthetic appeal as well as guarantee a certain level of resistance and durability. The system included the application of PRIMER SN two-component, fillerized



epoxy primer, MAPEFLOOR I 302 SL two-component, epoxy formulate, and MAPECOAT CF-AP*, a protective finish distributed in Malaysia by Mapei Malaysia.

Mapei Products
Primer SN, Mapefloor I 302 SL, Mapecoat CF-AP*

*This product is distributed by Mapei Malaysia.

Article source: Realtà Mapei International no. 77/2019

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

PROJECT DATA

Project Name: AirAsia Office
Location: Sepang, Malaysia
Period of Construction: 2015-2016
Period of the Mapei Intervention: June-October 2016
Client: Air Asia Berhad
Design: Veritas Architects Sdn Bhd
Main Contractor: In Strike Sdn Bhd
Installation Company: Floorit Asia S/B
Mapei Coordinator: Elttva Leong, Mapei Malaysia
Photos Provided By: Mapei



Jinwan Aviation City Industrial Service Centre

10 Design has completed a new office campus for start-up companies and entrepreneurs to collaborate, establishing a dynamic incubation platform in Zhuhai, China.

The Industrial Service Centre (ISC) provides 54,700 square metres of office space for burgeoning start-up companies and entrepreneurs to collaborate, establishing a dynamic incubation platform. The office campus also accommodates public facing government administration facilities, providing a combined synergy of tenants in the new Jinwan Aviation City in Zhuhai, China.

The project is designed to be is a socially interactive campus community which sits within a wider 3.8 square kilometres masterplan. ISC is the first building by 10 Design to complete on Huafa's Jinwan Aviation City, which will subsequently include the International Business Centre and Jinwan Mall, as well as Zaha Hadid Architects' Civic Arts Centre at its core.

The ISC is an attractive campus that is unique, pragmatic, commercially viable and well-integrated on the site. Inspired by the concept of a flowing stream, a central green landscaped





area provides convenient access to all occupiers and connects all buildings. It also serves as a central pedestrian link, providing a view corridor through the site to the new man-made lake, the primary amenity of the district.

Each of the three buildings has been designed as paired blocks with a central atrium. These central atriums provide shared entrances for the office buildings and contain shared meeting rooms and collaboration space to further increase visibility and interaction.

Flexibility has been positioned at the forefront of the design process. This is accomplished by the creation of adaptable planning modules that allow for multiple tenant configurations, sizes and sectors. The design approach provides adaptability of use for a variety of occupiers, offering workspace for multiple small size companies to larger firms that could acquire either multiple floors or entire single modules.

As the office campus contains public accessible government facilities, permeability and visibility of the design were both important to the client. The site is completely open to the public allowing users to visit and enjoy the amenities – café and restaurants are positioned along the central green spaces and the new central lake. As the project contains government facilities, the public transport within the masterplan has facilitated excellent bus, private vehicle, cycle, and metro access.

With the government facilities forming the gateway, this further provides ease of access and visibility to public access. Also, each of the series of low-rise office buildings has been designed as paired blocks with a central atrium. These central atriums provide shared entrances for the office buildings and contain shared meeting rooms and collaboration spaces to further increase transparency and interaction.

The ISC is a unique development that offers an innovative campus that will set the Jinwan Aviation City apart, delivering office buildings with a level of quality that is unprecedented in the Jinwan market and provides a backdrop for the incubation of new business in the region.





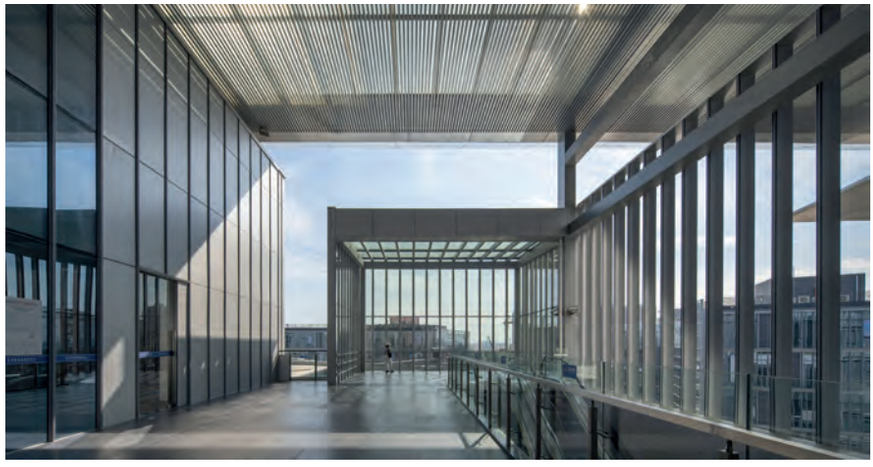




Nick Cordingley. Photo: © 10 Design

"Creating opportunities for interaction, collaboration, and visibility is an important objective of our masterplan. An extensive green area that runs through the centre of the site becomes the social heart of the entire campus. Each integrated building faces directly to it, increasing visibility to create a sense of community."

Nick Cordingley, Design Partner, 10 Design



PROJECT DATA

Project Name: Jinwan Aviation City Industrial Service Centre
Location: Zhuhai, China
Developer: Huafa Group
Operator: Zhuhai L.G. Investment Holding Co. Ltd.
Architecture Firm: 10 Design
Gross Floor Area: 54,700 square metres
Completion: 2020
Photos: © Zhang Chao

Auric Hall

Designed by IMK Architects, Auric Hall is a transcendent, inspirational, timeless office building and also a landmark for the city of Aurangabad.

Delhi Mumbai Industrial Corridor (DMIC) is one of India's most ambitious infrastructure programmes. Its goal is to develop new industrial cities as 'Smart Cities' and converge next-generation technologies across the infrastructure sector. Aurangabad Industrial City (AURIC) is one of the Greenfield & Smart industrial cities, being developed as part of DMIC. Auric Hall is the landmark District Administrative Building within the Central Business District of the industrial city. It has been planned as the face of the upcoming development in the area, complementing the vision of AURIC. The building is both the monitoring and the administrative nerve centre for the smart city, housing the main command control room to manage all the civic utilities on a real-time platform centrally. It offers incubation spaces to the industrial houses setting up at the township and has also been planned to operate as the anchor building that will cater to the needs of staff, visitors, and function as a sales centre.

Auric Hall is also a landmark for the city of Aurangabad, designed as a transcendent, inspirational, timeless office building. It has been conceptualised as a building that creates spaces that strive to achieve innovation and transcend expectations. It is a socially responsive building, enhancing engagement with spaces where people and activities thrive. It encompasses paces that promote the interaction of ideas to enable effective solutions. Although the building is advanced in technology and function, it was important that the building is planned







with a character that was sensitive to Aurangabad's climate, context, and rich history.

Climatic considerations

Aurangabad features a semiarid climate with extreme temperatures and intense solar radiation coupled with low rainfall. To mitigating these climatic conditions, appropriate form and orientation of the building were considered in the design in addition to shading methods adopted on the building facade.

Historical context

In imbibing the architectural and historical values from Aurangabad's legacy, the tradition of gates as a design element, stands out most in the historical monuments, marking and punctuating various parts of the city. Another aspect is the focus on proportion, repetition, and creation of appealing compositions amidst varied massing that integrates with the built volume.

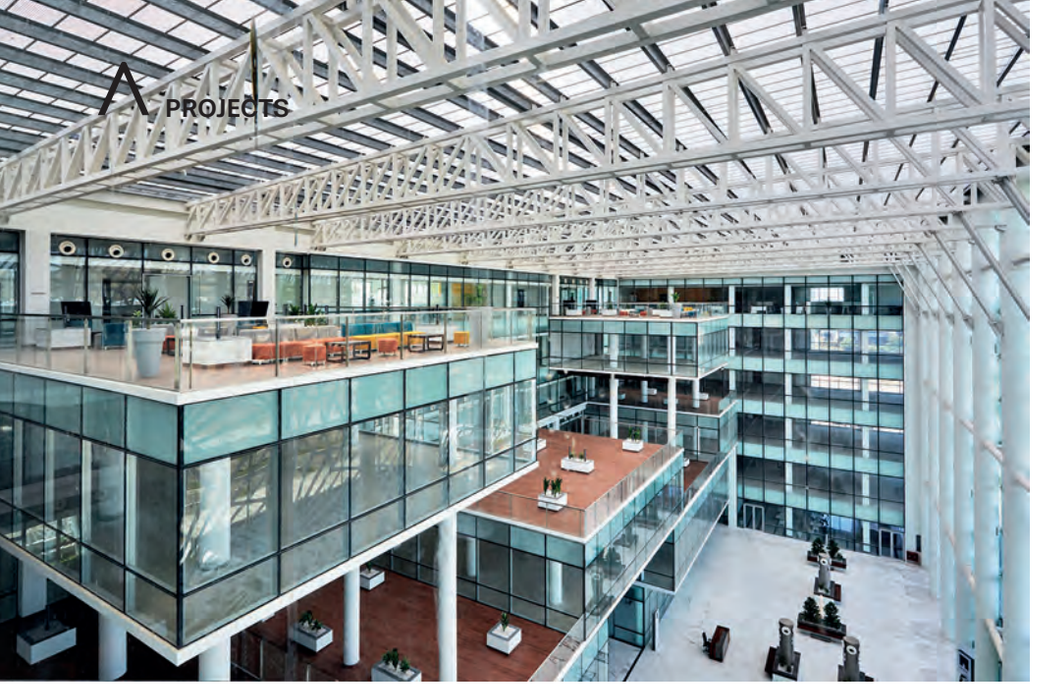
Most of the Mughal building complexes have multiple envelopes creating a sense of enclosure. These are arranged in a series of public, semi-public, and private spaces. The first layer of spaces as you enter are lush green open spaces, nestled between a screen and the main building. The subsequent layer of public spaces are enclosures that create an approach to the beautiful refuge within, with screens that maintain the soft and natural quality of light.

Traditionally, the use of screens protects against the harsh sun. Additionally, the use of *jaalis* allows for the control of airflow and helps in lowering down the temperature of internal spaces while letting in diffused natural light. The use of water to control the ambient temperatures has also been used in abundance traditionally.

Auric Hall celebrates the historical glory of old Aurangabad by drawing inspiration from these traditional features and elements found in the city's rich heritage. The building intends to bring back to life the traditional historical elements through means of modern interpretation, repetition, and symmetry, having played an essential part inthe designing and conceptualising of the structure.

Architectural design

The masterplan for AURIC city had located the administrative building in the CBD within a cluster of buildings around a public green. A natural water body was located to the north of the CBD block, away from the proposed location of Auric Hall. IMK proposed the rearrangement of the block and relocation of Auric Hall, such that the water body could add to the value of



the spaces within this landmark building. Ceremonial gateways mark the entrances along the compound wall at the approach to the building, which acts as definite pause points. The landscaping adjoining the internal driveway is inspired by the Char Bagh concept along with a cascading waterbody at its centre, creating a focal point at the main entrance to the building. The water body is an inspiration from the Paan Chakki within the heart of the old city. Another series of ceremonious arches mark the entrance to the building at the porch, this time in combination with intricate *jaalis*, that are reminiscent of the tomb complexes of the old city.

Taking its inspiration from the historic structures like Bibi-ka-Maqbara, patterns have been used in the screens that envelope the building and repeated on the glazed panels as well, echoing the theme of the building. A network of two aluminum screen modules of the same motif but varying scales forms the *jaali*. This breaks the monotony of the façade while helping control the light and shadow for open terraces and office spaces accordingly.

Contrasting to the external symmetry, it hides inside many asymmetric surprises. The porch leads onto a large linear and full height atrium space, enclosed by officeson three sides. The atrium was added as a modern interpretation of the garden and related most of the social spaces to face the lake. Every alternate floor has a different layout lead by strategically staggering spaces to avoid repetition and homogeneity. The building is a collage of office-spaces and terraces. Simultaneously, along with the atrium, the lift lobby and staircase connect the spaces vertically. Every lift lobby opens into green double-height terraces that face the south façade on one side and a long connecting corridor on the other.



As such, every floor has access to multiple terraces; either outdoor green terraces on the southern edge or indoor-cantilevered terraces that overlook the atrium, encouraging interaction and allowing the users of the building to thrive. These terraces serve as social spaces for the employees and offer a break-out zone from the closed indoors, to encourage engagement, collaboration, cross-pollination of ideas that would enable flourishing of the people and thereby, the organisation.

Volumes and heights differ from space to space, making it a memorable experience—where the atrium is as high as the building, the terraces on the three sides are double-height, and finally, the offices' spaces are a single floor height. Office spaces are planned as per an open plan concept to enhance interactions and productivity along with the spirit and mood of the people. They work best as they help to supportan interactive environment, which will eventually help them along with the entire office to thrive.

Entry-level spaces have been designed to be free-flowing and transparent, to allow visual as well as physical connectivity throughout the ground floor, which houses all the public facilities. The reception block occupies the front of the atrium, along with the control room and visitors centre, while the rear is occupied by the public relations teams. The rear blocks are a double-height extension of the atrium, providing free-flowing connectivity at the public level between the AURIC exhibition spaces, the citizen services, the cafeteria, and the toilet blocks.

AITL (Aurangabad Industrial Township Ltd) offices are planned on the topmost floors with adjoining terraces, which serve as apt viewing galleries for potential buyers who will visit the AITL offices.

The atrium is intended to serve as an exhibition space, with a display of artwork, to showcase Aurangabad's rich history. All levels corridors overlooking the atrium make it the central display area in the entire building. With the staggered terraces punctuating the atrium volume and north light filtering through the glazed façade, the atrium transforms into a vibrant centre of activity, pulsating with positive energy.



Parking is provided on the surface for VIPs and for other occupants and the public at the lower ground level. The ground adjoining the parking level is at a lower level, which aids in camouflaging the parking spaces as well as the utilities, from the surrounding green spaces. A garden with a large water body lines the entrance approach, that integrates with the water recycling system, being the end of the process of aeration of recycled water.

Materials

In selecting the materials, various factors were taken into consideration, besides the look and feel and aesthetics for the building.

Commercial and office spaces call for large structural grids to allow for flexibility. As such, post-tension beams were used to enable the large spans and the services height clearances required within a proportionate floor to floor height.



Rahul Kadri

"Auric Hall was conceptualized as the district administration and monitoring center for the smart city of AURIC – to house the main command control room and centrally manage the civic facilities on a real-time platform. The experience of working with a construction company was unique. We were involved in the design process right from the concept and through detail design towards tender with the clients, and as part of the design and build team towards execution. The focus, in addition to design functionality and aesthetics, was also on the optimization of the design, both in terms of performance as well as cost – to achieve the desired design intent in the most economical, but sustainable and robust way. Today, Auric Hall is a socially responsive landmark building, enhancing engagement with spaces where people and activities thrive."

Ar. Rahul Kadri, Partner and Principal Architect, IMK Architects



Steel has been used on the façade & roof truss, which are crucial elements of the building. For the larger truss span, steel was a choice due to its durability, structural flexibility, and higher load-carrying capacity. Due to the advantage of steel construction in being rapid, it was a chosen technique to fit within the constrained building completion deadline. Another strength of steel is that it can be constructed off-site and assembled on-site, which saves a lot of time, and multiple works can happen simultaneously. The external *jaali* façade of the building needed to be selected considering various factors – it needed to be lightweight, at the same time robust, incurring low maintenance costs and long-lasting. Laser-cut aluminium panels were finalised in comparison with alternative materials such as concrete, MS, Corten steel, or zinc.

The atrium has been provided with multi wall polycarbonate sheet roofing. This is not only light in weight and hence requires a lighter truss design, but also effectively blocks the glare and minimises the heat gain within the atrium. This, in turn, also helps in reducing the air conditioning cost for the large atrium volume. The large north-facing atrium façade has large glass panels with ceramic fritting. All the offices facing the atrium also have glass walls in line with the open office concept. The glass was carefully chosen again with the required technical specifications making it effective against glare, heat gain, and toughened at the same time against wind pressures and other loads.

Sustainable design

Auric Hall has been designed incorporating climate-responsive and sustainable design practices, embodying low energy costs, and use of high-performance materials to achieve IGBC Gold Performance. The building has amazing daylight with minimal heat gain. It is a functionally efficient building, well-integrated with natural features and landscape within the site to create an interesting blend of the built form and semi-covered or open spaces while meeting access, parking, and other on-site requirements.



The building is oriented to allow maximum glare-free light into the office spaces,while simultaneously minimising heat gain. The layout consists of the large central north-facing atrium, maximised with a glass surface to optimise the daylight from the north, with office blocks abutting it on the other three sides, wrapped with an intricate modular *jaali*. The atrium width, as well as the width of the offices surrounding it, was controlled to ensure maximum daylighting. The *jaali* screen controls the airflow and lowers the temperature of internal spaces, while also providing natural diffused sunlight into the building. The atrium is covered with a skylight at the roof level madeof polycarbonate sheets that permit glare-free light but block the heat gain.

Water conservation measures have been adopted by maximising landscape plantation areas with controlled irrigation measures. Additionally, the runoff from the paved surfaces, as well as the terraces are harvested by allowing for groundwater recharge. The use of efficient plumbing fixtures and installation of waste water treatment systems further aids the same. The use of solar panels and energy metering and management systems facilitates energy efficiency while CO_2 monitoring enables indoor environmental quality control.

The Auric Hall design lends a fresh contemporary touch to the traditional Mughal Architecture. The choreography of light and shadows, created by the intricacies in the bold *jaali* patterns engulfing the building, along with elaborate yet structurally minimalistic gateways, form a fascinating storyline. A precise harmony of proportion, rhythm, materials, textures, details, and beauty is achieved to craft a functional and robust office space that sets a new paradigm amidst such institutional buildings.

Inaugurated by the Prime Minister of India, Mr. Narendra Modi in September 2019, AURIC Hall is not only meaningful in its objective, but also manifests itself as indigenous, leading edge of people's highest aspirations, whilst allowing people to thrive in its environs.

PROJECT DATA

Project Name: Auric Hall
Location: Aurangabad, India
Client: AITL (Aurangabad Industrial Township Limited
Architecture Firm: IMK Architects
Area: 16660 square metres
Completion: 2019
Photos: © Rajesh Vora


PRUBiz Beyond
more than just business insurance
Protection
Advisory Services
Lifestyle Privileges
PRUDENTIAL
Welcome to
TRX GALLERY

Menara Prudential

Designed by Broadway Malyan in collaboration with SA Architects Sdn Bhd, Menara Prudential is an elegant and iconic high-rise office building in Kuala Lumpur.

Located in the centre of Kuala Lumpur's new 70-acre financial district, the vision for the Menara Prudential tower was to create a building that was legible and yet elegant among the high-rise towers of Kuala Lumpur. Similarly, the interiors were designed to reflect the same professionalism and integrity.

For the public realm, the brief was to create an exemplary public realm and appropriate setting for an international financial district.

From the outset Broadway Malyan wanted to create a building that was rooted in its context, which would provide a real statement for the wider TRX scheme.







Ian Simpson. Photo: © Broadway Malyan

"For us, it is about how the tower interacts at the ground level, integrating with an open, inviting public realm that will welcome you into the site and provide a feeling of quality throughout the arrival space. It is in these spaces that you can reflect the local culture in a meaningful way, and we thought carefully about our use of materials, greenery, and the layout of the streetscape to bring a Malaysian style to the development."

Ian Simpson, Board Director & APAC Chairman, Broadway Malyan





Inspired by the *tengkolok diraja,* a Malay royal headgear, the building comprises three triangular elements at the rooftop element, the facade pattern and the ground floor entrance. The triangular element is also expressed as an internal design feature, which is intentionally bold and simplistic in design, serving to create a high-quality environment that evokes an air of professionalism and integrity, which is enhanced by the travertine flooring, champagne aluminum wall cladding and etched laminated glass. Various areas of the interiors also pick up on the abstraction of the Prudential logo as a pattern base for wall cladding, graphics and feature glass. Coupled with a neutral colour palette, the effect is prominent and recognisable as a symbol of Prudential's brand.

Serving as the gateway for the TRX business district, it was important for Menara Prudential tower to be at the forefront of smart and sustainable development. Low E glass was used for the facade to provide a crisp aesthetic while also reducing heat in the building.

The landscape design looked at creating world-class streets using a range of innovative design solutions, emphasising pedestrian-friendly areas that allow for easy access to all, as well as ample considerations to shade, sustainability and cycle pathways. This focus on the human scale and user experience chimes with the TRX vision for a large-scale public realm with permeability between public and private spaces. The architects' meticulously developed material palette for the project featured a range of hard and soft materials, from paving, planting, water features, lighting and public art to wayfinding and environmental graphics. The lobby was moved to the park level to enhance walkability, while supporting the Kuala Lumpur's urban fabric and objective of creating a more sustainable and liveable city.

PROJECT DATA

Project Name: Menara Prudential (Prudential Tower)
Location: Kuala Lumpur, Malaysia
Client: IJM Corporation Berhad
Architecture Firms: Broadway Malyan, in collaboration with SA Architects Sdn Bhd
Gross Floor Area: 52,038 square metres
Completion: May 2019
Photos: © David Yeow

Atrium Tower

Designed by Amit Khanna Design Associates (AKDA), the newly constructed Atrium Tower is a sustainable and iconic landmark structure in Moti Nagar, New Delhi.

The surroundings of the Tower consist of buildings with an average size of 3 storey and a DDA park on the backside. The spatial planning was done so that the core is aligned with longer side of the site giving the building a clear vision of the park and the bustling road in the front. The core which faced north was covered with louvres along with glass making it naturally lit with glare free light. All the other services have been aligned with this core giving us a clear linear usable space.

Since the building is 7 storeys, a refuge area had to be planned which has been provided facing park, this also acts as an open space at 5th floor. Glass being the obvious choice for the facade, to control the light and heat gain DGU panels have been used with an insulating board on the back of the panels along with the floor slab and sill which helps the frame of the building look invisible from the front and allows light to enter the habitable areas incorporated into the design.

To provide maximum area on stilt, car lifts to basement has been provided instead of the conventional ramp. This also makes more area of car parking in the basement. The entry of the building is given on the longer side making it look grand in this linear scheme with a double height foyer.





Amit Khanna. Photo: © AKDA

"This office building sets exceptional standards for construction quality, sustainability in glass facades and optimisation of natural lighting. The narrow footprint of the building ensures daylighting for all spaces, while the double-glazed facade provides a high degree of thermal and acoustic insulation."

Amit Khanna, Design Principal, AKDA

Atrium tower is a landmark building which looks like a typical commercial building is an example of intelligent planning scheme, material choice and minute design elements make it different from the bunch.

PROJECT DATA

Project Name: Atrium Tower
Location: Moti Nagar, New Delhi, India
Architecture Firm: Amit Khanna Design Associates
Area: 5700 square metres
Completion: 2020
Photos: © AKDA

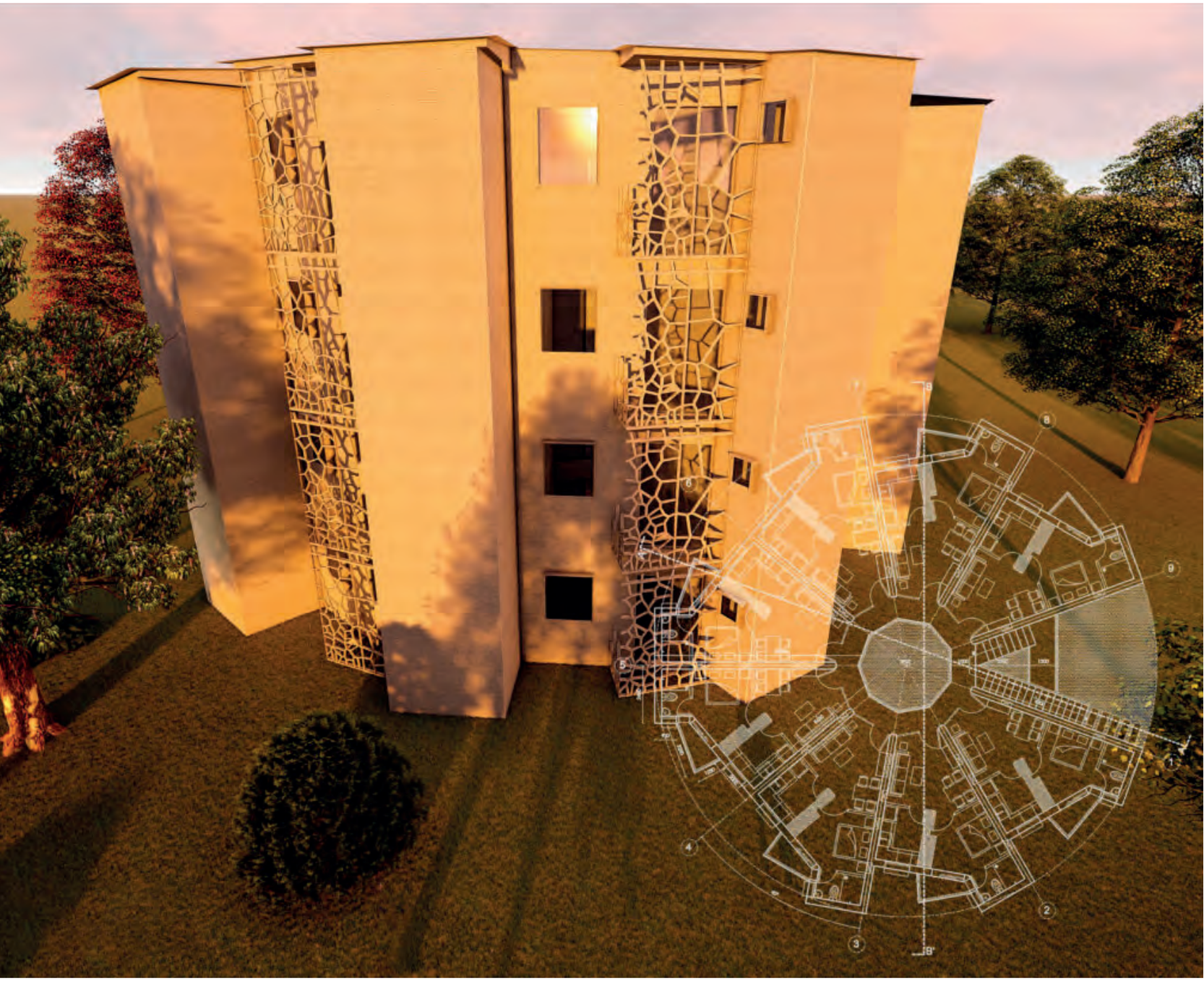








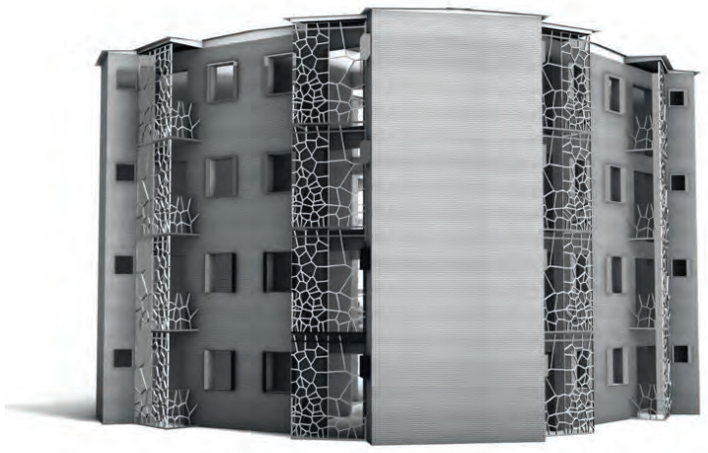


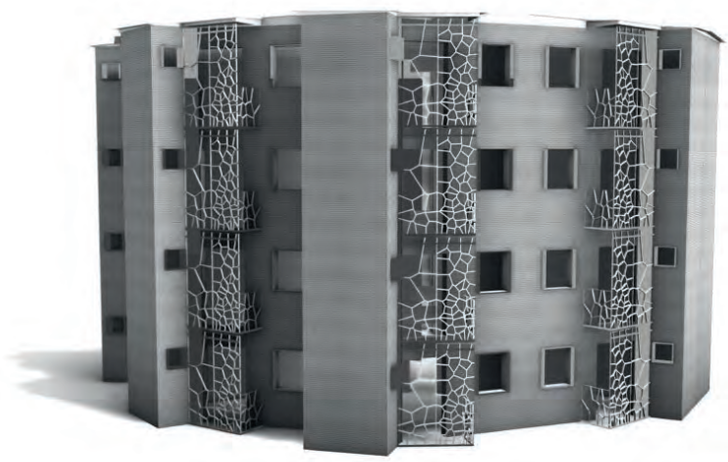


G+3 apartment complex, designed and engineered by CyBe. G+7 apartment complex is engineered and confidential.

G+3 APARTMENT COMPLEX BLOCK

CyBe Construction's 3D affordable housing concept redefines construction, spatial interventions and will make a change in Mumbai.





CyBe Construction, one of the world-leading companies in 3D concrete printing, has been in continuous development. Since 2013, CyBe Construction has been developing 3D printers and applying this technology to redefine the construction industry.

The G+3 apartment complex project combines affordable housing concepts with high-tech construction solutions to help bring big changes to the way Mumbai lives.

Mumbai has inspired CyBe Construction and made a big impression on the company. The current urbanisation boom leads to the growth of slums and therefore to the strong need for development strategies to improve these conditions. The company's 3D affordable housing concepts seek to redefine construction, spatial interventions and make a change!

After the company's visit to Mumbai in February 2019, it moved onto the next step providing a solution for the



urbanization boom together with its partner Shapoorji Pallonji.

In July 2019, CyBe Construction finalised the design of a G+3 apartment complex. At the same time, it was busy manufacturing the 3D concrete printer to be used within this project, which was scheduled to be delivered in the fourth quarter of 2019.

G+7 apartment complex block

Based on the elaborated G+3 design and plans for an apartment complex in India, the opportunity to scale up emerged. By making the walls load bearing, printing the floors and increasing the number of floors, CyBe Construction was also able to build a G+7 apartment complex block. This was more efficient and therefore economically more feasible.

PROJECT DATA

Project Name: G+3 apartment complex block
Location: Mumbai, India
Type: Residential
Developer & Partner: Shapoorji Pallonji
Design & Engineering: CyBe Construction
3D Printer Specialist: CyBe Construction
Completion: 2019
Photos: © CyBe Construction

Interview with Pleun Zant, PR & Communication Manager, CyBe Construction

SEAB: Give us a brief overview of the G+3 apartment complex.
PLEUN: At the request of our partner, Shapoorji Pallonji, we designed and engineered an apartment complex. Based on the elaborated G+3 design and plans for an apartment complex in India, the opportunity to scale up emerges. By making the walls load-bearing, printing the floors, and increasing the number of floors, we are also able to build a G+7. This was more efficient and therefore economically more feasible.

SEAB: Compared to conventional construction, what advantages did 3D printing technology offer to this project?
PLEUN: The most important advantage of 3D concrete printing is that it is possible to print faster, cheaper, and more sustainable compared to traditional construction. We have learned that the main value is that the market is focusing on cost reduction. As a result, we make many cost comparison which needs to conclude that 3Dcp is faster and more affordable compared with conventional construction methodologies. Furthermore, of course, sustainability and durability are relevant topics that are addressed by 3Dcp. Finally, a reduction of CO2 emission is being achieved as well – of around 32 percent.

SEAB: What were some of the issues and limitations that you faced when using 3D printing technology for this project?
PLEUN: In every country, you need to face other building regulations, at the same time, in every country, other criteria are important (for example, earthquakes resistance, etc.)

SEAB: How closely did you work with the 3D concrete printer specialist to realise this project?
PLEUN: We are a one-stop-shop, we offer Design & Engineering, our own (printable) material, software, and an online learning platform. The 3D concrete specialists are our own teams.

SEAB: In your opinion, what kind of future do you see for 3D-printed buildings?
PLEUN: Many countries or cities have already set goals for 3D printing, for example, Dubai, with their goal to 3D print 25 percent of new buildings. We believe these kinds of projects and goals will increase over the years even more. As well as because there is a future in it, especially given future developments and trends in the construction industry – the entire infrastructure for 3D printing needs to be mapped out, materials production, designing of buildings, training and education, manufacturing machinery standards regulations – there are many opportunities as a result – and we are pleased that CyBe has been the driving force behind this since 2012, from which various other initiatives have now developed. In addition, 3Dcp and construction automation helps with problems such as housing shortages, skilled labour shortages and resource shortages.



Pleun Zant



Photo: © Logan Architecture

EAST 17TH ST RESIDENCES

A multi-home mainstream housing development, designed by Logan Architecture for developer 3Strands, leverages ICON's proprietary 3D printing technology to construct two to four bedroom homes in Austin, Texas. This is America's first series of 3D-printed sustainable homes for sale.

The Kansas City developer, 3Strands, announced that the next evolution of homebuilding has launched with the company's first multi-home project: America's first 3D printed homes for sale.

Partnering with Austin-based construction technology company, ICON, the 3Strands mainstream housing development leverages ICON's proprietary 3D printing construction technology, software and advanced materials to deliver the two to four bedroom homes located in Austin, Texas, one of the fastest-growing cities in America.

"We want to change the way we build, own and how we live in community together," said Gary O'Dell, Co-founder and CEO. "This project represents a big step forward, pushing the boundaries of new technologies, such as 3D-printed homes."

The one-of-a-kind homes designed by Logan Architecture for developer, 3Strands, are the latest homebuilding project using ICON's Vulcan construction system to deliver sustainable, resilient and beautiful housing. The first floor of these highly energy efficient homes were 3D printed using ICON's advanced material that is stronger and longer-lasting than traditional building materials. 3D printing



Photo: © Logan Architecture

technology provides safer, more resilient homes that are designed to withstand fire, flood, wind and other natural disasters better than conventionally built homes and that can be built in a matter of weeks. To date, ICON has delivered two dozen 3D-printed homes across central Texas and in Mexico and this marks the first mainstream housing project for the startup.

"ICON has delivered better homes at a better value across a variety of cost-centers than conventional construction, including materials, time to market, and labour," continued O'Dell. "The East 17th St Residences represent the future of homebuilding for the mass market and illustrate what is possible with this technology."

"We were delighted when 3Strands approached ICON to deliver their first mainstream housing development," said Jason Ballard, co-founder and CEO of ICON.

"There is an extreme lack of housing that has left us with problems around supply, sustainability, resiliency, affordability and design options. With ICON's 3D printing technology, we anticipate more high-velocity progress in the years ahead to help bring housing and construction into the modern world and in-line with humanity's highest hopes."





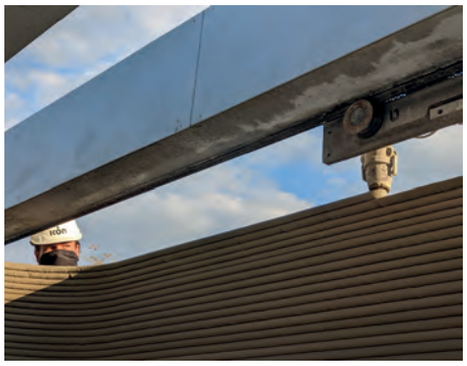


Photos: © ICON

Nestled in the fast-growing East Austin neighborhood, the homes feature large covered front porches, extensive front yards, covered parking, open concept floor plans, bespoke interior design, vaulted master bedrooms, large North-facing windows, high performance HVAC, secluded office/bedrooms, and minimalist architectural aesthetic.

Each of the four homes took about 5-7 days of printing – that is less than a week per home for the print portion only. The resilient material used to 3D-print the homes is a proprietary cementitious material called Lavacrete and is more durable than traditional construction materials.

Austin-based designer Claire Zinnecker joined the project to design the interiors' finishes and fixture selection. Her approach for these spaces was a modernized West Texas design with a simplified palette featuring natural woods, similar metal finishes and earthy tile colours.





Photos: © ICON

PROJECT DATA

Project Name: East 17th St Residences
Location: Austin, Texas, USA
Type: Two- to four-bedroom, 1,000 – 2,000 square feet homes
Developer: 3STRANDS

Architectural Firm: Logan Architecture
3D Printing Construction Technology: ICON
Completion: 2021

Interview with Andrew Logan, AIA, Principal, Logan Architecture, PLLC

SEAB: Give us a brief overview of the East 17th St Residences project.
ANDREW: East 17th is the first market rate 3D printed project in the US. We worked closely with the developer (3Strands) and ICON to create a project that would highlight ICON's technology and have mass appeal to the average home buyer in Austin.

SEAB: Compared to conventional construction, what advantages did 3D printing technology offer to this project?
ANDREW: 3D printing offers endless flexibility in plan and on this project, it allowed us to have radiused walls to soften the building base corners and allow the building to respond to user circulation within the site and within each building.

SEAB: What were some of the issues and limitations that you faced when using 3D printing technology for this project?
ANDREW: The most common challenge we face with 3D printing in Austin is the added wall thickness required for insulation and proper structural support. This added thickness must be counted as a part of our buildable area per city code, and thus reduces the size of buildings that an individual site might be able to yield.

SEAB: How closely did you work with the 3D concrete printer specialist to realise this project?
ANDREW: Very closely. The design of these buildings was a highly iterative process with ICON.

SEAB: In your opinion, what kind of future do you see for 3D printed buildings?



Andrew Logan. Photo: © Logan Architecture

ANDREW: Eventually, I think 3D printed concrete and other mineral based printing will replace all other methods of masonry construction that are commonly used today.



TECLA external day view.

TECLA

The first eco-sustainable house 3D printed from raw earth is now a reality.

Mario Cucinella Architects (MC A) and World's Advanced Saving Project (WASP) have completed TECLA – Technology and Clay –, the first eco-sustainable housing model 3D printed entirely from local raw earth. This genuinely innovative and pioneering approach was conceived from the start as a joint project between the two firms, who worked closely throughout the project's design and construction.

Metaphorically inspired by one of Italo Calvino's 'invisible cities' – the city in continuous construction – the name TECLA evokes the strong link between past and future by combining the matter and spirit of timeless ancient homes with the world of 21st-century technological production.

Born from a research project by Mario Cucinella (Founder and Creative Director of Mario Cucinella Architects) and through the vision of Massimo Moretti (Founder of WASP), TECLA responds to the increasingly serious climate emergency, to the need for sustainable homes at Km0 and to the great global issue of the housing emergency that will have to be faced – particularly in the context of urgent crises generated, for example, by large migrations or natural disasters.

"We like to think that TECLA is the beginning of a new story. It would be truly extraordinary to shape the future by transforming this ancient material with the technologies we have available today. The aesthetics of this house are the result of a technical and material effort; it was not an aesthetic approach only. It is an honest form, a sincere form," said Mario Cucinella – Founder and Creative Director of Mario Cucinella Architects.

"TECLA shows that a beautiful, healthy, and sustainable home can be built by a machine, giving the essential information to the local raw material. TECLA is the finger that points to the Moon. The Moon is the home, as a birthright, for everybody on the planet. From TECLA on, that'ss getting possible," said Massimo Moretti – WASP Founder.

Located in Massa Lombarda (Ravenna, Italy), TECLA has become a reality thanks to the eco-sustainability research of the SOS – School of Sustainability (training centre founded by Mario Cucinella), the pioneering research projects of Mario Cucinella Architects and the collaborative 3D printing technology of WASP.

TECLA is an innovative circular housing model that brings together research on vernacular construction practices, the study of bioclimatic principles and the use of natural and local materials. It is a nearly zero-emission project: its casing and the use of an entirely local material allows for the reduction of waste and scraps. This and the use of raw earth make TECLA a pioneering example of low-carbon housing.

For this project, Mario Cucinella Architects not only explored housing solutions in formal aesthetic terms, it also studied the building's shape in relation to its climate and latitude. In addition, the composition of the earth mixture responds to local climatic conditions and the filling of the envelope is parametrically optimised to balance thermal mass, insulation and ventilation according to the climate needs.

TECLA is a composition of two continuous elements that through a sinuous and uninterrupted sine curve culminate in two circular skylights that convey the 'zenith light'.

The atypical shape, from the geometry to the external ridges, has enabled the structural balance of the construction – both during the 3D printing phase of the envelope and once the covering is completed - giving life to an organic and visually coherent design.

With an area of about 60 square metres, it comprises a living zone with a kitchen and a night zone which includes services. The furnishings – partly printed in local earth and integrated into the raw-earth structure, and partly designed to be recycled or reused - reflect the philosophy of a circular house model.



Living area skylight detail



Living area at night.



Passage detail from living room to night area.



Bathroom entrance



Night view from drone.

PROJECT DATA

Project Name: TECLA – Technology and Clay
Location: Massa Lombarda, Ravenna, Italy
Prototype Typology: 3D Printed Eco-sustainable House
Architectural and Furniture Project: MC A - Mario Cucinella Architects

Sustainability Research: SOS – School of Sustainability, Bologna, Italy
3D Printing Technology Project: World's Advanced Saving Project (WASP)
Project Info: 200 printing hours, 7000 G-codes, 350/12 mm layers, 150 km of extrusion, 60 cubic metres of natural materials for less than 6 kW of average electricity consumption

Net Area (Gross): 45 square metres
Area: 60 square metres
Completion: 2021
Photos: © Iago Corazza

The technological research of WASP, specialised in Km0 3D printing from raw earth, has led to an innovative 3D printing technology called Crane WASP, the first in the world to be modular and multilevel, designed to build construction works collaboratively. TECLA uses two synchronised printer arms simultaneously, thanks to software capable of optimising movements, avoiding collisions and ensuring streamlined operation.

Each printer unit has a printing area of 50 square metres which therefore makes it possible to build independent housing modules in a few days.

In brief: TECLA can be delivered with 200 hours of printing, 7000 machine codes (G-code), 350 12 mm layers, 150 km of extrusion, 60 cubic meters of natural materials for an average consumption of less than 6 kW.

The housing model is entirely Made in Italy: in addition to Mario Cucinella Architects and WASP, it sees the participation of Italian-only companies.

Interview with Irene Giglio, Architect & Project Manager from Mario Cucinella Architects for the TECLA project

SEAB: Give us a brief overview of this 3D printed building project TECLA.
IRENE: TECLA is the first eco-sustainable housing model 3D printed entirely from local raw earth. It aims at responding to the increasingly pressing climate emergency, to the need for zero-kilometre sustainable homes and to the great global issue of the housing emergency that the world is currently faced with. The result is an example of an empathic relationship between the application of technologies and architecture, constituting a profound step-change in the provision of eco-housing. TECLA shows what can be accomplished if we mindfully combine our technical knowledge with learnings from the past, reflecting upon how humans have developed the ability to build and develop resilient ecosystems, mindful of bioclimatic principles and the use of natural and local materials, and what lessons can be learned and applied to our precarious future.

SEAB: Compared to conventional construction, what advantages did 3D printing technology offer to this project?
IRENE: Due to the flexibility offered by 3D printing technologies and thanks to parametric design, TECLA is conceived for being adaptable to any context and climate. In fact, unlike any traditional bricks-and-mortar building, its envelope and shape can easily change, thus being fully optimised for the specific site for which it is conceived. But it is not by using climatic parameters only that one can actually exploit the potential of such flexibility: occupants can also play an important role and the home can be tailored according to the specific family size or to the needs and aspirations of its components. Basically, anything can be manipulated according to a set of selected inputs, from the envelope, to the basic "cell", to its primary aggregation, to an overall masterplan.

SEAB: What were some of the issues and limitations that you faced when using 3D printing technology for this project?
IRENE: Unsurprisingly, most of the current experimentations on 3d-printed buildings are based on the use of concrete (due to its mechanical and resistance properties). Choosing soil as the primary building material is definitely meaningful for our planet (and actually goes in the direction of possibly giving everyone a house) but it didn't come without any challenge (that have been added to the already numerous ones posed by using a construction technique that is still in its experimental phase). While concrete is a uniform and controlled mixture, whose properties can be accurately predicted, this does not apply to soil, whose properties can significantly vary according to the very site of extraction. As a consequence, the mixture needs to be carefully prepared, by adding soil with fibres, binders or water where appropriate, and periodically analysed and tested.



Irene Giglio. Photo: © Mario Cucinella Architects

SEAB: How closely did you work with the 3D concrete printer specialist to realise this project?
IRENE: The whole approach was conceived from the very beginning as a joint project between the two firms, who have worked closely throughout both the design and construction phases. When it comes to designing a project that is as innovative as this one, design and technology must be closely interwoven at every single step and a close cooperation is key to achieve a result that is meaningful and contemporary in both fields.



Photo: © Kamp C

KAMP C

Kamp C, the Westerlo-based provincial Centre for Sustainability and Innovation in Construction, printed a house using the largest 3D concrete printer in Europe. The 90-square metre dwelling was printed in one piece with a fixed printer. This is a world first.

You can find Flanders' first 3D-printed model home on the premises of Kamp C in Westerlo (Belgium). The two-storey house is eight metres tall and has a floor area of 90 square metres, the average size of a terraced house in this region. "What makes this house so unique, is that we printed it with a fixed 3D concrete printer," said Emiel Ascione, the project manager at Kamp C. "Other houses that were printed around the world only have one floor. In many cases, the components were printed in a factory and were assembled on-site. We, however, printed the entire building envelope in one piece on-site.

The house was printed as part of the European C3PO with financing from ERDF (the European Regional Development Fund). With this feat, the project partners hope to raise interest



Photo: © Kamp C



Photo: © Kamp C

in the building industry about the use of 3D concrete printing as a building technique.

Kathleen Helsen, the Provincial Deputy for Housing and the President of Kamp C said: "The building industry has expressed plenty of interest. 3D printing in construction is experiencing an uptick around the world. Several possibilities, including the printing of provisional housing and even complete apartments, are already being implemented, but this technology is still very novel in Flanders. At the same time, the construction industry is facing unprecedented challenges: we must reduce our consumption of materials and energy, reduce CO2 emissions and the waste stream, the demand for high-quality and affordable housing is on the rise, and so on. At Kamp C, we believe that new technologies, such as 3D concrete printing, can help provide a response. That is why we created this unique location on our site, where construction companies can experiment with 3D printing, together with research and education institutions."

Three times sturdier

The printed house is three times sturdier than a house built with quick build bricks. "The material's compressive strength is three times greater than that of the conventional quick build brick," explained Marijke Aerts, the project manager at Kamp C.

This first house is a test. The researchers will now check whether solidity is retained over time. Besides the fibres in the concrete, the amount of wire-mesh reinforcement used is extremely limited. As a result of the printing technology used, formwork was redundant, saving an estimated sixty percent on material, time, and budget. In the future, an entire house could be printed in just under two days. If you add up all the days, it took just three weeks to print the house at Kamp C.

Model home

The model home was designed to showcase the technology and the potential of 3D printing. "We printed an overhang, it



Photo: © Jasmien Smets



Photo: © Jasmien Smets

has heavily curved walls, different types of walls...We also incorporated solutions to the traditional thermal bridge, eliminating cold bridges altogether," said Ascione. "We developed a low-energy house, with all the mod cons, including floor and ceiling heating, special façade solar panels and a heat pump, and we will also be adding a green roof." "When we started to build it, we had no idea which use the building would have. Our aim was to print the floor area, height, and shape of an average contemporary home, in the form of a model home with multipurpose options. This is a principle of circular building. The building can be used as a house, a meeting space, an office, or an exhibition space. People can visit the house after making an appointment," said Piet Wielemans, who is an architect at Kamp C.



Photo: © Jasmien Smets

Project

The house is part of the European C3PO project, which aims to accelerate the transition to this innovative technology in Flanders. Eight partners, from the business community and the scientific community, have joined forces for the project. They are Beneens, ETIB/CONCRETE HOUSE, Groep Van Roey, Thomas More, Trias architecten, Ghent University and Vicré. Saint-Gobain Weber is also contributing to the project. This article is part of the C3PO project. The partners received € 668,320 in European grants through C3PO, an ERDF project ('Co-creation: 3D-printing with companies). The project is also a part of GTI Kempen (GTI stands for Gerichte Territoriale Investering in Dutch, or an integrated territorial investment strategy for a specific region, combining various European funds and programmes).



Photo: © Jasmien Smets

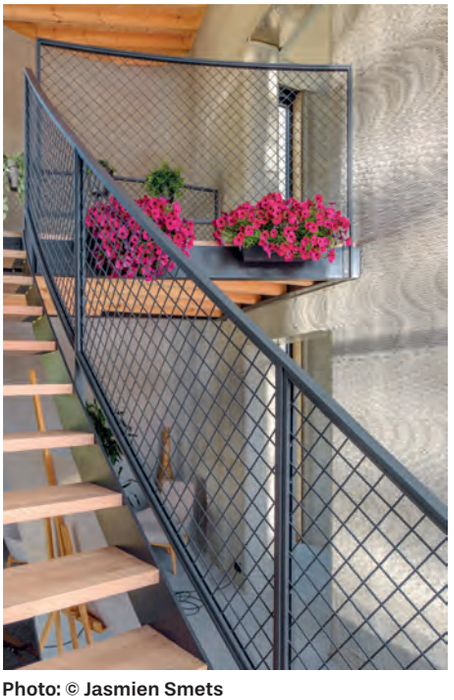


Photo: © Jasmien Smets

PROJECT DATA

Project Name: Kamp C: Centre for Sustainability and Innovation in Construction
Location: Westerlo, Belgium
Type: Two-storey house
Lead Partner: Kamp C

Partners: Beneens, ETIB/CONCRETE HOUSE, Groep Van Roey, Thomas More, Trias architecten, Ghent University, Vicré and Saint-Gobain Weber.
3D Printer Specialist: COBOD (Denmark)
Completion: 2020

Interview with Piet Wielemans, Architect, Kamp C | Centre Sustainability & Innovation

SEAB: Give us a brief overview of this 3D printed building project Kamp C: Centre for Sustainability and Innovation in Construction.

PIET: The house was printed as part of the European C3PO-project with financing from ERDF (the European Regional Development Fund). With this feat, the project partners hope to raise interest in the building industry about the use of 3D concrete printing as a building technique.

The building industry has expressed plenty of interest. 3D printing in construction is experiencing an uptick around the world. Several possibilities, including the printing of provisional housing and even complete apartments, are already being implemented, but this technology is still very novel in Flanders. At the same time, the construction industry is facing unprecedented challenges: we must reduce our consumption of materials and energy, reduce CO_2 emissions and the waste stream, the demand for high-quality and affordable housing is on the rise, and so on. At Kamp C, we believe that new technologies, such as 3D concrete printing, can help provide a response. That is why we created this unique location on our site, where construction companies can experiment with 3D printing, together with research and education institutions.

SEAB: Compared to conventional construction, what advantages did 3D printing technology offer to this project?

PIET: The model home was designed to showcase the technology and the potential of 3D printing. We printed an overhang, it has heavily curved walls, different types of walls. The big advantage of 3D concrete printing lies mainly in the CO_2 savings: no formwork is required by printing, which saves a huge amount of time, material and labour. And by printing it without formwork, the designer gets enormous freedom of design at a much cheaper price.

The printed house is also three times sturdier than a house built with quick build bricks. The material's compressive strength is three times greater than that of the conventional quick build brick. This first house is a test. The researchers will now check whether solidity is retained over time.

Besides the fibres in the concrete, the amount of wire-mesh reinforcement used is extremely limited. As a result of the printing technology used, formwork was redundant, saving an estimated 60 percent on material, time, and budget. In the future, an entire house could be printed in just under two days. If you add up all the days, it took just three weeks to print the house at Kamp C.

We also incorporated solutions to the traditional thermal bridge, eliminating cold bridges altogether. We developed a low-energy house, with all the mod cons, including floor and ceiling heating, special facade solar panels and a heat pump, and we will also be adding a green roof.

SEAB: What were some of the issues and limitations that you faced when using 3D printing technology for this project?

PIET: As we got to know the printer better, the design was systematically adapted to the capabilities of the printer. More organic and vertically curved shapes appeared to be less possible, also due to the limitations of the 3D concrete composition. The walls in the final result are 2D curved. However, an overhang of 7° was possible. In the meantime, both the printer and the concrete composition have already been improved, which could now open up more possibilities.

SEAB: How closely did you work with the 3D concrete printer specialist to realise this project?



Piet Wielemans. Photo: © Kamp C

PIET: Eight partners, from the business community and the scientific community, have joined forces for the project. They are Beneens, ETIB/CONCRETE HOUSE, Groep Van Roey, Thomas More, Trias architecten, Ghent University and Vicré. The printer was built by COBOD (Denmark), Saint-Gobain Weber was also contributing to the project. To stimulate 3D-printing in the construction world, all partners were joined to get a maximum exchange of knowledge. This project has to inspire and convince them to participate in the necessary changes. Both the construction world and educational as scientific institutions need a location to experiment. And this is what happens at Kamp C: there is a full experimentation with this construction technique.

SEAB: In your opinion, what kind of future do you see for 3D printed buildings?

PIET: In the very near future, it will be possible to build houses at a much cheaper price in a very limited time. The CO_2 reduction is also gigantic (more than 50 percent), and it gives the designers enormous freedom of design. Together with the evolutions in parametric design, unique buildings can be printed quickly and adapted to the needs of the building owners and the environment.

Honeywell, SAP Launch connected buildings solution to help operators make smarter real estate decisions

Atlanta, Georgia — Honeywell has launched a cloud-based solution that streamlines and combines operational and business data for building owners and managers to support better decision-making, drive greater efficiencies and reach sustainability goals. The new solution, Honeywell Forge Real Estate Operations, extends the capabilities of Honeywell Forge enterprise performance management software and was jointly developed with SAP on the SAP Business Technology Platform. Honeywell Forge Real Estate Operations is an out-of-the-box cloud-based analytics application. The SaaS solution aggregates the financial, employee and real estate data of SAP with Honeywell's buildings data, IoT sensor data and building management system insights. Real estate portfolio owners, managers and operators can use actionable insights from the software to help optimize their real estate performance across multiple dimensions of building performance. The data is delivered to users in a simple, easy-to-digest scorecard.



Photo courtesy of Honeywell.

Honeywell Forge Real Estate Operations can help improve:

- **Operational readiness.** The solution quickly provides users with information about the availability of critical assets, the number of open services cases and corresponding capital and operational costs.
- **Occupant safety.** Users can gain visibility into the compliance of safety practices, including indoor air quality and capacity limits.
- **Sustainability.** The solution provides real-time visibility into energy consumption metrics to help companies track their sustainability goals.
- **Financial intelligence.** Combined OT and IT data provides users with a comprehensive picture of the overall financial health of their entire building portfolio to understand underperforming locations and detect financial trends. The solution also closely monitors the financial impact of operational investments.
- **Occupant experience.** The solution enables building managers to maintain a comfortable environment for occupants.
- **Occupant utilization.** Honeywell Forge Real Estate Operations helps visualize building utilization, including its impact on the operational and financial performance of buildings.

Honeywell Forge Real Estate Operations complements Honeywell's large and growing set of software offerings for building owners and managers.

EnOcean's new IoT Connector simplifies building automation

Oberhaching, Germany — EnOcean, a pioneer of energy harvesting and wireless IoT communications, has announced the launch of the EnOcean IoT Connector, an ideal link between maintenance-free IoT data from energy harvesting sensors and IoT applications that makes the integration of EnOcean products easier than ever before. The IoT Connector translates sensor outputs into ready-to-use data for IoT applications and data driven businesses.

EnOcean
IoT Connector
Intelligent Transforming

Photo: © EnOcean

Commenting on the launch, Marian Hönsch, Product Manager at EnOcean said: "Data is critical to understanding, measuring and improving facility management processes and procedures. Increasingly, data needs to be analysed to ensure compliance with health and safety requirements, security and COVID-19 regulations. Facility and Corporate Real Estate Managers are gradually becoming more dependent on data analysis to identify utilisation patterns, trim costs and make buildings into better places for work. This new solution from EnOcean paves the way by enabling collection of data from billions of sensors in buildings, using energy harvesting wireless sensors to collect data in a secure and

maintenance-free way. The essential requirements of quick onboarding, broad applicability and water-tight security are embodied in a new IoT Connector that translates sensor outputs into ready-to-use data for IoT applications and data driven businesses."

One key feature of the IoT Connector software is that it decodes the IoT data from the EnOcean Protocol and translates it into ready-to-use data in JSON format to be used in the actual application. Algorithms are needed to unravel the data and to make it available for customer applications in the right form. Customer applications consume IoT data in a "key-value pairs" format, such as JSON. A key-value pair consists of related elements: a key, which is a constant that defines the dataset (temperature, humidity or ventilation), for example, and a value, which is a variable that belongs to the dataset (for example 20°C, 80%, level 1/2/3). Easy adoption by IoT users is enhanced by implementing JSON data that can be exchanged with an MQTT broker or Microsoft Azure IoT Hub.

In the typical model, the IoT Connector is deployed in an existing connectivity infrastructure: either in edge devices or third-party clouds. Typical use cases are centralised controls such as lighting and building automation. With the new model, the data is processed directly at the final destination like a cloud or server from the customer. For example, this could be Microsoft Azure cloud. Typical use cases are data analytics and IoT applications and the major advantage is that the client has total control over the data flow. With this new model there is no third party or third storage location involved when transferring the data from sensor to cloud. Customers decide what happens with their data, whether visualised, analysed or archived. Here, the IoT Connector is a containerised application and available for deployment at the Docker Hub among others, including all updates. The use of cloud computing relieves the load on the local infrastructure and allows new data-heavy applications to be created, stimulating ideas from customers for new applications.

An easy and cost-effective way to incorporate the EnOcean IoT Connector into IoT applications is by leveraging existing building infrastructures. The infrastructure can easily be upgraded to send EnOcean IoT data, for example with the combination of an EnOcean USB stick and Wi-Fi® access points from Aruba, a Hewlett Packard Enterprise company. Also, data from existing EnOcean buildings can directly be forwarded to the IoT Connector in raw format (ESP3 – EnOcean Serial Protocol 3). The Aruba access points support the EnOcean USB stick without need for additional software. Furthermore, they talk directly to the IoT Connector running as part of the infrastructure or the final data destination, so no additional gateways are needed. With this complete scenario, customers have exclusive control over the data flow.

The EnOcean IoT Connector is a vital solution in helping facility managers to understand, measure and improve their processes and procedures, unlock inefficiencies, improve decision-making and sharpen their operations.

Invertek produces its two millionth variable frequency drive

London, UK – Variable frequency drives (VFD) innovator and manufacturer Invertek Drives has reached a significant milestone with the production of its two millionth drive.

The one-off 'golden drive' was produced at the company's 5,500 square metres global assembly centre at Welshpool, Powys.

The milestone comes after Invertek announced record sales during 2020 and the first quarter of 2021. It follows significant continued year-on-year growth since the company was established 23 years ago.

The two millionth drive is part of an order placed by Hiflex Automatiseringstechniek BV who are Invertek's sales partner in the Netherlands. The Optidrive E3 will sent to their headquarters in Ridderkerk, Rotterdam.

"We've reached a significant milestone in our history. Nearly two million Optidrives are now operating around the world. "They are all creating energy and process efficiencies in motor control across a range of industries from manufacturing to marine, agriculture to water, and cranes to food and beverage," said Shaun Dean, CEO of Invertek Drives and Senior Vice President of Sumitomo Heavy Industries Ltd (SHI).

Mr Dean said significant investment was being made in manufacturing at its UK facility to increase production levels as well as in research and development to create ever more efficient VFD products. This continuous evolution is at the core of the Invertek Board's commitment.



Photo: © Invertek Drives

Daikin named among "Clarivate Top 100 Global Innovators 2021"

Osaka, Japan – Daikin Industries, Ltd. announced its selection among the Clarivate Top 100 Global Innovators 2021 as determined by Clarivate Plc, a global information services with headquarters in London, United Kingdom.

Since 2011, Clarivate has been analysing patent data to identify the world's top 100 innovative companies and research institutions and has honoured these outstanding companies with this award for the past 10 years. This year marks the eighth time overall and the seventh consecutive year that Daikin has been selected.

Leveraging its extensive proprietary patent data, Clarivate analyses intellectual property trends and evaluates companies and research institutions worldwide for its prestigious list of Clarivate Top 100 Global Innovators. The evaluation comprises four criteria: volume (number of patents registered in the last five years), success (percentage of patent registrations after examination), globalisation (percentage of applications in the four major markets of China, Europe, Japan, and the United States), and influence (citation frequency in other companies' patents).

As an air-conditioning manufacturer with global business operations, Daikin allows the use of some of its patents by other companies in order to contribute to the reduction of greenhouse gases for the industry overall. For example, in 2011, Daikin granted emerging countries free access to 93 patents related to air conditioning equipment utilising refrigerant HFC-32 (R32), a refrigerant with low global warming potential (GWP), and it expanded access worldwide to all countries in 2015. Moreover, in 2019, Daikin expanded the scope of patents and pledged the non-assertion of those patents to support conversion to refrigerants with high energy savings and low GWP. In recognition of these efforts, Daikin was awarded the "Minister of Economy, Trade and Industry Award" at the "Intellectual Property Achievement Award" for fiscal year 2020 conducted by the Ministry of Economy, Trade and Industry and the Japan Patent Office.

Daikin will continue to work on R&D activities for creating innovation that provides new value to society as it further strengthens the intellectual property activities that support them.



Technology and Innovation Centre – Daikin's R&D facility in Osaka, Japan. Photo: © Daikin

Continental Fan is celebrating its 35th year in business

Buffalo, New York, USA – Founded in 1986, Continental Fan has grown to become one of North America's most unique fan companies. From modest beginnings, Continental Fan today has facilities in Mississauga, ON, Dayton, OH and Buffalo, NY.

Continental Fan's products can now be found in wide-ranging applications around the world, from simple exhaust ventilation to the most demanding and complex cooling systems. Serving diverse markets such as Residential, Commercial, OEM and Industrial, Continental Fan has cultivated and earned its reputation as a problem solver for virtually any fan application.



Collection of fans from the company's commercial fan products division.

Armstrong Fluid Technology brings highest energy efficiency with lowest installation and operating cost solutions to ISH China & CIHE 2021

Beijing, China – Armstrong Fluid Technology recently showcased a range of the most innovative, high value solutions at ISH China & CIHE 2021, the Asia's leading trade fair focusing on HVAC industry chain, located at Beijing National Exhibition Center (new hall). Armstrong's fluid flow and control portfolio for commercial and domestic customers provide the highest energy efficiency and redundancy while offering solutions with the lowest installation cost, lowest operating cost and the lowest environmental impact.

As part of the company's commitment to global sustainability, Armstrong will also be highlighting its corporate initiative to reduce Greenhouse Gas (GHG) emissions 2 million tonnes by the year 2022. Achieving this goal would be equivalent to taking 600,000 cars off the road for one year, or offsetting the average annual CO2 emissions generated by 100,000 people. One highlight of the display is Armstrong's internationally award-winning Design Envelope Tango, an intelligent, variable-speed pump. The Tango features Parallel Sensorless Pump Control (PSPC) a technology that improves the efficiency of a multi-pump installation through optimised load sharing. PSPC technology improves the efficiency of the full pump array by up to 30 percent over traditional multi-pump installations.

Also being showcased is the Armstrong Intelligent Fluid Management System (iFMS). These systems are designed and built off site to BS EN 1090 standards and to meet the specific requirements of individual projects. Serving both chilled water and hot water applications, the iFMS features Design Envelope technology that maximizes pumping efficiency by adjusting pump speed in response to system demand. The Design Envelope approach to sizing uses a combination of optimized impeller size and speed control to establish a range or envelope for most efficient operation.

Another highlight of the stand is Armstrong's IPP solution – Design Envelope Chilled-Water Integrated Plant Package. IPP



Photo: © Armstrong Fluid Technology

combines all the equipment needed to deliver chilled water to medium to large size buildings at superior energy efficiency. The factory-assembled plant includes pumps, integrated controls, watercooled chillers and the requisite instrumentation, valves and sensors.

"Armstrong Fluid Technology always adhered to the Canadian heritage of innovation and quality, and prioritises energy-saving features. As China government had elevates its Carbon emission reduction into national strategy in 2020, it also offers us a vast opportunity. Our traditional strengths in energy conservation are highly aligned with China's strategic opportunities for future development," said Mr Wu Zhifei, General Manager of Armstrong China. "We're excited to be leveraging this strong platform of product solutions to introduce more customers in China to our innovative technology and the Armstrong culture of service," added Mr Wu.

Schindler elevates Egypt's new capital

Ebikon, Switzerland – Schindler has been selected to deliver and install a total of 129 high-rise elevators to six office towers currently under construction in Egypt's New Administrative Capital, designed to become a high-tech model for Egypt's future. The buildings will also be equipped with Schindler PORT technology, which helps guide and transport visitors and office workers quickly and safely to their individual floors, while optimizing traffic flow throughout the buildings.

"The grandiose new capital city of Egypt will feature the latest technology that will turn it into one of the major sustainable, smart city projects across the Middle East," said Chang Weicai, General Manager of China State Construction Engineering Corporate Egypt (CSCEC Egypt), the general contractor for this project. "Schindler products including Schindler PORT technology will contribute vastly to the new capital's smart and human-centric urban mobility."

The city, known simply as the New Administrative Capital, will be Egypt's first smart city, covering 700 square kilometres in the desert east of Cairo, making it the size of Singapore. Designed as the country's new administrative hub, it is expected to house 6.5 million people. Its official opening is planned for the end of 2021.

"Schindler has been a pioneer in vertical transportation for almost 150 years and we are as committed as ever to being at the forefront of our industry," said Thomas Oetterli, Schindler's CEO. "I am proud that our cutting-edge technology will help transport people in Egypt's new capital sustainably, safely and efficiently."

JJ-LAPP partners with Clenergy to make solar energy accessible in ASEAN

Singapore – JJ-LAPP, the cable technology joint venture of diversified industrial conglomerate, Jebsen and Jessen Group, and LAPP Holding Asia, has expanded their partnership with Clenergy, a globally renowned solar mounting gear provider, for the distribution of Clenergy's products in countries across Southeast Asia.

The partnership will enable engineering, construction, and procurement companies in ASEAN, including Singapore, Malaysia, Thailand, Indonesia, Vietnam, and the Philippines to access Clenergy's entire portfolio of products through JJ-LAPP's extensive regional network.

Electricity demand in South East Asia (SEA) is increasing at a tremendous rate, projected to grow at a 3.7 percent annual rate during 2016-2040 – twice the global average. To meet the growing electricity consumption and at the same time achieving ASEAN's target to secure 23 percent of their primary energy from modern, sustainable and renewable sources by 2025, SEA countries are substantially scaling up their deployment of renewables in the energy sector.

This has resulted in the SEA region being one of the fastest growing solar energy markets, with the share of renewables in the region's primary energy mix predicted to rise to 37 percent by 2040. JJ-LAPP and Clenergy's partnership comes at a time when the industry's confidence in investing in renewables is growing due to the region's rising population, economic growth, and nascent renewable energy capacity development.

"The synergy of Clenergy's long-standing experience in the solar energy space backed by the strength of our network and reach within ASEAN will make sustainable energy practices more accessible and drive the industry forward," said John Hng, Regional Head of Business Development at JJ-LAPP. "This is an exciting time for us as we continue to pursue growth opportunities while developing the solid foundation that we've built throughout the region.



Clenergy offers best-in-class mounting solutions that empower installers to manage their solar system design with ease.

Mr Hng added that working with Clenergy will augment JJ-LAPP's existing offering of products and solutions for the renewable energy and solar industries, enabling them to offer customers a one-stop solution for all of their product needs.

Clenergy's range of solar mounting gear from their SolarRoof, Ground, Water, and Elevate series, will complement JJ-LAPP's current suite of offerings such as the LAPP solar cables and connectors, Trina solar panels, and Huawei solar inverters to meet the growing demand for renewable energy in the region.

"The use of renewable energy has not just been proven to be beneficial to the environment but has also been seen as a driving factor in aiding the economy's development. We already see a global shift in investment towards renewables, particularly with solar power in Asia, and we hope this promotes industry participation in green technology," Mr Hng said.

Daniel Hong, Chief Executive Officer, Clenergy, said, "We are excited to be partnering with a leading brand like JJ-LAPP. With their network, we aim to bring the latest technology in the sector to local projects in the ASEAN region. This partnership will strengthen the solar industry offerings in the region and enable the industry players to benefit from the quality and technical superiority that we have to offer."

With the cost of generating renewable energy rapidly declining, ASEAN countries have an opportunity to shift towards more sustainable business practices. Malaysia is already the world's third-largest producer of photovoltaic (PV) cells, while investment in Thailand's solar manufacturing industry contributes to the PV output for global markets. Singapore is also focusing on solar PV deployment as a sustainable energy source, and is forecasted to add 1.2GW of new power capacity generated between now and 2030.

Partnerships like JJ-LAPP and Clenergy will encourage more companies to go green by offering one-stop easy access to world-renowned and state-of-the-art products and solutions for renewable energy. It is a milestone towards a brighter future for the solar industry that will aid the region in achieving greater renewable energy adoption and increase sustainability efforts.

Innovation from Halton and LED Tailor – a disinfection blue light system that kills microbes in operating rooms and brings hope to the antibiotic resistance fight in the hospitals

Helsinki, Finland – Antibiotic resistance (AMR) and surgical site infections (SSI) are a significant issue and increasing threat for hospitals at this moment. This innovation provides a safer operating room environment by reducing SSIs and helps to reduce the development of the AMR of microbes. Halton, the technology leader in ultra-clean ventilation systems, integrates disinfection blue light to eliminate microbes from surfaces while being 100% safe for the staff and patients.

In May 2015 World Health Assembly adopted a global action plan on antimicrobial resistance (AMR), which threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses, and fungi. AMR threatens the very core of modern medicine and the sustainability of an effective, global public health response to the enduring threat from infectious diseases. Without harmonized and immediate action on a worldwide scale, the world is heading towards a post-antibiotic era in which common infections could once again kill.

"I am delighted to make our rapid and automating photon disinfection technology available now through Halton's ventilation products, aimed for operating rooms worldwide. LED Tailor's disinfection system inside Halton's Vita OR Space system automatically destroys microbes, including the E.Coli and Staphylococcus aureus, very efficiently from all OR surfaces, resulting in 5log10 reductions (99.999) in 4 to 12 hours, depending on the size and type of the system installed," stated Harri Rautio, CEO of LED Tailor.

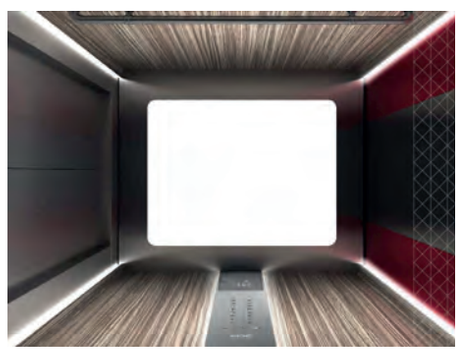
"I am very pleased with the co-operation with LED Tailor and being able to bring this innovation to the hospital operating rooms. We want to help the hospitals fight against antibiotic resistance, which is a major issue for them. The disinfection blue light kills microbes from surfaces, which are hard to reach by a traditional cleaning method. The system is configurated so that the disinfection mode is automatically turned on when the room is not occupied. The embedded general lighting further reduces the need for multiple systems and saves space for medical installations," said Sami Ahonen, Head of Sales and Marketing, Halton Health.



Halton's Innovation HUB in its Kausala factory in Finland. Photo: © Halton Oy

Otis unveils new generation of digitally native elevator platforms

Singapore – Otis Worldwide Corp. (OTIS), has announced a new generation of digitally native elevators – created to give people freedom to connect and thrive in a taller, faster, smarter world. Otis is introducing the Otis Gen3™ and Gen360™ digital elevator platforms during Welcome to Tomorrow, a global virtual event with customers, colleagues and many industry stakeholders from more than 100 countries participating on June 8, 2021.



The Otis Gen3 elevator features the company's Ambiance aesthetic package, which includes sophisticated lighting and quality materials to compliment a building's existing design.

Designed to meet the current needs and future expectations of an increasingly connected world, these new vertical mobility platforms are smart, connected systems that reimagine what elevators can be for passengers and for customers – from architects and developers to building owners and facility managers. Building on the proven design and flat-belt technology of Otis' best-selling Gen2® family of elevators – both platforms provide smooth, quiet rides, safety, durability and energy efficiency.

The Otis ONE™ IoT digital platform is native to both platforms, providing the connected intelligence that defines these elevators. By collecting and analysing massive amounts of data from the elevators' smart sensors, the Otis ONE platform is able to deliver real-time performance information, proactive communication and predictive insights. Otis ONE technology also makes it possible to resolve many issues remotely and securely. And with cloud-based APIs (Application Programming Interface), both platforms integrate easily with other smart building systems to create enhanced value for facility managers and passengers alike.

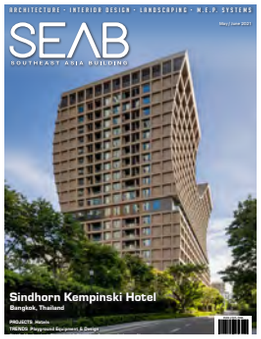
"The connected elevator represents our shared future and our vision for the seamless urban journey," said Otis President & CEO Judy Marks. "It creates value for our customers with greater equipment uptime. It enhances the productivity of our own teams, and it exists at the heart of any smart building's ecosystem," added Judy.

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ARCHIDEX 2021	3–6 Nov 2021	Kuala Lumpur	Malaysia	www.archidex.com.my	IFC
ASEAN Super 8 Show 2021	9–11 Nov 2021	Kuala Lumpur	Malaysia	www.super8asean.com	7
Earthquake Asia Expo 2021	1–2 Dec 2021	Singapore	Singapore	www.theearthquakeexpoasia.com	3

Legend: **IFC** (Inside Front Cover), **IBC** (Inside Back Cover), **OBC** (Outside Back Cover)



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