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January / February 2021

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SOUTHEAST ASIA BUILDING

Wanchai Mallory Street / Burrows Street Revitalization & Preservation

Hong Kong, China

PROJECTS Conservation & Restoration
TRENDS Digital Architecture
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Dear readers, we are excited to be with you again with the first issue of 2021. Last year was a very tough year for all of us due to the pandemic. We hope that the situation will improve soon.

Amidst these difficult times, architects continue to add beauty to the world through their building designs. And this issue focuses on buildings that have undergone conservation and restoration. Check out the projects and the challenges involved in bringing the buildings back to their former glory.

Due to advancements in technology, architects have begun to use a variety of digital tools and software to develop and execute their designs. However, there are benefits as well as challenges in digitalization. Architects tell us more about it in their interviews.

Mechanical, electrical and plumbing systems are important components of a building so we have featured the latest industry news, products and projects to keep you updated.

We hope you find this issue useful and interesting. If you have any comments or questions, email me on seab@tradelinkmedia.com.sg. Meanwhile, take care and stay safe everyone.

Amita Natverlal

MARCH/APRIL ISSUE THEMES

- Projects – Industrial Buildings
- Trends – Drones in Architecture
- M.E.P. Systems (Refer to the media kit)
- Products – Waterproofing Systems & Chemicals (Advertorial)

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ANA Designs creates open-plan office space for Fino Payments in a challenging timeline

Mumbai, India – A contemporary and layered corporate space for a Banking firm, the Fino Payments Headquarters was designed by ANA Designs in 2019. This state-of-the-art office space covering 60,000 square feet, was conceptualised and executed in a challenging timeline of 3-months lasting over July to October 2019.

Photo: © ANA Designs

Headquartered in Juinagar - Navi Mumbai, the Fino Payments office was envisioned with the impetus of representing the establishment's prominence and growing digital presence in the corporate financial service realm. The task at hand was to create an office space that was emblematic of the client's diverse profile as leaders, innovators and implementers of technological solutions for banks and insurance companies.

The client's requirements emphasised needing an open-plan spatial layout within the shell of the structure. The design scheme was conjured based on the recognition of 3 vital zones: The well-lit and brighter nooks of the office were assigned workstation clusters to encourage productivity and well-being of the employees.

The secondary areas were allocated to host essential services pertaining to the office and the tertiary spaces were rejuvenated to anchor collaborative zones and private meeting rooms to bolster teamwork. The design narrative and zoning had to ensure that the end-users across hierarchies felt motivated and inspired to work within the premises.

With an open floor plan steering the design layout, it was essential to simultaneously ensure a maximised number of seats for the employees on board. To address this concern, the designers took to a 'cluster' approach while designating workstation locations versus the conventional linear layouts. Each zone in the office was mindfully appointed its position with regards to layout placement, so as not to disrupt workflow and circulation.

Wellness, especially in the realm of user-experience and mental comfort played a crucial role in the workspace's design ethos. To establish this, the team at ANA Designs resorted to the inclusion of the 7-Chakras philosophy via the usage of its related hues and to also reiterate the client firm's 7 foundational values: *Trust*, *Reliability*, *Creativity*, *Communication*, *Wisdom*, *Frugality* and *Empathy*. The 7-Chakras are represented via 7 hues that are a part of the spectrum and their hues resonate with specific frequencies, thus enabling a sense of well-being in an end-user.

The materiality and functional systems across the workspace take a 'glocal and futuristic' approach. The high-end technologies and evolving spaces are balanced in a wholesome manner against Indian-origin fabrics, the works of local artists and vivid colours and patterns across the floors and columns. The usage of colour in the interior scheme is generous, yet restrained and layered in its identity. The larger components like workstations and fixed furniture are kept neutral and desirable doses of hues are introduced in the form of bold wallpapers, loose furniture and custom murals.

The resultant office space is responsive towards the aspects of physical and mental wellness that have been a consequence of conscious designing, while also being a testament to ANA Designs's penchant for intrinsically breathing life into spaces.

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Rising demand for healthy buildings in Asia

Singapore – Just short of two years after launching in Asia, the Center for Active Design (CfAD), operator of Fitwel®, one of the world's leading certification systems committed to building health for all, is seeing tremendous growth in the number of Fitwel certifications across the region. Whereas only 9 percent of construction teams in mainland China said that their building projects were green in a 2018 study from Dodge, 30 percent of respondents projected that at least 60 percent of their projects would be green by the year 2021. This rate of expansion over a short period is indicative of the exponentially growing demand for green and healthy buildings across Asia.

Recognising the need for local resources to provide expertise and support, CfAD signed a strategic partnership with UL and enlisted the support of 30 other leading companies to establish the Asia Advisory Council. With a goal of promoting green and healthy buildings in Asia, the Asia Advisory Council has supported buildings across the entire region in the process of earning Fitwel certification.

UL's global capabilities in testing, assessment, certification and advisory services offer customers access to local resources and a wealth of green building expertise to streamline the certification process. In an attempt to advance green and healthy building practices, UL has entered into agreements with leading property management companies across Asia including CBRE and Savills.

"We're thrilled to see the momentum behind this movement. While each building has its own unique style and features to meet the needs of their particular occupants, each demonstrates an impressive commitment to people-centric indoor spaces that support health and well-being," said Alberto Uggetti, Vice President And General Manager of UL's Environment and Sustainability division.

A tremendous success, the Asia Advisory Council sees dozens of buildings choosing to pursue certification. Examples include M Moser Office – Hong Kong; Stock Exchange of Thailand (SET) – Bangkok; One East – Shanghai; Lenovo – Taipei.

Lenovo DCG Taipei Design Center – Taipei. Photo: © UL

Stock Exchange of Thailand (SET) – Bangkok. Photo: © UL

One East – Shanghai. Photo: © UL

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Lead8 to deliver interconnected retail realm in Wuhan

Hong Kong – Lead8 is delivering the architectural design for the future Changjiang Centre in Wuhan – a prime retail development within a 1.5 million square metres mixed-use waterfront destination along the Yangtze River near the city's Central Business District.

Located in an up-and-coming commercial area for the city, the large-scale destination will feature Wuhan's tallest tower, currently under construction, once complete. The retail scheme by Lead8 will occupy 210,000 square metres of above-ground area across two of the masterplan's nine plots; functioning as a key connective centre and social heart of the integrated waterside development.

The development's two plots are connected over ground by way of a five-storey bridge. The space is envisioned as a 'floating stage', a platform for internal retail streets and unique tenancy opportunities. The fifth level features an open landscaped roof deck with views to the river. Further terraces line the roofscapes of the buildings on both plots.

The facade is defined by three large-scale boxes which will deliver the multi-floor anchor spaces for the major leisure, entertainment and retail tenants. A human-scale approach can be seen in the architecture at the lower levels to ensure integration with the surrounding urban development.

A landscaped public realm and sunken plaza runs the length of the two plots, offering a green oasis with multiple access points to the retail development and adjacent schemes. Strategically connected, Changjiang Centre will offer direct connectivity to a metro station, a Public Transport Interchange (PTI) and a high-rise office tower. A further metro station is conveniently situated within walking distance of the site.

Rendering: © Lead8

As a major retail anchor for the burgeoning area, the development plans to offer more than 500 stores and experiences across lifestyle retail, children's programming, food and beverage, beauty, sports, entertainment and fashion.

The scheme is currently under construction with plans to open in 2023.

New Zentis Osaka Hotel offers a modern take on the city's urban edginess

Osaka, Japan – As the debut property of a new hotel brand by Palace Hotel Group and the first project in Japan for one of the world's foremost interior architectural designers, Zentis Osaka strums a rather singular chord in a city well-known for both its industrious charm and distinctive hospitality.

Subtly edgy, wonderfully Japanese and naturally resplendent, Osaka's first addition to the bespoke collection of Design Hotels opened in July 2020 with interiors fashioned by UK-based Tara Bernerd & Partners.

"Craftsmanship and industrial heritage are key elements of the local culture, so we sought to encapsulate both through the mixture of materials chosen and the contemporary approach with which we applied them to this project," explained Bernerd.

The materials: exposed bricks, timber beams, ceppo stone, structural ironmongery and a sculptural, blue-limestone staircase situated at the heart of the arrival experience –complemented by an earthy palette of taupes and ivory and accentuated by warm pops of honey, ochre, sage and steel-blue. Light fixtures harkening back to mid-century designs complete Bernerd's vision for a boutique look that encapsulates industrial chic and approachable luxury.

"For the exterior, we opted for a grid design to reflect the structured nature of business, as the hotel borders the business district of Dojimahama," said Kouichiro Shiomi, group leader for Kajima Design's Osaka division. "And then we chose brick, with a predominantly glass façade for the first two levels, to complement the abundance of greenery that surrounds and to soften the building's overall look. This also gives it a more relaxed vibe, which is more in tune with the entertainment district of Kita-shinchi that the hotel also borders," added Kouichiro.

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Capella Bangkok weaves "destination design" into the heart of the Thai Capital's new riverside heritage enclave

Bangkok, Thailand – Capella Bangkok, the revered riverside retreat on the banks of Thailand's "River of Kings", is breaking down the boundaries of design with a deep, destination-inspired showcase which was unveiled on 1st October 2020.

Conceived from the ground-up by celebrated architecture partnership, Hamiltons International, with interiors by tastemakers BAMO, the Auriga Wellness centre by GOCO Hospitality and the city's first riverside villas by PIA Interiors, Capella Bangkok introduces new design ethics to one of the capital's most storied neighbourhoods.

When it set out its vision for Capella Bangkok and the surrounding Chao Phraya Estate, Hamiltons International's mission was clear: to revitalise the Charoen Krung heritage area. The masterplan by former Fosters + Partners duo, Andy Miller and Richard Scott Wilson, strived to juxtapose the rich culture of Bangkok's historic riverside gateway – where boats docked and new settlers first stepped foot in Thailand – with the vibrant dynamism of this 21st century metropolis.

The result is breath-taking. Nestled on the banks of the Chao Phraya, this sleek and stylish development features vast swathes of floor-to-ceiling glass, breaking down the boundaries between indoor and outside space, and ensuring panoramic views of the river from all areas of the property, including the 101 suites and villas, restaurants and elegant event spaces.

Exterior facade. Photo: © Capella Bangkok

Within this urbane framework, interior specialists BAMO set about crafting an exquisite tapestry of classical and contemporary design. Conceived by co-principals, Gerry Jue and Anne Wilkinson, the original concept reflects the multicultural flavour of the district while weaving in traditional Thai elements.

ZHA announces the design of 2 Murray Road

Hong Kong, China – Located in the heart of Hong Kong's central business district, the 36-storey Murray Road project for Henderson Land replaces a multi-storey car park to create an urban oasis adjacent to Chater Garden within a short walking distance to both Central and Admiralty MTR metro stations.

With its base elevated above the ground to shelter courtyards and gardens cultivated with trees and plants in the centre of one of the world's busiest cities, the design creates new civic plazas that are enveloped by nature.

Echoing the organic forms of the natural world; the redevelopment connects with the adjacent public gardens and parks. These tranquil

Rendering by Arqui.

outdoor areas flow into the generous communal spaces of the interior; the craftsmanship and precision of the curved glass façade enhancing this seamless connectivity between the building's interiors and the surrounding gardens and city beyond.

The design reinterprets the structural forms and layering of a Bauhinia bud about to blossom. Known as the Hong Kong orchid tree, the Bauhinia x blakeana was first propagated in the city's botanic gardens above the Murray Road site and its flowering bud features on Hong Kong's flag.

At the core of the city's financial district, the project is situated at the east-west / north-south junction of Hong Kong's network of elevated pedestrian walkways; connecting directly with surrounding gardens, shops and restaurants as well as the offices of leading financial and civic institutions.

A high-tensile steel structure provides very wide span (up to 26 metres) of naturally lit, column-free, Grade A office space with a 5 metre floor-to-floor height giving maximum flexibility; its vertical core located on the eastern side of the building to optimise views of Chater Garden and the city's renowned skyline to the west.

Working with the Henderson Land and Arup's Building Sustainability Team, the design has achieved LEED Platinum and WELL Platinum pre-certification together with the highest 3-Star rating of China's Green Building Rating Program. The design, procurement and construction targets full certification at occupancy.

Designed to withstand the region's powerful summer typhoons, the facade is comprised of 4-ply, double-laminated, double-curved insulated glass units – the first of their kind in Hong Kong – to effectively insulate the building and reduce its cooling load as well as build resilience.

B+H, 3XN, and Zhubo Design selected to design the new Shenzhen Natural History Museum

Shanghai, China – B+H, 3XN, and Zhubo Design were recently awarded first place in an international design competition for the new Shenzhen Natural History Museum, set to be one Shenzhen's "Ten Cultural Facilities of the New Era" and the first large-scale comprehensive natural museum in Southern China once complete.

Located adjacent to the picturesque Yanzi Lake in the Pingshan District of Shenzhen, the new 42,000 square metres facility will be a world-class natural science museum dedicated to interpreting the laws of natural evolution, showing the geographies of Shenzhen and its ecology in a global perspective, and actively advocating science.

B+H, 3XN, and Zhubo Design's winning design scheme, entitled "Delta", rises seamlessly from the river delta, inviting visitors and residents to journey along its accessible green rooftop. A public park extends throughout the roof and highlights the Natural History Museum's organic geometries. Like a river stream finding its shape in balance with the earth, every turn frames a new spectacular view over the surrounding park, hills, and lake from dedicated viewing terraces along the roof park.

The design extends the public park network and aims to maximise access to the lush green areas throughout with a range of activities dedicated to keeping the site open and active throughout the day – from early morning jogs to late evening strolls. This gives the opportunity for residents and visitors alike to enjoy and connect with nature.

Like water streaming down a river, the undulating form leads guests to a "cave" inspired passage that is connected to the to the museum lobby and activated by multiple cafes and public areas, serving as the pulsating heart of the building.

Image: © 3XN

Aedas wins four Architecture MasterPrize 2020

Hong Kong – At Architecture MasterPrize 2020, four Aedas projects received accolades for their design excellence and innovation. They are:

(1) **Nanjing Xin Jie Kou Suning Plaza, Nanjing, China** (by Chairman and Global Design Principal Keith Griffiths and Global Design Principal Leo Liu)
Winner, Architectural Design – Tall Buildings

Nanjing Xin Jie Kou Suning Plaza. Photo: ©Aedas

(2) **Peak Galleria, Hong Kong, China** (by Executive Director Ed Lam)
Winner, Architectural Design – Commercial Architecture

Peak Galleria. Photo: © Kris Provoost

(3) **Raffles Hotel Singapore, Singapore** (by Executive Principal Gruffudd Owain, Principal Dennis Chan and Executive Principal Simon Thompson)
Winner, Architectural Design – Restoration & Renovation

Raffles Hotel Singapore. Photo: © Raffles Hotel Singapore

(4) **Yi by Jeremy Leung, Singapore** (by Executive Director Simon Thompson and Associate Director Ji An)
Winner, Interior Design – Hospitality

Yi by Jereme Leung. Photo: © Owen Raggett

10 Design wins competition to redevelop the Nanjing Dajiaochang Airport

Hong Kong – International architecture practice, 10 Design, has unveiled winning scheme for China Fortune's 243,768 square metres contemporary mixed use destination as part of the wider redevelopment of an old military airport in Nanjing, China. The initial scheme envisions three interconnecting buildings linked by a sunken street, incorporating office, retail, and cultural spaces. Adjacent to a Chinese history museum on one side and a shopping mall on the other, this mixed use project will run parallel to the remaining runway, which has been kept in its original form as a historic feature.

Jointly led by two Design Partners, Chin Yong Ng and Lukasz Wawrzenczyk, the redevelopment has been designed with the central theme of echoing the past whilst reflecting the future for the city of Nanjing. This important commercial asset will provide the city with a new cosmopolitan landmark; and in parallel, it responds to the cultural richness of its landscape.

With two underground railway stations embedded into the site, connectivity is one of the key design drivers. The design includes a central corridor positioned directly on top of one of the railway tracks, providing a feature passageway for commuters to navigate through the three buildings.

The competition scheme also includes dual facades, with one facing the historic runway on a pedestrian scale and the other facing the city, with each side responding to its surroundings. Central skylights with hallmark trees are placed across the buildings to bring natural light into the deeper levels. Atop of each building, a fully accessible rooftop garden will connect the lower floors with the outdoor space, blurring the distinction between interior and exterior throughout the mixed use destination.

Rendering: © 10 Design

The initial scheme also promotes sustainable initiatives, featuring a water plaza which collects water, a solar energy production area on the roof which generates energy to cool the building during the summer and a green environment so that plants can introduce purified air.

ST Telemedia Global Data Centres (Thailand) awarded LEED Gold Certification for "STT Bangkok 1", Thailand's first hyperscale data centre

Bangkok, Thailand – ST Telemedia Global Data Centres (Thailand) or "STT GDC Thailand", a leading data centre service provider, announced that it has been awarded the LEED® Gold v.4 certification from the U.S. Green Building Council (USGBC) for its STT Bangkok 1 data centre that will be ready for service in Q1 2021. With this, STT Bangkok 1 becomes the largest data centre building in Thailand to be LEED-certified.

STT Bangkok 1 data centre. Rendering courtesy of STT GDC Thailand

The LEED (Leadership in Energy and Environmental Design) green building programme is the most widely used green building rating system in the world and an international symbol of excellence. The certification demonstrates that STT Bangkok 1 has achieved high performance in areas such as water efficiency, energy use, indoor environmental quality, materials and resources, and location and transportation. Commenting on the achievement, Mr. Supparat Singhara Na Ayutthaya, CEO of STT GDC Thailand, said: "This certification is a testament to our commitment to sustainability in the way we do business. Our goal is for our data centres to lower carbon emissions in the long term and reduce operating costs for our customers through an optimal power usage effectiveness (PUE) index while prioritising sustainable practices. This accomplishment sets our data centre apart from others in the industry. It also complements the industry benchmarks set earlier this year with STT Bangkok 1 being the first data centre to be awarded both the TIA-942 Rated-3 and Uptime Institute Tier III Design Document certifications."

Green light for multifunctional stadium in Helmond, The Netherlands

Rotterdam, The Netherlands – The municipality council of Helmond in The Netherlands has given the green light for Campus de Braak in Helmond. The plans for the project were put on hold at the beginning of this year after a difference of opinion with partner professional soccer club Helmond Sport about the program of requirements, the design and the business case. MoederscheimMoonen Architects, FaulknerBrowns and CULD were asked to team up to create a design tailored to the new brief. Now that the city council also supports the renewed plan, the project can restart.

In the design, the number of seats has been reduced to 3,600 places which creates more space for the business areas for Helmond Sport. Additional space has also been created for the youth academy of the soccer club. With the collaboration of the municipality of Helmond, the OMO school group and the other users, a new design has been developed which is centered around multi-functionality.

In addition, the exterior has also been developed. Despite the fact that there are now only two large stands, the campus exudes a 'stadium feeling' through the dynamic verticality of the facades. In the case of expansion in the future, two new stands can be added in the current building envelope.

Multi-functionality is the essence of the new campus. The campus will be home to Helmond Sport and the Helmond Practice School. The design includes a NOC*NSF sports hall

Rendering: © MoederscheimMoonen Architects

where the amateur football clubs Helmondia and Mulo will be accommodated. Additionally, a new location for JvdI De Fysioclub will be created. Space for individual sports and relaxation is also incorporated with the addition of a running track and shared path for pedestrians and cyclists.

The new building is surrounded by a central corridor that connects all entryways with each other and the surrounding neighborhoods. Thanks to the connection between the campus and the surrounding area, Campus de Braak will become an accessible meeting and recreational environment for the entire city.

Latest supertall tower in China opens, designed by Goettsch Partners

Chicago, Illinois, USA – Opening ceremonies were held on 2 November 2020 for one of the world's tallest towers, the Nanning China Resources Center Tower, developed by CR Land and designed by Goettsch Partners (GP). At 403 metres (1,322 feet), the new supertall is located in the regional capital city of Nanning in Southern China, where it is also that city's tallest building.

Image courtesy of Goettsch Partners.

The 85-storey mixed-use tower rises with a tapered, stepped form reflecting its varied uses, including more than 170,000 square metres of office space, nearly 6,000 square metres of retail, and a 336-key Shangri-La hotel. Clad entirely in high-performance glass and designed to LEED-CS Gold standards, the tower's integrated sunshades control solar gain while offering floor-to-ceiling views and admitting ample daylight inside. The unique crystalline shape, signature sky terrace, and illuminated crown create a new, identifiable silhouette for the city.

The opening of the tower marks the tallest completed building to-date designed by GP. The firm has more than 30 high-rise buildings completed or under construction, including two supertalls. Current tower projects are located in Austin, Denver, Chicago and Nashville, as well as in Europe and Asia.

IFLA Sir Geoffrey Jellicoe Award 2020 winner unveiled

Versailles, France – At a virtual award's ceremony on 8th October 2020, IFLA President James Hayter announced Chinese landscape architect Kongjian Yu as the winner of the 2020 Sir Geoffrey Jellicoe Award.

Kongjian Yu received his Bachelor of Agronomy in Landscape Architecture and Master in Landscape Architecture (Beijing Forestry University), and Doctor of Design at Harvard University's Graduate School of Design in 1995 with a dissertation titled 'Security Patterns in Landscape Planning.' Yu is the founder of Turenscape, one of the first and largest private architecture, landscape architecture and urbanism practices in China.

For over 20 years Yu has spent his academic career fighting against deteriorating urban ecologies and the environment. His pioneering research on Ecological Security Pattern (1995) and Ecological Infrastructure, Negative Planning and Sponge Cities (2003) has been adopted by the Chinese government as a framework for nationwide ecological protection and restoration campaigns.

Yu defines landscape architecture as the art of survival. A native of China's Zhejiang Province, he drew on inspiration from his childhood farming experience and the ancient wisdom of water and waste management to design and test a series of nature-based solutions.

Among his most recognised projects are the Shanghai Houtan Park, Harbin Qunli Stormwater Park, the Qinhuangdao Red Ribbon Park, Zhongshan Shipyard Park, the Rice Campus for Shenyang Jianzhu University, Tianjin Quaoyuan Park, Qian'an Sanlihe Greenway, Jinhua Yanweizhou Park and Quzhou Luming Park.

Yu has published 25 books and over 300 papers, and is founder and chief editor of the magazine Landscape Architecture Frontiers. He was instrumental in the founding of the Graduate School of Landscape Architecture at Peking University, and is Founder and Principal designer in the College of Architecture and Landscape Architecture.

He was elected fellow of the American Society of Landscape Architects in 2012 and International Honorary Member of the American Academy of Arts and Sciences in 2016. He received the Doctor Honoris Causa in Landscape and Environment from the Sapienza University of Rome in 2017, and received an Honorary Doctorate from the Norwegian University of Life Sciences in 2019.

Kongjian Yu. Photo courtesy of IFLA

The Jury noted: "Yu is undoubtedly one of the most influential landscape architects in the world. The visibility of his high-profile design work and his lecturing and educational activities have a great impact on professionals and students as well as on a broader public – with the chance to change the perception of the profession."

LMN celebrates the completion of the Plant Sciences Building

Seattle, Washington, USA – LMN Architects celebrated the opening of the Plant Sciences Building at Washington State University in Pullman, Washington. The latest addition to the V. Lane Rawlins Research and Education Complex, the $66 million building funded by the Washington State Legislature. Washington State University is a preeminent agricultural research institution committed to fostering its land-grant heritage and tradition of service to society. The Plant Sciences Building integrates several disciplines from the College of Agricultural, Human, and Natural Resource Sciences (CAHNRS), and is central to fulfilling this mission.

The recently completed building is a new centre for interdisciplinary research and was designed and constructed by the design/build team of Skanska and LMN Architects. The project provides new infrastructure for the Institute of Biological Chemistry, as well as laboratories that integrate faculty and

Photo: © Adam Hunter / LMN Architects

students in plant biochemistry, pathology, horticulture, and crop and soil sciences into a single facility.

The project drew on participation from members of the state's grain, tree fruit, wine, grape, potato, dairy, beef, and raspberry industries, as well as the Washington State Department of Agriculture and the Washington Farm Bureau, in development of the facility.

The building is the fourth to be completed within the master plan for the Research and Education Complex (REC) at WSU, originally developed by LMN Architects in 2005. The master plan envisioned a series of laboratory buildings alternately flanking a glazed spine element that serves as the connective tissue for the social and research life of the complex. The new building is positioned to the south of the Biotechnology and Life Sciences building, also designed by LMN Architects, and completed in 2009. As the central element of the completed complex, the building forms a prominent primary entry point that frames a new public space along Stadium Way.

The plan configuration of the building allows it to fulfill the master plan while accommodating an existing utility tunnel to the south – a formal adjustment to the master plan which unlocked significant opportunities in construction cost and schedule savings. At the western entry, the building's cantilevered composition frames a new grand entry to the whole complex, and features a two-floor cantilever facing west towards Martin Stadium. The new landscaped approach creates a multifunctional public space for the university, celebrating arrival to the complex and fostering campus-wide gatherings.

First Museum devoted to the entire history of the United States Army opens

New York, New York, USA – On 12 November 2020, on Veterans Day, SOM and the Army Historical Foundation are celebrating the completion and opening of the National Museum of the United States Army (NMUSA), a cultural institution of national significance that is the first to tell the story of the oldest branch of the United States military. The building – which is located just 20 miles outside of Washington, D.C. – is designed to serve as a centre of education, and the Army's symbolic front door. By walking visitors through every generation of the Army, the museum focuses not on battles or wars, but on the individual soldier – a centuries-long narrative of honour, sacrifice, and valor.

"Our partners at SOM did a magnificent job helping us envision a museum that would reflect the Army's storied history, its values, and the service of the 30 million men and women who have worn its uniform," said LTG Roger Schultz, USA (Ret.), President of the Army Historical Foundation, the nonprofit organisation that campaigned to construct the museum. "SOM's ability to produce such an impressive design while ensuring the museum is also green and sustainable is a credit to their team and representative of our shared values."

Photo: © Dave Burk | SOM

Spanning 84 acres across the bucolic Fort Belvoir Military Installation in Virginia, the LEED Silver-certified museum is designed in a series of pavilions for exhibits and special events. Part of SOM's design and planning for the future of the site also includes a quiet memorial garden, a parade field and grandstand, and an Army Trail with interpretive stations. The building, leveraging the site's natural topography, rests atop a plateau to evoke a sense of monumentality.

"Symbolism and community were at the core of our design," said SOM Design Partner Colin Koop. "We wanted to create a place where veterans and their families could feel at home, and establish a new centre of national significance that would, in its architecture, express that very significance and evoke three ideals: discipline, modesty, and rigorousness."

Two schemes recommended to form a combined vision for the future development of Vridsløselille prison site

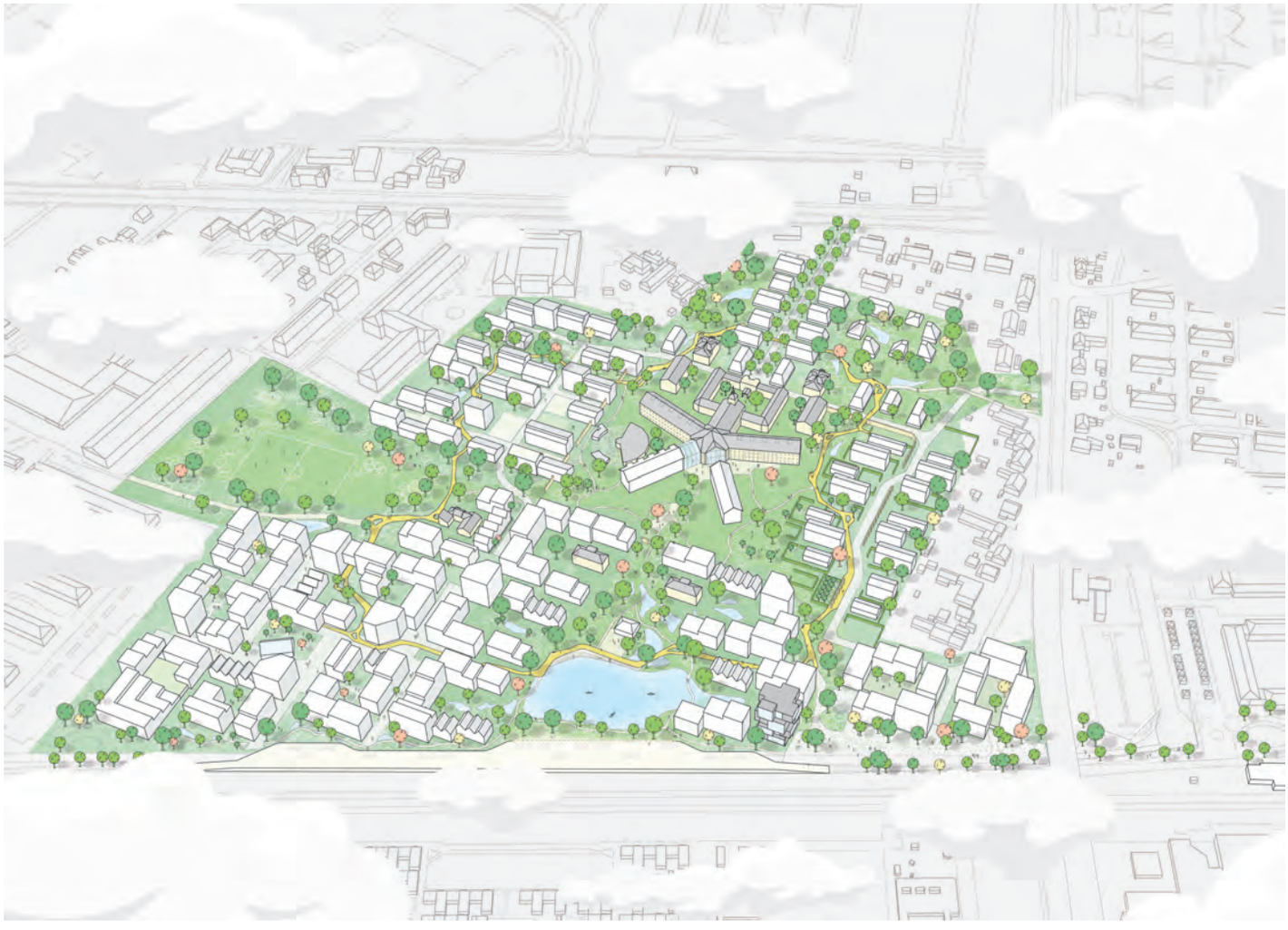
Copenhagen, Denmark – Danish architectural firm Schmidt Hammer Lassen Architects and landscape architects BOGL aim to design a new district which will attract new residents and activity to the city of Albertslund. Driving west of the city, just 15 kilometres from central Copenhagen, a site with a former correctional facility and a stretch of other historical buildings along the area emerge. The site has for many years been a closed enclave, and the aim is, therefore, to open up the area towards the city.

Vridsløselille, a 160,000-square-metre district, will become a natural extension of Albertslund and its main thoroughfares. The flexible scheme will draw city life to the area where green parks and residential complexes are intertwined creating a strong synergy while making way for a variety of building typologies, urban qualities and common facilities.

The new urban area will create new connections and destinations in Albertslund, focused on creating activated green spaces, urban farming as well as movement and sports facilities. Important connections, sightlines, and local identity will be maintained and enhanced. The main focus is laying the foundation for a healthy and social lifestyle with a broad spectrum of common areas and green spaces.

Inspired by the unique relic of the past, the iconic star-shaped prison building is surrounded by trees which once stood as a security fence.

The proposal focuses on opening the area and drawing new connections through the "Loop", a new main pathway surrounding the site and tying the different districts together with the existing prison structure.



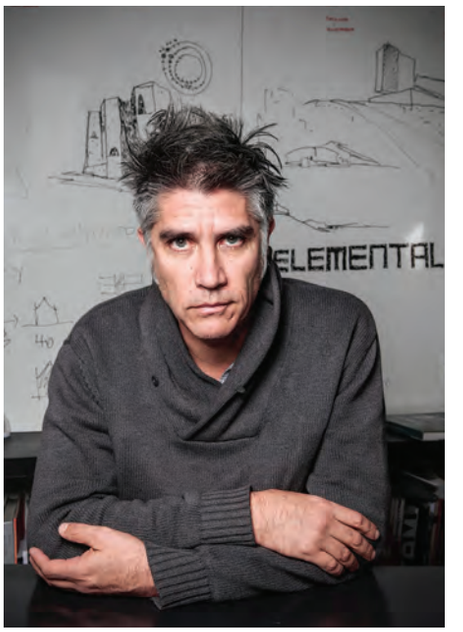
Aerial view of the site. Image: © Schmidt Hammer Lassen + BOGL

The Pritzker Architecture Prize announced new appointments

Chicago, Illinois, USA – The Pritzker Architecture Prize announced the appointments of Alejandro Aravena as Chair of the Pritzker Architecture Prize Jury and Manuela Lucá-Dazio as an advisor to the Prize and the next Executive Director, beginning in March 2021. The Pritzker Prize is known internationally as architecture's highest honour, and this coming year will mark the 43rd year of the accolade.

Mr Aravena, 2016 Laureate of the Pritzker Prize, is Founder and Executive Director of ELEMENTAL, a "Do Tank" focusing on projects of public interest and social impact including housing, public space, infrastructure and transportation. His mastery of architecture aides his commitment to society, resulting in works and activism that respond to social, humanitarian and economic needs.

Manuela Lucá-Dazio



Alejandro Aravena. Photo by Sergio Lopez, Courtesy of Diario El Mercurio.

Manuela Lucá-Dazio most recently served as the Executive Director of the Department of Visual Arts and Architecture of La Biennale di Venezia. She has managed exhibitions with distinguished curators, architects, artists, and critics to realise the International Art Exhibition and the International Architecture Exhibition since 2009. Preceding that, she was responsible for the technical organisation and production of both Exhibitions beginning in 1999. She holds a PhD in History of Architecture from the University of Roma-Chieti, Italy and lives in Paris, France.

Martha Thorne, Executive Director since 2005, will step down this upcoming March, following the announcement of the 2021 Laureate. Thereafter, she will remain an advisor to the Prize through the 2021 ceremony to oversee the transition. She will continue her expansive role as Dean of IE School of Architecture and Design, Spain, and looks forward to working with international clients facilitating competitions and architect selection processes.

"We are incredibly grateful for the long and impactful tenure of Martha's service to the Prize, as she has infused the utmost diplomacy and discretion within her role while bringing to the fore, especially in the composition of jury members, the overdue merit of women in the field of architecture," stated Tom Pritzker, Chairman of The Hyatt Foundation, which sponsors the award.

Anandaloy by Anna Heringer wins the OBEL AWARD 2020

Copenhagen, Denmark – The second OBEL AWARD is presented to Anandaloy, a project in rural Bangladesh by Anna Heringer. According to the jury, the unconventional building, which is made out of mud and bamboo, shows in its own playful and humble way that architecture can contribute to mending the climate as well as social injustice and segregation.

Martha Schwartz, Chair of the Jury, said: "To all of us in the jury, Anandaloy is an outstanding project. It is an original piece. It is not in the style of it; it is not imitating something else. I think Anna is absolutely dedicated to what she is doing, which is what you see when you see a good piece of art: that there is a good, focused intent behind it. Anna manages to integrate all of her values: she is building sustainably, using the materials that are there, having people involved, so that they can learn to build for themselves, and creating more opportunities for women and for people with disabilities. You can feel that she has a real respect for the culture, for the people, for the land."

Anna Heringer. Photo: © Nina Drexler

About Anna Heringer

German architect Anna Heringer, born October 1977, grew up in Laufen, a small town at the Austrian Bavarian border close to Salzburg. At the age of 19, Anna Heringer went to live in Bangladesh for almost a year, learnt Bengali, and got deeply involved in the local culture. She learnt about sustainable development work but also about construction and architecture and the value of using existing, local resources – a strategy that she still advocates many years later. As an architect and honorary professor of the UNESCO Chair of Earthen Architecture, Building Cultures, and Sustainable Development, she focuses on the use of natural and readily available building materials.

Over the years, Anna Heringer has realised projects in Asia, Africa, and Europe. She has received numerous honours: the Global Award for Sustainable Architecture, the AR Emerging Architecture Awards in 2006 and 2008, the Loeb Fellowship at Harvard's GSD, and a RIBA International Fellowship. Her work has been widely published and exhibited at MoMA New York, the V&A Museum in London, and at the Venice Architectural Biennale in 2016 und 2018, among other places.

Anna Heringer lectures worldwide at conferences, including TED in 2017, and has been visiting professor at various universities, including Harvard, ETH Zurich (with Martin Rauch), UP Madrid, TU Munich, and University of Arts in Linz.

Anandaloy. Photo: © Kurt Hoerbst

RIBA Awards judging postponed until 2021

London, UK – Due to ongoing public health concerns, all RIBA Awards judging (including Regional, National and Stirling) has been postponed until 2021. To maintain the consistency and rigour of RIBA's judging process, all RIBA Award winning projects must be visited in person, therefore it is unfortunately not possible to continue with the awards in 2020.

All projects which have already been shortlisted for a 2020 RIBA Regional Award will be included in our 2021 RIBA Awards, which will open for entries shortly.

RIBA President Alan Jones said: "The RIBA Awards have been an annual celebration of architectural excellence for decades. Over the summer we explored flexible options for judging within the current public health challenges, however given the increasing infection rates and local restrictions, we have no option but to press pause for 2020. Our awards are judged in person, and as much as our teams of judges and staff are keen to visit and select the best new buildings in the UK, now is not the moment. Congratulations to all those projects which have been shortlisted for an award – we look forward to visiting next year."

Alan Jones, RIBA President. Photography credit: Aidan Monaghan

2021
24-25 Mar

Geo Connect Asia 2021
Suntec Convention and Exhibition Centre, Singapore
E: Rupert.Owen@montgomeryasia.com
W: www.geoconnectasia.com

2021
24 Apr -2 May

Architect' 21 Expo
IMPACT, Challenger Hall 1-3, Bangkok, Thailand
T: +66 2203 4279
F: +66 2203 4250
E: architect@nccexhibition.com
W: https://architectexpoasia.com

2021
15-17 Jun

ASEAN Super 8 Show 2021
Malaysia International Trade & Exhibition Centre (MITEC), Kuala Lumpur, Malaysia
T: +60 12 367 1415
E: hamizan.razali@informa.com
W: www.super8asean.com

2021
7-10 Jul

ARCHIDEX 2021
Kuala Lumpur Convention Centre (KLCC) Kuala Lumpur, Malaysia
T: +60 16 233 2773
F: +60 3 7982 1648
E: info@archidex.com.my
W: www.archidex.com.my

2021
23-26 Sept

Worldbex 2021
World Trade Center Metro Manila & SMX Convention Center Manila, Manila, Philippines
T: +63 2 8656 9239
E: inquire@worldbexevents.com
W: https://worldbex.com

2021
7-9 Oct

The BIC Show 2021
NICE Pattaya, Thailand
T: +66 2 077 5668
E: info@thebicshow.com
W: www.thebicshow.com

After restoration photo.

CORPORATE OFFICE OF MOTHERLAND JOINT VENTURES

The corporate office of Motherland Joint Ventures in Gurgaon, Haryana exhibits minimalistic re-fabrication of an old warehouse retrofitted to reflect a combination of the existing ethos and the creative palette of Motherland Joint Ventures. The restoration works were done by ***Architecture Discipline.***

The corporate office of Motherland Joint Ventures is located in an existing old warehouse, a former rice granary in Gurgaon, Haryana, expanding over an area of 3,000 square feet in accordance with the client's brief.

"The design process started with the client's vision of an office characterised to be a multipurpose workshop to support the company's creative work and braced by spaces for cabins, meeting areas, work spaces, etc. The preservation angle demanded a straight-forward layout and retention of industrial aesthetics with minimal structural damage – a frugal yet sophisticated outlook. The entire vision formed the requirements to be crafted within the existing structure with brick masonry walls and piers holding a sloping flat-truss system surfaced by asbestos," said Akshat Bhatt, Principal Architect, Architecture Discipline.

After restoration photo.

Before restoration photos.

With respect to site surroundings, the north and west were blocked by adjacent warehouses while the remaining sides stayed open. This led to an increase in sizes of existing doors and windows and also addition of new ones to augment the natural daylight spreading out across spatially.

The main access to the office structure has been planned through an exaggerated ramp that leads to an expansive layout to accommodate the multipurpose workshop. Functional add-ons to the space include an industrial grade screed floor finish, lit by three long rows of light fixtures of industrial 'box type' that are mounted on timber batons running along the longer span. The central shop floor area has been designed from front to rear to constitute a reception/waiting area, Research and Development area, space for installations / display, an informal meeting space, shelving units and a pantry respectively – all separated by stainless steel ledge walls.

The cabins, meeting room, common work space and other ancillary spaces have been linearly stacked along the east elevation of the warehouse, demarcated using visually light partitions designed to add layers and depth to the open floor layout while accentuating the dynamic inflow of light.

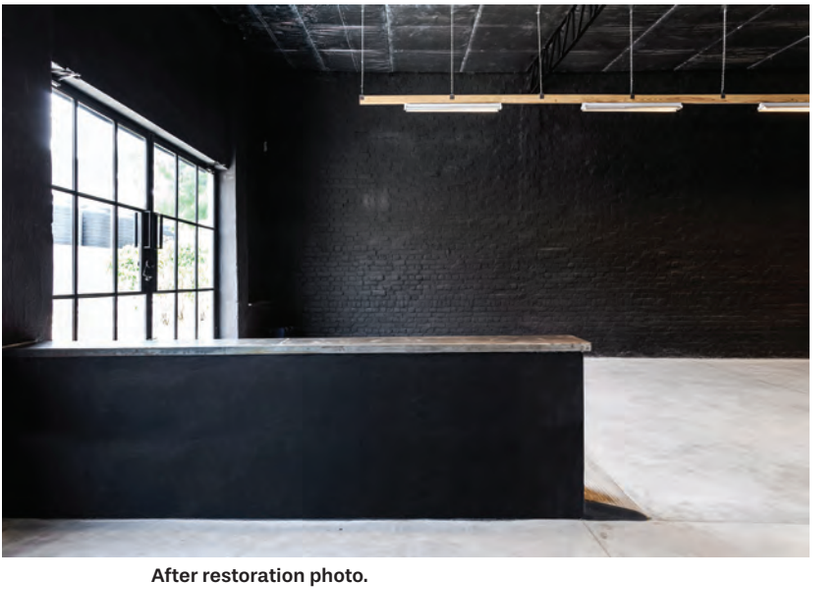
Considering the preservation format, the material palette was kept simply restricted to timber and glass. The hand-built partitions made of simple plaid glass with intermediate sleek timber sections have been used to allow the spaces to be visually connected with each other and the main workshop area. Meanwhile, the acoustic ceiling that ensures the sound isolation within the spaces has been designed using wood wool panels with a layer of micron insulation sandwiched between them. A layer of bubble wrap and aluminum foil insulating panels have been topped on the asbestos ceiling to reduce the heat gain in the building.

Fire grade industrial lights, suspended using metal cables have been used to light the cabins. The washroom and pantry walls have been given murky green enamel and *black cudappah* stone have been used in the wet areas. Balancing both economic and time-efficient construction for the office whilst adding to the expression of the bare and functional, the armored electrical cables and supply plumbing have been left exposed and neatly managed on the walls. The exterior of the office has been painted white while the steel door and window frames in Georgian geometries with metal flashing, and steel beam lintels have been coloured black; the interior walls have been planned to reflect charcoal blackboard paint in juxtaposition with the external white paint and the timber sections with murky green highlights. The wall grazing down lighters under the eave on the side underscore the inherent texture of the naturally worn out exposed brickwork; bracketed well lamps on either side of the four-metre-wide door mark the entrance.

After restoration photo.

After restoration photo.

Before restoration photo.



After restoration photo.

Before restoration photo.

Akshat Bhatt. Photo: © Architecture Discipline

"By contributing to lowering the carbon footprint in construction, the corporate office of Motherland Joint Ventures promotes a balance between creativity and building-preservation."

– **Akshat Bhatt,** Principal Architect, Architecture Discipline

PROJECT DATA

Project Name: Corporate Office of Motherland Joint Ventures
Location: Gurgaon, Haryana, India
Client: Motherland Joint Ventures Pvt. Ltd.
Architecture Firm: Architecture Discipline
Built-Up Area: 5,500 square feet
Completion: 2018
Photographer: Jeetin Sharma

CHURCH OF SAN PAOLO EREMITA

Mapei provided effective and long-lasting products for the restoration and consolidation of a church badly damaged by the passage of time.

Sunday, 28th October 2018 marked the reopening of the 14th century Church of San Paolo Eremita (St. Paul the Hermit), one of the most important sites of the city of Brindisi's cultural heritage.

Naples State Archive conserves the most ancient document making reference to the church: a solemn ordinance dating back to 2nd March 1284 whereby Charles I of Anjou, King of Naples, granted permission for Franciscan monks to build a monastery and church, which went on to be completed in 1322. Work commenced in November 2016 and it took two years to complete the conservative restoration and consolidation work on the interior and exterior of the church. The work also included an overhaul of the roof over the aisle, the replacement of the wooden trusses for the apse and the new pitched roof, a thorough cleaning of all the altars and consolidation of the stone features and elements of the altars.

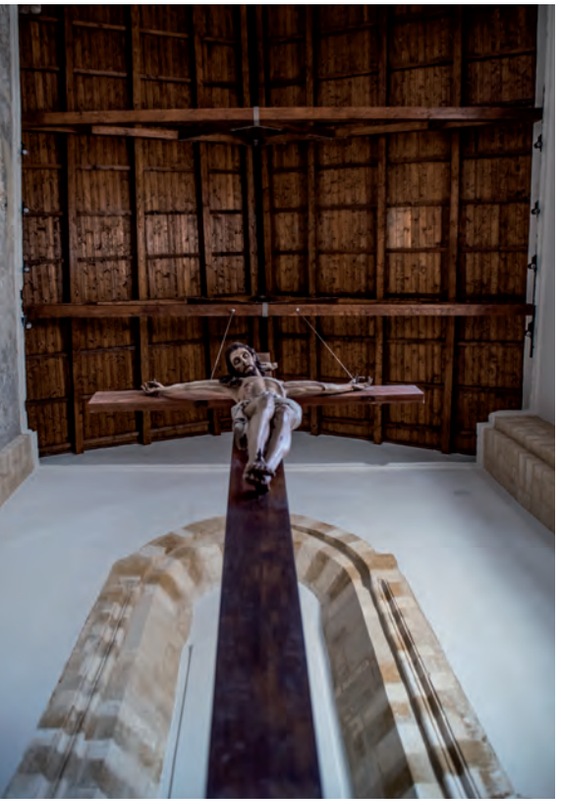
Winning teamwork on site

The complex work commenced with a preliminary study carried out by Luigi Dell'Atti, a local architect who also guided the

MAPE ANTIQUE F21 super-fluid binder was injected through small tubes using low-pressure pumps to consolidate the stone structure.

For the installation layers and for pointing on the "natural" finish masonry of the church, the product chosen was MAPE-ANTIQUE ALLETTAMENTO salt-resistant masonry mortar, made from natural hydraulic lime and Eco-Pozzolan.

team of restorers. Right from the start of the design work, the team was assisted by Mapei Technical Services, with specialists from various product lines also involved. When more significant problems regarding static consolidation arose, Prof. Alberto Balsamo from the Federico II University of Naples was also called upon to provide his assistance.



A view of the wooden trusses after completion of the works.

This team-synergy approach also included the active participation of the main contractor Nicolì SpA, which enabled the product systems to be identified and perfectly modulated to overcome the problems that arose regarding the structural strengthening, dehumidification and protection of both the interior and exterior of the church.

Static consolidation of the stone structure

MAPE-ANTIQUE F21 binder was used to consolidate the stone structure and limestone vaulted ceiling of the church. This is a cement free, salt-resistant product made from lime and Eco-Pozzolan used to make super-fluid, volumetrically stable slurries and was injected in the structure by using low-compression pumps.

For the installation layers and for pointing on the "natural finish" masonry of the church, on the other hand, the product chosen was MAPE-ANTIQUE ALLETTAMENTO salt-resistant masonry mortar, made from natural hydraulic lime and Eco-Pozzolan and available in 7 colours.

Consolidation of the surface of the masonry

The surface of the masonry was consolidated in several steps. The first step was to pre-consolidate the surfaces with PRIMER 3296, an acrylic primer in water dispersion.

The larger cracks in the surface were then stitched with CARBOTUBE C 170/10 (pultruded carbon fibre tubes impregnated with epoxy resin) in combination with INJECTORS Ø23+MAPE-ANTIQUE F21.

Consolidation of the vaulted ceilings

The vaulted ceilings were consolidated by capping them with MAPEANTIQUE STRUTTURALE NHL, a pre-blended, cement-free mortar for transpirant render and masonry work, based on natural hydraulic lime, Eco-Pozzolan, recycled materials, natural sands, micro-fibres, glass fibres and special admixtures. The use of this product, in combination with MAPENET EM 40 pre-impregnated, alkali-resistant glass fibre mesh (FRP) and MAPENET EM CONNECTOR 7 mm diameter and 200 mm long fibreglass connectors, formed a reinforced layer suitable to consolidate the extrados of sandstone vaulted ceilings. The joints were reinforced with 6 mm diameter MAPEI STEEL BAR 316, ultra high-strength, AISI 304 and AISI 316 stainless steel helical bars, used in combination with MAPE-ANTIQUE ALLETTAMENTO.

Consolidation and restoration of the wooden trusses

The wooden trusses were consolidated and restored using products from the MAPEWOOD SYSTEM. This line of products is made from special epoxy adhesives chemically and physically

The wooden trusses were consolidated and restored using products from the MAPEWOOD SYSTEM (MAPEWOOD PRIMER 100 and MAPEWOOD PASTE 140).

The stone surfaces of the church were protected from the action of rain with ANTIPLUVIOL W water-repellent impregnator.

compatible with wood.

The surface of the wood was initially treated with MAPEWOOD PRIMER 100 – a fluid epoxy primer in water dispersion – and then with MAPEWOOD PASTE 140, a thixotropic epoxy adhesive for repairing wooden beams, trusses and columns.

The dehumidifying system

The macro-porous dehumidifying system for the interior masonry of the church consisted of a scratch-coat layer of MAPE-ANTIQUE RINZAFFO cement-free, salt-resistant, transpirant mortar made from lime, Eco-Pozzolan and recycled materials.

This product was followed by a layer of MAPE-ANTIQUE MC, a special salt resistant, macro-porous, dehumidifying rendering mortar made from lime and Eco-Pozzolan.

Once this layer had cured, the walls were skimmed with MAPE-ANTIQUE FC GROSSO, a salt-resistant, large grained, transpirant skimming mortar made from lime and Eco-Pozzolan for a rough finish on renders.

Strengthening the masonry

The masonry was strengthened by applying reinforced render made from MAPEWALL RENDER & STRENGTHEN, a high strength, fibre reinforced, natural hydraulic lime based transpirant rendering and masonry mortar with very low emission level of VOC (Volatile Organic Compounds) for making structural render, even "reinforced" (CRM). The product was used in combination with MAPEGRID B250 primed alkali-resistant basalt fibre mesh which was fixed in place with L-shaped MAPENET EM CONNECTOR L20 glass fibre fasteners anchored with MAPEFIX PE WALL styrene-free chemical anchor.

Protecting the stone surfaces

The stone surfaces of the church were treated to protect them from the action of heavy, driving rain with ANTIPLUVIOL W, a colourless, silane and siloxane-based water-repellent impregnator in watery emulsion which also improves the self-cleaning effect of the façade and reduces the capacity of moss and mildew from adhering to the material.

Mapei Products

Static consolidation of the stone structure: Mape-Antique Allettamento, Mape-Antique F21
Consolidation of the masonry: Primer 3296, Carbotube C 170/10, Mape-Antique F21
Consolidation of the vaulted ceilings: Mape-Antique Strutturale NHL, Mapenet EM 40, Mapenet EM Connectors, Mapei Steel Bar 316, Mape-Antique Allettamento
Consolidation and restoration of the wooden trusses: Mapewood Primer 100, Mapewood Paste 140
Dehumidifying masonry: Mape-Antique Rinzaffo, Mape-Antique MC, Mape-Antique FC Grosso
Structural strengthening: Mapewall Render & Strengthen, Mapegrid B250, Mapenet EM Connector L20, Mapefix PE Wall
Waterproofing external walls: Antipluviol W

Article source: Realtà Mapei International no. 81/2020

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

PROJECT DATA

Project Name: San Paolo Eremita Church
Location: Brindisi, Italy
Year of Construction: 1322
Period of the Mapei Intervention: 2017-2018
Client: Brindisi-Ostuni Archdiocese
Intervention by Mapei: Supplying products for restoring and strengthening the building
Main Contractor: Nicolì SpA
Design: Luigi Dell'Atti, Claudio Riotta, Giacomo Intiglietta
Works Director: Luigi Dell'Atti
Mapei Distributor: Nicolì SpA
Mapei Coordinators: Giammario Dispoto, Achille Carcagnì, Danilo De Matteis, Alessandro De Luca, Mapei SpA (Italy)
Photos: Marco Cerra, Francesco Nicolì
Photos Provided By: Mapei

RESTORATION OF THE ISAAC THEATRE ROYAL

Studio Carolina Izzo was proud to be involved in the restoration of the renowned Isaac Theatre Royal in Christchurch, New Zealand.

Built in 1908, The Isaac Theatre Royal was subjected to severe shaking and badly damaged during the Canterbury earthquakes of 2010 and 2011; the latter damaging much of the building beyond repair. The damage sustained was such that only the brick and stone façade of the theatre, the painted dome (with its central plaster rosette), and the large marble stair case; could be retained.

The painted dome is considered the heart of the building's interior and is the largest artwork of the Edwardian period in Australasia. It is also an important piece of New Zealand's cultural heritage. The dome depicts scenes from William Shakespeare's *A Midsummer Night's Dream* and was completed also in 1908 by G.C. Post from the Carrara Ceiling Company in Wellington, New Zealand.

Following two significant earthquakes on the city of Christchurch in a span of six months, concerns rose amongst the public for buildings to uphold a high level of resilience. The original dome was

composed of the painted canvas, applied over a plastered with a decorative rosette in its centre.

The art conservators performed the task of mechanically removing the eight over-100-year-old canvases from the damaged plaster dome, restore the existing plaster to then painstakingly clean the surfaces and retouch losses, before new support was created. The restored dome would have to take into account the need for the dome to be lightweight and structurally resilient.

A solution satisfying this consideration was achieved through collaboration between art conservators and boat builders. Boat builders constructed the new supports from lightweight and flexible carbon fibre panels cast from the original plaster. The canvases were adhered to separate sleeves of moulded carbon fibre. The process chosen was able to maintain the original shape, the lightweight structure and in addition, the reversibility of the entire dome.

Today's dome is light and flexible enough to withstand earthquakes yet still strong enough to hold the original plaster rosette and maintains the appearance of the dome from 1908. The dome of the Isaac theatre royal is a fantastic example of a never-before-seen approach to conserve heritage in the face of extraordinary natural disasters. Visitors to the theatre also recognise a heightened acoustic quality, resulting from the carbon fibre.

Studio Carolina Izzo also led an examination of decorative elements in the interior to ascertain the original, intended colour palette of the theatre; and uncovered areas of gold that had been painted over in more recent years. Through consultation with Venetian experts in conservation of masonry, a suitable treatment of the façade was devised to produce an appearance, which would highlight its features while protecting its material. The theatre and its dome have won numerous awards. Including, the NZIA Craftsmanship award and The Supreme Award.

Early 2021 marks a fitting time to celebrate the restoration of the Isaac Theatre Royal as it marks 10 years since the Feb 2011 Christchurch Earthquake.

Carolina Izzo. Photo: © Giulia Scott

"The challenging task of completely restoring the theatre took the efforts of many who call Christchurch home and as the building rose again, members of the community continued to offer their help as volunteers. This proves again just how important built heritage is to communities."

– Carolina Izzo, Director, Studio Carolina Izzo

PROJECT DATA

Project Name: Isaac Theatre Royal Restoration
Location: Christchurch, New Zealand
Client: Isaac Theatre Royal
Architecture Firm: Warren & Mahoney
Conservation of the Theatre: Studio Carolina Izzo
Gross Floor Area: 1,950 square metres
Completion: 2014
Photos: © Studio Carolina Izzo

THE CLUB AT THE TREES

The Club at The Trees in Mumbai has been conceptualised by ***Studio Lotus and GPL Vikhroli*** *as a collection of buildings abstracted from the memories of the site – borrowing in form and material from the industrial legacy of Vikhroli as well as the Godrej Group.*

The Club at The Trees is an anchoring zone for The Trees, a 34-acre mixed-use development for Godrej Properties Ltd in Vikhroli, a prominent neighbourhood from Mumbai's industrial past. Programmed as a community centre for the residential towers in the project, the Club has been conceptualised as a collection of buildings abstracted from the memories of the site – borrowing in form and material from the industrial legacy of Vikhroli as well as the Godrej Group.

A collaborative effort between Studio Lotus and GPL Vikhroli, The Club marks the second phase of placemaking interventions on the site. The architectural narrative found its lexical bearings with Imagine Studio, a marketing experience centre created by the same team in 2015 that involved conversion of old power co-generation plants, a

boiler room and chemical silos into an immersive experience of the entire project for potential buyers. The Club takes this story forward by creating structures programmed as recreational spaces, interpreted as forms reminiscent of the mid-century industrial structures that dotted the campus in erstwhile times.

The Trees comprises residential towers, retail spaces, hospitality facilities and corporate workspaces clustered around a dense greenway. The development is adjacent to one of the largest privately-owned mangrove reserves in India that, in conjunction with the industrial objects on the site, creates its environmental as well as historic framework. A central green belt creates a prominent axis that splits the site into two halves, on the northern end of which sits The Club. Located across from the retail-edged commercial hub of the campus and in between the two residential blocks, the site of the clubhouse establishes an amorphous boundary – serving as a connector between public and private zones to become a natural hub for the development.

The functional programme of the clubhouse includes a gamut of recreational areas built around the idea of 'Reinterpret, Recall and Reconnect' for the residents. Interspersed with the dense greenery, a cluster of silo-inspired buildings called The Grove references the nearby mangrove trees. These interconnected free-standing pods house the clubhouse reception, a gym and café with spa treatment rooms, and a restaurant with a herb garden on the first level.

Flanking the west face of the clubhouse is The Hall, its form derived from the glycerine plant that used to sit on the site. Programmatically, this is a badminton court that doubles as a multi-purpose event space. The adapted structure retains its distinct wide-spanned ceiling with vaulted edges. Across the hall are two cuboidal concrete volumes referred to as The Stacks, which house the squash court and mini theatre within and Golf putting greens on the rooftop level. This cluster of buildings frames the informal courtyard which houses the deck and the swimming pool. Articulating the courtyard edge, a thin concrete and metal canopy connects these diverse architectural expressions into a singular experience, and also softens the transition between built and open spaces. The café opens out under this canopy, underscoring the primary role of this project as a space for the community to come together in a seamless indoor-outdoor experience.

The external expression of The Club's structures defers to the scale of their surroundings. These sculptural silhouettes are a contrast to the relatively severe geometry of the residential towers, and seek to reconnect the residents with the history of the site. Existing vegetation on the site has been retained and augmented, becoming a key element in building the narrative of both the natural environmental and built legacy of the site.

The Club at The Trees expresses the idea of timelessness through a palette of materials that will develop a patina with time, conveying its age. A juxtaposition of concrete, COR-TEN steel, zinc and timber add their ever evolving character to the narrative – their relationship with the site strengthening over time as the inhabitants of The Trees layer their own stories onto the site through their shared spaces and experiences. On the practical side, this palette requires minimal maintenance and upkeep, resulting in a reduced carbon footprint over time.

The design of the clubhouse is environmentally responsive; a 100 percent of the waste water is treated on site, and all the rainwater is either harvested, or used to recharge groundwater. All glazed surfaces are shaded, and the net volume of space needing air-conditioning

has been minimised through all circulation spaces being naturally ventilated and shaded to reduce the overall ambient temperature.

The Club has been conceptualised as a space that is commemorative, yet future-forward – embodying the spirit of Godrej in its present form, while also paying homage to its illustrious past. Anchoring the narrative of an invigorated urban realm, The Club at The Trees bridges the modern and the historic, the built and the natural, and the private and the public to help catalyse the needs of a vibrant community.

PROJECT DATA

Project Name: The Club at The Trees
Location: Vikhroli, Mumbai, India
Client: Godrej Properties Ltd.
Architecture Firms: Studio Lotus and GPL Vikhroli
Site Area: Approximately 3303 square metres
Built-Up Area: 21,900 square feet
Completion: November 2019
Photographer: Edmund Sumner

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

"The Club is conceptualized as a space that is commemorative, yet future-forward – embodying the spirit of Godrej in its present form, while also paying homage to its illustrious past. A juxtaposition of concrete, COR-TEN steel, zinc and timber add their ever-evolving character to the narrative – their relationship with the site strengthening over time as the inhabitants of The Trees layer their own stories onto the site through their shared spaces and experiences."

– Sidhartha Talwar, Principal, Studio Lotus

36 CARRINGTON STREET SUSTAINABLE NEW BOUTIQUE COMMERCIAL PREMISES

Make Architects has completed work on a bespoke renovation of a 2,876 square metres 1970s office building on Carrington Street, in Sydney's CBD, for Brookfield Properties. The result is the transformation of a dated concrete-framed building into an important new urban amenity – an exemplar for sustainability in refurbishment.

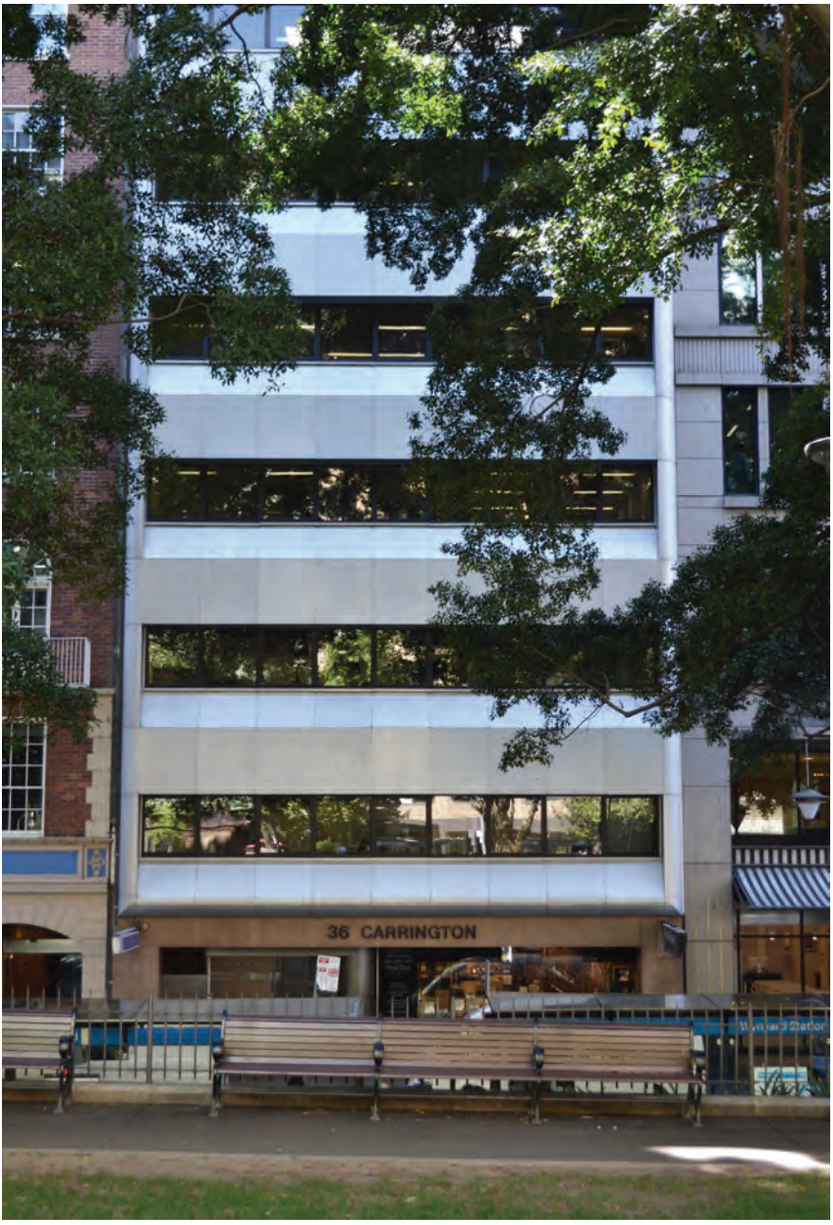
The original 10-storey building, overlooking Wynyard Park and adjacent to the Wynyard transport interchange – itself undergoing a radical reinvention by Make Architects - was unattractive to today's commercial tenants. Brookfield Properties briefed Make Architects to create a high quality boutique office that prioritised flexibility.

Minimising waste • Maximising efficiency

The focus behind the refurbishment involved retaining the majority of the existing concrete structure, which while structurally sound was difficult to work with. The team has taken what was basic 1970s commercial stock and significantly upgraded it, transforming the appearance and internal experience to create a bespoke range of flexible and highly efficient open-plan office floor plates.

Only the most constrained elements of the structure were removed, and the targeted demolition allowed massive reductions in demolition waste and tonnes of construction material savings.

From Carrington Street, the building has been reinvented. Referencing the punched windows of the adjacent listed Lisgar House, Make Architects has installed three floor-to-ceiling window bays per



36 Carrington Street. Before restoration photo.

36 Carrington Street. After restoration photo.

floor, with anodised aluminium reveals gradually projecting outwards at the upper levels and contrasting with the dark charcoal grey brick that now anchors the building. At the tenth floor, the windows culminate in dramatic double-height bays.

Enlivened streetscape

The scheme enhances activity and interest at street level by offering an enriched mix of uses. On Carrington Street a double-height entrance lobby and retail units animate the streetscape, while on Wynyard Lane there is space for a bar or restaurant and access to a basement unit, which itself has potential for a speakeasy bar.

Make Architects' interior design concept centres on transitioning from light to dark, with lift lobbies and amenity spaces conceived as minimalist sculptural boxes clad in grey laminate and smoked oak veneer. The entrance sequence surprises with a bright, double-height lobby entrance clad in bead-blasted stainless steel, followed by a secondary reception space, more domestic in feel, with smoked oak veneer linings and black leather banquette seating. Throughout, the concrete slab has been left exposed, as have the existing beams and services, providing authenticity to the expression and experience of the building and linking back to the key design focus for the project.

Reusing so much of the existing building has significantly enhanced the building's energy efficiency in use through the specification of highly insulated cladding systems and the adoption of updated services to provide heating and cooling within the offices. The deep reveals around the double-glazed windows provide solar shading. 29 cycle spaces and associated amenities have also been included. The building is to informally target a NABERS rating.


HOUSE


15
1150

Brookfield Properties Development Manager, Rebecca McKee, said: "The completion of 36 Carrington Street heralds the beginning of a new era for Wynyard which is on its way to becoming a premier office and retail destination at the heart of the Sydney CBD. The 36 Carrington project exemplifies Brookfield Properties' commitment to excellence in everything we do, big and small, and will be another important linkage in the broader Wynyard precinct."

PROJECT DATA

Project Name: 36 Carrington Street
Location: Sydney, Australia
Client: Brookfield Properties
Architecture Firm: Make Architects
Gross Floor Area: 2,895 square metres
Completion: 2020
Photos: © Brett Boardman

Simon Lincoln. Photo: © Brett Boardman

"We were tenants here before work began and so knew the potential for the building. Clearly the major conceptual innovation was to understand that the original building could be kept and reused, and the project stands as an important benchmark for what can be achieved when redeveloping an existing urban site, particularly when one considers the city's increasingly ageing building stock."

– Simon Lincoln, Make Architects' Sydney Director

Interior (Now). Photo: © Studio Heech

SANYANG BREWERY

***Studio Heech** has revitalised the main building of Sanyang Brewery in South Korea, built in 1944, by rescuing it without changing its own architectural value of Japanese colonial architecture style.*

The decaying brewery building abandoned over 30 years has been transformed into new cultural venue space for exhibition, flexible events and cafeteria. There were limited information and records of the 80 year old existing brewery building available. At the outset, the design team had a careful investigation to obtain a clear understanding on the building remained, including structural analysis, historic context research, then assessed all information and knowledge gained and recorded in order to set a clear strategic plan to decide which parts of the building to be restored and intervened.

Following and learning traditional construction technique were a crucial part of the project to the design team to find right restoration technique to retain its unique character.

The pitched roofs of corrugated metal panels and the exterior walls of east and west sides are restored based on its existing style of traditional rendering technique with exposed timber framing. The interior finishes of office rooms and kitchen rooms have been retained. The architect's boldest intervention has been introducing a multi purpose space in the north part, transforming dark decaying brewing spaces into a large open space expressing the old delicate timber trusses supported by a new glulam colonnade in the middle. The multi purpose space also has expanded through a newly added timber folding doors to the courtyard outside. A series of ventilation windows with wooden grills have been restored to offer visitors playful glimpse to landscape outside.

The local government wanted to keep its name 'Sanyang Brewery' which is no longer produce Makgelli, a Korean traditional alcoholic beverage, but produce a new cultural hub for the local community.

South Elevation (Now). Photo: © Doyeon Gwon

South Elevation (Past). Photo: © Studio Heech

East Elevation (Past). Photo: © Studio Heech

Interior (Now). Photo: © Doyeon Gwon

Interior (Past). Photo: © Studio Heech

North Elevation (Now). Photo: © Doyeon Gwon

Heechan Park. Photo: © Studio Heech

"The project explored to keep the existing traditional materials used in the building by trying to find right construction method. We believe it is an important way to achieve a sustainable architecture in 21st century."

– **Heechan Park,** Director, Studio Heech

PROJECT DATA

Project Name: Sanyang Brewery
Location: Sanyang, Munkyung city, Kyungsang-do, South Korea
Client: Munkyung City government
Architecture Firm: Studio Heech
Approximate Site Area: 1,276 square metres
Gross Floor Area: 329.56 square metres
Completion: 2020

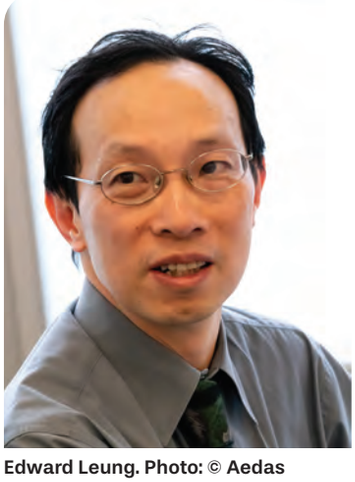
WANCHAI MALLORY STREET / BURROWS STREET REVITALIZATION & PRESERVATION PROJECTS

***Aedas** was proud to participate in the revitalization and preservation projects at Wanchai Mallory Street / Burrows Street in Hong Kong.*

Mallory Street is the first pure-conservation project of Urban Renewal Authority of Hong Kong. Currently operating as the 'Comix Home Base', it houses a resource library, studios, exhibition spaces, and shops themed on local comic and animation arts.

This project revitalises a rare and intact ensemble of urban historic buildings into a modern venue for public leisure, cultural and creative industries. By exercising best practices in conservation and adaptive re-use, the design celebrates the value of pre-war Shophouse as a testament to historical architectural development in Hong Kong. Innovative architectural design enables re-interpretation of the traditional wisdom in spatial arrangements and use of materials, like the meticulously reassembled timber stairs, the repaired timber joists and floor boards, and the salvaged elements that are adapted and installed - the project has indeed, helped reinvigorate craft that was on the road to oblivion; and has acted as a vessel from which traditional skills could be imparted. With these techniques, old Shophouse space can be adapted into modern functions while conserving historical features.

Wan Chai streets and blocks track the urban evolution of Hong Kong, from ancient fishing village, to colonial trading port, and to a diverse city - this successful revitalising for compatible community use and harmonious streetscape, in effect, presents the 100-year evolving urban streetscape of Wan Chai.



Edward Leung. Photo: © Aedas

"By investigating the properties of traditional timber joist floors, basic fire protection and thermal comfort, our team of architects worked with engineers to discreetly integrate modern building services with preserved historic timber floors. It was this level of modesty that led to the exceptionality of this project. To conserve this group of tong laus and revitalise them into an arts and cultural venue, we think it's important to respect and enhance the urban historic fabric, to facilitate cross-sector cultural exchange in our society, and preserve the core value of Hong Kong."

– Aedas Associate Director **Edward Leung**

PROJECT DATA

Project Name: Wanchai Mallory Street / Burrows Street Revitalization & Preservation Projects
Location: Hong Kong, China
Client: Urban Renewal Authority
Architecture Firm: Aedas
Gross Floor Area: 2,000 square metres
Completion: 2012
Photos: © Aedas


SAN

SETTLES STREET

ThirdWay Architecture has recently refurbished a former 19th Century labour exchange on Settles Street, Whitechapel, creating a modern contemporary workspace whilst retaining the building's distinctive Victorian features, crucially minimising potential demolition work, and reducing the carbon footprint of the project.

Originally completed during the late 19th Century, this building received a 90's fit out and was occupied by the Whitechapel Job Centre. The labour exchange site in Whitechapel is one of the most unique building forms in London, with a curved arch ground floor plan that wraps around the front massing of the building.

Whilst the building was purchased with pre-existing planning for a small rear extension, it was obvious that this was commercially unviable and there was opportunity to the knit the proposal intrinsically into the existing building, whilst removing the need for a second core.

ThirdWay Architecture (TWA) was appointed by High Rose Estates in July 2018 to appraise the site with a view to delivering either a straightforward refurbishment or an additional massing proposal. Following an in-depth feasibility study, TWA delivered a proposal that would achieve additional massing and improve the overall quality of the design without the need for a second core.

Although the building is predominantly over a ground floor area, the space is distributed over 8 different floor heights. The driving focus of the design was to maintain visual connectivity to these floors using cut throughs and re-working the central stair to be the linchpin in un-locking the building. By creating connectivity through this central location, each zone of the building can be accessed through the central stair, bringing together the original Georgian building, with the contemporary 5 floor new build extension to the rear.

The design has maintained the Victorian aesthetic, combining the original architecture with a high-contrast contemporary extension, and worked hard to celebrate the original features; the wooden sash windows and timber stairs have been repaired, with the original Victorian brickwork exposed where possible. Careful consideration has been given to fire engineering the space, which allows a unique visitor experience, entering the reception with uninterrupted views up the central stairs and lightwell, through to the new build offices to the back.

The facade of the new office building is made from translucent and opaque glass panels, with anodized aluminium mullions and spandrel panels to deliver open views to the city, whilst still considering the issue of overlooking neighbours. Internally, both the new and existing spaces are finished with raised access metal and timber floors, with exposed services and metal work.

PROJECT DATA

Project Name: Settles Street
Location: 13–20 Settles Street, London, E1 1J
Client: Highrose Estates
Architecture Firm: ThirdWay Architecture
Gross Floor Area: 35,000 square feet
Completion: 2020
Photos: © ThirdWay Architecture / © Peter Ghobrial

Petr Esposito. Photo: © ThirdWay Architecture

"The product creates a central front door that brings the original quality of the Victorian architecture back to life, with a simple reception design that greets the occupier with views through the central stair to the extension. The curved ground floor and existing ground floor have had their dropped ceiling removed to expose the original metal work above and accentuate the unique building form. Finally, the new build copies the exposed form with revealed slaps and cross bracing structures to create a column free floor plate and allow for views across Whitechapel and back to the city."

– Petr Esposito, Co-Founding Director of ThirdWay Architecture

View of the east facade of the Malabari Hall Building adjoining the Nana Chowk roundabout.

MALABARI HALL AT SEVA SADAN SOCIETY

The Malabari Hall located in the premises of Seva Sadan Society at Gamdevi, Mumbai underwent restoration and repair works under the professional expertise of Architects Somaya and Kalappa Consultants, Mumbai.

Seva Sadan Society is a non-governmental organisation that has been working towards empowering young women since 1908. It has been founded by two social activists and philanthropists Shri Behramji Malabari and Diwan Dayaram Gidumal with the aim to liberate, educate and empower the deprived women of the society. The campus provides a home to underprivileged girls, along with education and skill development.

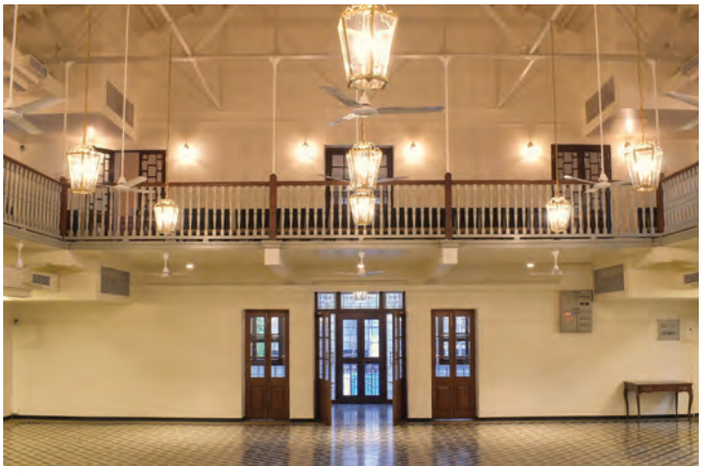
The Malabari hall was formally opened in the year 1924 by the then governor of Bombay (now Mumbai), Sir Leslie Wilson and Lady Wilson. It was designed by Bombay based architects K. P. Davar & Co. at a cost of INR 88,475 (Eighty-Eight Thousand Four Hundred and Seventy-Five Indian Rupees). The building houses the Malabari Hall on the first floor, along


Pre- (left) and post-restoration (right) conditions — East elevation.


Pre- (left) and post-restoration (right) conditions — East elevation circular columns.


Pre- (left) and post-restoration (right) conditions — North elevation.


Pre- (left) and post-restoration (right) conditions – View of the Malabari hall stage.

Pre- (left) and post-restoration (right) conditions – View of the Malabari hall entrance way.

Erection of internal scaffolding to carry out Phase II works.

Lime plaster final coat on north facade.

with a balcony on the mezzanine floor overlooking the hall on three sides. The ground floor comprises of a Science Lab, a Computer Lab and a Meeting Room named Laburnum Room.

Somaya and Kalappa Consultants were appointed as Architects in 2018, after Seva Sadan Society received a donation from Jones Day Foundation to help carry out the restoration and repair works on the Malabari Hall.

The project was divided in two phases; wherein *the Structural*, *Civil Repairs* and *Restoration work* was carried out during the Phase I, and *the Interior Refurbishment works* during Phase II.

The Phase I of the project was executed in a duration of

Wooden rafter repair.

North facade plaster removal.

Re-plastering of surfaces on first floor level.

Finished roof with Mangalore tiles.

four months (December 2018 to April 2019). During this phase, major structural and lime plaster repair works were executed on the Malabari Hall building along with waterproofing and repair of the entire roof. The work also included external façade painting as well as internal and external crack repair works.

The Phase II of the project was executed in a duration of six months (April 2019 to October 2019). The works carried out during this phase included internal painting, lighting design as well as internal and external signage. The paint work of the Malabari Hall has been carried out in subtle shades, in order to complement the decorative lighting fixtures and the pitched roof on top. External signage has been redone in

Photo gallery at the entrance lobby of the Malabari Hall.

Seva Sadan School students performing at the Malabari Hall inauguration function. The hall stage features the Seva Sadan Society logo.

Architect Brinda Somaya at the inauguration ceremony of the Malabari Hall.

steel finish. The addition of a pelmet to the stage has been made to house Seva Sadan Society's logo that is a lotus in brass finish.

The Malabari Hall was officially inaugurated on December 7, 2019 on Founders' Day of Seva Sadan Society, after the restoration and refurbishment works were completed. As it stands, the restored hall in all its glory is serving its purpose of hosting cultural events, thereby generating revenue for Seva Sadan Society.

"After almost a year of structural repairs, thoughtful restoration and interior refurbishment, planned and implemented by SNK Consultants, Mumbai, Malabari Hall has been restored authentically to its original elegance and the facilities enhanced and upgraded keeping in mind our future needs. Our beneficiaries (the underprivileged girls who live in our Residential Home and the low-income students of the Seva Sadan schools) now feel a sense of pride and belonging when they use Malabari Hall for their different activities," said Mrs. Umaima Mulla-Feroze, Jt. Hon. Secretary, Seva Sadan Society, Mumbai.

Arched verandah with the relocated Hundi lights.

View of the staircase lobby on the first floor.

Brinda Somaya. Photo: © Somaya & Kalappa Consultants

"I am an Indian and all what I am comes from my heritage. It is an intrinsic part of my being and will naturally reflect in my work in many ways. The architect's role is that of a guardian, he or she is the conscience of the built and the unbuilt environment."

– Brinda Somaya, Principal Architect, Somaya & Kalappa Consultants, Mumbai

PROJECT DATA

Project Name: Seva Sadan Society
Location: Gamdevi, Mumbai, Maharashtra, India
Client: Seva Sadan Society
Architecture Firm: Somaya & Kalappa Consultants
Services: Structural & Civil Repairs, Restoration & Interior Refurbishment works
Gross Floor Area: 345 square metres
Completion: November 2019
Photos: © Somaya & Kalappa Consultants

Using the scans, designers digitally reconstructed the ornamental features in three dimensions and used historic photographs and other records to recreate them as they originally looked before a century of weathering. Photo: © Robert Benson

EMERSON COLLEGE LITTLE BUILDING

***Elkus Manfredi Architects** reimagined and redesigned the historic Little Building to create an architectural focal point for an urban college while increasing residential capacity from 750 to 1,035 students.*

Emerson College is internationally recognised as a premier institution of higher education devoted to communication, the arts, and the liberal arts. Based in Boston, Massachusetts, opposite the historic Boston Common and in the heart of the city's Theatre District, Emerson College educates individuals who will solve problems and change the world through engaged leadership in communication and the arts, a mission informed by liberal learning.

In 2015, the Boston Planning & Redevelopment Agency approved an amendment to Emerson's master plan for the construction of a new 375-bed residence building at 2 Boylston Place, a new Student Dining Center with the capacity to serve 540 students, and a comprehensive renovation of the 103-year-old Little Building. The construction included restoration of the ornate facade, the addition of new glass-walled common spaces, and an additional floor built behind the building's historic parapet. The addition of 660 additional beds in 2 Boylston Place combined with the Little Building residential capacity brings the college closer to reaching its stated goal of housing 70 percent of its students on campus.

Located at the intersection of Boylston and Tremont Streets at the gateway to Boston's historic Theatre District, the Little Building is the cornerstone of the Emerson College campus. Photo: © Robert Benson

Located at the intersection of Boylston and Tremont streets, the gateway to Boston's historic Theatre District is The Little Building, as shown in this archival photo. Its intriguing design, described as a "four finger building" includes an ornate facade and parapet on the side of the building that fronts Tremont Street. Photo: © Leon H. Abdalian 1884-1967

Built in 1917 directly across Boylston Street from the Boston Common, the building originally housed offices and a shopping arcade – a precursor to the modern mall – with entrances both from the street and from a main interior corridor. There was also a cafeteria in the basement with a direct connection to the Boylston Street MBTA (public transportation) station via a tunnel under Boylston Street. Photo: © Robert Benson

The Little Building, pictured circa 1920s, built as a true mixed-use building – a rarity at the time – included office space, retail, and a direct below grade connection to the Boylston Street T (public transportation) stop. On the top of the building is a marquee that reads LITTLE BUILDING. Photo: © Leon H. Abdalian 1884-1967

The Elkus Manfredi team created a new hybrid preservation / design process that allowed them to synthesize the new and the historic, adding striking modern visual and functional elements into the design that both complement and accentuate its historic beauty. The result is a renewed, high-functioning building that serves as an inspiration and home for Emerson College's creative student population. Photo: © Robert Benson

As shown in this archival photo, the building originally housed offices and a shopping arcade at street level with entrances/access from a main corridor. In addition to being one of Boston's premier shopping destinations, it also was a precursor to today's indoor shopping malls. Photo: Courtesy of Emerson College

The design challenges of the project included:

- Expanding and enhancing the uses and capacity of the Little Building to serve Emerson's diverse and highly-creative student community.
- Honouring its artistic and historic character as part of the Boston cityscape.
- Enhancing its structural integrity and safety for the next century.

These challenges required going beyond simple renovation to a complete reimagining of the structure. The design intent of the Elkus Manfredi team entering the project was to create new hybrid preservation and design process, enabling the team to synthesize the new and the historic, adding striking modern visual and functional elements into the design that would both complement and accentuate its historic ornate beauty and create a new building that would serve as an inspiration and home for Emerson's creative and collaborative student population.

The ambitious scope of the project encompassed replacing all of the failing material on the structure, essentially taking off the entire outer skin of the building above the 2nd floor and remaking it with modern engineered materials in a historically accurate fashion. In addition, modern structural elements were incorporated into the recomposed design to both improve the functioning of the century-old building as

Designers incorporated new curtain wall infills between the original building's "fingers" on the Tremont Street side to create two-story student common spaces. The clean lines of the curtain wall infills add a modern aesthetic to the historic building, but are recessed to ensure that the newer design elements do not overwhelm the structure's historic character. Photo: © Robert Benson

a student residence and to enhance its safety and structural integrity to the highest standard.

Advanced technology

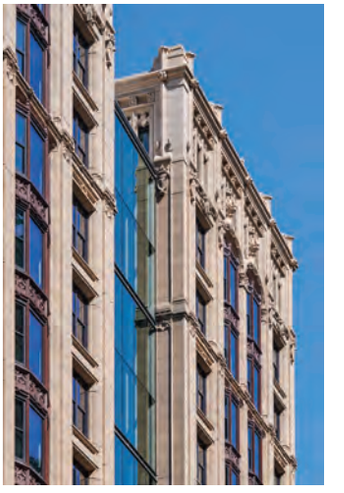
In order to capture the original design of the building facade's features, Elkus Manfredi commissioned a digital laser scan survey of the entire building's surface.

The scanning contractors used technology originally developed for aerospace applications that is accurate to 1/32 of an inch – at the time the scanning project began in 2008, it was the only technology of its kind in North America being used for an architectural application.

Even more accurate scanners were later used to capture the exact details of the ornamental features of the building, which include representations of animals, flowers, leaves, shields, and other decorative flourishes.

Designers used the scans to digitally reconstruct the building in three dimensions, and used historic photographs and other records to digitally recreate the ornamental features as they originally looked before a century of weathering.

The original cast-concrete ornamental elements include representations of animals, flowers, leaves, shields, and other decorative flourishes. The scope of the project involved replacing all of the failing materials by removing the entire facade of the building above the 3rd floor slab, replicating the details with modern engineered Ultra High Performance Concrete (UHPC) in a historically accurate fashion, and installing the new facade. Photo: © Robert Benson



To capture the original design of the facade's ornamental details, Elkus Manfredi commissioned a digital laser scan survey using technology originally developed for aerospace applications that is accurate to 1/32 of an inch. At the time, the scanning project began in 2013, it was the only technology of its kind in North America being used for an architectural application. Photo: © Robert Benson

In addition, modern structural elements were incorporated into the design to both improve the functioning of the century-old building as a student residence and to upgrade its safety and structural integrity to the highest standard. Photo: © Robert Benson

The digital representations were recreated as physical models using 3D printers and a 5-axis CNC mill.

Designers also worked on larger, and, in many cases, full-scale models in collaboration with the Autodesk Technology Center, a research and development workspace co-located

All of the building's cast concrete was extremely weathered and the aggregate of the concrete matrix was exposed, trapping dirt and pollutants and making it appear much greyer than the cast stone originally looked. Rust jacking on the existing structural steel caused by corrosion due to water infiltration from roof failure had resulted in cracking, displacement, and loss in the surrounding cast stone and cast iron. Photo: © Robert Benson

Built as a shopping destination, the ground-floor arcade will once again be populated by retail venues that are open to the public from the street. A second-floor elevator bank provides students with separate secure access to the residential floors above. Photo: © Robert Benson

adjacent to the Elkus Manfredi offices in Boston's Innovation and Design Building.

The 3D models were used to enhance both design and communication. Through this process, designers were able to spot and correct design flaws in the original ornamentation that trapped rainwater and contributed to the deterioration of the facade. The architects and builders also used the models during the construction process to address complex aspects of the building more effectively than they could with a two-dimensional blueprint or drawing.

The building's original cast-concrete ornamental elements, which were technologically advanced for their time, have been replaced by an engineered concrete-polymer material that has three times the tensile strength of traditional concrete yet weighs half as much.

Once the designers' CAD representations were perfected, Elkus Manfredi's digital models were shared and used directly by the fabrication company, giving the firm full artistic control of the design-to-build process.

The use of advanced technology in numerous aspects of the Little Building project dovetailed with the mission of Elkus Manfredi to be a world leader in leading edge architectural design.

Overall design solutions

- The engineering concrete material used for the re-created exterior envelope has a compressive strength that is as much as three times that of regular concrete.
- The engineered concrete also weighs 50 percent less than the original concrete, reducing stress on the steel structure.
- Significant embodied carbon savings were achieved by preserving the superstructure and foundation of the existing building. In essence, providing Emerson with a "new" building without causing the same environmental impact as new ground up construction would have done.
- Designers incorporated glass into the design between the original building's "fingers," integrating a lateral X-brace seismic lateral resistance system while preserving maximum access to natural light.

Student residences offer views to the Boston Common and Massachusetts Statehouse as well as glimpses of the ornate detailing of the recreated building facade. Photo: © Robert Benson

A lateral seismic resistance system made up of exposed X-braces was integrated, while use of low-iron glazed curtain walls preserves maximum access to natural light in the student common spaces. Photo: © Robert Benson

- The new glass lightwells are used to create two-story common spaces for student residents of the building, providing opportunities for students from different floors to interact with each other in bright, expansive spaces.
- The new common spaces allow the former common rooms on each floor to be repurposed as student living space.
- The glass lightwells add clean lines and a modern aesthetic to the historic building, but are also recessed to ensure that the newer design elements respect and don't overpower the structure's historic character.
- A new 13th floor has been added behind the original building parapet, adding significant residential capacity without increasing the apparent height of the structure.
- The water that has been responsible for the building's deterioration will now be collected in tanks and recycled for use in the building's grey water system (i.e., flushing toilets).
- The basement of the Little Building includes the following:
  - Two Black Box theatres (Theatre 1: Capacity up to 154, full pipe grid ceiling (2,209 gross square feet and Theatre 2: Capacity up to 94, full pipe grid ceiling (1478 gross square feet)
  - Two Studio spaces at (Studio 2 = 460 gross square feet) and (Studio 1= 1,212 gross square feet)
  - Three rehearsal spaces (could be for practicing piano, script)
  - A small production space
  - A Green room
  - Two full dressing rooms
- The ground floor retail will be a mix of 5 or 6 independent retailers

Elkus Manfredi was able to forge a leading-edge design-to-fabrication process in collaboration with the Autodesk Technology Center in Boston and Bétons Génial in Montreal that allowed the architects to communicate directly with fabricators and machinery, giving them both full control of the end product and extraordinary freedom to design.

Ross Cameron. Photo: © AutodeskInc

"One of the main challenges involved in this project was recreating the highly ornate neo-gothic detailing of the numerous facade elements."

– Ross Cameron, RIBA, RIAS, Vice President, Elkus Manfredi Architects

PROJECT DATA

Project Name: The Little Building
Location: Boston, USA
Client: Emerson College
Master Planning, Architecture and Interior Architecture: Elkus Manfredi Architects
3D Fabrication Support: Autodesk Technology Center
Concrete Fabrication: Bétons Génial
Construction: Suffolk
Gross Floor Area: 259,000 gross square feet (24,061 gross square metres)
Completion: 2020

Cat. 6_A Network Technology for Japan's National Education Project

Tokyo, Japan – R&M, the globally active developer and provider of cabling systems for high-quality network infrastructures, based in Wetzikon, Switzerland, is supporting Japan in the transformation of its education system. As part of the GIGA School project, Japan is currently equipping around 35,000 schools with cutting-edge ICT. R&M is supplying network connectivity. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has opted for the Cat. 6_A WARP solution from R&M. It comprises Cat. 6_A EL connection modules for structured cabling systems as well as patch cords with WARP shielding and FM45 connectors. Furthermore, R&M delivers patch panels and localized mini surface mount boxes.

For the first time, a major Japanese institution is specifying the Cat. 6_A standard for local data networks. And this is how MEXT wants to set new standards in classroom cabling, too. Every student should have access to high-speed networks. R&M's Cat. 6_A products meet the MEXT requirements for transmission performance and applications in schools.

Other features of R&M products enjoy high recognition among renowned and long-standing Japanese partners. And they convinced the ministry. The Cat. 6_A EL modules for network connections can be installed in just a few easy steps. All it takes is one click to wire all conductors in robust IDCs. The insulation displacement technology from R&M guarantees permanent loss-free signal transmission due to its precise design.

The field-mountable FM45 plugs for patch cords and installation cables also follow the quick mounting principle. Installers can freely decide on site how they want to lay the cables. And then, in just a few easy steps, they connect the FM45 connectors.

The solution offered and selected was the unique WARP technology (Wave Reduction Pattern). The WARP Alien Crosstalk protection made of metal foil effectively protects the cabling from interference with each other. WARP cables do not have to be grounded. This saves additional and complex operational steps.

Photo: © R&M

In the evaluation, the system integrator attached great importance to R&M's reputation in Japan. R&M is one of the top providers of connectivity solutions in Japan.

Boston United Football Club equipped with premier air-conditioning solution from Toshiba

Boston, UK – Boston United Football Club's new Jakemans Community Stadium west stand has been equipped with a high efficiency premier air-conditioning system by Toshiba. Toshiba Carrier UK Ltd (TCUK) is a joint venture between Toshiba Carrier Corporation and Carrier in the United Kingdom, and is a part of Carrier Global Corporation, a leading global provider of healthy, safe and sustainable building and cold chain solutions.

The Super Heat Recovery Multi (SHRM-e) variable refrigerant flow (VRF) solution, installed by Formost Air Conditioning Ltd, will provide outstanding indoor comfort for fans and visitors as part of the brand new ground and stadium development.

Facilities include a banqueting room, lounge, boardroom, community hub and four hospitality suites, all air-conditioned to the highest standards with a combination of Toshiba SHRM-e systems linked to the company's VN heat recovery fresh air ventilation units.

The VN systems harness energy from exhaust air to pre-condition incoming fresh air, integrating with the heat recovery VRF system to create a total building solution. Use of the VN units reduces the cooling and heating load and the overall size of the air-conditioning system required, saving energy and reducing capital costs.

The Pilgrims' new stadium is being built to Football League standards with increased capacity of over 5000. It will provide a range of community, sports, education and training programmes, plus in due course a sports hall and an all-weather 3G pitch for community use.

Rendering of the new Boston United Football Club stand. Photo: © Boston United

Another metro line win for KONE in China

Helsinki, Finland – KONE Corporation has won an order to supply 187 elevators and escalators to Metro Line 9 in Northwest China's Xi'an, an important cultural, industrial and educational centre in the region and one of the oldest cities in the entire country.

Xi'an Metro Line 9 will run southwest to northeast between Fangzhicheng and Qinhan Avenue via 15 stations. The 30.6-kilometre-long line will also travel through the Lintong University City. After completion, line 9 will help to relieve traffic burden along the subway system and will offer commuters a convenient way to travel to the northeastern part of the city. The Xi'an Metro currently has five lines in use and 10 more lines are planned to be added in the coming years.

To help provide smooth and safe metro travel for the 850,000 daily passengers along the new line, KONE will deliver 152 KONE TransitMaster™ escalators, 31 KONE MonoSpace® elevators, and 4 KONE MiniSpace™ elevators. The contract also includes two years of standard maintenance.

Metro Line 9 in Northwest China's Xi'an. Photo: © Xi'an China Railway Rail Transit

The project is developed by Xi'an China Railway Rail Transit Co., Ltd. KONE booked the order in the second quarter of 2020.

Vaisala to expand its premium Indigo product range with high-performance HMP1 probe for humidity and temperature measurements in high-end facilities

Vantaa, Finland – Vaisala, a global leader in weather, environmental, and industrial measurements, has today introduced a new HUMICAP® Humidity and Temperature Probe HMP1. With its top-of-the-line accuracy and sensor purge functionality that ensures excellent stability over time, the HMP1 is an ideal choice for demanding humidity measurements in environments such as pharmaceutical facilities, data centres, cleanrooms, or any other environments that require strict humidity monitoring and control. The product features the recognised and space-proof HUMICAP® sensor technology, which is known to endure demanding conditions. The HMP1 complements the Indigo product family, which is a premium solution for multi-parameter measurements with flexible connectivity.

Photo: © Vaisala

Premium solution for wall-mounted humidity and temperature measurements

The probe is compatible with any Vaisala Indigo series transmitter. The possibility to detach the probe from the transmitter allows efficient maintenance and calibration. With the Indigo 200 series transmitter the HMP1 probe forms a single wall-mounted unit with no probe cable or probe holder needed. The robust Indigo 520 transmitter offers installation flexibility and allows optimal positioning of the probe. It also enables dual-probe installations for extended parameter monitoring or extreme accuracy.

The unique combination of measurement performance, easy maintenance, and the extensive range of additional features in the Indigo transmitter series creates a premium solution for wall-mounted humidity and temperature measurements in demanding applications.

The HMP1 can also be used as a standalone wall-mounted transmitter over Modbus RTU serial bus. Whether the HMP1 is used as a standalone unit or with an Indigo transmitter, it can be connected to the complimentary Vaisala Insight PC Software for easy field calibration, probe configuration, and device analytics.

The Vaisala HUMICAP® HMP1 probe will be available to order in December 2020.

Emerson to invest $100 million to create new innovation centre and expand manufacturing operations in Colorado

Ferguson, Missouri, USA – Emerson announced it will invest more than $100 million in Boulder to significantly expand its manufacturing space and launch a new innovation centre focused on research, new product development and industry training for its advanced flow measurement products.

"This U.S. investment significantly expands our ability to serve as industry leaders, helping customers in essential industries optimise their operations with the latest technologies," said David N. Farr, Chairman and Chief Executive Officer of Emerson.

Emerson is recognised globally for its advanced flow measurement technologies and diagnostics that help leading global customers in the life sciences, food and beverage, chemical, power and energy industries. The new innovation centre will drive innovation and new product development to enable customers in these critical industries to realize performance improvements in production, reliability, safety and sustainability.

The nearly 180,000-square-foot expansion includes a new, 85,000-square-foot laboratory and manufacturing facility to design and develop products, technologies and software that measure and control the flow of material in a manufacturing process. These innovations are core components of Emerson's Plantweb™ digital ecosystem, a scalable portfolio of technologies, software and services that help customers digitally transform their operations and achieve Top Quartile performance.

Photo: © Emerson

The expanded Boulder facility will offer a hands-on Interactive Plant Environment that simulates real-world industrial manufacturing conditions for worker training and upskilling to help reshape the future workforce.

The experiential training facility will provide Emerson customers with hands-on access to the most advanced products and technologies, including flow, temperature, level, pressure and wireless instrumentation, valves and regulators, as well as Emerson's leading control systems and Plantweb™ digital ecosystem. Emerson's flow measurement portfolio includes Coriolis, magnetic, vortex, multiphase, differential pressure and ultrasonic meters under the Micro Motion™, Rosemount™, Roxar™ and Daniel™ brands.

$125 million Warwick Solar Farm powers UQ to 100 percent renewable

Queensland, Australia – Australia's renewable energy research capacity has been boosted with the completion of The University of Queensland's 64 megawatt solar farm at Warwick in the state's south east.

UQ Vice-Chancellor and President Professor Peter Høj AC said as the world demanded more energy for human wellbeing and economic development, renewables would have to provide a greater proportion of that energy production.

"The Warwick Solar Farm is first and foremost an act of leadership that demonstrates that a transition to renewables can be done at scale, that's practicable and makes economic sense," said Professor Høj.

The power generated at Warwick, in addition to seven megawatts produced at Gatton and St Lucia, will make UQ the first major university in the world to offset 100 percent of our electricity use with renewable power produced from its own assets.

The output of Warwick Solar Farm will be about 160GWh per annum – the equivalent of powering more than 25,000 households or reducing coal consumption by more than 60,000 tons.

Photo: © UQ

REHAU joins roster of "50 Sustainability & Climate Leaders" worldwide

Erlangen, Germany – Closed-loop value chains from product design through to recycling are not a pipe dream for polymer specialist REHAU – they are reality. For decades, the company has been developing sustainable approaches across the entire value chain and putting them into practice. These efforts have now been recognised with the inclusion of REHAU in the series of "50 Sustainability & Climate Leaders", an initiative by media production agency TBD Media Group in conjunction with the United Nations.

"As a family business, REHAU adopts a long-term approach to its responsibility towards future generations," explained William Christensen, CEO of the REHAU Group. "To be one of the '50 Sustainability & Climate Leaders' is a real incentive for our 20,000 employees to continue striving for greater sustainability and climate protection. In a nutshell, we want to lead the way when it comes to circular economies."

By 2025, REHAU plans to increase its recycling rate across the group to well over 15 percent while reducing CO2 emissions by at least 30 percent. In addition to the resource-friendly manufacture of durable polymer system solutions, REHAU focuses on the high-quality processing and reuse of post-consumer and post-industrial waste materials. REHAU already develops and manufactures high-quality products from recycled materials in all of its activities across the furniture, construction and automotive industries.

William Christensen, CEO of the REHAU Group. Photo: © REHAU

Ziehl-Abegg provides support for district's coronavirus ward

Künzelsau, Baden-Wurttemberg, Germany – The motor and fan manufacturer Ziehl-Abegg is providing support for the Hohenlohe District Department of Health in the fight against COVID-19. To this end, the company has sent six employees who are being deployed in the coronavirus ward in the former Künzelsau hospital where cases are identified and the coronavirus hotline is operated. District Administrator Dr. Matthias Neth praises Ziehl-Abegg's commitment as a great help.

"The fight against the pandemic involves us all," said Peter Fenkl, CEO of Ziehl-Abegg. The district of Hohenlohe became a national hotspot for infections in the spring and a number of Ziehl-Abegg employees were quarantined or fell ill. "We recognised just how important the work of the Department of Health is," recalled Fenkl. At the time, the company responded quickly by helping with the supply of protective equipment: FFP2 masks for the central test site as well as the face shields which are much in demand; either produced from the 3D printer or machined on tools in the training workshop. Ziehl-Abegg also sent a small thank you for the Öhringer hospital staff – 250 chocolate Easter bunnies.

"The procedure for identifying those who have been in contact with infected persons must be quick and meticulous; the information must also be transmitted speedily and on a consistent basis," said District Administrator Dr. Matthias Neth. Since August, the coronavirus ward of Hohenlohe District has been working in several teams in the former hospital in Künzelsau on case identification and staffing the hotline.

Managing the coronavirus hotline instead of experiencing the industrial atmosphere at Ziehl-Abegg: Isabel Joos (second from left), Marcel Nohe and Lisa Ehret in the Department of Health Künzelsau; flanked by CEO Peter Fenkl and District Administrator Dr. Matthias Neth (right). Photo: © Ziehl- Abegg / Rainer Grill

"When we read in the newspaper that numerous departments of health were complaining about a lack of dedicated and suitable staff, we contacted the District Administrator," explained Fenkl. This came as a happy surprise to Dr. Neth who gladly accepted the offer. The District Administrator believes that two specific characteristics are necessary for potential staff: an ability to learn quickly and strong communication skills.

Daikin Group signs MOU with SP Group to collaborate on centralised cooling system in Tengah

Singapore – On 9 November 2020, Daikin Singapore ("Daikin") signed a Memorandum of Understanding (MOU) with SP Group ("SP") to provide Singapore's first large-scale residential centralised cooling system at Tengah.

The MOU includes joint research and development, product innovation and marketing opportunities in Tengah, and future collaborative opportunities in Singapore and the region.

The partnership builds on SP's expertise and strong track record in operating the world's largest underground district cooling system in Marina Bay and Daikin's strength in the air-conditioning industry through its Chilled Water System Equipment including chillers, water pumps, fan coil units, and maintenance services.

The centralised cooling system for residential Housing Development Board projects aims to optimise the energy consumption for air-conditioning needs and reduce the urban heat island effect. Around 22,000 households stand to benefit from this initiative and Tengah will be the model for low-carbon smart energy towns in Singapore.

Daikin Singapore will deploy its Building Management System (BMS) to monitor and control Tengah's centralised cooling system. Following the acquisition of BMS Engineering last year, Daikin is now able to provide the technical equipment as well as maintenance of systems as a one-stop solutions provider.

This collaboration marks a first for Daikin. The partnership with SP is part of Daikin's longer-term growth strategy to meet the changing requirements of energy players, sustainable architecture projects as well as the rising number of social-conscious citizens in need for more adaptable accommodations.

MOU signing ceremony photo. Photo: © Daikin Singapore

Daikin and SP will monitor and optimise the model for Tengah and explore future opportunities to replicate the same reliable and efficient system in other parts of Singapore and the Southeast Asia region. This builds upon Singapore's ongoing roadmap for greener buildings as well as the longer-term vision for a Singapore Smart-city that includes sustainability in its advocacy.

Fireaway reaches major milestone with 500,000 Stat-X® Fire Suppression units sold worldwide

Minnetonka, Minnesota, USA – Fireaway Inc., manufacturer of the Stat-X® condensed aerosol fire suppression has now sold over 500,000 units since its inception in 2005. These 500,000 units are comprised of the portable Stat-X First Responder® and the Stat-X electrically, thermally/manually, and manually operated fire suppression generator product line. Also included are the company's Stat-X EX electrically operated generators for classified hazardous areas.

Product line of Stat-X® Fire Suppression. Photo: © 2020 Fireaway Inc

"In addition to crossing the half a million mark, the Stat-X product line has increased market share after years of steady and strategic growth," said Lance D. Harry, CEO and president of Fireaway Inc. He further stated, "our growth is due to the hard work and expertise of our entire team and our distributor partners across the globe who continually develop new applications for the product line."

After successfully navigating through the challenges of 2020, we are fortunate to be poised for robust market share in many B2B industrial markets. Power generation, specifically the renewable energy market with the recent expansion of the energy storage systems (ESS), battery energy storage battery (BESS), and wind turbines is a growing market as well as many others.

ABB's cloud-based solution is smart choice for green buildings pursuing LEED certification

Zurich, Switzerland – Specifying the ABB Ability™ Electrical Distribution Control System (EDCS)* is one of the most effective ways to prepare a green building project for LEED certification.

A GREENMAP strategic assessment by green building innovation centre Habitech found that ABB's smart energy solution can contribute to 6 of the LEED scheme's mandatory prerequisites and to 9 of its credit categories, facilitating up to 36 of the 40 points needed to achieve LEED certification.

LEED certification is the world's most widely used green building rating system, covering virtually all types of building. The scheme provides independent confirmation that a building or development has been designed and built in ways that improve its environmental performance, delivering on the metrics that matter most.

Projects pursuing LEED certification earn points for various green building strategies across several categories, Integrative Process, Water Efficiency, Energy & Atmosphere, Materials & Resources. Projects receive one of four LEED ratings: Certified (40–49 points); Silver (50–59 points); Gold (60–79 points), and Platinum (80+ points). The ABB Ability EDCS supports essential requirements in each category and supports the advanced metering, energy optimization, renewable energy integration and water metering strategies needed to achieve high LEED scores.

Supporting ABB Electrificaton's Mission to Zero, the ABB Ability EDCS uses cloud-based algorithms to monitor, optimize, predict and control a building's electrical system, removing inefficiencies and reducing energy bills by up to 10 percent. The innovative system's dashboard and range of scalable control functions make it straightforward to identify and action waste-cutting opportunities and to achieve compliance with higher energy efficiency standards.

Habitech is Italy's specialist Energy and Environment zone and a national centre for green building and renewable energy innovation. Habitech's GREENMAP industrial programme promotes the sustainable transformation of industries and organizations.

*The two current and well-known energy and asset management solutions ABB Ability™ Electrical Distribution Control System (EDCS) and ABB Ability™ Asset Health for Electrical systems – MyRemoteCare have been constantly further developed and migrating in one single user interface. ABB Electrification celebrates this offering evolution with the new ABB Ability™ Energy and Asset Manager.

Total Solar DG to build one of Southeast Asia's largest renewable energy microgrids in Cambodia

Singapore – Total Solar Distributed Generation (DG), in partnership with Canopy Power, is developing and constructing a solar and battery energy storage hybrid microgrid to deliver clean energy and power remote island Koh Rong Sanloem in Sihanoukville, Cambodia. Construction has started, and the project is expected to be completed in April 2021.

Koh Rong Sanloem island. Photo by Canopy Power.

The project will consist of a 1.25MWp ground-mounted Solar PV plant and a 2MWh battery energy storage system integrated with diesel generators and a smart controller, making it one of Southeast Asia's largest off-grid renewable energy microgrids. Electricity will be distributed across two of the main bays of the island via a new Medium Voltage distribution system. The microgrid is designed to deliver electricity to the island with a renewable energy contribution of more than 50 percent.

The island is home to more than 60 hotels, resorts and guest houses which currently each rely on operating their own diesel generator systems and importing fuel in cannisters, for their electricity supply. This is expensive, unreliable, logistically cumbersome and environmentally damaging. The new microgrid will provide a stable 24-hour electricity supply at lower cost, while removing noise and air pollution from the properties and reducing island-wide diesel consumption by more than 600,000 litres per year.

The project will be developed with Canopy Power, as Engineering, Procurement and Construction (EPC) contractor. The Singapore-based microgrid specialist will design, procure, build and handover the microgrid to Total Solar DG who will finance, own andoperate the plant, providing renewable electricity to the licenced electricity retailer on the island.

Digital transformation in dormakaba

From digital door locks to architectural hardware, entrance systems and a lot more, dormakaba is in the business of providing access solutions to buildings and rooms. **Mr. Jim-Heng Lee, Executive Committee member of dormakaba Group and Chief Operating Officer-Access Solutions APAC at dormakaba Holding AG,** gives an overview of the digital transformation and solutions in dormakaba. *All photos courtesy of dormakaba.*

Mr. Jim-Heng Lee, COO, Access Solutions APAC, dormakaba Holding AG, & Executive Committee Member, dormakaba Group.

SEAB: When did dormakaba recognize the need for a digital transformation in its business? In your opinion, why is digitalization important both from the perspective of the manufacturer and customer?

LEE: Our business has a long-proven history in the mechanical space. Products such as door hardware and access systems are dormakaba's core business, with a wide range of product offerings from key systems, door closers, door locks to automatic doors. As dormakaba continues to garner the reputation of a thought leader in digital access solutions, we're consistently innovating and leveraging digital technology to really enhance and complement our customer offerings by incorporating digital features throughout our core business.

For example, products such as automatic doors are enhanced with an IoT Connector to make them cloud-ready. The collected data can be used for analytics and predictive maintenance.

Digitalization creates new dimensions not only for our product and service offerings, but also from the manufacturing perspective. The connection of production machines covers the entire value chain to improve processes and to be more agile. We are moving into the digital future not only for our customer offerings but also our processes.

SEAB: Can you give us a brief overview of the digital solutions that dormakaba has adopted?

LEE: dormakaba has always had an invested interest in the innovations of the digital sphere. We have always been actively communicating our stance as such. In recent years, parts of our digital organization have been certified by the ISO 27001 Information Security certification standards. Consistently upgrading without compromising the safety and security of our systems and data, is how dormakaba has been able to retain the trust of our customers, both current and new.

In dormakaba's latest mobile access solutions, state-of-the-art technology has been employed to securely issue, revoke and update digital credentials on mobile devices such as smartphones, tablets, and smartwatches. Using best-in-class Legic Connect cloud technology, these credentials can be used for access control products to access hotel rooms, residential units, university accommodations and other protected facilities such as laboratories, server rooms, remote utilities, and commercial buildings.

dormakaba's mobile access solutions allows for room access via personal smartphones.

"Digitalization creates new dimensions not only for our product and service offerings, but also from the manufacturing perspective." – Mr. Jim-Heng Lee

Control of your home security system at your fingertips, whether you're home or away.

For example, hotel guests can use their smartphone and smartwatches to access their room. Just like you can use your smartphone to check-in with an airline, now hotel guests can check in and receive their digital room key before even arriving at the hotel. This is convenient not only from the perspective of saving time but also from a social distancing point of view.

Secondly, 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.

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.

With its exivo networked access system, we are developing from a product manufacturer into a service provider – access control as a service!

Another example is access control for your home. Residential mechanical door locks and keys are now digital with True Access Solution (TAS) by dormakaba.

Owners can now easily control and share keys no matter where they are, without worrying about keys being lost or stolen.

Complementing TAS are our digital door locks that are not only smarter but connectable to other smart IoT devices and smart home systems. This means, residents can ensure their homes are safely secured whether they are home or away.

With TAS, we built an eco-system with our software and hardware partners to offer a range products and services not only created by dormakaba but also by our partners. This means users can benefit from an experience that is most tailored to their needs.

My last example is Switch Tech electronic lock core. Switch Tech allows anyone to change a mechanical door easily and inexpensively into an electronic door by replacing the lock profile with Switch Tech's lock core.

Using Bluetooth technology, you can manage who has access to certain areas of your space without the hassle of entirely replacing your current lock system. This means users can use a Bluetooth key fob or smart phone to get access and it can be traced and tracked. In addition, user access rights can also be updated no matter where you are.

It is low cost, quick to install, tamper resistant and can be easily installed in a wide range of applications. The Switch Tech is coming soon to Asia!

SEAB: In ASEAN, digitalization is still in its early stages of maturity. What can we expect from dormakaba's digitalization strategy in the future?

LEE: We're a large global player with our footprint in most regions across the world, 130 countries to be precise. For our digital team, Singapore is our home. We have a large team globally consisting of digital experts and engineers; part of the team is invested in Singapore, working to add value to existing hardware products and to create digitally enhanced access solutions.

Our vision is an interconnected future, where nothing is left out of the loop. We want to continue to create safe and secure access solutions, whilst providing a convenient, safe, and secure user journey in the world of tomorrow.

Uncompromised safety and security, with dormakaba's digital access solutions.

DIGITAL ARCHITECTURE

Whether it is a new building or a retrofit, digitalization is making the lives of architects, builders and contractors easier and more efficient. In this issue, we ask architects the benefits of digitalization for architecture and the challenges faced by them.

"Digitalization can help practices overcome setbacks due to the resulting disruption in coordination, communication, and collaboration."

SEAB: How is digitalization used in architecture?

GAUTAM: Digitalization is a means to ensure effective design development and execution by leveraging digital technology. It streamlines processes and optimises workflows, saving costs and time. Digitalization offers an array of possibilities for revolutionising coordination, collaboration, and communication of design. For instance, immersive technology and VR can liberate the design process from limitations such as geographical constraints, tedious design discussions that result in confusion and mismatch of expectations, delayed design modifications, and static 2D communication tools such as 2D drawings and static renders. The applications of digitalization are not limited to designers. By bringing together all stakeholders in the industry, digitalization can revolutionise design education and design execution as well.

SEAB: What are the main benefits of digitalization in architecture?

GAUTAM: The architecture, engineering, and construction (AEC) industry is choked with tedious and fragmented workflows, a phenomenon currently exacerbated by the pandemic. Digitalization can help practices overcome setbacks due to the resulting disruption in coordination, communication, and collaboration. It can bridge the gaps between various stakeholders by offering real-time design modifications and virtual collaborations. With geographical location no longer a barrier to work and progress, the tools of digitalization ensure both time and cost-efficiency. The application of digital technology extends beyond the realm of the architecture and design domains, to design education and offers a roadmap for an enhanced understanding and skill development amongst students and budding professionals.

Gautam Tewari, Co-creator, Trezi

Photo: © Trezi

Trezi uses immersive technology and VR that allows its users to make real-time decisions and design modifications irrespective of geographical locations, making collaborations in design fruitful and effective. Photo: © Trezi

SEAB: What are the new trends or digital tools for architecture?
GAUTAM: With the advancement of technology, we now have digital solutions for every step of the design process. Softwares aid us from the conception of design to its execution. Additionally, with the involvement of a number of stakeholders with diverse software preferences, the design process becomes chaotic and unorganized. However, the need for a unified platform that allows for seamless collaboration is simultaneously being addressed through platforms such as BIM and immersive technologies such as VR.

SEAB: What are the problems faced by architects when they use digital processes?
GAUTAM: Architects and designers often suffer at the hand of software with limited capabilities. Most software offers 2D outputs for communication in the form of static renders or drawings, making information highly inaccessible to clients. The current tools do not offer scope for real-time modifications, making design exploration and stakeholder meetings highly tedious. Since the design process and communications occur on multiple platforms, the two activities leave large gaps for misinterpretation and miscommunication. As a result, architects and designers shy away from the complete utilization of technological solutions and rely on sketching and verbal communications, making physical meetings a necessity.

SEAB: Have you deployed any digital technologies for your projects?
GAUTAM: I have been practicing architecture for over 20 years. My design experience in firms has usually been dominated by the shortcomings of the technological tools we were utilising. This is what steered me towards bridging this gap and creating Trezi. With the help of immersive technology and VR, Trezi allows its users to make real-time decisions and design modifications irrespective of geographical locations, making collaborations in design fruitful and effective.

"Computational tools and modern software, while still relatively untapped, have opened up new horizons for architects and designers."

SEAB: How is digitalization used in architecture?
SACHIN : Design and construction involve several stakeholders and how they communicate and coordinate has been fundamentally altered with widespread digitalization. Next-generation software has created new workflows, replacing sequential processes with a hands-on, collaborative approach from the start, shifting most of the efforts to the pre-planning phase.

These tools offer a clear framework for developing structure, services, and form, streamlining the designing and planning process. At the same time, they contrast with traditional practices where a rough outline to finer details could be arrived at with the possibility of subsequent changes.

SEAB: What are the main benefits of digitalization in architecture?
SACHIN: Computational tools and modern software, while still relatively untapped, have opened up new horizons for architects and designers. Digitalization has widened our understanding of space, allowing us to reinterpret old methods and learn new ones to plan and design better. It has also provided fresh impetus to architects to analyze a building's environmental impact, carbon footprint, and energy consumption and overall efficiency and look at sustainability through a critical lens. Besides, these tools provide the opportunity to re-evaluate design for economic viability by running parallel cost analyses.

SEAB: What are the new trends or digital tools for architecture?
SACHIN: With the exponential growth of technology in recent times, computer-aided design (CAD) has revolutionized workflows in the design and construction industry. Similarly, Building Information Modeling (BIM) has emerged as a reliable software for collaborative work. With the advent of parametricism, previously inconceivable designs are now fast becoming a reality, resulting in highly efficient solutions that minimize resource consumption while providing maximum occupant comfort.

The building industry accounts for a significant chunk of global carbon emissions. Digitalization offers a roadmap to script a new chapter focused on sustainable and responsible design practices.


Sachin Rastogi, Founding Director and Principal, ZED Lab

Photo: © ZED Lab

SEAB: What are the problems faced by architects when they use digital processes?
SACHIN: Digitalization is a double-edged sword; it needs to be utilised prudently for designing the buildings of the future. A rather unwanted byproduct of digitalization has been that it undermines the idea of 'Form Follows Function,' in favour of a 'Function Follows Form' approach to design. This approach is driving practitioners to incorporate

unnecessary ornament for solely aesthetic purposes, limiting its true potential to merely the building façade or outer skin. Also, design execution processes have yet to catch up with the digitization-enabled freedom that architects and designers are capitalising on. Moreover, the economic costs associated with the assembly and construction of digitally conceived buildings currently pose stiff challenges for the architecture, engineering and construction (AEC) industry.

SEAB: Have you deployed any digital technologies for your projects?
SACHIN: The boys' hostel building designed by ZED Lab for the St. Andrews Institute of Technology and Management is a structure that draws its primary inspiration from the form and use of the basic building block – the brick.

By reinterpreting Indian vernacular architecture and applying ideas and techniques relevant to current times, the design of the hostel block creates a sense of community and reflects the contemporary university buildings in a new light.

The use of software technology is pertinent to the design of the brick *jaali* that circumscribes the building providing thermal insulation and ingress of diffused natural light. The *jaali* is arrived at as a result of combining traditional building wisdom with new software such as the application of Ecotech, Grasshopper, Ladybird and Rhino.

To optimize the design for best results, we ran parametric simulations on each brick to derive a composition that comprises arrangements of bricks rotated and then placed at regular intervals. The jaali façade has 1" thick steel bars fixed on R.C.C. beams using Hilti chemicals. A single steel bar pierces through the customized bricks manufactured with holes to hold the arrangement. No cement mortar was used to construct the envelope that spans 250 feet in length and 21 feet in height.

The boys' hostel building designed by ZED Lab for the St. Andrews Institute of Technology and Management in Gurugram, India. Photo: © Andre J Fanthome | Studio Noughts and Crosses

"We embrace digitalization to further improve the quality of our services to our clients."

SEAB: How is digitalization used in architecture?
FREDERICO: When discussing the usage of digitalization in architecture, it is common to focus on the design (from inception to completion, e.g. both the design and design documentation stages). However, the digital transformation we are experiencing expands across all industry sectors and human activities; it is a global phenomenon that is rapidly changing the way we live and work.

Therefore, we should consider 3 classes of usage:
• "architecture-exclusive usages" – Related to the implementation of digital technologies in architecture practices and processes;
• "imported-usages" - related to user daily use of digital technologies that made their way into architecture, and;
• "AEC related usages" - referring to usage arising from activities shared across the AEC (Architecture, Engineering, and Construction) sector.

The 1st category includes activities such as the automation of architecture design documentation activities, the usage of computational design to inform the architecture design, the immersive or mixed-reality experiences, the usage of BIM processes to develop the architecture project, the usage of computational simulation to optimize

Frederico Ramos, Aedas Principal

Photo: © Aedas

architecture solutions, etc.

For the 2nd category, we can include activities such as the use of messaging software over mobile devices (such as WhatsApp or MSTeams, etc.), the usage of voice recognition to compose messages and text, the simultaneous editing of documents by multiple users, the application of videoconferencing, the rise of social media and digital networking, the usage of digital agendas (often stored in the cloud), the usage of cloud-based services and virtual desktops.

As for the 3rd class, examples such as 3D printing for parts and buildings, design for fabrication and digital fabrication, the usage of robotics scanners to verify on-site construction progress, the adaptation of multidisciplinary "live" collaborative BIM, the usage of could point surveys, etc.

The West Kowloon Terminus, designed by Aedas using digital technologies. Photo: © Aedas

SEAB: What are the main benefits of digitalization in architecture?

FREDERICO: Digitalization aims at using digital technologies to improve the way we work. In architecture, some of the oft-identified main benefits are:

- Optimize project efficiency;
- Optimize internal business efficiency;
- Create new and better experiences through virtual and mixed reality;
- Improves collaboration.

I like to believe that as architects, we embrace digitalization to further improve the quality of our services to our clients, increase our business efficiency, and to reduce avoidable risks – all to create a built framework for a better society. Through the creation of "built ecosystems" that are rooted in circularity, we could integrate "green/blue / grey-structures", enhance "urban biodiversity", and ensure the wellbeing of our population – this extends to animals.

SEAB: What are the new trends or digital tools for architecture?

FREDERICO: Machine Learning (ML) and Artificial Intelligence (AI) are one of the leading tools in architecture that are getting more and more popular. In recent years, we have seen an exponential increment of new AI / ML tools and users' engagement with these solutions, which has given rise to the concept of "human-machine co-authorship" in the AEC sector.

In terms of new trends:

- In the construction side of the spectrum, the latest trends in digital technologies, such as offsite fabrication, DfMA (Design for Manufacturing and Assembly), construction robots, and 3D printing have the potential to radically transform the industry, evolving it from "construction" to "assembly".
- The idea of the "digital delivery process", which in Singapore is referred to as "integrated digital delivery"; it aims at integrating and digitalizing the built environment value chain.

SEAB: What are the problems faced by architects when they use digital processes?

FREDERICO: One can argue that many of the problems faced by architects when dealing with digital processes occur before they start using them; at the implementation process, the lack of skills and knowledge are often the major challenges.

At the organization level, according to a 2018 survey among architects in the UK, the major challenges for architectural practices/organizations that want to transform to digital businesses are:

- Cost;
- Lack of senior management commitment/sponsorship;
- Unwillingness to radically rethink the way we operate;
- Slow decision making or excessively cautious.

SEAB: Have you deployed any digital technologies for your projects?

FREDERICO: Aedas is an early adapter of Digital Technologies, and our efforts are recognised e.g. the Autodesk Hong Kong BIM Award 2010 for the West Kowloon Terminus, the 2013 1st Runner Up in the Singapore BCA 48 hours BIM international competition (1st Singaporean company), or the 2016 GRAPHISOFT's "Algorithmic Design Meets BIM" competition.

Part of our 3 years Digital Delivery Road Map is to keep pushing the boundaries of digitalization, computational design and VDC+O. Aedas Singapore is working in close collaboration with the world-leading software developers to create a state of the art CDE (common data environment, with BIM as the single source of truth) – which has been described as "unique" among design consultancies for its original approach, innovative proposals, and high level of complexity.

"For us, the benefits of computational tools are that they broaden our abilities to speculate, evaluate, and produce."

SEAB: How is digitalization used in architecture?
KEN: We would break down digitalization in architecture into the multiple phases of the design process:
01. Conceptualization – iterative formal and programmatic studies, urban strategies.
02. Analytics – performative aspects of the building in response to climate, etc.
03.Visualization – real world representation of design spaces.
04.Documentation – communicate design intent to the construction consultants.
05.Optimization – exploring panelization options for elevations of buildings.
06.Manufacturing – 3D prefabricated surfaces.
07.Life cycle management – BIM information for managing built projects.

Architects employ digital tools for all or some of the above phases. It has been crucial to the design and construction of most buildings in the past four decades, in some form or other.

SEAB: What are the new trends or digital tools for architecture?

KEN: We are working to integrate optimization tools into the front end of the design process to produce more performative and environmentally sensitive architecture.

These considerations are traditionally studied in the later phases of a project but using computational tools for planning and analysis upfront not only reduces the amount of doubling back we have to do, it also helps integrate environmental and performative concerns into the heart of our design narrative.

SEAB: What are the main benefits of digitalization in architecture?
KEN: For us, the benefits of computational tools are that they broaden our abilities to speculate, evaluate, and produce. Computation can help us discover new approaches and jolt us out of rote methods of problem solving. It can also help us test our designs so that architectural forms are more responsive to structural, environmental, and cost-based criteria. The highest yield benefit however is in production; we are able to produce so much more in far less time. We firmly believe in the adage of "work smarter" and computation helps us get there.

Photo: © JERDE

SEAB: What are the problems faced by architects when they use digital processes?
KEN: Often the biggest problem is the learning curve associated with mastering these tools. It is completely overwhelming to dive into a foreign digital space. This is doubly the case when a person is very nimble in one platform and does not feel pressed to learn others even if they may provide better solutions. The sheer number of new applications that are released every year compounds this problem.

That said, for the last 15 to 20 years it has been abundantly clear that the only way to survive and grow in the digital era is to commit to innovation and constant learning. If you stay stuck in one way of doing things just because it's comfortable, you're a goner. In order to reconcile these issues, we are constantly asking ourselves, "is there a better way to do this?" and strategizing how we move forward based on our answer.

SEAB: Have you deployed any digital technologies for your projects?
KEN: The canopy structure for Zlote tarasy, Morongo and Hengqin, just to mention a few. Recently, exploring using scripting for urban strategies and planning.

The canopy structure for Hengqin Island Tourism District in Macau SAR, China, was designed by JERDE using digital technologies. Photo: © JERDE

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