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SEAB

SOUTHEAST ASIA BUILDING

July / August 2024

50 YEARS
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In This Issue

Industrial Architecture

Exclusive Content: Rise of Smart Cities in Asia

ON THE COVER: Woodlands North Coast: 1 & 7 North Coast / Singapore

ISSN 2345-7066

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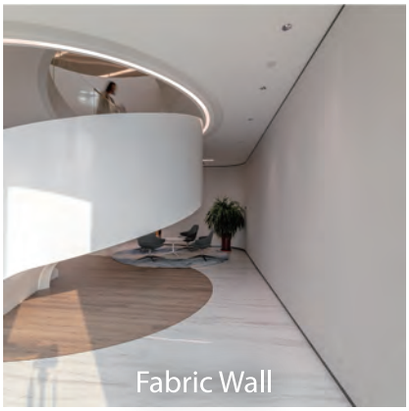

Fabric Wall

Fabric Ceiling
with LED Light

Wood Veneer Ceiling

QC Stone

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july-aug 2024

Project: Punggol Regional Library
Architecture and Interior Design Firm: DP Architects Pte Ltd
Photo Credit: National Library Board
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On the Cover: Woodlands North Coast: 1 & 7 North Coast in Singapore. Architect: Aedas. Photo credit: JTC

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A fun playground addition which requires children to use their own strength and skills to move the inner circular disc round, to make the roundabout spin. The slight incline of the ring means that when children reach the highest point during the spin, they feel the full force of gravity as the speed suddenly increases on its way down, making this playground roundabout a wonderful play experience.

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Welcome to July/Aug issue!

In this issue of *SEAB*, we have a very interesting topic – Smart Cities, and we explore the rise of smart cities particularly in Asia. According to the architects whom we interviewed, the current state of smart cities looks promising, as urbanisation calls for good infrastructure and higher quality of living. However there are challenges too, in implementing these initiatives in Asia. Don't miss this full report in our exclusive content section.

Next in our architecture section, we showcase a few industrial building projects from Asia. These days, industrial building architecture is no longer boring but pretty, functional and iconic. Read all about the projects inside the pages.

In interior design, we explore some new and existing library building projects. And in the property developer section, Mr. Truong Khac Nguyen Minh, Deputy General Director of KCN Vietnam tells us more about their new ready-built factory and warehouse project in Bac Ninh, Vietnam.

The Pritzker Architecture Prize recently announced Riken Yamamoto, of Yokohama, Japan, as the 2024 Laureate of the Pritzker Architecture Prize. To know more about his background and inspiring works, you can read the article in the PDF copy of the magazine.

If you have any comments or feedback, please drop me an email at seab@tradelinkmedia.com.sg

Happy reading!

Amita Natverlal

September/October 2024 Issue (Sustainability)

FEATURES:

- Mixed-Use Architecture
- Religious Interior Design
- Playgrounds & Landscaping
- Interview With Property Developers On Current Issues
- Exclusive Content – Energy Efficiency Of Buildings

Industry Partners of SEAB

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Bangladesh Green Building Council

Design Council – Sri Lanka

Emirates Green Building Council

Foundation for Futuristic Cities

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Green Building Council Indonesia

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Green Building Council Mauritius

Green Building Council Namibia

Green Building Council Sri Lanka

Hong Kong Green Building Council

Interior Design Confederation of Singapore

Jordan Green Building Council

Earthna (Member of Qatar Foundation)

Philippine Green Building Council

Singapore Green Building Council

Society of Interior Designers (Singapore)

The Hong Kong Institute of Architects

Vietnam Green Building Council

Green Institute Nepal

Interior Designers Association of Nepal

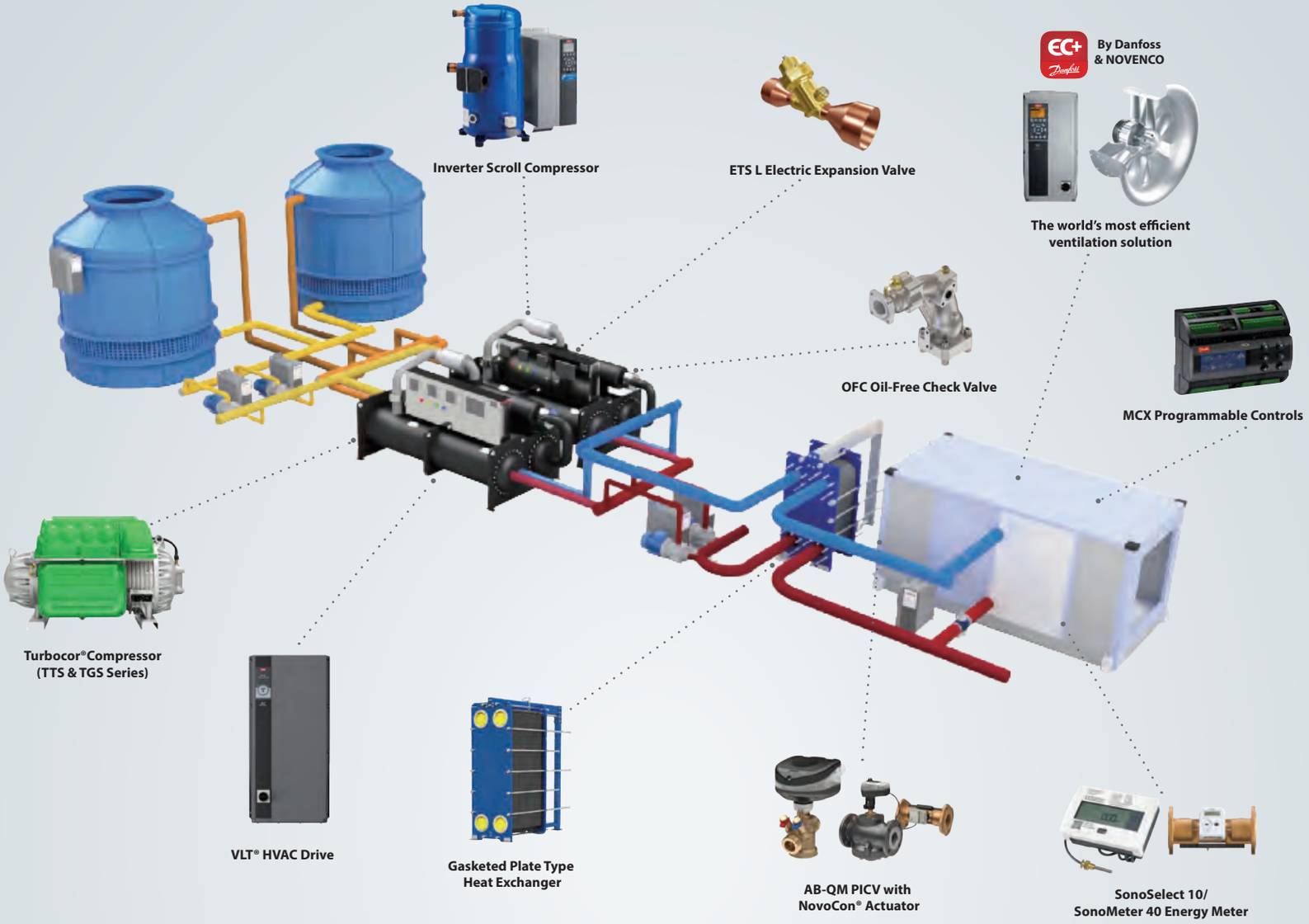
Singapore Institute of Building Limited

Society of British and International Interior Design

Asia-Pacific Space Designers Association

Asia Designer Communication Platform

Singapore Electrical Trades Association



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RMJM Dubai collaborates with Taraf to conceive Cello Residences

Dubai, UAE – Yas Holding's real estate division, Taraf, collaborated with RMJM to introduce Cello Residences, a dynamic and thriving destination situated in the well-established community of Jumeirah Village Circle (JVC) in Dubai. Described as one of the most distinctive communities in Dubai, the site located on the internal street in between Lazuward SW and Bajada Blvd S. The streets are further connected to Al Khalil Road, close to the outer boundary, just 200 metres to the main entrance and exit.

Cello Residences is a high-rise residential community containing large pool, kids' pool and outdoor gym, a zen reading spot, landscaped park and a BBQ area. The design proposal responds to the constraints and opportunities that the site offers. This is created through undulating balconies, the landscaped podium that welcomes the users, and defined arrival experience for the guests.

The development comprises 387 apartments distributed across two towering structures. Its interiors exhibit a spectrum of warm and earthy hues, featuring a meticulously crafted layout and expansive windows that guarantee a seamless blend of refined elegance, abundant natural light, and a seamless extension of the tranquil surrounding landscape. An elevated focus on important details and finishes ensures that each residence has the perfect balance of functionality and ambience.

Externally, the buildings' facades have been kept simple yet contemporary in design and are made up of light-coloured materials with the distinctive coloured façade elements. The

accompanying podium has been designed in a way that plays with tectonics and light in order to create a unique statement that flows seamlessly with the surrounding architecture and amenities.

Additionally, RMJM extensively studied the site massing and the relationship to the context – maximising the views to podium landscape within the development and low rise neighborhood. Public area around the pool is positioned to receive sunlight, whilst recessed windows are protected from solar gain.

All of these carefully curated features of Cello Residences come together to offer a unique and serene living experience.

Aark Developers announce US$ 1.2 billion project, SORA Beach Residences, at Al Marjan Island

Dubai, UAE – Aark Developers, based in Dubai, with over 25 years of experience in crafting residential and hospitality properties, has announced the launch of its latest project – SORA Beach Residences. The iconic property situated on the pristine shores of Al Marjan Island, Ras Al Khaimah, is valued at US$ 1.2 billion.

Rendering of SORA Beach Residences.

SORA Beach Residences with a built-up area of 1.8M square feet and unparalleled beach access spanning 1,000 feet, will be an architectural marvel with a larger-than-life lobby atrium and a 140-feet arch – making it one of the grandest atriums in the region. With 18 floors of panoramic sea views from every residence, it will be the first of its kind high-rise in Al Marjan Island. Residents will enjoy exclusive access to over 50 world-class amenities, including a private beach club, five-star dining options, a sky bar and infinity pool.

The architectural design is conceptualised by Japanese firm Nikken Sekkei, the creatives behind iconic landmarks in Asia, Middle East and most recently the One Za'beel in Dubai. The timeless interiors will be done by Shalini Misra Design, an award-winning interior design practice, with offices in London, New York, Delhi and Dubai.

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Iconic basket boat-shaped convention centre opens in Vietnam

Cam Ranh, Vietnam – Vietnam has welcomed a striking multipurpose convention centre with a design inspired by the country's ubiquitous coracle boat.

Axi Plaza celebrated its grand opening in April 2024 at its spectacular beachfront location, overlooking Long Beach on Vietnam's scenic Cam Ranh peninsula. Its host of remarkable facilities include a vast state-of-the-art conference hall, a 360-degree rooftop venue, a stunning outdoor beachfront event space, and about 10,000 square metres dedicated to shopping and dining outlets.

The largest multipurpose convention centre in the region, Axi Plaza marks The Anam Group's third major development, following the launch of luxurious resorts The Anam Cam Ranh and The Anam Mui Ne in 2017 and 2023 respectively.

Adjacent to 12-hectare The Anam Cam Ranh with 213 rooms, suites and villas, Axi Plaza is breaking new ground in Cam Ranh, which was once renowned as Southeast Asia's greatest deepwater harbour and is now rising as an upscale alternative to nearby Nha Trang.

Billed as affording "meetings above the beach", the 1197 square metres conference hall and ballroom area on Axi Plaza's third floor accommodates up to 1000 people. Dominated by a high ceiling with timber beams fashioned in a fan formation, the hall features a cutting edge 75 square metres LED screen and panoramic vistas encompassing swimming pools, a manicured lawn and the ocean.

Totalling 1077 square metres, the 360-degree rooftop area on the fifth floor has been designed for receptions and company events and offers sweeping views of Long Beach's white sands and turquoise waters. A dramatic headland named "Song Lo", meaning the 'wave next to the mountain' in Vietnamese, rises up to the immediate north and west.

The outdoor event space situated between the basket boat-shaped building and the beach is underpinned by the capacious lawn that fronts three picture-perfect swimming pools – one saltwater, one chlorine and a kids pool – supervised by lifeguards.

Situated behind Axi Plaza's vast second floor entrance and reception area, the 200 square metres Axi Plaza Lounge overlooks the swimming pools and serves Vietnamese fare.

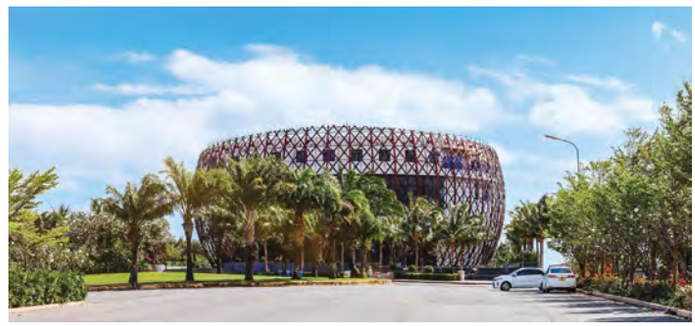

Photo credit: Axi Plaza

In addition to MICE and indoor and outdoor dining areas on the fourth floor, Axi Plaza's first floor is dedicated to 46 shops ranging in size from 14 square metres to 239 square metres.

The exterior of the building is crisscrossed with wood set to last at least 100 years. By night, Axi Plaza changes colours in an elaborate lighting display. At the entrance is a garden updated daily to articulate the day's date.

"Axi Plaza is a game changer for Cam Ranh and Vietnam's entire coastline – there's nothing like it for business and leisure travellers alike," said The Anam Group's founder Pham Van Hien. "Building Axi Plaza in the shape of a large thung chai boat, resting beside waters still plied by traditional boats, is a bold and striking way to pay homage to Vietnam with contemporary flair."

With Axi Plaza Lounge, swimming pools, Long Beach, bathrooms, lockers and more on offer, Mr Hien described Axi Plaza as a "convenient solution" for travellers who need to check out of their hotels at noon but do not want to wait for hours at Cam Ranh International Airport before their departure flights.

Together, Axi Plaza and The Anam Cam Ranh will offer a complete package of services and amenities for bleisure guests in one location.

ONG&ONG's new KL office has relocated to a new address

Kuala Lumpur, Malaysia – Marking a new chapter for ONG&ONG Malaysia is its relocation to a new office in 2024. Previously, the office occupied two separate units within Block B in Plaza Sentral. Both units are now united in Block A, where the new space brings everyone together, fostering greater collaboration among team members. The design and construction were carried out by in-house talents. The new layout addresses the issue on demarcating the public, semi-public and private spaces, while maintaining seamless connection throughout the office. These enhancements improve how the firm operates at every level while also addressing the needs of each unit.

Photo credit: ONG&ONG

Everyone likes to add a personal touch to their balcony, but you also need to choose the correct eco-sustainable products, if you want to waterproof it both safely and permanently. There's no better solution than **Mapei's range of elastic cementitious waterproofers** to protect your home.

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Comapa Ham Factory

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

Mapei Technical Services recommended using MAPEFLOOR CPU/MF, high-strength, polyurethane/cement-based mortar used as a multilayered antiskid coating for industrial floors from 3 to 6 mm thick. It provides floors with a high level of resistance to chemicals, good mechanical properties, a non-slip finish and good resistance to frequent cleaning cycles. The concrete substrate was first mechanically prepared and primed with epoxy resin-based PRIMER SN. The surface was then fully broadcast with quartz sand with a granulometric size ranging between 0.3 to 0.9 mm to guarantee a perfect bond with the next product to be applied.

After applying MAPEFLOOR CPU/MF, which was tinted

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

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

MAPEI PRODUCTS

Preparing the substrates: Primer SN, Quartz 0.5

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

PROJECT DETAILS

PROJECT NAME: Comapa warehouse
PROJECT LOCATION: Otura, Spain
YEAR OF CONSTRUCTION: 2017
YEAR OF THE INTERVENTION: 2018
INTERVENTION BY MAPEI: Supplying products for preparing substrates and laying resin floors
CLIENT: Comapa
DESIGN: Incudi Engineering of Granada
FLOORING CONTRACTOR: Aplinsa
MAPEI COORDINATOR: Pedro Madera, Raul Burguete, Javier Fortuny, Mapei Spain
PHOTOS PROVIDED BY: Mapei

Other Food Factory Projects By Mapei

PROJECT DETAILS

PROJECT NAME: Siste Sang microbrewery
PROJECT LOCATION: Oslo, Norway
PERIOD OF CONSTRUCTION: 2016-2017
YEAR OF THE INTERVENTION: 2017
INTERVENTION BY MAPEI: Supplying products to prepare substrates and laying resin floors
CLIENT: Siste Sang AS
MAIN CONTRACTOR: Kreativt Bygg
FLOORING CONTRACTOR: Norsk Epoxy AS
MAPEI COORDINATORS: Eirik Nilseng and Tore Karlsen, Mapei AS (Norway)
PHOTOS PROVIDED BY: Mapei

MAPEI PRODUCTS

Laying resin floors: Mapefloor Finish 415, Mapefloor Finish 58 W, Mapefloor PU 460 N*, Mapefloor PU SL S*, Mapefloor CPU/HD

*These products are manufactured and distributed on the Norwegian market by Mapei AS.

PROJECT DETAILS

PROJECT NAME: Foodbox industrial kitchen
PROJECT LOCATION: Vértesszőlős, Hungary
YEAR OF CONSTRUCTION: 2017
YEAR OF THE MAPEI INTERVENTION: 2017
INTERVENTION BY MAPEI: Supplying products to prepare substrates and lay resin floors
CLIENT: Foodbox LLC
WORKS DIRECTOR: Zoltn Mizak
MAIN CONTRACTOR: Mizi-Vil LLC
RESIN FLOORS CONTRACTOR: Floor-Tech LLC
MAPEI DISTRIBUTOR: Avers LLC
MAPEI COORDINATORS: Nárcisz Nagy, Mapei Kft
PHOTOS PROVIDED BY: Mapei

MAPEI PRODUCTS
Preparing substrates: Additix PE, Planitop Fast 330, Primer SN
Laying cementitious floors: Mapefloor CPU/MF, Mapefloor CPU/RT, Mapefloor CPU/TC
Sealing joints: Mapeflex PU 45 FT

PROJECT DETAILS

PROJECT NAME: Pescheria con cottura (Fishmonger and griddle)
PROJECT LOCATION: Milan, Italy
YEAR OF CONSTRUCTION: 2018
YEAR OF THE MAPEI INTERVENTION: 2018
INTERVENTION BY MAPEI: Supplying products for preparing substrates and creating cementitious floors
DESIGN: Stefania Tornesello
CLIENT: KR Studio Srl
WORKS DIRECTOR: Dario Iacolelli
FLOORING CONTRACTOR: Inimpresa
MAPEI COORDINATORS: Massimiliano Nicastro, Giuseppe Dal Mas, Mapei SpA (Italy)
PHOTOS PROVIDED BY: Mapei

MAPEI PRODUCTS
Preparing the substrates: Primer SN, Triblock TMB
Laying cementitious floorings: Primer LT, Ultratop, Ultratop Loft F, Ultratop Loft W
Finishing the floors: Mapefloor Finish 58 W, Ultratop Base Coat

Article Source: Realtà Mapei international 73/2019

Some products mentioned in this article are AVAILABLE in the Singapore market. Please contact the customer service representative at Mapei Far East for more details or visit their website for more information.

Star Garment Innovation Center

Photo: © Ganidu Balasuriya

Circular's Star Garment Innovation Center marks the first Certified Passive House project in South Asia, proving that ultra-high performance efficiency standards are achievable for buildings in any climate.

The Star Garment Innovation Center is a product development facility located near Colombo, Sri Lanka, and was completed in 2018. Intended to be a global model for the entire garment industry, the project sets a new high bar for sustainability, energy efficiency and worker comfort.

The project is one of only two certified Passive House factory buildings in the world, and annual energy consumption will be cut by over 75 percent compared to a conventionally "efficient" modern industrial building.

By choosing to renovate an obsolete building to Passive House standards, the project dramatically reduces the waste, carbon emissions and fossil fuels typically required for demolition

Photo: © Ganidu Balasuriya

Photo: © Circular

Photo: © Ganidu Balasuriya

Photo: © Ganidu Balasuriya

and new construction, and promotes the client's commitment to maintain high standards in social, environmental, ethical and safety compliance.

The Star Garment Innovation Center is a pioneer in applying Passive House technology to a tropical monsoon climate, which features steady warm temperatures year round but extremely high relative humidity. The majority of existing high performance buildings have been located in cool, Northern European–style climates where heating is the primary consideration.

Careful design and engineering of the building systems and enclosure ensures that workers enjoy year-round comfort in a workspace that provides abundant natural light, low humidity, filtered fresh air, and maintains temperatures near a constant 24°C (77°F).

Thorough testing of the airtightness and remote monitoring of the ongoing energy usage provide quantitative confirmation of the building performance, achieving projected operational cost savings for the client and vastly upgraded workplace environmental standards for the employees.

From the outset the agenda was to assemble an integrated project team including local architects, engineers, fabricators and builders to encourage technology transfer and demonstrate the feasibility of high performance building in the region.

By promoting the project's goals and inspiring the local building industry Circular has sought to establish a clear path to both reducing global carbon emissions and putting an end to worker "sweatshop" conditions.

Charles Komar, CEO of Star parent company Komar Brands expounds: "We are delighted with the comfort and performance of our Passive House building, and look forward to years of energy cost savings. Working with Circular was a pleasure — Jordan and his team worked diligently to overcome challenges for the successful design and execution of the project."

Photo: © Circular

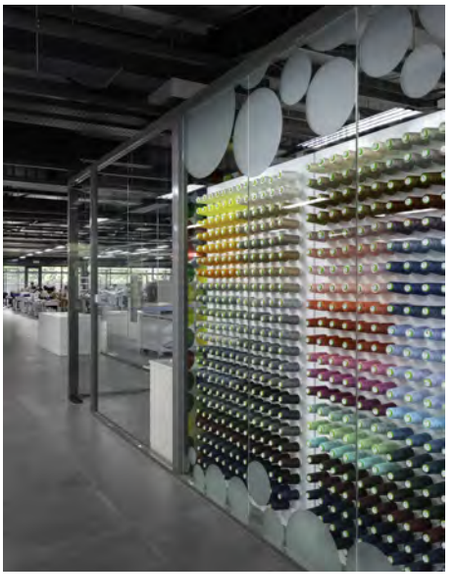


Photo: © Ganidu Balasuriya

PROJECT DETAILS

PROJECT NAME: Star Garment Innovation Center
PROJECT LOCATION: Colombo, Sri Lanka
CLIENT: Star Garment Group
CERTIFIED PASSIVE HOUSE DESIGNER: Circular
LEAD ARCHITECT & INTERIOR DESIGN: Vinod Jayasinghe Associates (Pvt) Ltd (Sri Lanka)
ENERGY CONSULTANTS: Steven Winter Associates
MECHANICAL ENGINEERING: Chandana Dalugoda Consultants
STRUCTURAL ENGINEERING: Ajith Vandebona PE
QUANTITY SURVEYING: Prasad Jasinghe, VFORM Consultants
MEP ENGINEERING: Kosala Kamburadeniya PE
COMPLETION: 2018
PHOTOGRAPHY: Ganidu Balasuriya and Circular

Adisaptagram Workshop

Conceived with the intent of tapping undiscovered potential of talented people in these peri-urban areas, the workshop proves to be a commercially viable endeavour that supports Abin Design Studio (ADS)'s professional practice while being mutually beneficial to the locals who find job opportunities and financial stability here. The project is a celebration of the love, labour and effort that is put into the realisation of various ADS structures.

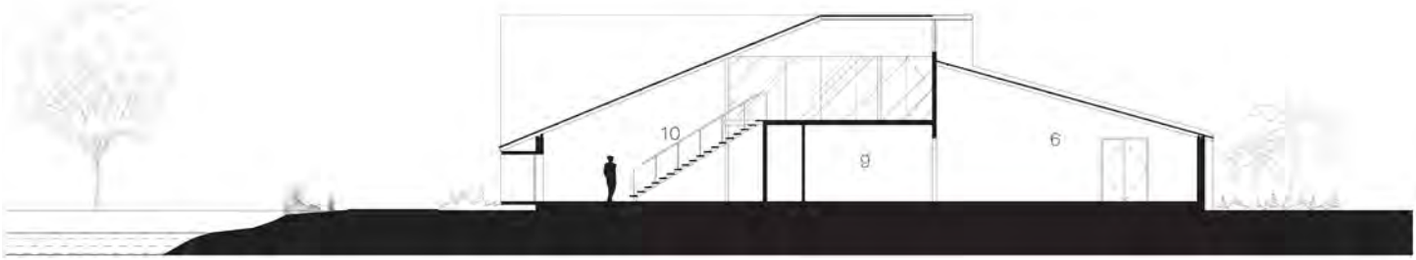
It led to the idea of setting up a workshop and material research unit which would serve as a backbone for explorative and execution works taken up by Abin Design Studio. It was, in essence, a co-beneficial system that would provide

support to the practice as well as stable employment to improve the livelihood of locals.

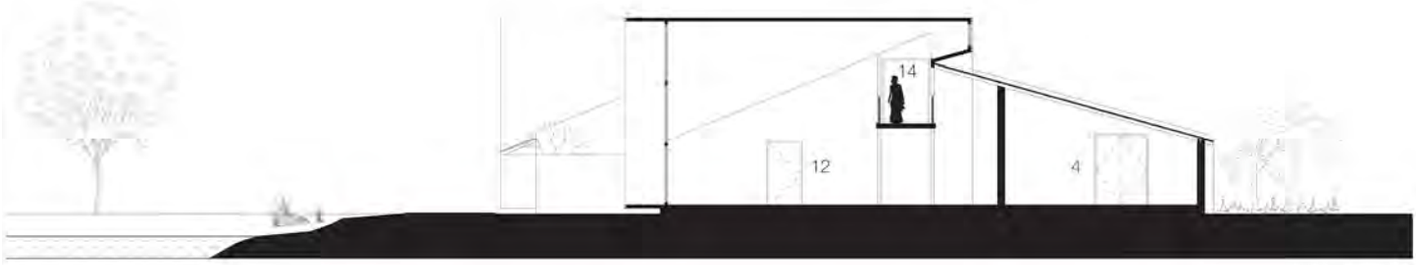
The Adisaptagram workshop was thus established in Adisaptagram, West Bengal, India. Having been able to provide employment to 20 locals by the end of the first year, it proved to be a successful endeavour. ADS is currently in the process of a massive expansion of the workshop and hopes to provide job opportunities to more people by moving more of its back-end work off-site.

The proposed workshop extension is programmatically conceived to allow craftsmen and stakeholders to explore and collaborate on building techniques related to carpentry, metalwork, building finishes, material, etc., in a singular space along with exhibition spaces and workspaces for supervisors.

The proposed major road is along the south side of the site which divides a pond adjacent to it. An arterial road moves along the east frontage of the site. The building in its conception takes advantage of the south-east wind direction combined with evaporative cooling from the pond, but also shades the facade from harsh sunlight. The idea thus is to puncture the facade like a vertical cove and project outward by four feet from the built mass; thereby creating enough depth to block direct sunlight and generate resting spaces for workers at the workshop.



SECTION A



SECTION B

LEGEND

1. ENTRANCE
2. STONE/MARBLE WORKSHOP AREA
3. PAINT WORKSHOP AREA
4. POLISH WORKSHOP AREA
5. ASSEMBLY LINE AND QUALITY CHECKING
6. PACKING AND DISPATCH
7. TOILET
8. PANTRY
9. STORE
10. SHOWCASING AREA/ VISITORS' LOUNGE
11. COURTYARD
12. METAL WORKSHOP
13. CARPENTRY WORKSHOP AND MACHINERY
14. ELEVATED WALKWAY
15. OFFICE
16. BALCONY

The projections along the facade are designed as sleek boxes made using two layers of MS plates for heat insulation. These are opened at the top with operable louvers, in a north-facing direction for cross ventilation. The space between these consecutive 'boxes' is covered in sloping G.I sheets resting on M.S rafters, as the area receives heavy rainfall. The structure is thus worked out to allow ease in construction while indulging ephemeral functions. Overall, the idea is to break the typology of a factory-like space and establish a language that allows the inclusion of stakeholders within the craftsmen's space using an architectural framework that develops a strong tectonic relationship with the context.

The entry to the building is from the south-east side leading into double-height workshop spaces arranged in an open plan, envisioned to allow flexibility in function and interaction across the floor plate. The catwalk at the first level along the central spine acts as a visual axis to usher visitors towards the main exhibition spaces and meeting areas, both of which are located at the south-west side of the building – in adherence to Vaastu. It also accommodates an introvert green court of 4.2 metres x 2.0 metres so as to allow the eye to rest.

PROJECT DETAILS

PROJECT NAME: Adisaptagram Workshop
PROJECT LOCATION: Adisaptagram, West Bengal, India
CLIENT: Abin Design Studio
ARCHITECT & LANDSCAPE INTERVENTION: Abin Design Studio
LAND AREA: 12708 square feet / 1180 square metres
BUILT-UP AREA: 3,930 square feet / 365 square metres
COMPLETION: July 2020
PHOTOGRAPHS BY: Suryan // Dang, Abin Chaudhuri

RADICI Suzhou

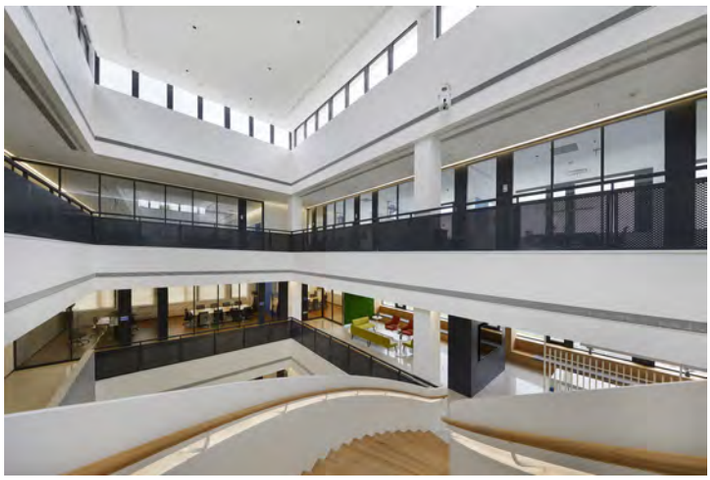
Radici Suzhou Factory is realised on a site of 36,000 square metres and located in the future urban centre – Suzhou Industrial Park.

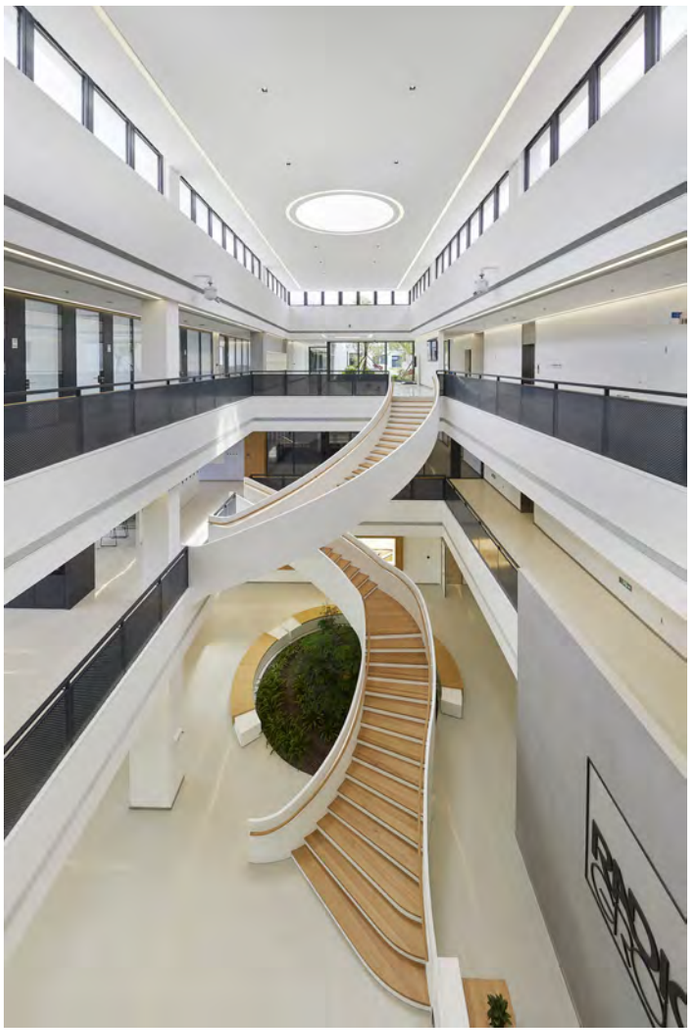
Radici, a leading Italian chemicals manufacturer, commissioned VIRTUARCH to be responsible for architecture and interior design, landscaping design and project management.

VIRTUARCH adopted a unique style of contemporary industrial aesthetics and Suzhou garden's characteristic, successfully realising a healthy working environment and conserving energy for the company operations. In the production building, the layout of the production-related spaces optimises the industrial production flow. Combining functionality with an elegant design throughout all areas of the building, VIRTUARCH has made this industrial building a real benchmark of good industrial building design.

VIRTUARCH developed the iconic glass and aluminum facade of the office building using L-shaped shading elements and traditional Chinese architecture pattern windows on the factory facade blending elements of Chinese and Western culture. Entering the bright lobby with the sinuous spiral staircase links the entrance to the functions on upper floors, a symbol of Radici Group's leadership, plays a leading role in connecting the different spaces seamlessly with a sense of elegance and dynamism to the entire space. A dynamic working area with the open ceiling has a direct access to a green courtyard. The landscaped rooftop garden between office and factory building gives a relaxing and bright view to employees and a characteristic space to connect with nature.

VIRTUARCH has adopted the most advanced green building technologies considering energy-saving, carbon footprint reduction, rainwater recycling, and intelligent lighting system while satisfying the wellness and comfort of employees in the workplace. The integrated north-oriented curtain wall system made of glass with shading elements protecting from early morning and late afternoon sunlight plays an important role in indoor environment, energy conservation and brand image. The equipment of the water cycle and irrigation systems help achieving the





goal of reducing water waster and the carbon footprint. The entire rainwater collection system was designed to reduce the peak loads of rainwater flowing into the public sewer system. The installation of a photovoltaic system on the rooftop with a capacity of 1.4 MW produces renewable energy. VIRTUARCH gave a lot of emphasis to choosing the local plants, retaining original vegetation and soil resources, implementing a sustainable design on the initial stage of the project.

The sustainable and high-performance facility with a photovoltaic system, rainwater recycling and intelligent lighting system earned LEED Gold (Leadership in Energy and Environmental Design) and GBL-2 star certifications.

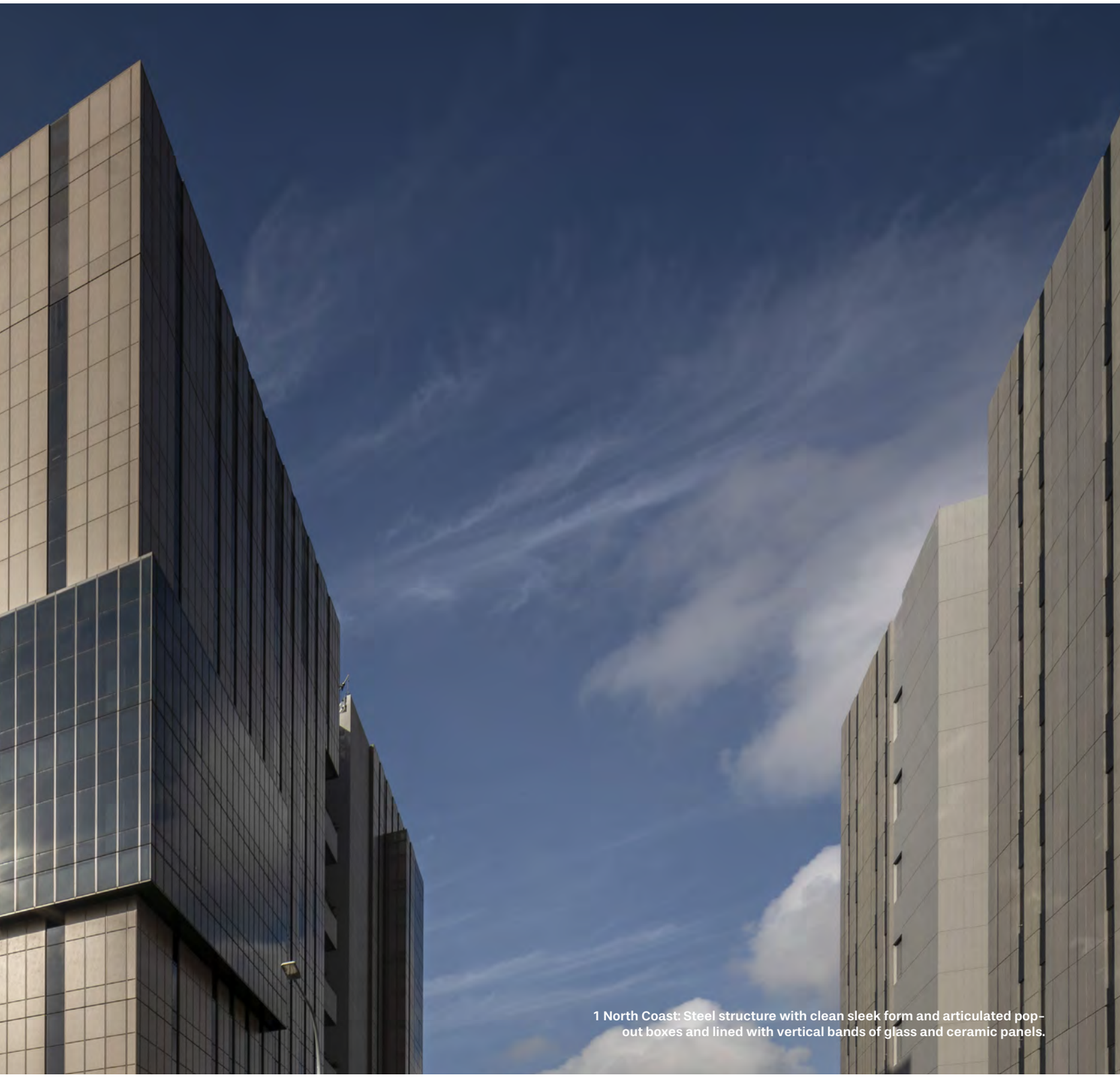
VIRTUARCH has designed the building from a user perspective, composing a walk-through experience which is stimulating, comfortable and highly interconnected. The three-dimensional continuum of space links public, semipublic and private spaces of the building, creates sightlines from the lobby through the showroom to the roof garden, from conference rooms through the staff lounge to a courtyard.

The building was realised almost entirely using local (or locally sourced) materials, achieving high quality of construction at a reasonable project budget. Carefully selecting the finishings, implementing a clear colour concept and a high quality finishing makes this building a showcase of good industrial building design by VIRTUARCH.

PROJECT DETAILS

PROJECT NAME: RADICI Suzhou
PROJECT LOCATION: Suzhou, China
CLIENT: RADICI
ARCHITECT: VIRTUARCH
BUILT AREA: 23,400 square metres
PROJECT TIMELINE: 2020-2023
PHOTO CREDIT: VIRTUARCH

Woodlands North Coast: 1 & 7 North Coast



1 North Coast: Steel structure with clean sleek form and articulated pop-out boxes and lined with vertical bands of glass and ceramic panels.

1 & 7 North Coast are new-gen multi-tenanted industrial developments planned, developed and managed by JTC in Singapore. These buildings were designed to support the evolving needs of industries in the car-lite district – creating a vibrant live-work-play environment and a key commercial cluster in the North.

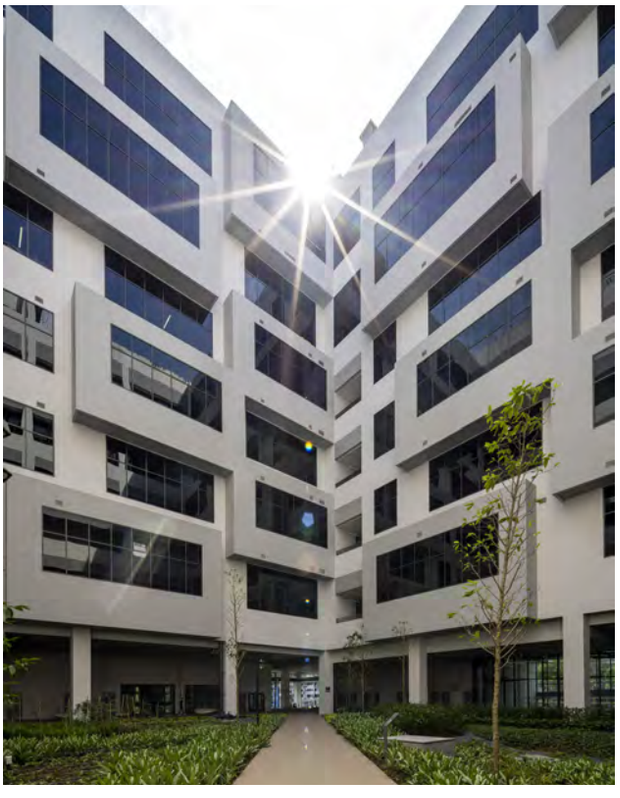
The development is conveniently located near the Woodlands North MRT and the future RTS Link with Johor. The development amplifies the adjacent HDB amenities, offering walkability and convenience through a porous ground floor with F&B and amenities.

A challenge was introducing a central atrium for natural light and air to liven interior spaces – uncommon in industrial buildings. To support the intended layout, double lift cores were to be introduced to meet fire safety and operational requirements.

Completed 1 and 7 North Coast: Prominent presence at the prime corner of the intersection of Woodlands Avenue 9 and North Coast Avenue, marking the southern gateway to the Woodlands North Coast Master Plan.

1 North Coast is a first-of-its kind development allowing companies up to 70 percent of their industrial space for knowledge and service-oriented activities supporting the growing needs of companies who are co-locating their non-manufacturing and manufacturing operations. The buildings comprise cluster plazas that encourage community activities, while offices and shared facilities encourage industry exchange – reinventing how industrial buildings function. Interconnected basements for shared carparks with loading bays relieve ground-level traffic and futureproof expansion into future developments alongside M&E facilities.

The façade is simple and modern with pop-out glass boxes interjected with sky terraces that introduce play of scale and depth, instead of typical utilitarian façades. Vertical bands of glass and panels create a taller expression, while a 30:70 window-to-wall ratio allows light deep into the floorplate. Sky terraces add recesses to the façade and facilitate natural ventilation.



Generous central garden open to sky, dotted with restaurants, cafes and food court clustered around the central courtyard.

7 North Coast: Precast structure with concrete Formliner façade panels, housing B2 industries and showcase high buildability and productivity of pre-cast construction.

Elevated grand central arrival point connecting the two buildings with covered linkways and barrier free ground scape.

PROJECT DETAILS

PROJECT NAME: Woodlands North Coast: 1 & 7 North Coast
PROJECT LOCATION: Woodlands North, Singapore
CLIENT: JTC
ARCHITECTURE FIRM: Aedas
GROSS FLOOR AREA: 89,724.57 square metres
SITE AREA: 29,908.19 square metres
COMPLETION DATE: July and August 2021
PHOTO CREDIT: JTC

KCN Vietnam Launches Ready-Built Factory And Warehouse Project

Mr. Truong Khac Nguyen Minh. Photo courtesy of KCN Vietnam Group JSC.

KCN Vietnam Group JSC (KCN Vietnam), an industrial property developer in Vietnam, recently broke ground on a ready-built factory and warehouse project in the Thuan Thanh III Industrial Park – Zone B, Bac Ninh province. This represents KCN Vietnam's debut venture in Bac Ninh, encompassing a 14-hectare area and anticipated to offer more than 90,000 square metres of top-tier ready-built facilities available for lease in the market. In this interview, **Mr. Truong Khac Nguyen Minh,** Deputy General Director of KCN Vietnam tells us why this industrial project is attractive and how it is designed to conform to strict modern industrial infrastructure standards.

Q: Can you give us a brief background of KCN Vietnam?

A: Since 2021, KCN Vietnam was established to address the escalating demand for high-quality industrial rental properties. Our mission is to develop, design, and manage industrial and logistical infrastructures that enable businesses to leverage Vietnam's sustainable growth. We have laid a solid foundation with an initial land acquisition of approximately 200 hectares and an investment exceeding 300 million USD.

Q: Give us some details of this project and why it is different from other industrial projects?

A: The project in Bac Ninh, Vietnam, is poised to attract interest from diverse industries, including high-tech, clean technology, electronics, light industry, food processing, and supporting industries. What sets this project apart is its top-tier industrial infrastructure and a strategically advantageous location for industrial expansion. Positioned at the Northeastern gateway of Hanoi capital, it enjoys seamless transportation connections and proximity to key international airports and major seaports. These factors bolster its competitive edge, creating a highly attractive environment for significant foreign direct investment.

Q: Why did you choose to invest in Bac Ninh?

A: For years, the Northern region has upheld its status as a leading industrial hub in Vietnam, drawing FDI from international enterprises. Standing out among the region, Bac Ninh is emerging as a focal point for FDI attraction, particularly from Northeast Asian countries such as China, Japan and South Korea. According to the Report of the Foreign Investment Agency (Ministry of Planning and Investment), Quarter I-2024, Bac Ninh province ranked second in the country in foreign direct investment (FDI) attraction with a total registered investment capital of almost USD 745.2 million, accounting for nearly 12.1 percent of total investment capital in the country. The achievement is primarily credited to the substantial investment in the province, particularly in developing high-quality industrial infrastructure and pre-built warehouses and factories.

> "Our future trajectory involves expanding our portfolio to establish KCN Vietnam as the leading local industrial property platform." – **Mr. Truong Khac Nguyen Minh**

Benefiting from its strategic location advantage and commitment to sustainable investment practices, KCN Vietnam's latest ready-built factory and warehouse project in Bac Ninh is poised to generate significant competitive advantages. It is anticipated to attract foreign direct investment (FDI) and play a pivotal role in advancing Bac Ninh province and the broader national economy. Additionally, the project is forecasted to generate numerous job opportunities for local community, thereby enhancing quality of life and fostering regional economic growth.

Q: Can you share with us the design of the project?

A: This newest developed 14-hectare project of KCN Vietnam in Bac Ninh adheres to stringent modern industrial infrastructure standards. These include optimal ceiling heights, well-equipped fight-fighting systems, and efficient loading areas equipped with dock levelers. Furthermore, KCN Vietnam strongly emphasizes sustainable development with the implementation of solar power systems not only conserves resources but also contributes to environmental preservation efforts.

Photos 1 & 2: The newly developed ready-built factory and warehouse project of KCN Vietnam in the Thuan Thanh III Industrial Park – Zone B, Bac Ninh province. Photos courtesy of KCN Vietnam Group JSC.

Q: What are the future plans of KCN Vietnam?

A: Our future trajectory involves expanding our portfolio to establish KCN Vietnam as the leading local industrial property platform. In Thuan Thanh 3 Industrial Park, Bac Ninh province, following the commencement of our 14-hectare project, we are currently planning the development of an additional 10 hectares to meet the growing demands of investors.

Our long-term vision centers on becoming the primary choice for our customers' needs and playing a pivotal role in Vietnam's global expansion as a sustainable industrial hub.

Tainan Public Library

Photography by Ethan Lee.

Project Name:
Tainan Public Library

Project Location:
Tainan City, Taiwan

Client:
Cultural Affairs Bureau, Tainan City Government, Taiwan

Design Team:
Mecanoo (Lead Architect) and MAYU Architects (Architect of Record)

Size:
37,000 square metres

Project Design:
2016-2017

Project Realisation:
2017-2020

Awards:
Yuan Ye Award, Architecture and Landscape, 2021

Photography:
Ethan Lee, Yu-Chen Chao

Mecanoo and MAYU's design for the Tainan Public Library represents the meeting of cultures, generations and histories. Inspired by the local culture and designed for the tropical climate of Tainan. It is home to the city's cultural heritage, modern art, music, films and over a million books, including more than 16,000 from the Japanese occupation period and of course, is equipped with the latest technologies of a modern library.

The most striking feature is the inverted stepped shape of the library. Slender columns support the cantilevers in rhythmically placed quartets, giving a feeling of weaving your way through a modern bamboo forest. The striking crown of the building is surrounded by vertical aluminium slats with carved flower patterns, which are reminiscent of the decorative latticed windows in the old town. These slats filter the light and keep the heat out. In the evening, this unique facade is recognisable from afar.

The stepped building offers shelter to visitors both inside and outside and creates a smooth transition from exterior and interior. Below the cantilevers are four sunken patios for outdoor activities, with the largest accessible from the square; lectures, concerts and exhibitions can be organized here.

Looking up, you can see the special finish of the awnings: champagne-coloured aluminium panels with a linear staggered relief, providing additional decorative elements to the facades. The rational construction of the library allows maximum flexibility, so that the building is prepared for future changes.

Once inside, the double-height atrium is inhabited with a work of art by Paul Cocksedge. Art is exhibited everywhere in the building, not just to look at but also interactive art to touch and play

Photography by Yu-Chen Chao.

Photography by Ethan Lee.

Photography by Ethan Lee.

with. A red sculptural staircase adds an exciting element to the geometric building, intersecting all levels and is visible everywhere through the subtle wooden-slatted flight of stairs. The ground floor is spacious, transparent and warm due to the wood finish.

Upon entry, you are greeted by an arrivals area and the welcome desk, a living room is also located here where you can read newspapers and magazines. The children's library with imaginative bookcases and an adjoining patio under the awning for outdoor play is situated below. This level is also home to a spacious study room with its own entrance, where students can study 24/7.

As you make your way to the upper levels of the building, you first encounter a media library along with a library for teenagers with its own lounge. The general collection is located on the level above this. Beyond there is a floor dedicated to the heritage collection including the Tainan Memorial Exhibition, Japanese Collection Archive and books by Taiwanese authors.

There are also four outdoor areas situated here, which are arranged as roof gardens, as well as three multifunctional spaces for classrooms/workshops and a cafe. At the top of the building, you will find the theatre and conference hall. From the uppermost levels of the building, a beautiful view of the city through the vertical slats is on display. Furthermore, the building has an art gallery, a maker space and Braille library.

Photography by Ethan Lee.

Garden Library (Bamboo Microlibrary)

Project Name:
Garden Library (Bamboo Microlibrary)

Project Location:
Perdana Botanical Gardens, Kuala Lumpur, Malaysia

Client:
Dewan Bandaraya Kuala Lumpur (CSR initiative by the architect)

Architecture Firm:
Eleena Jamil Architect (EJA)

Builders:
JR Jatidiri Sdn Bhd, Bamboo Jungle Adventures

Size:
2.8 metres x 1.4 metres x 3.6 metres

Project Duration:
6 weeks

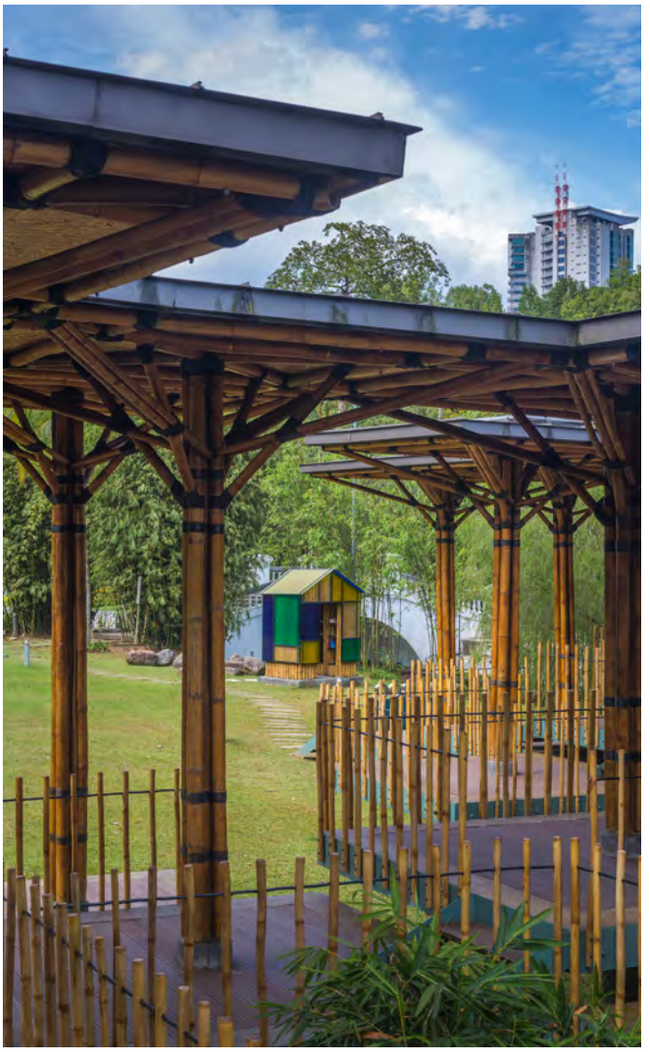
Completion Year:
2020

Photography By:
GARISPXL.CO

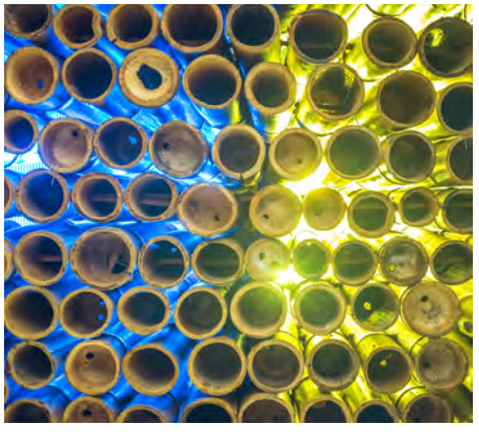
Situated within the grounds of the Bamboo Playhouse at the Perdana Botanical Gardens in Kuala Lumpur, this little structure offers free books to park visitors. It is built in conjunction with the capital city of Malaysia being named as the World Book Capital for the year 2020 by the Director-General of UNESCO Audrey Azoulay on the 19th of September 2018.

The micro-library has a footprint of 1.2 metres by 2.0 metres. It is made from local bamboo culms and colourful polycarbonate sheets. The culms are arranged vertically and tied together to form the shape of a little house with a 'carved-out' internal rectangular space for accessing books placed on shelves. The polycarbonate sheets are cut to different sizes and fixed to metal frames. Together they act as a 'raincoat' to prevent the culms from deteriorating by shielding it from direct sun and rain.

The botanical gardens where the library is located is popular with families, especially



during weekends and school holidays. The micro-library is designed mainly for children and holds mainly books for younger children. The design of the library is that of a little 'playhouse' with bamboo as its main material. The aim here is also to demonstrate the versatility of the sustainable material.



Punggol Regional Library

Project Name: Punggol Regional Library

Project Location: Punggol, Singapore

Architecture and Interior Design Firm: DP Architects Pte Ltd

Project Owner: National Library Board

Punggol Regional Library Official Opening Date: 5 April 2023

Photo Credit: National Library Board

Singapore's largest public library fully opened on 5 April 2023 in Punggol, unveiling five floors of extensive and accessible features in one of the youngest housing estates in the country. NLB's Chief Executive Officer Ng Cher Pong said: "We invite everyone to come experience reading, learning and discovery in the many new and accessible ways Punggol Regional Library has to offer. This library is a breakthrough in our ongoing LAB25 (Libraries & Archives Blueprint 2025) journey of experimentation and innovation to provide better and wider access to learning and knowledge. We welcome more ideas and suggestions as we continue this journey with all our patrons, volunteers, and partners to shape our libraries and archives, and to transform the future of learning."

Design centers on diversity in community

Punggol Regional Library was designed in response to four main objectives – building inclusive knowledge societies, fostering cultural diversity, sustainable development and bridging digital divide. It's envisioned as a Nebula, a cloud inspired form and spatial expression that suggests the idea of exploration of knowledge and inclusivity of all age groups.

Similar to journeying through the galaxy, the library planning allows users to move through the space as one explores and learns. First storey is the "launchpad" where infants start to explore reading. Second storey is the "aurora" where children engage in various activities. Third storey is themed "atmosphere" where teenagers interact and study. Fourth storey is a "space" for adult collection. Fifth storey is the "horizon" where the programme space is placed within a roof top garden. These

Pictured left & above: The Punggol Regional Library comprises five floors of extensive and accessible features.

vertical zonings consider the spectrum of activities, acoustics and segregation required from the diversity of programmes within the library space.

The overall colour palette is warm, allowing books and visitors to stand out as intended. Material selection took into consideration visual relaxation especially for visitors with special needs, softer finishes for sound reverberation, and visitor safety. For wayfinding, each floor is colour-coded, echoing the theme of each storey.

The library floor plate aligns with the curved road and thus curves are used within the space to enhance safety during movement. An accessible ramp connects the first and second storey, allowing wheelchair users, parents with prams and young children to move up and down easily, while experiencing the community gallery along the path.

The concept of a cloud is symbolically represented through a unified element of curved corrugated perforated metal screen, seamlessly connecting multiple floors. It welcomes visitors at the entrance, brings them up the floors via ramps and escalators, introduces them to various collections, screens off activity spaces where noise might be generated, showcases community exhibitions, and forms the changing lights winding around the central atrium.

While the concept behind One Punggol centers on celebrating diversity within the community, the library is envisaged to provide each visitor with a unique exploration and learning journey within a Nebula-inspired space.

Levels 1 and 2 have exciting collections and features for children to read, learn, and discover.

The Accessible Collection on Level 1 offers books for the disability community and their caregivers. The topics selected were based on feedback from users in the disability community.

The Calm Pod comprises two spaces: a waiting area (pictured) equipped with sensory aids, and a more private space with padded walls and flooring. Punggol Regional Library has two Calm Pods, with one each on Level 1 and 2.

Level 1 & 2 of the library:

i Children of all ages can learn through play at Levels 1 and 2, at spaces such as the Toy Library on Level 1 for children aged 6 years and below, as well as at Spark!Lab™, a DIY tinkering space for children aged 7 to 12 years. There is also the World and Us Zone, featuring reading materials from around the world – including books donated by international libraries, Embassies and High Commissions – on themes such as geography, culture, and migration for children aged 4 to 12 years.

ii Persons with disabilities can make use of a range of accessible features in the library, such as the Accessible Collection with Braille texts and phonic readers at Level 1, and assistive technology devices throughout the library to help persons with disabilities perform functions that might otherwise be challenging. The library also has two Calm Pods that provide quiet and calm spaces for persons with disabilities to go to when they need a private and calming sensorial experience.

Level 3 & 4 of the library:

i Teenagers can enjoy a Study Zone and a Teenspace, which hosts hands-on workshops and talks based on trending topics for teens to spark their interest in reading. These are on Level 3.

ii Entrepreneurs, aspiring business owners and freelancers can benefit from Launch, a business resource centre on Level 4 that offers masterclasses by industry experts, upskilling workshops, networking sessions, and pitch nights. There is also a Co-working Zone with working pods, meeting pods and reservable seats to provide a conducive working space for professionals and business owners.

iii Punggol residents can discover stories about Punggol, with the area's history dating back 200 years. The Lens of Literature on Level 3 is a multimedia interactive showcase of curated poems, novels and short story excerpts about Punggol by Singapore writers. There is also the Punggol Stories exhibition at Singaporium at Level 4, which presents selected stories, with some contributed by the community, and histories of Punggol.

At Teenspace on Level 3, teens can enjoy a showcase of content and artwork installations popular among teens, including the Book of Possibilities, to spark their interest in reading and learning. There will also be hands-on workshops and talks on trending topics to encourage deep learning and skills-building.

Danfoss Drives and Honeywell sign agreement to enhance collaboration, aiming to reduce downtime and lower engineering costs

With the agreement, Danfoss Drives and Honeywell aim to deliver seamless data integration to reduce downtime and lower engineering costs. Photo credit: Danfoss

Nordborg, Denmark – Danfoss Drives is pleased to announce that they have signed a non-binding memorandum of understanding (MoU) with Honeywell to explore a possible collaboration on innovating automation solutions with an integrated architecture, aiming to reduce downtime and lower engineering costs.

Automation solutions are traditionally used to enhance efficiency, precision, safety and quality across various industries such as manufacturing, process industries, energy and utilities, automotive industries and agriculture.

By working together, Danfoss Drives and Honeywell aim to address the limitations of traditional automation solutions, which often force operators to choose between highly integrated, closed architectures that lack flexibility, and open architectures that provide flexibility but suffer from limited data integration and interoperability.

Mika Kulju, President of the Danfoss Drives business, says: "At Danfoss, we firmly believe that the most innovative solutions come from direct cooperation with our customers and partners. With this collaboration, we will improve data integration and the commonly known lack of flexibility across automation platforms. The potential to drive growth and deliver enhanced value to our customers is enormous, hence I can only emphasize our strong commitment to making this partnership a success."

The collaboration between Danfoss Drives and Honeywell aims to resolve data integration and interoperability issues across automation platforms by offering an open and integrated solution for the industry. This will enable both companies to deliver benefits to customers, including lower time to operation (TTO), reduced engineering time and costs, predictive maintenance, and enhanced information availability for operators.

The joint effort will benefit multiple sectors, including battery manufacturing, specialty chemicals, mining, and metals and minerals (MMM), among others.

Pramesh Maheshwari, President of Honeywell Process Solutions, says: "This partnership marks a transformative step in automation for the industry, ensuring process operators can work with the most accurate data available. Together with Danfoss, Honeywell will help drive efficiency and flexibility through automation solutions for our customers."

KONE acquires Orbitz Elevators in Australia and New Zealand

Jon Dwayre, founder and Managing Director of Orbitz Elevators and Marek Oppeln-Bronikowski, Managing Director for KONE Australia and New Zealand. Photo credit: KONE

Helsinki, Finland – KONE, a global leader in the elevator and escalator industry, announced that it has acquired Orbitz Elevators – an Australian-based provider of custom-designed elevator and escalator solutions for both commercial and residential properties.

KONE will acquire the service business of Orbitz Elevators in Australia and all lines of the company's businesses in New Zealand. The acquisition does not include Orbitz Elevators' Papua New Guinea business.

"Our acquisition of Orbitz Elevators complements KONE's existing service offerings in the South-Pacific and beyond," Marek Oppeln-Bronikowski, Managing Director, KONE Australia Pty Ltd said. "As such, the deal is key to providing the most innovative People Flow solutions to our customers and end-users."

Founded in 2014, Orbitz Elevators has earned a strong reputation as a full-service provider of elevator and escalator solutions and brings with it a skilled team of approximately 40 employees and a strong customer portfolio. Their dedication to innovation, and quality, as well as customer service aligns perfectly with KONE's core values.

"We're excited to welcome Orbitz Elevators' employees and customers to KONE. I'm confident that by combining our experience, we can generate even greater value for our customers," continued Marek Oppeln-Bronikowski.

"For the past ten years our talented teams have focused on creating exceptional customer experiences," added Jon Dwayre, founder and Managing Director of Orbitz Elevators. "By joining KONE, we gain access to their local and global expertise, supply chain and resources. This will allow us to provide our customers with a broader, stronger portfolio of innovative and sustainable products and services."

KONE and Orbitz Elevators will continue to operate as separate entities until the integration is completed. Dwayre will join KONE in an advisory role for five consecutive years, to ensure a smooth transition.

Otis wins maintenance portfolio with SMRT trains

Singapore – Otis, one of the world's leading manufacturers of elevators, escalators, and moving walkways, has been selected by SMRT Trains to service 446 escalators and 52 elevators on the North-South and East-West Lines (NSEWL) for five years.

Starting from this year, Otis will examine, inspect and test the escalators and elevators on the NSEWL to ensure that they remain serviceable and safe for use. They will also conduct regular, ongoing maintenance on the escalators and elevators

and replace parts when necessary.

In operation for over three decades, the NSEWL are the oldest and most heavily-utilised rail lines in Singapore's Mass Rapid Transit (MRT) network – the two lines span 62 stations in total – and are operated by SMRT Trains, Singapore's pioneer rail operator.

In 2022, Otis completed the modernization work to completely refurbish 231 escalators across 42 stations for the NSEW line. Each of the escalators has been upgraded with additional safety features, higher efficiency machines and new energy-saving controllers. The project won the Escalators, Modernization category in Elevator World Magazine's 2024 Project of the Year Awards.

Photo credit: Otis Elevators

TK Elevator enhances mobility at Guangzhou Baiyun train station in China with 150 victoria escalators for high-traffic areas

Düsseldorf, Germany – TK Elevator, a global leader for elevator and escalator solutions, marks a significant achievement with the installation of 150 units of its flagship 'victoria' escalators at the newly reopened Guangzhou Baiyun train station in China.

Positioned as one of China's cutting-edge "superstations", the revamped Guangzhou Baiyun train station serves as a vital link between the country's expanding transportation networks. Boasting 24 tracks and platforms, a vast 40,000 square metres waiting hall, seven floors, and a capacity of up to 15,000 people, the station underscores China's dedication to modernizing its transportation infrastructure and TK Elevator's commitment to delivering innovative solutions that enhance urban mobility. As China advances its transportation networks nationwide, TK Elevator's mobility solutions play a pivotal role in ensuring safe and reliable passenger transit within these major transportation hubs.

"This project's importance extends beyond the number of escalators involved. It showcases our leadership in backing future infrastructure projects and our commitment to advancing sustainable public transportation. Our victoria escalator, orinoco moving walks, and wide range of elevator models play a pivotal role in enhancing the passenger experience within expanding railway and metro networks worldwide," states Jürgen Böhler, CEO Asia Pacific, TK Elevator.

Smart Cities

Smart City Definition

There are many definitions of a smart city. The International Institute of Management Development (IMD) in Switzerland defines a smart city as an "urban area that has become more efficient and/or more environmentally friendly and/or more socially inclusive through the use of digital technologies".

A smart city uses data and digital technologies such as sensors, Internet of Things (IoT) devices, Artificial Intelligence (AI), cloud computing systems, blockchain, geospatial technology and others to make better decisions and improve the quality of life.

Key features of a smart city are an efficient transportation system, increased public safety, better waste management, optimised energy consumption, cleaner air, less pollution and economic development.

The International Institute for Management Development, released the results of the IMD Smart City Index 2024 and the top 10 cities are:

Smart City Index (2024)

(1) Zurich
(2) Oslo
(3) Canberra
(4) Geneva
(5) Singapore
(6) Copenhagen
(7) Lausanne
(8) London
(9) Helsinki
(10) Abu Dhabi

Singapore – the smartest city in Asia

According to IMD Smart City Index (2024), Singapore is the smartest city in Asia. The Singapore Government has started a number of initiatives to make the country as a Smart Nation. These Strategic National Projects are the foundation for turning the vision into a one big reality: GoBusiness, CODEX, E-Payments, LifeSG, National Digital Identity, Smart Nation Sensor Platform, Smart Urban Mobility and Punggol Smart Town.

Punggol Smart Town

Punggol is located at the northeastern part of Singapore. Besides being a new and young town in Singapore, Punggol is currently being developed as a full-fledged Smart Town – one that will demonstrate future living in Singapore.

It will showcase how digital technologies can improve liveability and sustainability, create business opportunities, and forge a closer community. This builds on existing efforts by the Housing & Development Board (HDB) to develop Punggol as Singapore's first eco-town since 2010.

Under this plan, Punggol will integrate residential districts, a business park, a university campus, community facilities, and a network of parks and waterbodies, transforming the way we live, work, learn, and play. The trials conducted in Punggol will be scaled to guide the development of future new towns and districts such as Tengah and Jurong Lake District, as well as the redevelopment of existing towns across Singapore.

An integral part of Punggol town is the 'Punggol Digital District' (PDD), a mixed-use development slated to become a thriving, tech-enabled, sustainable district showcasing Singapore's Smart Nation ambitions. Comprising JTC business park and the Singapore Institute of Technology (SIT) Punggol Campus, the Punggol Digital District at 50 hectares is the largest mixed-use Green Mark

Punggol Digital District under construction. (Photo credit: JTC)

District Cooling System serving Punggol Digital District. (Photo credit: JTC)

Campus Boulevard under construction in Punggol Digital District. (Photo credit: JTC)

Heritage Trail under construction. (Photo credit: JTC)

Platinum District in Singapore, which employs at-scale sustainable practices in energy efficiency, water efficiency, material and waste management, environmental planning, green buildings and transport.

With integrated passive design strategies alongside advanced mechanical and electrical systems, the district will achieve 35 percent reduction in operational carbon emissions yearly, equivalent to taking 4,000 cars off the road.

PDD, which is master planned and developed by JTC with WOHA as the master plan designer and lead consultant from planning to construction, will bring 28,000 jobs, lifestyle and community amenities closer to homes. The SIT Punggol Campus, developed by SIT and designed together with WOHA Architects and RSP Architects Planners & Engineers, will be able to accommodate 12,000 students. The first phase of Punggol Digital District, which covers 21 hectares, will open progressively from 3Q 2024.

The entire Punggol town, with its housing precincts and the PDD, provides a unique environment for innovation to prosper, and for companies, researchers, students and even residents to work together on novel and impactful ideas. Technology will also be deployed to re-engineer services to respond to citizens' different and changing needs.

Progressively from 2024, Punggol will serve as a living lab to test out new concepts of living, working and service delivery.

How Can Cities Use Technology To Shape A Smart City?

Technology plays a key role in enhancing smart city capabilities. Smart technology keeps smart cities more connected, intelligent and sustainable. The experts from the building industry tell us how smart technology shapes a smart city.

The Otis Compass Smart Grouping™ technology advances dispatching efficiency to cut waiting and journey times in half compared with traditional systems. Photo credit: Otis

Grant Mooney, Otis Southeast Asia Managing Director comments:

"Otis is a global leader in the manufacture, installation and servicing of elevators and escalators, we move 2.3 billion people a day and maintain approximately 2.3 million customer units worldwide – the industry's largest Service portfolio. You'll find us in the world's and Asia Pacific's most iconic structures. Headquartered in Connecticut, USA, Otis is 71,000 people strong in more than 200 countries and territories.

At Otis, we are introducing connected elevator solutions and digital technologies that are smarter and more sustainable, helping cities improve connectivity. To enable shorter waiting time for passengers, our AI-powered Otis Compass® Infinity destination dispatch system acts as a virtual concierge, guiding passengers to the appropriate elevators and spaces within a building. Its Smart Grouping™ technology advances dispatching efficiency to cut journey times in half compared with traditional systems.

In many cities, hospitals, hotels, and commercial businesses are turning to service robots to enhance their customer experience and improve employee productivity. Otis Integrated Dispatch™ enables the integration of elevators with autonomous service robots, allowing robots to interact with the elevators via the cloud, perform their tasks safely, and operate without need for human intervention.

In times of emergency, prompt technical support is crucial. To accelerate technical support and minimize the stress of entrapped passengers, Otis offers smart screens inside elevator cabs that can provide video calls to OTISLINE – a 24/7 customer support network."

Otis' AI-powered Compass® Infinity destination dispatch system acts as a virtual concierge, guiding passengers to the appropriate elevators and spaces within a building. Photo credit: Otis

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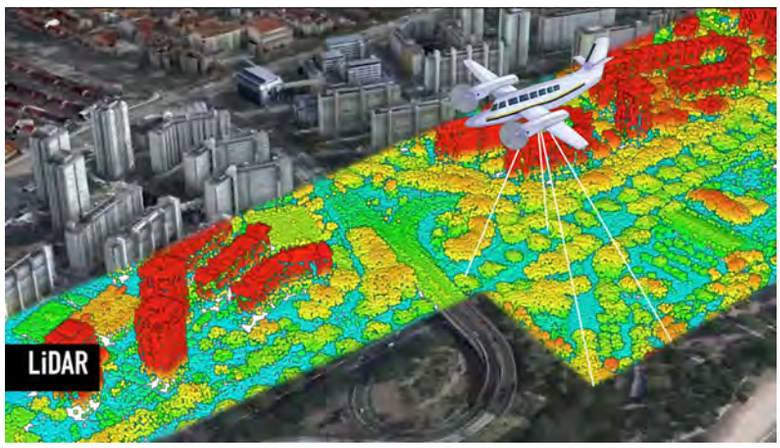
Mr Sin Lye Chong, Assistant Chief Executive (Geospatial & Engagement) and Chief Sustainability Officer, Singapore Land Authority comments:

"The Singapore Land Authority (SLA) is guided by its vision "Limited Land. Unlimited Space" to optimise land resources for the social and economic development of Singapore. As the national geospatial and mapping agency, SLA spearheads the use of geospatial information through a national collaborative environment to foster innovation, knowledge and value creation for the Government, enterprises and community.

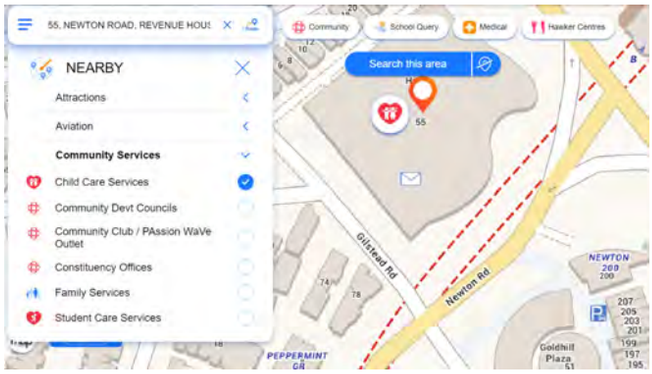
SLA leverages geospatial technologies to enable Singapore's smart nation agenda to support a smarter, more sustainable and liveable nation.

OneMap, Singapore's authoritative national map that is developed and managed by SLA, features 120 thematic layers and powers over 100 public and private sector apps, including emergency services, barrier-free access routes and community engagement, to enhance the lives of citizens.



LiDAR (light detection and ranging) scanning generates 3D points, known as point cloud, from reflected laser pulses of objects and landscapes, to produce accurate 3D captures.

SiReNT (Singapore Satellite Positioning Reference Network) station at Sultan Shoal.



Screenshot from OneMap showing community services at Novena, Singapore. OneMap features 120 thematic layers and powers 100 public and private sector apps.

The Singapore Satellite Positioning Reference Network (SiReNT), established and maintained by SLA, enables real-time centimetre-level precise positioning. It helps to monitor rising sea levels and ensures accuracy in piling works and driverless vehicle routing.

On the sustainability front, SLA's geospatial information including lidar scans and street maps are used to develop a Digital Urban Climate Twin of Singapore that aids policymakers and research institutions to assess and simulate effective climate adaptation solutions that can enhance the city's climate resilience, in the areas of solar mapping, land surface temperature monitoring and pedestrian thermal experience."

All photos copyright of Singapore Land Authority.

Erik Sucksdorff, Head of Energy, Urban & Industry, Vaisala comments:

"Vaisala offers its customers the measurement equipment and data – instruments and intelligence – they need to know exactly what is happening in their respective environments. Vaisala is uniquely positioned to span three key themes: compact sensors for ground-level measurements, hi-tech remote sensing instruments, and lightning detection and alerting.

Compact Sensors for Ground-Level Measurements:

Compact weather sensors offer hyperlocal environmental data, essential for the green transition and weather resilience. These small, easily installed sensors can be integrated with existing smart city infrastructure, such as light poles and camera networks. Their affordability allows for the creation of dense networks, providing a detailed view of weather and air quality conditions. Intelligent traffic management systems can utilise this data to issue alerts and optimize traffic flow based on current conditions. Moreover, this data can optimise building automation systems for energy efficiency and indoor air quality.

Progressive Remote Sensing Instruments:

Remote sensing instruments, such as X-band weather radars and doppler wind lidars, are invaluable for monitoring extreme weather events. For instance, Rio de Janeiro's city authorities detect storm fronts and prevent sewer network flooding using an X-band weather radar. Doppler wind lidars create 3D wind maps up to 10 kilometres, crucial for forecasting the dispersion of hazardous gases and dust and for ensuring the safety of drone and vessel traffic in windy conditions.

Lightning Detection and Alerting:

Vaisala's global lightning detection network provides critical data for public safety during thunderstorms. Cities subscribe to this data service to configure automatic alerts for residents when lightning is approaching. High-precision lightning sensors further enhance the system's accuracy, with resolution down to 100 metres, ensuring timely and accurate alerts.

Implementing these technologies can significantly enhance the resilience and sustainability of smart cities."

Beam Weather Station with Vaisala AQT560 air quality sensor (on the top) and Vaisala WXT536 multi-weather sensor (in the middle). Photo credit: Vaisala

Vaisala Windcube Scan doppler wind lidar with rotating scanning head. Photo credit: Vaisala

Edward Loy, Managing Director, Southeast Asia, KONE comments:

"At KONE, our mission is to improve the flow of urban life. As a global leader in the elevator and escalator industry, KONE provides elevators, escalators and automatic building doors, and solutions for maintenance and modernization to add value to buildings throughout their life cycle.

Smart cities offer an urban experience that is efficient, sustainable and empowering, with connected devices allowing citizens control over everything from mobility to home appliances. At KONE, we see technology as an enabler that helps customers solve problems and grasps opportunities that are very tangible for people's everyday lives. Elevators and escalators can become a crucial part of wider smart ecosystems within buildings and cities, enhancing the lives of city dwellers and contributing to their safety and well-being.

New digital services are the game changer in terms of what an elevator is, and what it can become. For example, digital elevator services integrated with KONE DX Class elevators are bringing a new era of emotional-level sharing among building users. At the same time, artificial intelligence-based analytics leveraged by KONE 24/7 Connected Services help enhance predictive maintenance for vertical transportation: anticipating future equipment servicing needs and identifying issues before they cause problems.

As smart cities are taking shape around Southeast Asia and beyond, adaptable buildings will need digital platforms for easy connectivity, enhanced user experiences, and optimal flexibility. KONE's digital solutions make this future a reality today – for customers and partners alike."

Immersing in a multi-sensory experience with KONE DX elevators.

Intelligent predictive maintenance with KONE 24/7 Connected Services that keeps your building moving.

All photos copyright of KONE.

Mr Kenny Teo, Chief Executive Officer, ATT Group comments:

"ATT is a leading technology solutions provider of customisable and advanced solutions across industries in Singapore, Australia, India, Indonesia, The Philippines, and Vietnam. Counting public and private sector projects in its vast track records, ATT has over 25 years of experience in developing and deploying solutions in Enterprise IT, Integrated Security Management, and Intelligent Traffic Management.

Cities are increasingly leveraging Information and Communication Technologies (ICT) to transform into smart cities. ATT, headquartered in Singapore with regional presence, offers a comprehensive suite for this transformation. Our solutions provide a holistic approach to urban mobility, encompassing intelligent traffic management systems, customisable and integrable into existing infrastructure. These systems utilise sensor data, video analytics, artificial intelligence and IoT technologies to optimise traffic flow, improve road safety through data-driven insights, and provide real-time data for faster response times.

Additionally, ATT's integrated security management systems utilise CCTV, motion sensors, and cutting-edge facial recognition for swift threat detection and enhanced security for a safer urban environment.

By integrating these ICT solutions, ATT empowers cities to create a more efficient, sustainable, and liveable environment for all."

Photo credit: ATT Group

Hitoshi Ono, 1NCE's SVP for APAC comments:

"1NCE is a company offering a software platform for connected products that delivers hassle-free IoT in 173 countries and regions. The software platform enables customers to easily, securely and reliably collect device data and turn it into actionable intelligence. More than 20,000 users and 60 Fortune 500 companies trust 1NCE with 22 million connected products worldwide.

Photo credit: 1NCE

At 1NCE, we're seeing cities in Southeast Asia and around the world utilising smart city technology from our company and other innovators to enhance their smart city initiatives. Use cases include:

- Efficient resource management through smart meters and sensors for water and energy, optimising usage and reducing waste.
- Traffic management improvement with real-time data from connected sensors, easing congestion and enhancing public transport reliability.
- Public safety benefits from smart surveillance systems and emergency response enhancements.
- Environmental sustainability achieved through air quality monitoring and smart waste management systems.
- Smart infrastructure, including energy-efficient buildings and grids.
- Health services upgraded with remote monitoring and public health data analysis.

Mr. Jonathan Tan, Managing Director, South East Asia and Taiwan, UnaBiz comments:

"UnaBiz's expertise lies in low-power wide-area (LPWA) connectivity and IoT solutions. We are a global Massive IoT service provider and integrator that specialises in solution design, manufacturing, connectivity and data platform services across a hybrid of LPWA technologies such as Sigfox 0G, LTE-M, NB-IoT and LoRaWAN, to power sustainable business growth. UnaBiz owns the Sigfox 0G technology that connects over 13 million sensors for 1500 B2B customers on the global 0G Network, owned and commercialised by 70+ national operators worldwide. In 2023, UnaBiz was awarded Frost & Sullivan's prestigious Asia-Pacific Company of the Year in the Internet of Things solutions industry.

At UnaBiz, we believe that IoT solutions are the key to implementing energy-efficient initiatives and streamlined waste management processes that aid in developing sustainable urban landscapes and Smart Cities.

IoT devices offer low-cost, long-range network connectivity that enables governments and organisations to seamlessly collect fit-for-purpose data. For example:

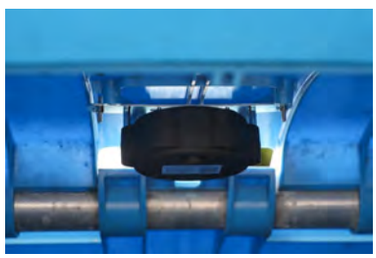
Energy & Water Consumption

Smart wireless IoT sensors can collect and monitor real-time and verifiable data in buildings. Asset owners can analyse energy and water consumption trends to better manage these resources; assess targets and tailor a low-carbon transition plan to help meet sustainability goals.

Waste Management

Bin sensors detect fill levels and send alerts when the bin is near-full to optimise waste collection trips and manpower., thereby lowering CO2 emissions by reducing unnecessary waste collection trips, contributing to a cleaner city and planet.

With reliable data, decision-makers can make informed choices to reduce energy waste, improve resource management, and curb carbon emissions."



Smart 3-in-1 bin sensor for waste management. Photo credit: UnaBiz

Side-loader recycling truck for HDB estates. Photo credit: UnaBiz & The National Environment Agency (NEA)

Smart Water Monitoring - Installation of Norika water meter at StorHub Self Storage. Photo credit: UnaBiz

Smart Energy Monitoring - Installation of Socomec electrical meter at StorHub Self Storage. Photo credit: UnaBiz

The State of Smart Cities in Asia

Interview with **Frederico Ramos**, Principal, and **Janice Tnay**, Master Planner, Aedas Singapore; and **Ning Huo**, Executive Director, Aedas Beijing.

Frederico Ramos

Janice Tnay

Ning Huo

Q: What is the current outlook of smart and sustainable cities in Asia?

A : The current outlook for smart and sustainable cities in Asia is promising. Many Asian cities are indeed becoming smarter and more sustainable, with even Singapore going beyond the Smart Cities concept to embrace the idea of a Smart Nation. Several drivers and benefits contribute to this trend.

The rapid urbanisation in Asia has led to challenges such as traffic congestion, pollution, and resource strain. Smart cities offer solutions to these challenges by optimising resource usage and improving management efficiency.

As economies in Asia continue to flourish, the growing demand for high-quality urban infrastructure and services follows suit. Smart cities can help meet these demands by leveraging technology to optimise resource usage and enhance management efficiency.

We see also that many Asian governments have also launched smart city initiatives, providing policy support and funding for the development of smart technologies and infrastructure.

The rapid development of information and communication technologies, including IoT, big data, and artificial intelligence (AI), has enabled the implementation of smart city solutions. These drivers and benefits are driving the momentum toward smarter and sustainable cities in Asia, fostering a vision of urban environments that are not only technologically advanced but also environmentally friendly and inclusive.

Q: What role do government policies and emerging technologies such as AI and IOT play in the development of smart cities in Asia?

A: Government policies and emerging technologies such as AI and IoT play pivotal roles in the development of smart cities in Asia. Government policies set the framework for investment in infrastructure, sustainability, and innovation, creating an environment conducive to the integration of advanced technologies. These policies can incentivise public and private sector collaboration, which is essential for the implementation of smart city initiatives.

Additionally, emerging technologies like AI and IoT enable the collection and analysis of data to improve urban planning, resource management, and citizen services. AI can optimise traffic flow and energy usage, while IoT devices can enhance public safety and environmental monitoring.

Recent AI developments have the potential to transform the way we interact with urban data models from the realm of "geek specialists" to a friendly and seamless environment made easier by our AI assistants. In the future, we will move towards a realm of Human-Machine co-authorship, where each party focuses on tasks that add value to a combined outcome greater than the sum of their individual capacities.

When supported by government policies, these technologies can lead to more efficient and sustainable urban environments.

Q: How can architects and urban planners promote and accelerate the development of smart cities in Asia?

A: Architects and urban planners are pivotal in advancing smart city development in Asia. Through proactive promotion of smart city technology, they can raise awareness about its wide-ranging benefits, including carbon neutrality, efficient resource management, and streamlined operations.

Moreover, by reimagining the Built Ecosystem/Cities realm, they can innovate designs that foster sustainable living and community engagement. Their strategic decisions and innovative designs demonstrate the seamless integration of smart city strategies, contributing significantly to the overall

development of smart cities in Asia.

Embracing innovative technologies such as AI, big data, and city digital twins is vital for cultivating sustainable, efficient, and interconnected urban environments. These advancements inspire and steer the development of smart cities in Asia, ultimately creating a positive lasting impact for future generations.

Q: Can you name us some successful smart city projects in Asia?

A: Asia is home to some incredible smart city projects that are shaping the future of urban living. Aedas, a leading architecture and design firm, has been at the forefront of this movement, playing a pivotal role in the development of smart cities across the region.

One standout project is the LiJia+YueLai Smart City Area in Chongqing, China, where Aedas has been instrumental in the planning and design of the innovative Chongqing Lijia Smart Park. This groundbreaking project integrates the latest technological advancements and sustainable design to create a vibrant and efficient urban environment.

In Singapore, Aedas has made its mark with the JTC Woodlands North Coast Master Plan, which aims to transform North Woodlands into a dynamic smart business park, seamlessly blending smart technology, sustainable design principles, and car-lite green spaces to foster a vibrant live-work-play community.

These projects stand as shining examples of how Aedas is spearheading the transformation of urban landscapes, elevating the quality of life for residents, and setting new standards for smart city development in Asia and beyond.

Q: What are the challenges of developing smart cities in Asia?

A: The development of smart cities in Asia presents a number of compelling challenges. One of the key obstacles is the need to integrate new technologies with existing infrastructure in a way that is efficient, sustainable, and inclusive. In addition, ensuring data privacy and cybersecurity in a connected urban environment is a critical concern that must be carefully navigated.

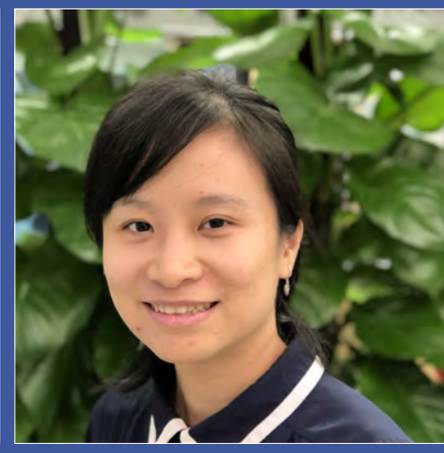
Another significant challenge is the need for broad stakeholder collaboration, spanning public and private sectors, communities, and academia. Developing smart cities requires a coordinated effort and shared vision to address issues such as energy efficiency, transportation systems, and public services.

Furthermore, a key challenge is to ensure that the benefits of smart city initiatives are accessible to all citizens, including marginalised communities. Implementing equitable policies and inclusive decision-making processes will play a pivotal role in addressing social disparities and ensuring that the benefits of smart cities are enjoyed by all.

In the face of these challenges, it is essential to foster innovation and creativity, leveraging the diverse talent and expertise present in Asian countries. Embracing these challenges as opportunities for positive transformation, we can work towards creating smart cities that enhance the quality of life for all residents, promote sustainability, and drive economic growth.

Interview with **Steven Fry-Harris**, Associate Director, IT & AV, Cundall; and **Annie Nguyen**, Associate Director, Building Automation, Cundall.

Steven Fry-Harris



Annie Nguyen

Q: What is the current outlook of smart and sustainable cities in Asia?

Steven: Climate resilience and climate risk both play a major role as drivers for smart city and technology adoption, as they are a priority for governments in the Asia region. In a lot of the smart city benchmarking that occurs globally, smart and sustainable go hand in hand. It's all matched up, the United Nations Sustainable Development Goals and other benchmarks such as the different International Telecommunications Union benchmarks, which are all about smart, sustainable cities.

Annie: There are a lot more people in the property sector talking about smart and sustainable buildings. Clients will ask us what the steps are if they want to do a smart building that is also sustainable. The current technology enables us to do so many things to improve energy performance, water efficiency, comfort and the occupant experience, but many clients are concerned about cost, and this prevents them from going ahead and implementing the initiatives.

For smart and sustainable cities, projects can range from relatively small interventions such as a flood detection alert system through a major scale such as a district masterplan. While cost is always a significant factor, governments in Asia can also encourage more companies and urban master planners to be a part of making the transformation through incentives such as green financing or carbon taxes and so forth.

Q: What role do government policies and emerging technologies such as AI and IOT play in the development of smart cities in Asia?

Steven: The use of smart cities approaches such as digital twins of cities help improve planning decisions and understand risk, and this is a priority for governments in the region. AI can provide feedback on decisions, for example, if a proposal is being made to develop a specific site, it can automatically consider how other factors such as proximity to flood-exposed land, the impact of other buildings on natural light levels, how close people will be to means of egress if needed, and so forth.

It all drives towards smarter thinking through leveraging data and analytics to use them as a force for achieving positive change and impact.

Annie: If it's a push or initiative by the government, they will generally always make it happen. Singapore is one of the smartest cities in the world and also aims to be a green country. To this end, many things have been implemented, for example, for traffic they are looking at changing how road use is charged. Instead of cameras on the gantries at very crowded areas during only certain times, the new approach aims to use new IoT and AI technologies so people will be charged road taxes and fees based on actual distance travelled per day.

Q: How can MEP and engineering firms promote and accelerate the development of smart cities in Asia?

Steven: From our perspective as engineering consultants, it's about asking those data questions up front. If we can ask these questions of, how are we going to benchmark an area? And if we understand how this area is going to be benchmarked, we can have that conversation with the urban master planners and the architects. We can make recommendations about how they can benchmark and have clear measurable outcomes that can deliver benefits for your clients and for your community.

And the data and benchmarking also act as a validation exercise for the architects and the urban master planners, so they can create a commensurate and exuberant beautiful city that also acts as a sponge city, mitigates flood impact and reduces the risk of climate-related population migration. The result is an urban plan and built form which is also built on very clear foundations that identify it as a sustainable and climate resilient area. So, we can use this data that will in no way diminish the look and feel, the approach and the overall outcomes for project.

Having that data validation process and that data collection process is a hugely powerful tool to validate the architectural approach, to inform the local community and to make it a more sustainable and more achievable project. It also identifies replicative processes, planning processes and automated flows, triggering developments for social infrastructure – these are all aspects to expedite developments, reduce time and waste for financing schemes and increase construction output.

Annie: For a smart city project it is important to work hand in hand with the policy makers. It is really important to know what the aspiration is for that area, and then propose the best options that can align with that. Smart cities also need to be people-centric – it's not just about collecting data. The best solutions are those that increase the wellbeing, safety and amenity for citizens.

Architects and urban planners are really important in shaping the areas we live in. Using the available technologies to be able to properly design and advise clients on the potential outputs, they can promote the adoption of a smart and sustainable environment.

Q: Can you name us some successful smart city projects in Asia?

Steven: In global indexes of smart cities worldwide, two Asia cities are consistently in the top 20 – Seoul and Singapore. The challenge then becomes, how do you stay there? The forthcoming challenges will be digital trust, cyber security and technical maintenance. Bridging from the 5th to the 6th and 7th Industrial Revolutions, public perception around AI and how we leverage AI will come under increasing scrutiny.

Annie: Singapore's aspiration to be a smart nation has driven its policy to create more possibilities for itself beyond what it imagined possible. It has digitalized 99% of the government services from end to end, invested in infrastructure to create shared open platforms for businesses and citizens to learn and develop. It encouraged more investment in technology and talent to promote digital economy and society. The achievement can be as simple as installing flood sensors in the drain system, so if the drain has a certain amount of water inside then they will issue an alert and say there's excess water – and the sensors will send the data directly to one platform so the authorities can see all across Singapore what is happening. A few other examples are robot cleaners in public places, driverless vehicles in parks, odor sensors in public toilets, etc.

Q: What are the challenges of developing smart cities in Asia?

Annie: Many clients need to look at the numbers, such as what will they save on energy costs, or gain in time savings on maintenance or management efficiency, so having the data to demonstrate the return on investment and the time periods involved is something the sector needs.

Steven: There needs to be a focus on what smart city indicators are actually measuring. They are not assessing if your building can win an award or be the tallest or look the prettiest, the indicators are social-centric. The UN Habitat Guide for People4-Centred Smart Cities is all about the community. So, if you are talking about a digital twin of a city or region, there might be layers that show things like flood risk, or how many doctors there are in an area to serve how large a population.

All the different stakeholder groups need to be included and considered – citizens, business, the government – and that is because you need people in the region or city to connect to this and engage with it.

This all starts to drive public trust back into the approach in a very clear and visible manner, deliberately spotlighted. This trust and openness transcends to investment, academia, businesses and social infrastructure. Smart cities are stronger when they harness the community. It can act as additional data sources, create buy in from the community on schemes, win votes, support planning applications, and create harmony.

Finally, this is also key when presented with challenging situations. Climate threat is increasing, as seen by recent heat threats in the region, smart cities can support mitigating these threats but communal trust in smart city systems and the authorities implementing them is key to harness the power of this data and the opportunities it can realise.

Interview with **David Calkins**, Co-Regional Managing Principal - Asia Pacific and Middle East Gensler.

David Calkins

Q: What is the current outlook of smart and sustainable cities in Asia?

A: Urbanization in Asia is accelerating, with cities increasingly adopting innovative technologies to enhance living conditions, sustainability, and efficiency. According to the IMD Smart City Index 2024, which defines a smart city as an urban setting that applies technology to enhance the benefits and diminish the shortcomings of urbanization, most Asian cities have improved their rankings compared to the previous year. For example, Singapore is now one of the top five "smartest" cities globally and leads in Asia.

Smart cities offer a big opportunity to use technology to make urban areas more efficient, livable, and sustainable. This means integrating tech with urban renewal projects, community development strategies, and impactful ideas aimed at creating fairer cities. By doing this, we can improve human experiences and build urban environments that are resilient and inclusive.

Q: What role do government policies and emerging technologies such as AI and IOT play in the development of smart cities in Asia?

A: Government policies are really key when it comes to developing smart cities in Asia. A lot of Asian governments have rolled out strategic frameworks and policies to boost smart city growth. Take Singapore, for example, the Smart Nation initiative is fostering a culture of innovation and experimentation by having the right policies and legislation in place, alongside strong support for research and collaboration from both the public and private sectors.

Research and innovation initiatives, like the Research, Innovation and Enterprise plan and AI Singapore, aim to drive technology translation, bolster the innovation capabilities of local enterprises, and leverage emerging tech breakthroughs to develop, prototype, and pilot cutting-edge technological solutions.

Cross-border collaboration also plays a crucial role in the development of smart cities in Asia. The ASEAN Smart Cities Network, set up in 2018, provides a platform for cities from the ten ASEAN member states to share ideas and solutions, driving smart city projects across the region. By fostering

cooperation on smart city development and mobilizing funding and support, this network is speeding up the adoption of emerging technologies throughout Asia.

Q: How can architects and urban planners promote and accelerate the development of smart cities in Asia?

A: Architects and urban planners play a pivotal role in advancing the development of smart cities in Asia by embedding technology and sustainability into their designs. At Gensler, we firmly believe that smart cities should first and foremost be human-centric. It's not just about incorporating technology; it's about ensuring that technology serves a purpose and delivers tangible benefits to the people living in these cities.

Successful designs are those that people not only use but also appreciate. As architects and urban planners, we have a responsibility to model this ethic, ensuring our cities are built with the needs and desires of their inhabitants in mind. We begin our design process by engaging in conversations with clients about the human value of the technology we're incorporating. We ask questions like: How will this technology improve people's lives? How will they interact with it? This ensures that the technology we integrate genuinely enhances the quality of life for individuals.

We also champion a holistic approach to urban planning that seamlessly integrates advanced technologies with sustainable design principles. By advocating for the use of smart materials, green building practices, and IoT-enabled infrastructure, we create spaces that foster connectivity, encourage community engagement, and elevate overall quality of life. By prioritizing human-centric design and embracing cutting-edge technology, architects and urban planners can accelerate the development of smart cities in Asia, ensuring they are not only smart but also sustainable and livable for generations to come.

Q: Can you name us some successful smart city projects in Asia?

A: Singapore stands out as a successful smart city by leveraging technology to enhance the quality of life for its citizens while prioritizing sustainability and efficient governance. Through data- and technology-driven initiatives, Singapore has built a leading smart ecosystem with a citizen-centric approach. A prime example is One-North, a district conceptualized as the country's research, development, and high-tech cluster. This master-planned area accommodates life sciences, creative industries, business and technology clusters, all with integrated facilities for research, innovation, and residential living. Its strategic location near major public institutions fosters collaboration and knowledge exchange, making it a thriving hub for entrepreneurship and innovation.

Aligned with the Singapore government's vision to create world-class learning spaces in One-North, we partnered with CapitaLand Development to design Catapult, Southeast Asia's first shared executive learning centre. Catapult is specially designed to meet the needs of corporate universities, learning and development units of organizations, and executive business schools, providing a dynamic space for training local, regional, and global C-suites and high-potential executives.

Another remarkable smart city project is Bonifacio Global City (BGC) in Manila, Philippines. BGC exemplifies smart city principles through its advanced infrastructure, sustainable design, and innovative technology. The district features state-of-the-art utilities and IoT-enabled devices, LEED-certified buildings, and smart transportation systems that reduce traffic congestion. As a hub for innovation and business, BGC attracts multinational corporations and startups, fostering a dynamic ecosystem. We partnered with Daiichi Properties to design several corporate buildings in the district, including the Finance Centre, One World Place, and World Plaza Building.

Catapult @ Rochester Commons in Singapore. Photo credit: Gensler

One World Place in Bonifacio Global City, Philippines. Photo credit: Gensler

World Plaza Building in Bonifacio Global City, Philippines. Photo credit: Gensler

Finance Centre in Bonifacio Global City, Philippines. Photo credit: Gensler

These buildings showcase sustainable design practices, contributing to the district's economic and environmental resilience. With smart buildings, environmental monitoring, and comprehensive digital services, BGC enhances the quality of life for its residents while ensuring sustainable and efficient urban growth.

Q: What are the challenges of developing smart cities in Asia?
A: One of the primary challenges is that there isn't a one-size-fits-all solution for smart city development. Asia is a diverse region, and each city here has its own unique set of challenges and opportunities. What works in one city might not work in another due to differences in existing infrastructure, population, and cultural context.

Developing smart cities requires significant financial and human resources, which may not be readily available in many Asian economies. Implementing smart infrastructure requires substantial financial investments and specialized expertise. Cities in Asia often have limited budgets and resources, making it challenging to finance large-scale smart city projects.

The slow adoption of digital products and services, along with skill gaps among residents, presents another significant challenge. Creating a smart city ecosystem requires a level of digital literacy that may be lacking in many citizens in Asia. Additionally, a lack of awareness or understanding of smart technologies can lead to resistance to smart city development. The absence or weakness of data privacy laws and cybersecurity measures in some Asian economies also exacerbates existing skepticism and poses a significant risk to the security and privacy of citizens' data.

To address these challenges, the Gensler Research Institute provides valuable insights through annual reports like the Gensler Design Forecast and the Gensler City Pulse report. These resources inform our designers, architects, and urban planners, guiding them in considering urban problems holistically before selecting appropriate smart technology solutions. This typically entails conducting a thorough assessment of existing infrastructure, identifying areas for enhancement, and crafting a tailored roadmap for smart city development.

OECD: Helping Cities Develop Smart Cities Strategies

The Organisation for Economic Co-operation and Development (OECD) is an international organisation comprised of 38 member countries, that works to build better policies for better lives. Together with governments, policy makers and citizens, OECD works on establishing evidence-based international standards and finding solutions to a range of social, economic and environmental challenges. In this article, ***Tadashi Matsumoto,*** Head of Unit, National Urban Policy and Climate Resilience, tells us more about OECD's work on smart cities in Asia.

Tadashi Matsumoto

"For over 25 years, the OECD and Southeast Asia have enjoyed a mutually beneficial relationship, fostering policy dialogue and disseminating good practices and mutual learning. The relationship between the OECD and Southeast Asia entered a new phase this year when Indonesia became the first Southeast Asian country to begin the OECD accession process.

Building sustainable cities and communities is at the heart of the OECD's work. The OECD aims to improve quality of life and create more inclusive societies in cities of all sizes by tackling a range of issues, from managing urban sprawl and congestion to encouraging innovation and tackling environmental issues at the local level. The work is led by the OECD Centre for Entrepreneurship, SMEs, Regions and Cities (CFE).

OECD's work on smart cities in Asia

Digital innovation must deliver better opportunities and better lives for all people. The OECD helps cities and countries develop and implement their smart cities strategies through the OECD Programme on Smart Cities and Inclusive Growth. We also work on smart city data governance to address the challenge of data security and safety risks related to leaks and cyberattacks.[1]

The OECD assessed the national development plans and strategies of 12 countries (ASEAN, China and India), as well as dedicated smart city strategies of six countries (China, India, Indonesia, Malaysia, Singapore and Thailand), from which a variety of lessons can be drawn.[2] For instance, Singapore's Smart Nation Initiative takes a multi-stakeholder approach, with strategies for retraining displaced workers and targeted support for the elderly, disabled and low-income residents who may be at risk of exclusion from digital services. At the city scale, the "Smart City Bandung" vision in Bandung, Indonesia, focuses on maximising service to citizens, putting citizens' participation and engagement at the heart of its strategy. Overall, the study highlights that effective smart city initiatives requires a territorial approach underpinned by co-ordination across levels of government.[3]

3rd OECD Knowledge Sharing Workshop on Urban Green Growth in Dynamic Asia (Bandung, 6-7 May 2015).

Can a city be smart and sustainable at the same time?

Yes, it can. Digital technologies are key enablers for cities not only to better manage urban systems but also to accelerate the net-zero transition. For instance, data sharing between transport operators in cities enables them to better integrate transport services and move towards the creation of Mobility as a Service (MaaS) platforms,[4] which can help to shift current car-dependent systems to active and shared transport modes, reducing air pollution and carbon emissions. Smart meters enable more efficient demand-and supply-side management through real-time data, leading to energy savings.[5] Early warning systems for floods and other types of natural disasters could improve resilience to climate shocks in urban areas.[6] Building Information Modelling and digital twin technology can optimise the construction and operation of buildings and cities, reducing the carbon footprint of cities.

However, partly due to limited investment scope, smart city strategies do not always consider sustainability as a key component. The private sector has tended to focus exclusively on a technology-driven phenomenon: how digital innovation can improve city government operations and services.[7] As a result, the smart city concept has been largely supply-side driven, missing important opportunities for cities to address citizen's needs. Instead, a citizen-centred, demand-driven approach is key for building sustainable smart cities."

About Tadashi Matsumoto

Tadashi Matsumoto leads OECD's work on national urban policy and climate action in cities. He provides strategic leadership and oversees the research and analysis on national urban policy, the role of intermediary cities in national urban systems, urban rural linkages, the zero-carbon transition, climate resilience in cities, sustainable urban design and planning, urban green growth, decarbonising buildings and urban biodiversity. He currently leads the OECD programme on *A Territorial Approach to Climate Action and Resilience* and coordinates the *National Urban Policy Programme*, a global partnership with UN-Habitat and Cities Alliance. He has also led OECD's contribution to World Urban Forums and climate COPs. Tadashi is a lead author of *Compact City Policies (2012), Urban Green Growth in Dynamic Asia* (2016), *Building Resilient Cities: An Assessment of Disaster Risk Management Policies in Southeast Asia* (2018), *Global State of National Urban Policy* (2021), and *A Territorial Approach to Climate Action and Resilience* (2023) among many other OECD reports.

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[1] OECD (2023), *Smart City Data Governance: Challenges and the Way Forward,* OECD Urban Studies, OECD Publishing, Paris, https://doi.org/10.1787/e57ce301-en.
[2] Matsumoto, T., J. Crook and K. Tanaka (2019), "Trends for smart city strategies in Emerging Asia", *OECD Regional Development Working Papers,* No. 2019/10, OECD Publishing, Paris, https://doi.org/10.1787/4fcef080-en.
[3] ibid
[4] ITF (2023), "Mix and MaaS: Data Architecture for Mobility as a Service", *International Transport Forum Policy Papers*, No. 113, OECD Publishing, Paris, https://doi.org/10.1787/4272475b-en.
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Low environmental impact recycled paints arrive in Indonesia

Photo credit:
PT Mowilex Indonesia

The new Mowilex Recycled paints from PT Mowilex Indonesia (Mowilex) reduce water use, save energy, and cut the carbon footprint of each new 2.5-litre pail of paint by up to 60 percent. By reusing up to 40 percent premium Mowilex paint in each container of Mowilex Recycled, the company also decreases potential waste without compromising quality.

To make Mowilex Recycled, the company starts with its own premium out-of-production colours and unused inventory that might be aged, dried or in dented cans. Rather than disposing of those paints, Mowilex evaluates, treats and repurposes them. The out-of-specification inventory gets reprocessed, creating new Mowilex Recycled paints that are manufactured to the same high standards as other Mowilex paint formulas. That means there is no difference in overall quality. The ready-mixed Mowilex Recycled paints have low VOC levels and come in eight popular pastel colours with a luxurious matte finish. The durable interior paints are also formulated for exterior use in areas not exposed to direct sunlight.

Recycling paint lessens environmental impact and benefits communities. It also reduces the need for new raw materials and requires less energy for extraction and manufacturing. For example, by repurposing existing premium products for Mowilex Recycled, the company saves up to 8 percent clean water, by volume, for each gallon of recycled paint. Research shows that recycling one litre of paint saves an estimated 26 kWh of energy and keeps 14 kg of CO2 out of the air. The overall carbon footprint of Mowilex Recycled is reduced by up to 60 percent compared to paint products equal in quality and formulation.

By recapturing and reprocessing titanium dioxide and other components from unused paint inventory normally bound for waste disposal, the company minimises the energy-intensive extraction and manufacturing of virgin raw materials. Incorporating treated existing products into Mowilex Recycled also reduces the disposal of unused premium paints.

As Mowilex eliminates potential waste with this material efficiency-focused production approach, the company also supports United Nations Sustainable Development Goal (SDG) 12. SDG 12 encourages sustainable consumption and production. Its targets include preventing or minimising hazardous waste generation as part of a cleaner, integrated approach to overall production, and reducing or eliminating the transboundary movements of hazardous waste.

"Mowilex Recycled offers an option for customers who prefer high-quality products with a reduced carbon footprint. By extensively treating and reprocessing our premium, out-of-specification inventory, we keep it from being disposed of as waste. Mowilex Recycled meets the same high standards as all new Mowilex paints, and we estimate that each 2.5-litre pail lowers emissions by up to 60 percent compared to a 2.5-litre pail of new, non-recycled paint," says Niko Safavi, CEO of PT Mowilex Indonesia. "Mowilex Recycled paints are also very attractively priced, so, customers enjoy great value and premium quality while also lowering their environmental impact."

Riken Yamamoto. Photo courtesy of Tom Welsh

Riken Yamamoto Receives the 2024 Pritzker Architecture Prize

The Pritzker Architecture Prize has announced Riken Yamamoto, of Yokohama, Japan, as the 2024 Laureate of the Pritzker Architecture Prize, the award that is regarded internationally as architecture's highest honour.

Yamamoto, architect and social advocate, establishes kinship between public and private realms, inspiring harmonious societies despite a diversity of identities, economies, politics, infrastructures, and housing systems. Deeply embedded in upholding community life, he asserts that the value of privacy has become an urban sensibility, when in fact, members of a community should sustain one another. He defines community as a "sense of sharing one space," deconstructing traditional notions of freedom and privacy while rejecting longstanding conditions that have reduced housing into a commodity without relation to neighbors. Instead, he bridges cultures, histories and multi-generational citizens, with sensitivity, by adapting international influence and modernist architecture to the needs of the future, allowing life to thrive.

"For me, to recognize space, is to recognize an entire community," Yamamoto expresses. "The current architectural approach emphasizes privacy, negating the necessity of societal relationships. However, we can still honour the freedom of each individual while living together in architectural space as a republic, fostering harmony across cultures and phases of life."

The 2024 Jury Citation states, in part, that he was selected "for creating awareness in the community in what is the responsibility of the social demand, for questioning the discipline of architecture to calibrate each individual architectural response, and above all for reminding us that in architecture, as in democracy, spaces must be created by the resolve of the people..."

By reconsidering boundary as a space, he activates the threshold between public and private lives, achieving social value with every project, as each abounds

with places for engagement and chance encounters. Small- and large-scale built works alike demonstrate masterly qualities of the spaces themselves, providing focus on the life that each one frames. Transparency is utilized so that those from within may experience the environment that lies beyond, while those passing by may feel a sense of belonging. He offers a consistent continuity of landscape, designing in discourse to the preexisting natural and building environments to contextualize the experience of each building.

He has evolved influences from traditional Japanese machiya and Greek oikos housing that existed in relationship to cities, when connectivity and commerce were essential to the vitality of every family. He designed his own home, GAZEBO (Yokohama, Japan 1986) to invoke interaction with neighbors from terraces and rooftops. Ishii House (Kawasaki, Japan 1978), built for two artists, features a pavilion-like room, that extends outdoors and serves as a stage to host performances, while living quarters are embedded beneath.

"Yamamoto develops a new architectural language that doesn't merely create spaces for families to live, but creates communities for families to live together," says Tom Pritzker, Chair of the Hyatt Foundation, which sponsors the award. "His works are always connected to society, cultivating a generosity in spirit and honouring the human moment."

Ecoms House
2004
Tosu, Japan
Photo courtesy of Shinkenchiku Sha

Larger housing projects also embody relational elements, assuring that even residents who live alone don't dwell in isolation. Pangyo Housing (Seongnam, Republic of Korea 2010), a complex of nine low-rise housing blocks is designed

Yamakawa Villa
1977
Nagano, Japan
Photo courtesy of Tomio Ohashi

with nonprescriptive transparent ground floor volumes that catalyze interconnectedness between neighbors. A communal deck across the second floor encourages interaction, featuring spaces for gathering, playgrounds, gardens and bridges that connect one housing block to another.

"One of the things we need most in the future of cities is to create conditions through architecture that multiply the opportunities for people to come together and interact. By carefully blurring the boundary between public and private, Yamamoto contributes positively beyond the brief to enable community," explains Alejandro Aravena, Jury Chair and 2016 Pritzker Prize Laureate. "He is a reassuring architect who brings dignity to everyday life. Normality becomes extraordinary. Calmness leads to splendor."

Civic buildings achieving specific functions also affirm public purpose and assurance. The Hiroshima Nishi Fire Station (Hiroshima, Japan, 2000), appears entirely transparent, with its glass louvered façade and interior glass walls. Visitors and passersby may view through to the central atrium to witness the daily activity and training of firefighters, and are encouraged to grow acquainted with the civil servants who protect them in the many designated public areas of the building. Fussa City Hall (Tokyo, Japan 2008) is conceived as two mid-rise towers, rather than one high-rise to compliment the surrounding neighborhood of low-rise buildings. Concave bases invite visitors to recline and rest, while green public rooftop and lower levels are designated for flexible public programming.

Saitama Prefectural University (Koshigaya, Japan 1999), specializing in

Jian Wai SOHO
2004
Beijing, People's Republic of China
Photo courtesy of Riken Yamamoto & Field Shop

Yokosuka Museum of Art
2006
Yokosuka, Japan
Photo courtesy of Tomio Ohashi

Tianjin Library
2012
Tianjin, People's Republic of China
Photo courtesy of Nacasa & Partners

Nagoya Zokei University
2022
Nagoya, Japan
Photo courtesy of Riken Yamamoto & Field Shop

THE CIRCLE at Zürich Airport
2020
Zürich, Switzerland
Photo courtesy of Flughafen Zürich AG

nursing and health sciences, is composed of nine buildings connected by terraces that transition into walkways leading to transparent volumes that allow views from one classroom to another, but also from one building to the next, encouraging interdisciplinary learning. Such fellowship is fostered even within the youngest generations at Koyasu Elementary School (Yokohama, Japan 2018), which features generous, undivided terraces extending learning spaces, permitting sights into and from each classroom, and encouraging relationships amongst students across grades levels.

He considers the user experience first, designing Yokosuka Museum of Art (Yokosuka, Japan 2006) as both a destination for travelers and a daily reprieve for locals. While the inviting serpentine entrance evokes the surrounding Tokyo Bay and nearby mountains, many of the galleries are underground, providing those who approach with a clear, undisturbed visual experience of the natural geography. Visitors may view through to the landscape and other galleries from round cutouts in all common spaces, uniting these otherwise distinctive environments so that those inside are impressed upon not only by the artwork, but by the activity of others in the spaces alongside them.

His career has spanned five decades and his projects, ranging from private residences to public housing, elementary schools to university buildings, institutions to civic spaces, and city planning, are located throughout Japan, People's Republic of China, Republic of Korea and Switzerland. Significant built works also include Nagoya Zokei University (Nagoya, Japan, 2022), THE CIRCLE at Zürich Airport (Zürich, Switzerland, 2020), Tianjin Library (Tianjin, People's Republic of China, 2012), Jian Wai SOHO (Beijing, People's Republic of China, 2004), Ecoms House (Tosu, Japan, 2004), Shinonome Canal Court CODAN (Tokyo, Japan, 2003), Future University Hakodate (Hakodate, Japan, 2000), Iwadeyama Junior High School (Ōsaki, Japan, 1996) and Hotakubo Housing (Kumamoto, Japan, 1991).

Yamamoto is the 53rd Laureate of the Pritzker Architecture Prize and the ninth to hail from Japan. He was born in Beijing, People's Republic of China, and resides in Yokohama, Japan.

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