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May / June 2022

# SEAB

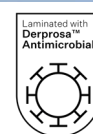
SOUTHEAST ASIA BUILDING



**THE GREEN ISSUE**

Net Zero Carbon  
Buildings

ON THE COVER: ArthaLand Century Pacific Tower / Manila, Philippines



ISSN 2345-7066



NEW DATES

# GEO CONNECT Asia 2022 Live & Virtual Show

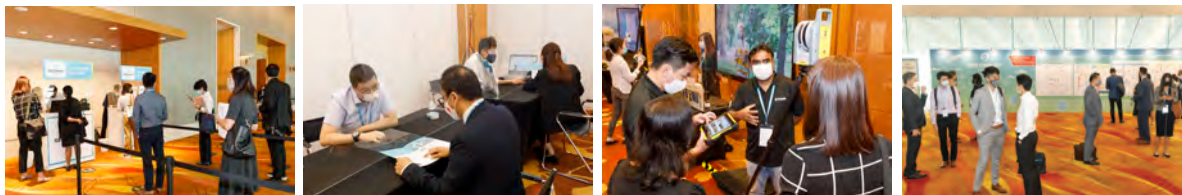
Wednesday 1<sup>st</sup> - Thursday 2<sup>nd</sup> June

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**On the Cover:** ArthaLand Century Pacific Tower in Bonifacio Global City, Manila, Philippines. Photo: © Studio Periphery

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**Welcome to May/June issue!**

The focus of this Green Issue is on net zero carbon buildings. According to Global Status Report 2017, building and construction activities together account for 36 percent of global final energy use and 39 percent of energy-related carbon dioxide (CO<sub>2</sub>) emissions when upstream power generation is included. So net zero carbon buildings are important for a sustainable future. We have featured several projects such as the ArthaLand Century Pacific Tower in Manila. This office building has achieved the prestigious EDGE Zero Carbon certification.

We also asked two industry experts to share with us their thoughts on 1) the state of net zero carbon buildings in Asia and 2) whether such buildings can be achieved from a real estate point of view.

In the PDF copy of SEAB, we have published a show review of BuildTech Asia 2022, which we attended in person! The show was held from 15-17 March at the Singapore Expo. It was jam-packed with exhibits, talks and product demos. Discover the latest innovations at the show by downloading a copy from our website.

If you have any exciting projects or news you would like us to showcase, feel free to email me at [seab@tradelinkmedia.com.sg](mailto:seab@tradelinkmedia.com.sg). Take care!

*Amita Natverlal*

**JULY/AUGUST 2022 ISSUE**

The Mixed Development Issue: Transit-Oriented Development

Transit-Oriented Development (TOD) implies thoughtful planning and design of land use that encourages mixed-use developments near/oriented public transport facilities and this issue showcases how it is done. Includes projects, trends and experts' opinion.



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## Local property developer Beblu unveils LeBond, Singapore's first AI-enabled green building in the city fringe

**Singapore** – AI property development and management company Beblu officially launched its inaugural LeBond Building at 7 Harvey Road, Singapore's first green B1 industrial building in the city fringe. The newly refitted 11-storey building incorporates smart access features, lighting and temperature controls with proprietary AI sensors to track energy consumption in real-time. Combined with a communal garden terrace and workout area, the LeBond building offers a conducive working environment that promotes the holistic health of tenants – all managed in one platform, the *Beblu Suite*.

Beblu envisions a city of smart and sustainable workspaces where like-minded individuals can come together in the spirit of collaboration, innovation and eco-sensitivity. With aims to do away with the laborious and time-consuming ways of conventional building management, Beblu leverages



Photo credit: Beblu

AI technology to effectively streamline green building operations, and enhance the working lives of tenants.

Founder and CEO of Beblu, Kenny Chai shared, "With the space constraint in Singapore, there is a large market opportunity for repurposing older buildings into new, sustainable ones. Based on current carbon-neutral trends, the next 5 years will see an increase

in the adoption of AI buildings by about 50 percent, with more property owners looking to integrate plug-and-play sustainable developments into existing buildings. What Beblu offers is an easily integrable AI solution that can help property owners transform their assets into smart and healthy digital ecosystems for innovators to live, work, play, and collaborate."

The Beblu Suite comprises AI sensors, a central Building Management System (BMS), and a mobile application that covers a range of property management services. From Building Maintenance, Facilities Management, Advertising and Promotion, Finance and Human Resources to Lease Management, the all-encompassing service suite helps property owners maximise asset revenue while minimising their environmental footprint.

The LeBond building is located at 7 Harvey Road, Singapore 369613.

## Ribbon-cutting ceremony of the Florim Flagship Store in Abu Dhabi

**Abu Dhabi, UAE** – On Thursday 24 March, Florim celebrated the ribbon-cutting ceremony of its Flagship Store in Abu Dhabi (Al Medina Tower, Building 6 - corner Kaheem St, Al Sikeek St). Attending the event were Claudio Lucchese (President of Florim), Jonas Badde (First Secretary of the Italian Embassy's Economic and Commercial Section), and a select group of guests from the architecture and design world.

Abu Dhabi is another step in the company's internationalisation programme, launched thirteen years ago. "Since the first flagship was opened in Milan in 2009, Florim has continued to invest in corporate locations in the world's chief architecture and design capitals, which enable us to promote Florim's image and products and work in closer contact with the top players on our main markets. Three new openings are scheduled for 2022," explained Claudio Lucchese.

The Abu Dhabi showroom is on two levels and its interiors have been created in stylistic continuity with other Florim Flagship Stores. Here again, the Magnum Oversize large slabs

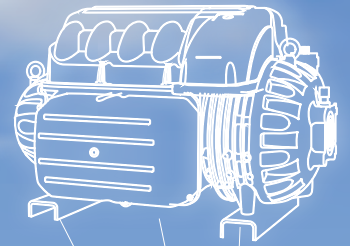
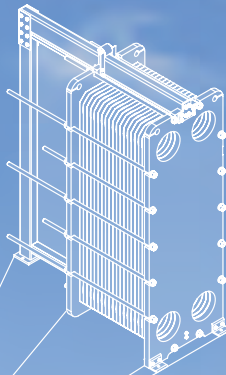
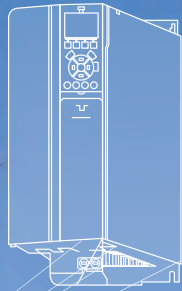


Photo credit: Vanni Borghi

are the star features of installations designed to underline their expressive potential and their applicational versatility – floors, walls, furnishings and specific architectural solutions. The show windows overlook the Flower Clock, one of the city's most original attractions, with its decorative combination of flowers, plants, stones and fountains that replicate the original in Geneva.

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## Senja Close playground installs elevated climbing parkours

**Singapore** – Playpoint, one of the leading playground equipment suppliers in Singapore, has installed an elevated climbing parkours combined with Kompan play equipments surrounded with trees for Senja Close playground.

The Senja Close Playground, a project by the Housing & Development Board, is located at Bukit Panjang, a residential district in northwest Singapore.

The structure is placed between the trees, and four 'cocoons', which are the crossing points of the elevated paths, lounge hangout and lookout point all at once – hover almost five metres above ground level.

### The 'cocoons'

The 'cocoons' are interconnected by climbing tunnels which spiral down in an 'eight' with two loose ends. The curl is accessible on different points and because of its changing heights, is inviting to children of all ages. By raising the whole object above ground, its footprint was reduced to a minimum; the whole zone beneath is freely accessible.

Inside the 'cocoons', the immensely large play object manages to, despite its size and contrasting colour, fit comfortably in its surroundings, attracting activity from afar.



### PROJECT DETAILS

**Project Name:** Senja Close Playground

**Location:** Bukit Panjang, Singapore

**Client:** The Housing & Development Board

**Landscape Architect:** Coen Design International Pte Ltd

**Playground Designer:** Carve

**Products:** Kineticplay, Kompan, TGO

**Playground Equipment Supplier:** Playpoint (Singapore) Pte Ltd

**Project Realization:** October 2020

**Photo Credit:** Playpoint (Singapore) Pte Ltd





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## WorldGBC launches Asia Pacific Leadership in Green Building Awards with first APN Festival

**Asia Pacific** – Since 2014, the World Green Building Council (WorldGBC) Asia Pacific Leadership in Green Building Awards has showcased sustainable built environment leadership. To celebrate 20 years of WorldGBC, the prestigious awards will be celebrated during this organisation's first Asia Pacific 2022 Festival.

Led by the WorldGBC Asia Pacific Network (APN) and the 15 Green Building Councils (GBCs) across the region, the awards contain three categories:

**1. Business Leadership in Sustainability Award:** Recognises companies which embed climate action into their corporate DNA and create a positive impact towards their community, society as a whole and our planet.

**2. Leadership in Sustainable Design and Performance Award:** Presented to pioneering green building projects that are dedicated to advancing design leadership in climate action and climate justice, as well setting new benchmarks for the whole life carbon vision and human factors.

**3. Women in Green Building Leadership Award:** Celebrating the female trailblazers who are making extraordinary contributions to sustainable development, fueling ambitious young women and catalysing change.

To reflect the rapid advancement of sustainable building in the region, the awards will focus on WorldGBC's flagship Beyond the Business Case report and highlight solutions to address the three impact areas of the built environment: Climate Action, Health & Wellbeing and Resource & Circularity.

Cristina Gamboa, CEO, WorldGBC: "With WorldGBC marking 20 years of leadership of championing sustainable built environments for everyone, everywhere, the Asia Pacific region has the unparalleled opportunity to spotlight its leadership. We look forward to receiving high-quality nominations from industry leaders and groundbreaking infrastructure projects that demonstrate the viability of these much-needed solutions for both people and planet, whilst inspiring all of us to deliver them at scale."

A range of regional leaders have been invited to the jury panel which will be announced in March 2022.

Award nominations open from 27 March - 15 July 2022. Finalists will be announced in October 2022, with the winners being recognised at an awards ceremony during the APN Festival in November 2022.

Nominations are only accepted through Green Building Councils in the Asia Pacific Regional Network. Contact your Green Building Council if you are interested in submitting a nomination.

**For more information, visit [www.worldgbc.org](http://www.worldgbc.org).**

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## Call for Entries: 2022 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation

**Bangkok, Thailand** – Submissions are now being accepted for the 2022 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation. Since 2000, the Awards programme has recognized 265 winners from 27 Asia-Pacific countries for their thorough understanding of their sites; their sound technical achievements; and their project's significant social and policy impacts at the local, national and regional levels. By recognizing these practices, the Awards programme has contributed to meaningful achievements in advancing the regional conversation about what constitutes cultural heritage, who has a stake in its stewardship, and how cultural heritage can contribute to the sustainable well-being of cities, societies and the environment.

In 2021, UNESCO and the Ng Teng

Fong Charitable Foundation (NTFCF) have entered into a strategic partnership to promote practices of transformative heritage conservation in the Asia-Pacific region. Under this strategic partnership, the Awards programme has launched new initiatives such as the Heritage Apprentice and the Sustainable Heritage Management Masterclass to amplify the impacts of the programme through capacity-building.

### **Deadline**

**The deadline for the receipt of all materials is 31 July 2022**

### **Award Categories**

Winners will be announced in November 2022 in the following levels of achievement: Award of Excellence,

Award of Distinction, Award of Merit, Award for New Design in Heritage Contexts; and Special Recognition for Sustainable Development.

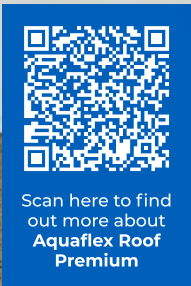
### **Eligibility Criteria**

Eligible projects must have been completed within the last 10 years (March 2012 – July 2022 if pre-existing use was retained, or July 2021 if a project has a new use). Houses, commercial and institutional buildings, historic towns and villages, archaeological sites and cultural landscapes, for example, are all suitable for submission.

**To apply for the 2022 Awards and for relevant resources, please <http://bangkok.unesco.org/content/apply-awards>.**

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## Bona Quantum, a silane-based adhesive



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**Malmo, Sweden** – The newly launched Bona Quantum is a silane-based adhesive that features Bona's Titanium Technology, which provides quadruple crosslinking properties that delivers superior durability and quicker bonding for faster installation, even under challenging subfloor conditions. The new formula is also available as Bona Quantum T for users that prefer a thicker viscosity.

Bona Quantum offers accelerated curing with a high initial bonding strength. At first, it is hard-elastic, allowing the floor to acclimatise. Over time, the adhesive hardens to provide a strong foundation. Floors installed with Bona Quantum can be walked on four to six hours after installation.

Bona Quantum can also act as a moisture barrier. As a two-in-one solution, the adhesive ensures a successful floor installation in a wide range of substrate conditions. As a result, the downtime is reduced. Using it with Bona Trowel Plus, cost savings of up to 30 per cent can be achieved.

Bona Quantum is now available across Europe and Asia Pacific. Its packaging comprises 75 per cent post-consumer recycled plastic, heavily reducing Bona's product carbon footprint.



Photo: © Bona AB, Sweden

## HOK launches Regenerative Design Studio

**San Francisco, USA** – Architect Sean Quinn, AIA, LEED AP BD+C, BREEAM, will lead the new HOK studio as director of regenerative design.

Based in San Francisco, Quinn previously served as the firm's sustainable design leader for performance.

Over his two-decade career, Quinn has demonstrated his commitment to performance-based sustainable design and a progressive approach to biomimicry in projects across the world.

"Reducing our footprint won't prevent a climate catastrophe," said Quinn. "We need to leverage the power of design as a positive force to restore and regenerate the natural world. We want to continue conserving while also creating abundance."

HOK has long been a leader in designing for sustainability, resilience, health and well-being. This new studio will bring regenerative strategies to enhance design on all types of projects, from planning and urban design to architectural, landscape, interior design and experience design. The team's data-driven approach will ensure that its solutions are based on ecosystem performance metrics related to water, air, carbon, soil, biodiversity, and health and well-being.



US Coast Guard Headquarters river view – a project by HOK. Photo courtesy of HOK.

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# Diébédo Francis Kéré receives the 2022 Pritzker Architecture Prize

**Chicago, Illinois, USA** – Diébédo Francis Kéré, architect, educator and social activist, has been selected as the 2022 Laureate of the Pritzker Architecture Prize, announced Tom Pritzker, Chairman of The Hyatt Foundation, which sponsors the award that is regarded internationally as architecture's highest honor.

"I am hoping to change the paradigm, push people to dream and undergo risk. It is not because you are rich that you should waste material. It is not because you are poor that you should not try to create quality," says Kéré. "Everyone deserves quality, everyone deserves luxury, and everyone deserves comfort. We are interlinked and concerns in climate, democracy and scarcity are concerns for us all."

Born in Gando, Burkina Faso and based in Berlin, Germany, the architect known as Francis Kéré empowers and transforms communities through the process of architecture. Through his commitment to social justice and engagement, and intelligent use of local materials to connect and respond to the natural climate, he works in marginalized countries laden with constraints and adversity, where architecture and infrastructure are absent. Building contemporary school institutions, health



**Diébédo Francis Kéré.** Photo courtesy of Lars Borges and the Pritzker Architecture Prize.

facilities, professional housing, civic buildings and public spaces, oftentimes in lands where resources are fragile and fellowship is vital, the expression of his works exceeds the value of a building itself.

"Francis Kéré is pioneering architecture – sustainable to the earth and its inhabitants – in lands of extreme scarcity. He is equally architect and servant, improving upon the lives and experiences of countless citizens in a region of the world that is at times forgotten," comments Pritzker. "Through buildings that demonstrate beauty, modesty, boldness and invention, and by the integrity of his architecture and geste, Kéré gracefully upholds the mission of this Prize."

Gando Primary School (2001, Gando, Burkina Faso) established the foundation for Kéré's ideology – building a wellspring with and for a community to fulfill an essential need and redeem

social inequities. His response required a dual solution – a physical and contemporary design for a facility that could combat extreme heat and poor lighting conditions with limited resources, and a social resoluteness to overcome uncertainty from within the community. He fundraised internationally, while creating invariable opportunities for local citizens, from conception to vocational craftsmanship training. Indigenous clay was fortified with cement to form bricks with bioclimatic



**Gando Primary School.** Photo courtesy of Erik-Jan Owerkerk and the Pritzker Architecture Prize.

thermal mass, retaining cooler air inside while allowing heat to escape through a brick ceiling and wide, overhanging, elevated roof, resulting in ventilation without the mechanical intervention of air conditioning. The success of this project increased the school's student body from 120 to 700 students, and catalyzed Teachers' Housing (2004, Gando, Burkina Faso), an Extension (2008, Gando, Burkina Faso) and Library (2019, Gando, Burkina Faso).

The impact of his work in primary and secondary schools catalyzed the inception of many institutions, each demonstrating sensitivity to bioclimatic environments and sustainability distinctive to locality, and impacting many generations.

The national confidence and embrace of Kéré has prompted one of the architect's most pivotal and ambitious projects, the National Assembly of Burkina Faso (Ouagadougou, Burkina Faso), which was commissioned, although remains unbuilt amidst present uncertain times. After the Burkinabè uprising in 2014 destroyed the former structure, the architect designed a stepped and lattice pyramidal building, housing a 127-person assembly hall on the interior, while encouraging informal congregation on the exterior. Enabling new views, physically and metaphorically, this is one piece to a greater master plan,

envisioned to include indigenous flora, exhibition spaces, courtyards, and a monument to those who lost their lives in protest of the old regime.

Kéré's designs are laced with symbolism and his works outside of Africa are influenced by his upbringing and experiences in Gando.

Many of Kéré's built works are located in Africa, in countries including the Republic of Benin, Burkino Faso, Mali, Togo, Kenya, Mozambique, Togo, and Sudan. Pavilions and installations and have been created in Denmark, Germany, Italy, Switzerland, the United Kingdom and the United States. Significant works also include Xylem at Tippet Rise Art Centre (2019, Montana, United States), Léo Doctors' Housing (2019, Léo, Burkina Faso), Lycée Schorge Secondary School (2016, Koudougou, Burkina Faso), the National Park of Mali (2010, Bamako, Mali) and Opera Village (Phase I, 2010, Laongo, Burkina Faso).

Kéré established Kéré Foundation in 1998 to serve the inhabitants of Gando through the development of projects, partnerships and fundraising; and Kéré Architecture in 2005 in Berlin, Germany. Kéré is the 51st Laureate of the Pritzker Architecture Prize, and is a dual citizen of Burkina Faso and Germany.



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## PLP Architecture appointed master designer and placemaking strategist for Tokyo Cross Park, one of Japan's largest, greenest post-war urban renewal projects

**London, UK** – London-based PLP Architecture said it has been appointed the master designer and placemaking strategist for Tokyo Cross Park, one of the largest and greenest post-war urban redevelopment projects in Japan. It is also the architect for two of the four mixed-use towers on the 6.5-hectare site in the prestigious and culturally-significant Uchisaiwaicho 1-Chome district. The multi-year, multi-billion-dollar project will connect the city to the 16-hectare Hibiya public park and will include four towers, a 31-metre-tall podium and a two-hectare public plaza. A total of 1.1 million square metres of offices, commercial facilities, hotels and residential units, will be created when the project is fully completed by 2037.

The regeneration of midtown Tokyo will also see the rebuilding of the Imperial Hotel, a legendary landmark that has welcomed royalty, heads of state and international business leaders for over 130 years. Opened in 1890 by Japan's aristocracy, it was rebuilt for its times in 1922 by American architecture doyen Frank Lloyd Wright before being redeveloped for the third time. The developers of Tokyo Cross Park are 10 of Japan's largest corporations namely: Mitsui Fudosan, Nippon Telegraph and Telephone Urban Solutions, Kokyo Tatemono, The Dai-ichi Life Insurance Company, Chuo-Nittochi, Imperial Hotel, Tokyo Century Corporation, TEPCO Power Grid, Nippon Telegraph and Telephone Corporation and Nippon Telegraph and Telephone East Corporation.

Lee Polisano, President and Founding Partner of PLP Architecture, said: "We are deeply honoured to be part of this exciting enterprise. Everything that PLP embodies was brought to bear on this project. Through it, we will deliver our commitment to use design and technological innovation to contribute to the flourishing of life and business, and importantly to protect the built environment."

Mr Polisano added: "The Tokyo Cross Park will become a flagship for sustainable development in Japan and will showcase the possibility of reaching the government's target of carbon neutrality by 2050." The project aims to achieve zero CO2 emissions with a centralised masterplan-wide energy strategy at the time of completion. Adding to this, by introducing new environmental technologies such as carbon absorbing technology, the masterplan aims to be carbon negative in the future. The Tokyo Cross Park envisions the growth of the



Aerial view of Tokyo Cross Park with links to Hibiya Park. Photo credit: Nikken Sekkei

capital's green space, outwards from the Imperial Palace and Hibiya Park into the urban districts of the city. The new development has extensive green spaces and water, which will connect with the park through two pedestrian 'park bridges'.

This link creates a 32-hectare human-centric and walkable environment rich in wildlife, water, and public meeting spaces aimed at bringing a focus on wellbeing, quality of life, sociability and connection to nature. As well as connecting to nature, PLP has designed to encourage the city's top talents – people, institutions and companies – to engage in this new district. A programme of hyper-mixed functions, amenities and co-creation spaces provide the framework for the 'best of Tokyo' to come together and envision how the next generation will work, play and live. The district will be supported by advanced digital infrastructure, including digital twins, which will enable it to become a cross-disciplinary third-generation smart city. This technology will be used to enhance the offerings of the district by constantly evolving to suit the needs of individual users, such as through progressively optimising the wellbeing experience. The Tokyo Cross Park Vision features first-rate Japanese hospitality. The wide variety of premium hospitality offers are the result of close collaboration among stakeholders. In addition to the rejuvenation of the new Imperial Hotel main building, a separate small super-luxury hotel, owned by the NTT Group, and a wellness-focused hotel are also part of the redevelopment plan. Rental housing and serviced apartments will introduce a new premium level 'live' offer into the area.

# The Pool Design Awards are back for Piscine Global Europe 2022!



Logo provided by Piscine Global 2022.



Photographer: Fabien DELAIRON

**Lyon, France** – Are you an architect, designer or builder who has created a pool with an outstanding design? Showcase your project to an international audience by entering the Pool Design Awards 2022!

## A benchmark competition in the pool and wellness sector

Organised by Piscine Global Europe, an unmissable exhibition for the industry, the Pool Design Awards shine a spotlight on the winners' expertise and ingenuity, and in doing so promote the architecture profession within the pool and wellness sector. Prizes are awarded to the boldest creations – from both a technical and an aesthetic standpoint – in five categories:

- Sport and leisure pools
- Residential pools
- Renovated pools
- Small pools (< 10 square metres)
- Wellness

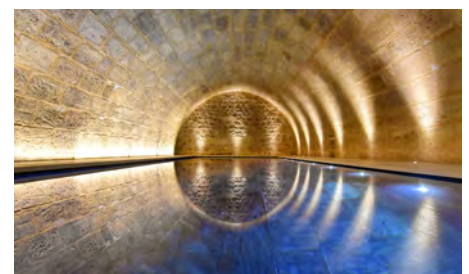


Photographer: Sharon RADISH

## International media coverage

This is a unique opportunity not just to showcase your work and build your reputation among your peers, but also to play an active part in setting the trends of tomorrow through the exhibition's communication tools.

The winners in each category receive a VIP invitation to Piscine Global Europe 2022, get to present their project in the dedicated Pool Design Gallery, are showcased on the exhibition website, and will feature prominently in an article, on the exhibition's social media and across its other communication tools.



Photographer: Arnaud BRUKHNOFF

## Show the world your most stunning creations!

Would you like to promote one or more of the pool or wellness projects you have created within the last five years? You can register until 8 July 2022, on the piscine-global-europe.com website. That is where you can also find out about how to enter, and read the competition rules. We can't wait to receive your entries, and dive into your creations!

**For more information, contact Carole ROUX at e-mail [carole.roux@gl-events.com](mailto:carole.roux@gl-events.com) or telephone +33 (0) 4 78 176 323.**



**Al Wasl Plaza** / Adrian Smith  
+ Gordon Gill Architecture





**A**l Wasl Plaza is the beating heart of the Expo site and the setting for the captivating ceremony, as well as the hub where the three theme districts come together. Its name, the ancient nickname of Dubai which also means "connection" in Arabic, is a reminder of one of the cardinal themes of the Expo: this is where the entrances to the city's metro rail network can be found. The Plaza is dominated by an enormous 65 metres tall cupola with a diameter of 150 metres, which also serves as a 360° projector screen.

### **Mapei's contribution**

The Plaza obtained LEED Gold certification according to the LEED v4 for Building Design and Construction: Core and Shell classification system and Mapei contributed to this result by supplying eco-sustainable materials. Granite floors were installed with KERAFLEX MAXI S1 and then grouted with KERAPOXY and, in several areas, with ULTRACOLOR PLUS. The expansion joints were sealed with MAPESIL LM. Several small water features were built in the surroundings of the main arena and waterproofed with MAPELASTIC SMART and MAPETEX SEL.

The grey carved granites were installed with KERAFLEX MAXI S1. The joints were then grouted using KERAPOXY. About 10000 square metres of granite coverings were treated with ULTRACARE protective agents. The square is also the location of the only hotel inside the Expo site, the Rove Expo 2020 Dubai Hotel. Inside the hotel, KERABOND T was used to bond porcelain flooring in the communal areas before grouting joints with KERAPOXY. In service areas, substrates were waterproofed with MAPELASTIC AQUADENFENSE, MAPELASTIC SMART and MAPETEX SEL before installing ceramic tiles with ADESILEX P9. The walls in the common areas were coated with the ULTRATOP LOFT cementitious system. Products manufactured and distributed on the United Arab Emirates market, such as MAPEGROUT T60 ME and PLANITOP 400 ME, were used to repair the concrete. In the swimming pool located on the hotel terrace, the substrates were waterproofed with MAPELASTIC SMART, glass mosaics were bonded with KERAPOXY ADHESIVE and joints grouted with KERAPOXY DESIGN, while the expansion joints were sealed with MAPEBAND tape and MAPESIL AC.

**Article source: Realtà Mapei International 88/2021**

*Photos provided by Mapei.*



**ArthaLand Century  
Pacific Tower / Skidmore,  
Owings & Merrill**





Imagined as the new jewel of the Fort Bonifacio Business District, located southeast of Manila's city centre, ArthaLand Century Pacific Tower will serve as the benchmark for commercial development in the area. At 32 storeys, the building provides 21 floors of office space, including two tall executive floors, a large public lobby, a public cafeteria, and a multilevel parking facility that extends above and below ground. The tower also features a rooftop garden terrace, offering panoramic views of Fort Bonifacio.

Designed to be fully transparent to the outside, the lobby features full-height, ultra-clear glass on three sides, while a marble floor and walnut wood ceiling add texture and warmth to the interior. The uniquely detailed facade system of overlapping glass conceals the podium-level parking facility and gradually changes in appearance with the building's height. The design provides optimal solar control, allowing for additional shading to the south and west. The project incorporates additional technologies designed to maximise energy efficiency – high-performing insulated glazing units with a low-e coating and frit pattern allow for a reduction in both lighting and cooling costs. Rainwater collection and low-flow fixtures also contribute to the building's LEED® Platinum status and BERDE certification (a green building rating system in the Philippines). In 2019, the tower became the first building in the world to receive EDGE® Zero Carbon certification, an initiative of the International Finance Corporation.

The office space provides maximum efficiency and flexibility, allowing for



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The design provides optimal solar control, allowing for additional shading to the south and west.

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multiple types of occupancy. The core is situated at the building's rear, which opens up the office floors to maximum sunlight and uninterrupted 270-degree views. The project also supports alternative forms of transportation by providing a maximum number of parking spots for energy-efficient vehicles, integrated bicycle storage, and access to public transportation and bicycle networks.

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#### PROJECT DETAILS

**Project Name:** ArthaLand Century Pacific Tower

**Project Location:** Bonifacio Global City, Manila, Philippines

**Client:** Arthaland

**Project Type:** Commercial

**Architect:** Skidmore, Owings & Merrill

**Site Area:** 2,232 square metres

**Building Height:** 136 metres

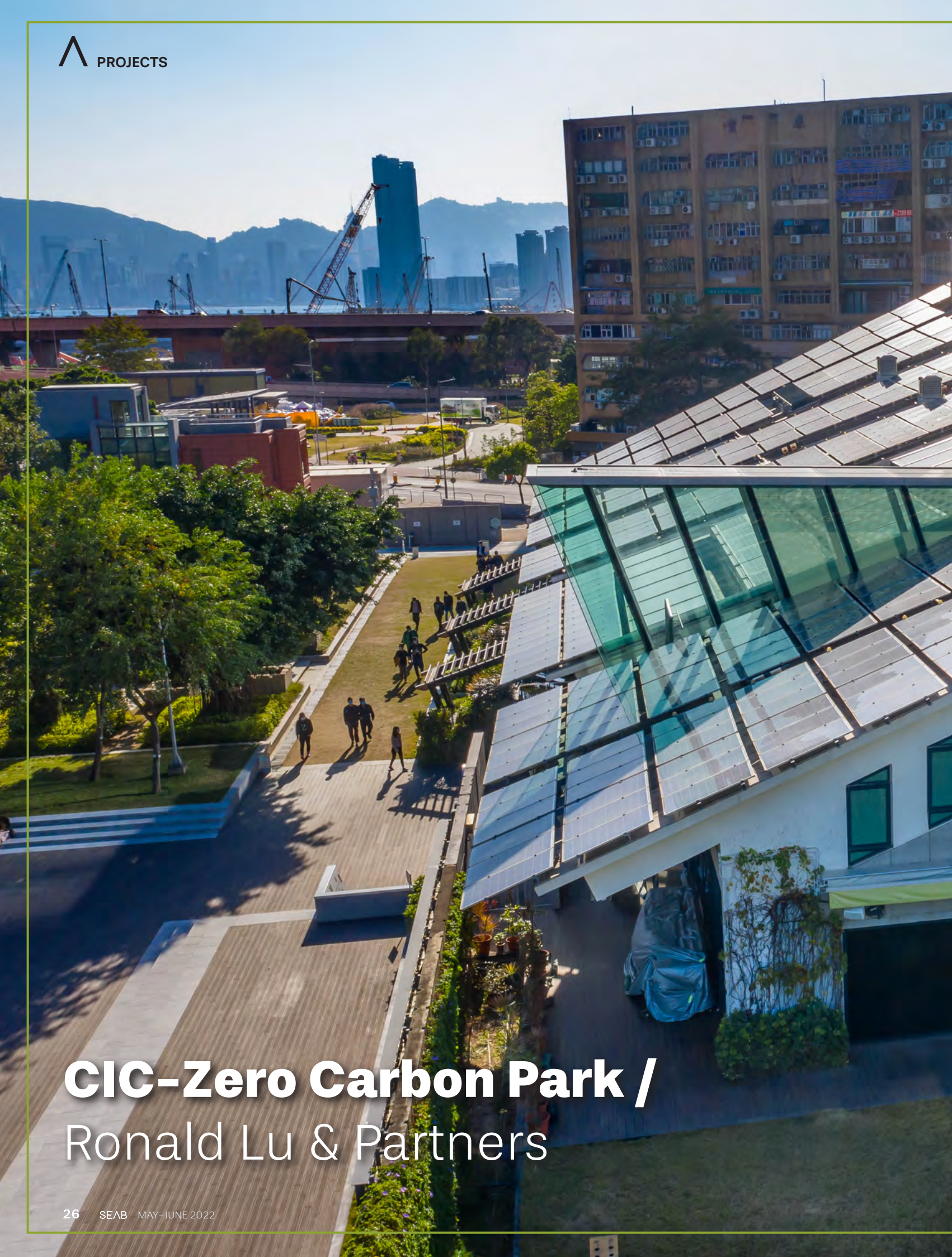
**Number of Storeys:** 32

**Building Gross Area:** 34,295 square metres

**Completion:** 2016

**Photos:** © Studio Periphery





# CIC-Zero Carbon Park / Ronald Lu & Partners






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**CIC-ZCP uses an energy efficient system, which saves 25 percent of energy compared to similar buildings.**

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**J**ointly developed by the CIC and the HKSAR Government in June 2012, Hong Kong's first zero carbon building, CIC-Zero Carbon Park (CIC-ZCP) has been showcasing the latest low carbon construction technologies, and raising awareness of the importance of green building design both locally and internationally. CIC-ZCP acts as a test bed for state-of-the-art eco-building design and technologies while serving as an exhibition, education and information centre.

As one of Hong Kong's most inspiring milestone projects, CIC-ZCP has added numerous smart and environmental friendly design features, including the use of low-carbon construction methods, eco-friendly building materials and forestation in order to reduce waste and minimise resource usage. CIC-ZCP strives for enhancing the facilities continuously and has undergone the large-scale renovation in recent years. The enhancement includes:

- strengthening the outdoor landscape with innovative planting system,
- installation of AIPV (air improvement photovoltaic) glass canopy with a nano layer of cadmium telluride,
- installation of emMiC (stormwater air-conditioning system),
- replacement of sustainable bamboo flooring

As a pioneering and inspiring project, CIC-ZCP not only serves as a knowledge sharing platform for the industry practitioners, but also helps raise community's awareness of low carbon living. Through guided tours and community activities, CIC-ZCP actively promotes the benefits of low-carbon living and smart cities. Despite serious impact of the pandemic, CIC-ZCP was kept open to general public relieve stress. When restaurants were all closed earlier, the park became a welcoming space for people in the community that couldn't bring their lunch back to an office or wanted to be outdoors.

CIC-ZCP's outstanding performance in innovation and leading eco-friendly standards has been recognised globally by organisations such as the World Green Building Council, the Hong Kong Green Building Council, World Architecture News,



the Australian Institute of Surveyors and many others.

CIC-ZCP acts as the area's natural heartland, and is Hong Kong's first urban native woodland. With a total area of 14,7000 square metres, CIC-ZCP is home to over 200 species of trees and flowers and has become a lush and vibrant sanctuary to relax and recharge. The eco-plaza is equipped with an outdoor LED wall and an extensive stage suitable for hosting a variety of activities. With ample space for marquee and event equipment set up, the open air environment is perfect for attracting passing crowds. Whether it's a trade fair, publicity event or stage performance, CIC-ZCP is able to satisfy your event requirements.

### **Architecture Philosophy**

CIC-ZCP uses an energy efficient system, which saves 25 percent of energy compared to similar buildings.

#### Air Improvement Photovoltaic Canopy

Using a nano-thin layer of photovoltaic material, the canopies turn solar energy into electricity for CIC-ZCP. The special coating breaks down harmful fine particulate matter while



its self-cleansing function keeps the glass surface clean and hence reduces water usage as well as maintenance costs.

#### Electrical and Mechanical Modular Integrated Construction for Stormwater Air-conditioning System (emMIC)

By drawing rainwater stored underground as a condensing medium, the water cooled air-conditioning system no longer requires freshwater supply. An additional benefit of adopting the emMIC System is a 50 percent reduction in energy consumption compared to traditional air-cooled units. The module and associated E&M equipment are all prefabricated and commissioned off-site which greatly enhances productivity.

#### Solar Panel

In order to generate electricity with solar power and heat insulation, the concrete roof is built with glass with a thick foam insulator, and protective film. 85 percent of the surface area is covered with solar panels, while the remaining 15 percent is sheltered by greenery to absorb carbon dioxide from the atmosphere.

#### Other Eco-Friendly Features

The outer walls are covered with a "cooling paint" coating that reflects solar energy, effectively reducing surface temperature by 5C, reducing air-conditioning usage. The building area of CIC-ZCP is designed to be cross-ventilated to counteract Hong Kong's hot and humid weather as well and to provide a comfortable environment for visitors. The grand and wide hallway outside the multi-purpose hall adds a special touch of grandeur to your events. The flooring is made of bamboo materials that are more durable and environmental friendly.



## PROJECT DETAILS

**Project Name:** CIC-Zero Carbon Park

**Project Location:** Kowloon Bay, Kowloon, Hong Kong

**Developer:** CIC and the HKSAR Government

**Architect:** Ronald Lu & Partners

**Engineer:** Arup

**Total Area:** 14,7000 square metres

**Completion:** 2012

**Photos Owned By:** CIC-Zero Carbon Park

**Information:** Courtesy of CIC-Zero Carbon Park

Design and Environment

**NUS SDE4** / Serie Architects,  
Multiply Architects  
and Surbana Jurong



**T**he NUS SDE4 in Singapore is the first building in Southeast Asia to be awarded the stringent Zero Energy Certification by the International Living Future Institute (ILFI), one of the world's most prestigious sustainability organisations.

In the built environment, zero energy is recognised worldwide as one of the highest aspirations in energy performance. The Zero Energy certification by ILFI is based on actual performance and awarded to green buildings where 100 per cent of its energy needs on a net annual basis is supplied by on-site renewable energy sources, with no combustion. It is the only performance-based standard of its kind operating globally. The ILFI is an international environmental non-profit organisation, which also administers the flagship Living Building Challenge, the world's most rigorous green building standard.

Operational since January 2019, SDE4 is Singapore's first new-build net-zero energy building. The multi-disciplinary academic building, which is six-storey high and spans 8,588 square metres, was developed by NUS College of Design and Engineering in partnership with external consultants, builders and developers. It consists of a range of sustainable design features that have been holistically integrated into its architecture to not only deliver user health and comfort in the tropical context, but also meticulously programmed to be highly energy efficient.

One of its key features is a large overhanging roof which

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**One of its key features is a large overhanging roof which hosts more than 1,200 photovoltaic (PV) panels to harness solar energy to meet the energy demands of the building.**

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hosts more than 1,200 photovoltaic (PV) panels to harness solar energy to meet the energy demands of the building. It also features an innovative hybrid cooling system to effectively manage the building's energy consumption, supplying 100 per cent fresh pre-cooled air, albeit at higher temperatures and humidity levels than in a conventional system, and augments this with an elevated air speed by ceiling fans.

**A pathway to achieving net-positive energy**

Based on SDE4's annual post-occupancy studies and energy audits from April 2019 to March 2020, prior to the COVID-19 circuit breaker period in Singapore, SDE4 has performed beyond its net-zero design intent.





There are three key reasons for the improved performance:

- Enhanced energy production: The PV panels are not only capable of meeting the building's energy demand, but are expected to feed higher surplus of energy back to the electricity grid over their whole lifespan (25 years) due to higher PV efficiency and better overall performance;
- Tight building control and operation management: Allowed a reduction of the building Energy Use Intensity (EUI) – the building's energy use divided by its area, from a designed 65 kWh/m<sup>2</sup>/year to an operational 55 kWh/m<sup>2</sup>/year; and
- Hybrid cooling system performance: Energy consumption for cooling is reduced by more than 20 per cent compared to conventional air-conditioning

Beyond the design intent, SDE4's expected net-positive energy outcome is a result of a concerted and collaborative effort by the College's management and building users who have ensured a prudent consumption of energy all-year-round. A Building Management System that includes Occupancy Sensing Thermal Controls and Indoor Environmental Quality Monitoring overseen by the College ensures that these trends in building occupancy and energy usage are monitored and studied for a continued and sustained impact through the building lifespan.

SDE4 has won multiple awards for its green design and

architecture, including the Architecture MasterPrize 2020 in Institutional Architecture Category, and the Blueprint Awards 2019, Best Public Use Project with Public Funding. The building was awarded the Green Mark Platinum certification by Singapore's Building and Construction Authority. It was also the first university building in the world to achieve WELL Certified™ Gold, and the first building in Singapore to be conferred the WELL Certification, a premier building standard by the International WELL Building Institute (IWBI) in September 2019.

## PROJECT DETAILS

**Project Name:** NUS SDE4

**Project Location:** Singapore

**Developer:** National University of Singapore

**Architect:** Serie Architects, Multiply Architects and Surbana Jurong

**Number of Floors:** 6

**Gross Floor Area:** 8,588 square metres

**Completion:** 2019

**Photo Credit:** Courtesy of NUS College of Design and Engineering and Serie Architects. Photography by Rory Gardiner



# Cura / Doone Silver Kerr



**C**ura' is Grosvenor's latest net zero ready development in Ginza, Japan with 13-storey retail and office space. It will be one of Japan's first net zero ready commercial high-rise buildings equipped with onsite solar energy. It is also Grosvenor's first net zero ready development in APAC. Cundall's sustainability team in Hong Kong is providing sustainable design and net

zero carbon consultancy for this project.

The building was designed with sustainability and design at its forefront. By integrating low carbon design in the initial design stage to boost performance savings, energy and carbon emission savings will be prioritised throughout the building design stage as well as the operational stage. To ensure the project's long-term sustainability goals were achieved and to ultimately create a

net zero enabled building as technology advances and planned upgrades, Cura is designed to meet the sustainability requirements in the most time and cost-effective manner.

One of Cundall's net zero carbon recommendations was to integrate design enhancements to reduce landlord area energy use by 32 percent while generating 12 percent through onsite renewables. Cura is expected to achieve






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**One of Cundall's net zero carbon recommendations was to integrate design enhancements to reduce landlord area energy use by 32 percent while generating 12 percent through onsite renewables.**

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an overall 44 percent reduction in landlord operational energy use. This will enable the building to achieve its net zero carbon status by 2030 with the assistance of renewable energy procurement and carbon offsetting. Simultaneously, 98.6 percent of waste was recycled during the demolition of this building, which represents a high rate of recycling within the industry.

Cundall's structural team has also provided a valued added service in parallel, by developing an integrated digital structural optimisation and carbon accounting tool through the parametric approach. This is greatly beneficial to the project as it provides a much clearer visual of the possible

carbon reduction opportunities along with structural design interaction, and ultimately facilitate the decision-making process.

Other adopted net-zero carbon strategies including using low CO<sub>2</sub> concrete in a steel structure to reduce embodied carbon during construction. Using the recently approved low carbon concrete developed by Tokyu Construction, the embodied carbon during construction stage is significantly reduced. Cura is also the first project in Japan to adopt this innovative material for construction.

With considerations on the sustainability benefits that this net zero ready building can bring in the long

run, Grosvenor has carefully selected the prime area of Ginza 5-chome as the location for Cura. They hope this project can act as an example to influence their industry peers and create positive impacts to the environment and the community in the city of Tokyo.

Grosvenor has pledged to achieve net zero carbon operational emissions from all of their directly managed buildings globally by 2030, and all buildings, directly and indirectly managed, being embodied and operational net zero across their portfolio by 2050.

The project is due to be completed by December 2022.

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**PROJECT DETAILS**

**Project Name:** Cura

**Project Location:** Ginza, Japan

**Client:** Grosvenor Asia Pacific

**Architect:** Doone Silver Kerr

**Sustainability/Net Zero Consultant:** Cundall

**Total Area:** 5,500 square metres

**Completion:** December 2022

**Renderings:** © Grosvenor Asia Pacific



# Takeda Building / 3HPA



In September 2021, Takeda Pharmaceutical Company Limited held the official ground breaking of its first building to follow the Singapore Green Mark Zero Energy certification scheme within the company's global manufacturing and supply network in Woodlands, Singapore.

The building, a \$14 million USD expansion of Takeda's manufacturing operations in Singapore, is the first 'net zero carbon emissions' building in its global network and a first-of-its-kind investment within the biotechnology industry in Singapore.

A delegation of Takeda's global executive team welcomed the attendance of Mr. Gan Kim Yong, Singapore's Minister for Trade and Industry (MTI), His Excellency Jun Yamazaki, the Japanese Ambassador to Singapore, Mr. Tan Kong Hwee, Executive Vice President of the Singapore Economic Development Board (EDB),

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**To achieve the zero-energy building status, comprehensive energy studies were conducted to consider Singapore's tropical, very hot and humid equatorial climate.**

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A delegation of Takeda's global executive team welcomed the attendance of Mr. Gan Kim Yong, Singapore's Minister for Trade and Industry (MTI), His Excellency Jun Yamazaki, the Japanese Ambassador to Singapore, Mr. Tan Kong Hwee, Executive Vice President of the Singapore Economic Development Board (EDB), Mr. Alvin Tan, Assistant CEO of Industry Cluster Group of JTC, and other partners and guests to the groundbreaking ceremony on September 23, 2021. Photo credit: Takeda

Mr. Alvin Tan, Assistant CEO of Industry Cluster Group of JTC, and other partners and guests to the groundbreaking ceremony.

"The ground breaking of our first zero energy building demonstrates Takeda's commitment to deliver on our environmental goals," said Thomas Wozniewski, global manufacturing and supply officer of Takeda. "Takeda achieved carbon neutrality in 2020, now we are focused on our next step to become net zero by 2040. We are honored to have the opportunity to work with our partners in the region and to support the Singapore government's efforts in tackling climate change."

Located next to Takeda's biologics manufacturing plant in JTC's Woodlands Wafer Fab Park, Takeda's new zero energy building is planned for occupancy by 2022. The building follows standards from the Singapore Building Construction Authority's (BCA) Green Mark (GM) certification scheme and sets the bar for green energy design. The GM scheme is an internationally recognized green building rating tool tailored for the tropical climate to evaluate a building's environmental impact and performance throughout its lifecycle, and is aligned with the United Nations' Sustainable Development Goals. The approval processes includes the design, piling, construction, occupation and completion phases. The 60-hectare Woodlands Wafer Fab Park caters to the stringent operating requirements of global semiconductor and biomedical firms.

To achieve the zero-energy building status, comprehensive energy studies were conducted to consider Singapore's tropical, very hot and humid equatorial climate. The project includes over 660 solar photo voltaic (PV) panels to fully offset the building's energy consumption, CO2 sensors to regulate fresh air demand, a hybrid AC system with assistance of ceiling fans and thermal diffusers to optimize energy usage and improve air circulation and air flow to ensure user well-being. Additionally, the building also utilizes rainwater harvesting and the use of green concrete.

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## PROJECT DETAILS

**Project Name:** Takeda's First Zero Energy Building / Takeda Manufacturing Support Building

**Project Location:** Woodlands, Singapore

**Developer:** Takeda Manufacturing Singapore Pte Ltd (Boustead Project is the Builder)

**Architect:** 3HPA

**Number of Floors:** Currently built to 3 floors with provision to go 4 floors in future

**Gross Floor Area:** 3465 square metres

**Completion:** 2022

**Photo credit:** Boustead Project and Takeda Manufacturing Singapore Pte Ltd

# Net-Zero Carbon Buildings in Asia Are Possible

Joy Esther Gai, Asia Pacific Programmes Head, **World Green Building Council**, gives her insight on the progress of net-zero carbon buildings in Asia and the obstacles in achieving them.

**SEAB: When did you join the WorldGBC and what role do you play as the Asia Pacific Programmes Head?**

**Joy:** March 2021. As WorldGBC Programmes Head for our Asia Pacific Region, I'm focusing on delivering programmes that engage GBCs and deliver impact across WorldGBC's three impact areas. I also work closely with our Green Building Councils (GBCs) and partners across Asia Pacific, being the key contact in Asia Pacific region.

**SEAB: Sustainable buildings are generally called green buildings. How is a net-zero carbon building different from them?**

**Joy:** We are relatively familiar with the term sustainable building or green building, we are also familiar with the benefit of a green building. However, just going green is already not enough to keep us within the 1.5°C limit.



Joy Esther Gai

At COP26, our sector witnessed some increased government action in terms of the number of countries who mentioned buildings in their NDCs.

To give us a realistic chance of meeting the Paris Agreement goals, and keep the 1.5°C limit within reach, we need more urgent action and concerted efforts from industry, sub-national governments, national governments and the finance community, which is the target of advancing Net Zero.

**SEAB: From the data that you have collected, what progress is Asia Pacific and/or Southeast Asia making to achieve net-zero carbon buildings?**

**Joy:** The Asia Pacific region takes up 60 percent of the world's population, with more than 2 billion living in urban areas, the region also has 16 of the world's 28 mega cities, and the population is expected to reach 3.3 billion by 2050.

The next 10 years is critical, as we will see rapid growth in cities. We must implement the correct methods to make it right in the first place, so our cities will grow towards net zero carbon, net zero emissions by 2050.

In Asia Pacific region, there are lots of opportunities and potential in advancing net zero, we already have several demonstrative projects in different climate zones showcasing that it's possible to achieve net zero. We even have net zero projects in the most energy consuming areas in the tropical region, which more than half of the energy use are the air conditioning systems that are required to run throughout the 4 seasons.

Across Asia Pacific Network, governments are implementing policies, incentives and roadmaps towards net zero carbon buildings, particularly for energy efficiency. Our Green Building Councils in the region are leading in implementing advocacy activities. Most Green Building Councils have developed a context specific definition of a net zero carbon building.

At the same time, we are also running Net Zero design competitions, developing Net zero readiness framework and conducting training & workshops.

**SEAB: What are the obstacles in developing net-zero carbon buildings in Asia Pacific and/or Southeast Asia?**

**Joy:** Asia Pacific is growing rapidly, we are also seeing the commitment and the ambition in achieving net zero in many countries and regions. However, this journey doesn't come so easily, we are also seeing some key challenges:

- Knowledge sharing and training
- Effective and relevant case studies
- Financial support
- Technology readiness, availability and accessibility
- Government regulations and guidelines
- Mindset and lifestyle change

WorldGBC APN is currently developing a net zero readiness framework to prepare the organizations in advancing net zero from 5 areas:

- government leadership
- technical solutions and approaches
- finance
- data
- mindset

**"In the Asia Pacific region, we see the growing potential of opportunities in advancing net zero. We already have several demonstration projects in different climate zones showing that it is possible to achieve net zero."**

*- Joy Esther Gai*

# Achieving net-zero carbon buildings in Asia: A real estate perspective

**Kamya Miglani is the Head of ESG Research, JLL Asia Pacific. She tells us more about how the real estate sector in Asia can achieve net zero goals and the challenges it faces.**

**SEAB: What is the current state of net-zero carbon buildings in Asia?**

**Kamya:** Achieving net zero in real estate is complex. But significantly reducing emissions is achievable and worth fighting for. Across Asia, developers are slowly but steadily experimenting with sustainable building approaches and renewable energy, especially to help reduce the region's enormous energy consumption. There are numerous examples within Asia which are setting the trend for progressive and innovative thinking in the region for energy efficient building development.

In Shenzhen, China, the Ping An International Finance Centre is one such example where in the developers have put sustainability central to their design and got their operations in place during the design phase itself. It showcases standard energy efficient features including occupancy sensors, LED lighting and wireless daylight controls. It also focuses on building intelligence as an important aspect of the operations phase. However, such green buildings are not confined to China's big cities only. In the Chongqing Qujiang District, an industrial park features a highly sustainable community center building that has installed a rainwater collection and reuse system and passive ventilation. While China is making progress, it has some way to go to catch Asia's leaders in sustainability. As an island nation with limited natural resources, green building has long been a priority



Kamya Miglani. Photo credit: JLL

for Singapore. For over a decade, all new buildings have to abide by the nation's own green building code – The Green Mark scheme, resulting in a large number of low and zero carbon buildings. Singapore's Green Plan 2030 aims to have 80 percent all buildings in the island state as Net Zero by 2030. Over in South Korea, where the world's first zero carbon office building was completed in 2011, Seoul's city government aims to have all new multi-family housing built to have net zero energy standards by 2023.

The use of renewable energy may well be the final push that will reduce building energy consumption towards net zero or nearly net zero status. But this ultimately depends on the renewable energy policy of each country. As Asia works to reduce energy consumption from buildings, the region will have to create its own unique set of green building techniques to overcome the challenges.

**SEAB: From the real estate point of view, how can net-zero carbon buildings be achieved?**

**Kamya:** The basic premise of net-zero is when the building produces enough power through renewable energy by itself, and matches its consumption. Now when it comes to new buildings, one can actually start from the beginning and make sure that from the onset the building is designed and constructed to be Net Zero, however real challenge arises with retrofitting of the existing buildings to make them Net Zero. Carbon emissions have two parts to it – operational carbon and embodied carbon. Embodied carbon is the one that is already existing because those emissions happened with the construction of the building. But, operational carbon is the one we can reduce and strive to make it zero by retrofitting and leveraging green technology. In terms of features a Net Zero building is super energy efficient and it is made so through digitization. Buildings can achieve zero carbon (or zero carbon ready) performance by

**"What would a net zero emissions building look like - it would look exactly like any other building, but it would just be more efficient, made so by conscious design and digitization."**

*- Kamya Miglani*

eliminating fossil fuel use for heating, using on-site and/or off-site renewable energy, reducing the use of high global warming potential refrigerants and using low-carbon, reused or recycled materials. What would a net zero emissions building look like – it would look exactly like any other building, but it would just be more efficient, made so by conscious design and digitization.

**SEAB: In what ways is net-zero carbon a challenge for real estate?**

**Kamya:** There are many challenges that the sector faces while implementing Net Zero Carbon strategy.

(1) Successfully adopting and implementing low-carbon strategies rely on organizational decision-making, including cooperation between diverse groups of stakeholders. Not all landlords and tenants are equal, so a key challenge that the real estate sector faces is activating change across the industry as a whole. No single stakeholder group is capable of turning the whole sector carbon neutral, thus there is need for an ecosystem of partnerships – including property owners, investors, corporate occupiers, governments, academia and community organizations – to work together towards the common goal of Net Zero building environment. Building this ecosystem is not as easy as it sounds. Getting multiple stakeholders to converge on their sustainable ambitions is a definitive challenge that this industry faces.

(2) Real estate companies are also likely to face near- to medium-term challenges like the ongoing need to evolve operating models during their Net Zero journey. Capital requirements, cost recovery and permits for large projects also need to be considered. Some investors might be dissuaded by the cost required to reach Net Zero. However, they must bear in mind the long-term financial benefits they will reap, both in terms of asset value enhancement and positive reputation.

(3) Retrofitting an existing building stock is critical to the real estate decarbonization drive. Yet the retrofitting challenge can be both costly, when it comes to machinery and materials, and complex, with many suppliers involved. What's more, the current pace of retrofitting – at around 1 percent to 2 percent in mature cities – isn't anywhere near fast enough.

(4) Also, specifically to Asia, the hot and humid climate also poses a problem, as low energy building practices from colder climates often involve super tight building envelopes and heavy insulation. But in Asia, a market that is largely driven by air conditioning (AC), it's difficult to design a building that uses zero AC. Moreover, to prevent mould and humidity, buildings require cooling. And because air quality is poor in many parts of Asia, using external air to reduce the AC requirement doesn't always work.



# GREEN WALLS FOR THE CITY

Photo credit: Jakob Rope Systems

**Green facades create quality of life in urban areas. Where temperatures are rising due to climate change and pollutant loads from traffic and industry are increasing, green walls bring natural climate control, noise reduction and improved air quality. Text by Oliver Hergt, Marketing & Communication, Jakob Rope Systems.**

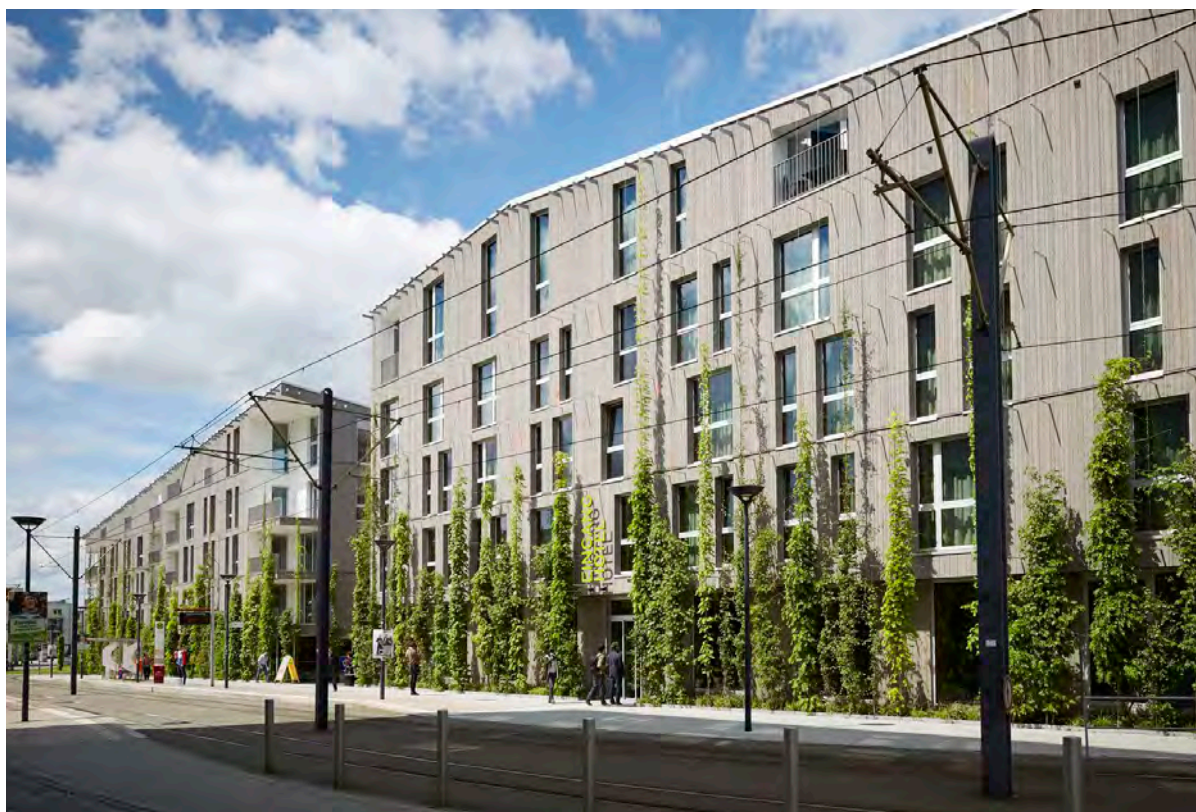


Photo credit: Jakob Rope Systems

**F**or a long time, green facades were regarded as purely aesthetic elements for the design of outdoor areas.

However, well-designed greenery does much more. Especially in urban areas, the ecological benefits are manifold: Vertical green spaces reduce noise pollution in urban areas through their sound absorption. They improve air quality by filtering and binding particulate matter and by enriching oxygen. Green facades create habitats for plants, insects and birds without taking up much ground space.

To all this, green walls contribute to a balanced climate control of buildings throughout the changing seasons.

By insulating and shading buildings, they reduce heating and cooling costs. Studies show that green facades can reduce the perceived temperature in their surroundings by 3 to 4 degrees Celsius during hot summer months.

Today, ground-based systems or wall-based systems are used for an architectural greening of facades.

Jakob Rope Systems supports customers with both solutions. Jakob solutions consist of stainless steel ropes, support elements and Webnet systems. Ground-based systems are installed on a finished exterior wall. The plants used here grow up from the ground on tendril structures. The climbing structures are made of stainless steel and remain installed as permanent climbing aids. The water and nutrient supply of the plants takes place via natural supply on the ground.

Wall-bound greenery forms the facade itself or parts of the exterior wall. They thus replace other materials such as glass, cement or metal. They do not

require a ground connection for their growth and enable fast greening results. The design options and the range of plants that can be used are wide. Water and nutrients are supplied by automated feeders. The maintenance effort depends on the type of design, but is higher overall than for soil-bound greenery.

In recent years, facade and building greening has become an innovative field in modern architecture. From a niche, a trend is emerging in many cities, primarily to mitigate the effects of climate change and rising pollution levels. The ecological, economic and design benefits of green walls are growing.

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### About Jakob Rope Systems

Jakob Rope Systems designs and installs greening systems for buildings and urban spaces. The company's solutions consist of stainless steel ropes, support elements and Webnet systems. This results in versatile climbing structures for plants, along which they can grow vertically or horizontally. Jakob's specialists and planners will be happy to advise you on this. ([www.jakob.com](http://www.jakob.com))



# Here's how sustainable cities can boost gender equality

**Text by Stephanie Ossenbach, Corporate Sustainability, dormakaba. Photos courtesy of dormakaba.**

**S**ince the time of ancient civilisations, urban landscapes have evolved parallel to gender roles, often associating public spaces with men, and the private sphere with women. In the late 20th century, as the global urban population continued to boom, change began to seep through, and spatial researchers began to emphasize the importance of a gender-sensitive approach to urban planning. Their growing body of studies shows that gender-blind city designs not only strain women's day-to-day lives, but simultaneously limit economic and social progress.

"A woman's place is her home, office, metro, hospital, public park, university, or wherever else she needs to be."

By 2050, almost 70 percent of the world will reside in cities, compared to the 55 percent today. Hence, it is no



**Developments in public transportations can improve mobility.**

coincidence that sustainable and inclusive cities are a top priority for the United Nations Sustainable Development Goals, alongside achieving universal gender equality. There is overwhelming evidence that sustainable infrastructure helps women to fulfill their potential and advance beyond the domestic sphere.

With much of the world working towards an equitable future, the link between sustainable urban design and gender equality can no longer be a mere afterthought. The following elements in city life are crucial details to create an inclusive urban ecosystem to boost women's status in society and unleash their full potential everywhere.

### Smart public lighting

According to a worldwide survey, women feel significantly less safe than men in public places, even in seemingly advanced countries perceived to be "safe". Inadequate urban lighting and dark footpaths pose security risks and restrict mobility – not just for women, but also for the marginalised and vulnerable.

Following the economic crisis of 2008, when local governments in the United States reduced the amount of street lighting to cut costs, many cities saw a shocking surge in public gender-based violence.

However, thanks to technological advances, a new generation of energy-efficient streetlights is now readily available. These streetlights tap into smart sensors to turn on and off based on pedestrian movement, allowing for cost efficiency, particularly in areas with low pedestrian density. With energy and cost-efficient solutions in commonplace areas like public lighting, women's safety and enablement can be assured in the sustainable cities of the future.

### Safe public transport

Transportation determines the flow of all physical exchanges in cities. Safe and efficient public transport facilitates access to the labor market, education, and healthcare services. They also dramatically cut carbon emissions thanks to reduced car dependency.

Research has shown that women are more dependent on public transport than men. In some societies, women might not be able to ride a motorbike or drive a car due to cultural norms. Depending

on the country, personal vehicles may be difficult to afford for the average person. Overcrowded, or dimly-lit public transport may also accelerate security risks and hamper women's mobility. By achieving sustainable and gender-sensitive urban transportation networks, we can set our sights on achieving improved mobility both socially and economically, for men and women alike.

### Secure buildings & access

According to criminology scholars, women feel more vulnerable to violent crimes and "stranger danger". The constant state of fear and anxiety may take a toll on women's mental and physical health. It is not uncommon for those who experience intense fear of violent crimes to show patterns of avoidant behavior and organise their daily lives around fear.

While crimes against women and sexual minorities are complex phenomena, secure buildings and entrance systems can reduce the risk of assaults. In particular, dependable doors and access control form a fundamental part of physical security.



Scramble code function: M5 & M6 digital door locks are able to detect your passcode in a string of randomly-pressed numbers to deter prying eyes.

In contrast, dilapidated infrastructure and flimsy entrances make buildings an easier target for intruders. According to the UK Police Department, most criminals break into buildings by forcing or kicking the lock. Homes with no security measures in place are five times more likely to be burgled than those with simple security measures.

Even the sight of excellent locks, secured access control systems, and



Smart home systems are deterrents to burglary. One such smart home system is the dormakaba True Access Solution (TAS).

entrance systems, can be an effective deterrent against criminal behaviour.

### Access to clean energy & water

The lack of reliable access to clean energy and water resources has dire consequences. According to UNICEF, women and girls worldwide spend 200 million hours a day to collect water for their households. Relying on wood, charcoal, or animal waste for basic energy needs requires grueling hours looking for these materials. Women and girls also inhale toxic fumes while cooking, which might bring devastating health consequences.

Sustainable cities with reliable access to clean energy and water can gift this precious time back to communities to help to shift gender roles gradually. In return, women and girls can use this time to further themselves educationally, professionally, and economically, while leading healthier lives.

### Intersectional approach to tackle global challenges

Solving the complex issue of global gender inequality requires disruptive approaches that are as nuanced as this problem itself. One might not immediately associate smart lights, good public transport, secure buildings, or energy and water access with gender equality. However, sustainable cities comprise parts of the ecosystems to boost women's status and add incalculable value to all societies. Thanks to shifting paradigms, an increasing number of cities are responding to the idea that men and women have equal places in society.

# INTERVIEW: Vinod Jethani, Regional Business Development Manager, Asia Pacific Region, Danfoss, Shares The Company’s Green Building Solutions and Decarbonization Plans



Vinod Jethani. Photo courtesy of Danfoss

Vinod Jethani holds a Bachelor's Degree in Mechanical Engineering focusing on energy efficiency in Green Buildings. He joined Danfoss India back in 2008 as Regional Sales Manager and later progressed to Assistant General Manager – Business Development for HVAC/R, before his current role as the Business Development – Commercial Buildings hotspot in the Asia Pacific region since 2017. Currently, Vinod spends most of his time in maximizing energy efficiency achieving sustainability and carbon neutrality in commercial building projects across Asia Pacific & India.

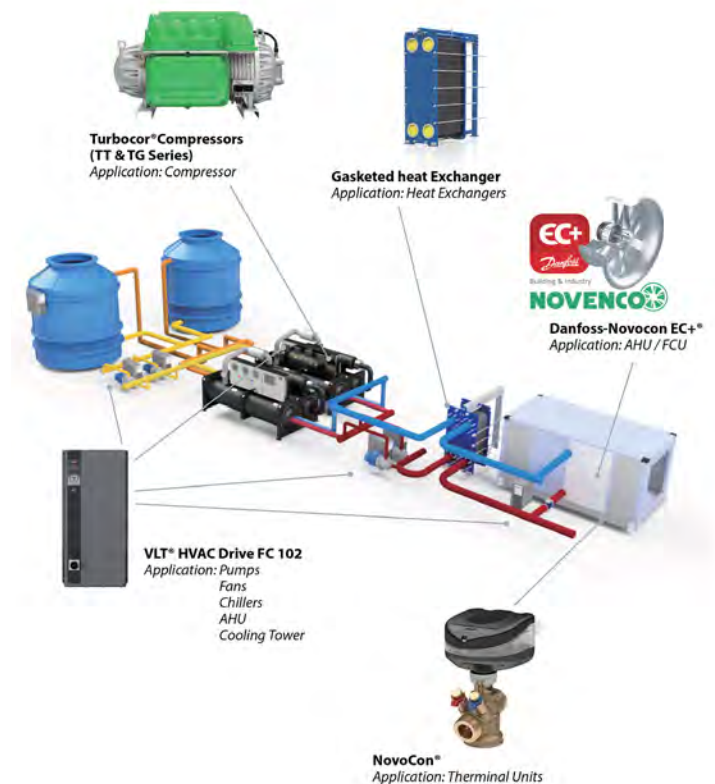
**SEAB: Buildings currently represent a large part of global greenhouse emissions. How does Danfoss see this an opportunity to offer real solutions to reduce emissions?**

**Vinod:** According to IEA, more than 50 percent of the world’s population currently lives in cities, and this number is expected to grow to more than 70 percent by 2050. At the same time, cities are responsible for 80 percent of global GDP and generate around 70 percent of global carbon dioxide (CO<sub>2</sub>) emissions.<sup>1</sup> This massive growth in demand for urban energy infrastructure indicate a great opportunity to accelerate progress towards ambitious climate goals. Therefore, to meet this demand for infrastructure and construction while delivering on the Paris Agreement and the Sustainable Development Goals (SDGs), we must work on our cities and buildings.

Cities offer unique opportunities to create efficient energy systems and use synergies between sectors. That is why, in order to meet their ambitious climate targets, cities need to transform their energy systems. And at the core of this transformation is the integration of different sectors into one smart and efficient energy system. This accelerates the need for innovation in urban efficiency and for developing sustainable low carbon and carbon neutral buildings.

**SEAB: What specific green building solutions does Danfoss have to increase energy efficiency during non-peak hours in commercial buildings?**

**Vinod:** Increasing energy efficiency in buildings is a journey. We spend 90 percent of our time in buildings, which underscores the key role they play in our lives, like office buildings, supermarkets, residential buildings and so on. However, in the past two years, we’ve seen a big change in the world – the effect of COVID-19 pandemic that caused office buildings and



supermarkets to be less crowded and occupied as most people are staying or working from home. There is a big decrease in energy demand in these buildings during non-peak hours, hence we see this as an opportunity to introduce Danfoss Drives, Heating and Cooling systems to help building owners

and management better control the energy consumption and savings. The energy savings not only result in cost optimization but also create a big impact to emission of greenhouse gases.

For example, central ventilation systems are installed in commercial buildings to ensure fresh and clean air are supplied, and these systems are running around the clock all year long and are therefore optimized for operation and maintenance savings. VLT® HVAC Drive FC 102 is the perfect choice to ensure an energy-efficient solution and enable central management and monitoring of all the processes.

Buildings can also be equipped with AB-QM control valves and NovoCon® Digital Actuator, allowing the end user and the administrator to have a real-time insight per climate ceiling how much energy is used. In addition, it provides more insight into the costs and malfunctions or stealth consumption of energy, offering a flexible HVAC installation with energy monitoring for a multi-tenant healthy and smart office.

Although we see an overall drop of energy demand from factories, office buildings and other commercial buildings, however there could be an elevation of energy demand from residential buildings, medical and logistics industry related buildings.<sup>2</sup> This short-term change taught us a lesson that there is a fluctuation in energy consumption when there's a macro shift in our lifestyle. Hence designing a smart building that could adapt to these changes will equipped the building to monitor, adjust and adapt to new waves of energy consumption. It's time to accelerate smart building solutions in cities.

**SEAB: In terms of energy consumption and efficiency, can you give us a brief update on statistics and share some of Danfoss' successes in the Asia Pacific Region?**

**Vinod:** The buildings and buildings construction sectors combined are responsible for almost one-third of total global final energy consumption and nearly 15 percent of direct CO<sub>2</sub> emissions.<sup>3</sup>

In 2020 Asia's GDP will overtake the GDP of the rest of the world combined. By 2030, the region is expected to

contribute roughly 60 percent of global growth. Asia-Pacific will also be responsible for the overwhelming majority (90 percent) of the 2.4 billion new members of the middle class entering the global economy.<sup>4</sup> It simply means more businesses and job opportunities are created, more buildings are built, more cities are developed, more energy will be consumed, and more greenhouse gases are emitted. The need for decarbonizing and improving energy efficiency in both residential and commercial buildings is enormous, so is the untapped potential and need in the near future.

In Asia Pacific region, we have worked with different projects to engineer energy efficient and digital solutions, that enable buildings of the future to be more sustainable and reduce emissions, without compromising on comfort. This is where a new generation of buildings starts.

In July 2012, NEXTDC's M1 Melbourne data centre – a 15MW hyperscale colocation facility – went live. In 2016, the M1 data centre received a 4.5-star NABERS rating for its incredible building

performance. They then improved their systems even more, receiving a 5-star NABERS rating in 2019, becoming the first data centre to ever receive 5 stars in Australia. What have they done? Together with the Smardt Chiller Group, a longtime OEM partner for Danfoss, we first implemented software changes and other improvements needed to allow the oil-free centrifugal Turbocor compressor to run at low lift, and the Smardt team then tested chiller configurations to see the result. This method significantly cuts energy costs by up to 31 percent depending on the ambient conditions. Since then, NEXTDC has decided to roll out the low-lift chiller configuration across its fleet of data centres.

Commercial buildings are often used as office spaces during daytime, shopping malls into the early evenings and restaurants into the night. A high level of cooling is required during the day in most parts of the buildings, whereas only limited space needs cooling at night. To address to this challenge in the Consplant Tower, a 20-storey building on the outskirts of Kuala Lumpur in



Malaysia, 200 pressure independent AB-QM valves were installed to ensure steady and reliable cooling at all times depending on the actual cooling demands. Advanced Danfoss Hydronic Analyzer is also used to analyze the efficiency of cooling systems and to determine the energy saving potential. The critical pressure point of the system was accurately determined by the hydronic calculations so that the pumps could be set to operate with maximum efficiency, resulting energy savings amounts to 67 percent during off-peak times, i.e. at night when only the restaurant needs cooling.

**SEAB: Danfoss works with the Sustainable Development Goal (SDG) under United Nation. How did this help Danfoss to achieve its sustainability goals?**

**Vinod:** Danfoss has worked with the SDGs since their adoption in 2015. With our focus on electrification and energy efficiency, we have chosen to focus on four, and not limited to, of the Global Goals. These goals cover areas where we consider our products and solutions to have the highest impact.

- SDG 6 – Clean water and sanitation
- SDG 7 – Affordable and sustainable energy for all
- SDG 11 – Sustainable cities and communities
- SDG 12 – Responsible consumption and production

SDG 11 – Sustainable cities and communities is very much related to commercial buildings and cities. To ensure our future, cities must scale up urban efficiency and transform their energy systems. At Danfoss, we provide energy-efficient solutions for sustainable buildings, heating and cooling, district energy systems and electric transport to develop carbon-neutral cities as the world's first responders to the climate emergency.

We engineer energy-efficient solutions for district energy systems, solutions for sustainable buildings and electric transport. Our Leanheat solution uses Artificial Intelligence (AI) and The Internet of Things (IoT) sensors to adjust indoor climate and reduce both energy consumption and cost.

We work with the Three Percent Club

together with other partners to support countries and cities to develop energy-efficient buildings and district heating and cooling systems for future-proof and sustainable cities.

**SEAB: What lies ahead for Danfoss with regards to decarbonization plans?**

**Vinod:** Environment, Social, and Governance (ESG) are the central factors in measuring a company's sustainability impact and performance. Our new ESG ambitions and targets are built based on our previous work with sustainability and focuses on three areas: Decarbonization, Circularity, and Diversity and Inclusion. Specifically for Decarbonization, our principle of "Energy Efficiency First" will help us to become carbon neutral in our global operations by 2030.

For instance, Danfoss' headquarter in Nordborg, Denmark, have undergone massive energy efficiency improvements and the use of fossil fuels for heating has been reduced by 80 percent since 2007. Our first climate strategy was developed in 2008, to reduce the CO<sub>2</sub> emissions from the Nordborg campus by 85 percent in 2021 through green initiatives. We source 100 percent green electricity for our headquarters from February 2021 to cover 60 percent of the heating demand by carbon-neutral district energy. All in all to achieve our ambition: All electricity and heating at our headquarters shall be carbon-neutral by the end of 2022. In addition, the Danfoss group also commits to change our company car fleet to become all electric latest by 2030.

Apart from that, we also use data centres as power plants. Our data centres in Nordborg, Denmark are cooled up to 30 percent more efficiently. In 2024, reused excess heat from Danfoss data centres generated by server equipment will provide 25 percent of the overall heat supply needed by our headquarters and factories, instead of discharging into the atmosphere.

Besides joining the UN Global Compact's campaign on "Business Ambition for 1.5°C – Our Only Future", aiming to limit global temperature rise to 1.5°C above pre-industrial levels, we are also working on how to balance



potential CO<sub>2</sub> impact, commercial terms and long-term factory footprint considerations. Because we know only by involving more parties and stakeholders into the journey of decarbonization, we can make a greater impact together, hence we are also pioneering solutions for our customers to reduce emissions from the use of Danfoss products. When we have high share of renewable energy, less green energy is needed, and less investments are needed for grid extension, energy storage, back-up capacities, and power plants. Also, electrification, powered by renewables, is an enabling tool that will allow us to decarbonize the business, enabling us to meet our goals for more renewable energy faster, just like the quote from our CEO Kim Fausing "The greenest energy is the energy we don't use".

"Sustainability is a good business for our customers, for the planet and people. As a leading business, we prove that it is possible to deliver on ambitious climate targets – both by decarbonizing our own business and by providing the solutions needed to decouple economic growth from energy consumption, reducing the energy needed in the first place," says Kim Fausing, Danfoss CEO.

**References:**

- 1 IEA, Empowering Cities for a Net Zero Future, 2021
- 2 NCBI, Impacts of COVID-19 on Energy Demand and Consumption: Challenges, Lessons and Emerging Opportunities, 2021
- 3 IEA, Buildings – A Source of Enormous Untapped Efficiency Potential, 2021
- 4 WEF, In 2020 Asia Will Have The World's Largest GDP. Here's What That Means, 2019

## Join the Journey to Net Zero Buildings webinar with Danfoss

**Singapore** – Globally, heating and cooling systems account for up to 80 percent of the total energy consumption in a commercial building. According to the International Energy Agency, ASEAN's buildings sector accounted for 23 percent of final energy use and 24 percent of CO2 emissions (IEA, 2020). The results reveal a large potential for energy savings.



Vinod Jethani. Photo courtesy of Danfoss

The focus on buildings is not only about reducing carbon emissions but also about doing it cost-effectively. Optimizing heating, ventilation and air-conditioning systems can bring an average energy saving of 30 percent with a payback time of just two to four years (WEF, 2021).

During the online session, Vinod Jethani, Regional Business Development Manager for Asia Pacific Region (APR) will share trends, insights, and Danfoss advanced technology and solutions contributing to optimize indoor comfort, improve energy efficiency, reduce carbon emissions and lower operating costs in buildings. We'll help you make your green transition easier towards net zero energy buildings and one step further towards sustainability. This event is part of Danfoss RETHINK Live, a global series dedicated to uncovering new ways of doing things in HVACR.

**Webinar title:** Unlocking Energy Efficiency Potential in Commercial Buildings

**Date:** 24th May 2022, Tuesday

**Time:** 2.00pm – 3.00pm (GMT+8)

## The International Code Council, with sponsorship from ASHRAE, creates a new International Green Construction Code Certification

**Washington, D.C., USA** – The International Code Council with sponsorship from ASHRAE, the leading global HVAC&R membership society, is pleased to announce the release of a new International Green Construction Code (IgCC) certification, Commercial Green Construction Professional.

The Commercial Green Construction Professional certification was created to assist in developing new standards for building construction in order to address the problem of greenhouse gas (GHG) emissions and to help reinforce societal health, life and safety benefits. Professionals who hold this certification will lead the way in helping to conserve resources and regenerate sites, while providing expertise in offering solutions to resilience through natural disasters, a changing climate, resource consumption/management, and service interruptions due to unforeseen events.

"As the focus to reduce greenhouse gas emissions and increase energy efficiency within our communities continues to grow, the demand for green building design, construction and operational techniques has become essential," said Cindy Davis, CBO, President of the ICC Board of Directors. "A certified Commercial Green Construction Professional will play an important role as an industry leader in helping communities establish sustainable, resilient, high-performance buildings."

The Code Council is the preeminent certification body for

credentialing code professionals. Code Council certifications are often prerequisites for those seeking positions that review building plans and inspect homes and buildings for compliance with applicable codes and standards. ICC certification exams are developed and maintained to the highest standards, which includes continuous peer review by committees of experienced, practicing professionals.

The certified Commercial Green Construction Professional certification verifies competence in plan review and project inspection performance for commercial buildings as it pertains to the International Green Construction Code (IgCC), in coordination with ASHRAE Standard 189.1. Standard 189.1 provides guidance for designing, building and operating high-performance green buildings and sets the foundation for total building sustainability through site sustainability, water and energy efficiency, indoor environmental quality and the building's impact on the atmosphere, materials and resources.



Cindy Davis, CBO, President of the ICC Board of Directors.

## PTT signs Memorandum of Understanding with Johnson Controls for the development of smart building energy management



In the photo: Dr. Buranin Rattanasombat, Senior Executive Vice President, Innovation and New Ventures Holding, PTT Public Company Limited (2nd from left), Mr. Prasong Intaranongpai, Assistant Managing Director, Innovation and Digital Development, PTT Public Company Limited (left), Mr. Alvin Ng, Vice President, Digital Solutions, Asia Pacific, Johnson Controls (2nd from right) and Ms. Sutinee Ammaneerat, Country Manager, Thailand, Johnson Controls (right). Photo credit: Johnson Controls and PTT Public Company Limited.

**Bangkok, Thailand** – PTT Public Company Limited and Johnson Controls signed a memorandum of understanding on March 31, 2022, for the development of smart building energy management solutions. The rapidly evolving needs of building owners, operators and users can be met through integrating various advanced technologies for buildings. PTT Public Company Limited and Johnson Controls recognize the importance of efficient energy management in buildings to promote quality of life for communities as well as sustainable, smart cities.

## Siemens has acquired EcoDomus' digital twin software to expand its smart building offering

**Zug, Switzerland** – Siemens Smart Infrastructure has acquired digital twin software for buildings from EcoDomus, a privately held US-based company. The move helps Siemens Smart Infrastructure expand its digital building portfolio, including its cloud-based building operations twin software and its flagship building management platform Desigo CC. The EcoDomus software creates, maintains and visualizes Building Information Modeling (BIM)-based digital building twins, making design and construction data available for building operations and maintenance. Customers can generate digital replicas of their real buildings and assets, creating a common data environment that integrates BIM, Building Management Systems (BMS), Computerized Maintenance Management Systems (CMMS) and Internet of Things (IoT) systems. The solution enables BIM-driven workflows and digital twin-based lifecycle management, complemented by 3D visualization.

In the past, BIM data usage has mostly focused on a building's construction phase. Today, its benefits can also be leveraged in the operations and maintenance phase. This is crucial because this is where 80 percent of a building's total lifecycle costs will occur.

Leveraging the acquired data creation and visualization capabilities, Siemens' digital building software portfolio will



Photo credit: Siemens

bring substantial benefits to customers: enhanced insights into the performance of their building, real-time issue identification and resolution, better space and energy utilization, and many others. Customers will be able to turn their buildings into more sustainable, comfortable and safe places to live and work, while at the same time streamlining processes and reducing operational costs.

## Chiller company Geoclima sets up UK subsidiary

**Ronchi dei Legionari, Italy** – Geoclima HVAC UK represents the company's direct entry into the British HVAC market which will be able to count on a proven market leader, with cutting edge innovation created in Italy beside a unique ability to customise its products to meet each project's specific requirements and always designed for high efficiency and low environmental impact. All this combined with the peace of mind complete range AHRI certification brings.

Thanks to Geoclima HVAC UK, the company will distribute all the brands that are part of the Geoclima Group, such as Clima Tech, Hecoclima, CROM and COM40. In this way, it will be able to follow projects and support its UK clients in country for a wide range of applications: process, comfort and mission critical cooling, data centres, hospitals, etc.

At the head of Geoclima HVAC UK are Rob Young and Fabian Lant, both with more than 20 years of experience and knowledge of Geoclima's extensive product portfolio.



Photo credit: Geoclima

## ASC Engineered Solutions acquires Value Engineered Products

**Commerce, California, USA** – ASC Engineered Solutions (formerly Anvil & Smith-Cooper International), a leading producer and supplier of precision engineered pipe connections, valves, support solutions, and related services, has acquired Value Engineered Products (VEP) of Denver, Colorado.

Value Engineered Products (VEP) offers the plumbing, mechanical, and industrial piping industries a series of insulated pipe supports designed to meet the broadest range of applications and piping material types, such as hot piping from 120 °F to 1200 °F to cold piping from -250 °F to 225 °F.



Founded in 1990, VEP provides a patented shield product designed for all types of piping, as well as seismic applications, and has built its reputation on providing responsive customer service and innovative product design.

ASC Engineered Solutions' CEO Jason Hild noted, "We are pleased to expand our breadth of hanger and support offerings to the PVF industry. This acquisition is very complementary and strengthens our organization's ability to provide our customers with market-leading breadth and solutions to meet their needs. We are delighted to welcome Barry Schmidt and the entire VEP team to the ASC family."

## Aliaxis and HydroPoint: joining forces for smarter water management

**Brussels, Belgium** – Aliaxis, a world leader enabling access to water and energy through inventive fluid management solutions, and HydroPoint, a smart water management company focusing on innovative water solutions for the last mile, have today signed a strategic investment and collaboration agreement.

Through this agreement, Aliaxis and HydroPoint are partnering to join forces in the field of smart irrigation systems and leak and flow monitoring services for the building industry. The new partnership will allow both companies to build upon each other's strengths and benefit from them.

The financial details of this agreement will not be disclosed.



Photo credit: Aliaxis

## The AxiEco axial fan improves the efficiency of the entire system

Ice formation is a concern in refrigeration applications (for example, evaporators) as the water vapour precipitates on the heat exchanger as ice at cold temperatures. In addition, there is an increasing demand for energy-efficient ventilation solutions. To address such concerns, ebm-papst Group, the world's leading manufacturer of fans and motors, launched a new axial fan, the AxiEco. These fans have been designed for robustness, high performance, economical operation and much more.

### Improved efficiency and quiet operation

AxiEco has been optimised for energy efficiency. They are equipped with electronically commutated (EC) motors, which offers better efficiency than alternating current (AC) motors.

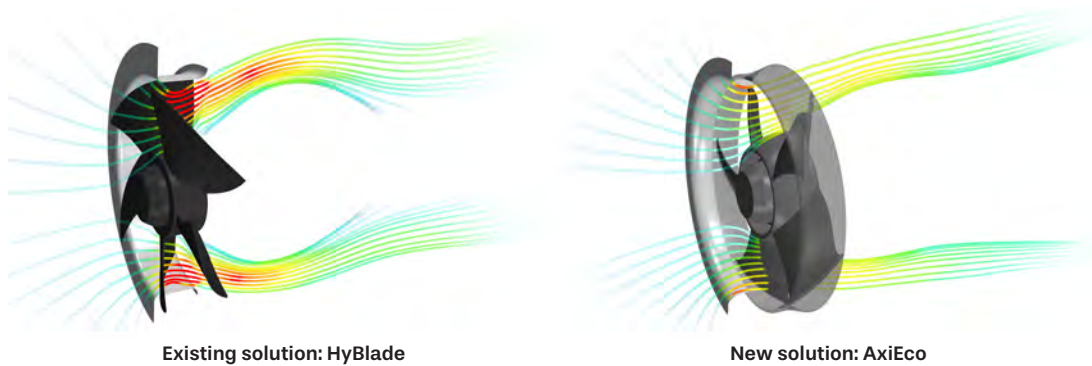
In addition, unlike most axial fans, there is no tip gap between the fan housing and impeller. Tip gaps typically lead to airflow loss. Thus, the absence of the tip gap means increased efficiency and reduced noise generation. The integrated diffuser ring also functions as a diffuser that is directly integrated into the impeller. It increases the pressure, resulting in reduced exit loss and also contributing to less noise.

### Improved flow profile

The AxiEco series is also characterised by its improved flow profile. While the airflow of other axial fans spreads outwards, the outflow of AxiEco remains "on course" for longer. This remains the case even when there are higher back pressures and the fan will retain an axial direction. The flow direction remains constant and the air in the interior is not taken in again.



Best under pressure, the AxiEco Protect (left) and AxiEco Perform (right).  
Photo: © ebm-papst



Comparison of flow profile between existing axial fan solutions and AxiEco. Photo: © ebm-papst

### Resists ice formation

When ice forms on the heat exchanger, the air path is restricted and the pressure increases. This is where AxiEco's key benefit comes in: At higher back pressures, it offers much greater pressure reserves than other fans. This extends the intervals between defrosting cycles and means that the refrigerating plant can be operated more efficiently for longer periods. Additionally, with no tip gap, the impeller is unlikely to freeze up. Last but not least, its flow profile delays ice formation on the guard grill because the interior air is not drawn in again.

### Multiple sizes and designs are available

Currently the AxiEco series is available in different sizes and designs.

To learn more about the AxiEco and how it can improve the efficiency of your refrigeration, ventilation, air-conditioning or mechanical engineering technology, visit [ebm-papst SEA's website](http://ebm-papst-SEA.com).

## *Timberlink announces new CLT & GLT brand - NeXTimber*



Photo credit: Timberlink

**T**imberlink Australia unveiled the new brand for their forthcoming engineered wood products building solutions range – NeXTimber® by Timberlink.

NeXTimber by Timberlink will manufacture Cross Laminated Timber (CLT) and Glue Laminated Timber (GLT) products providing an Australian-made renewable and carbon positive timber building solution for commercial, residential, and public projects.

Backed by a \$63 million capital investment, the NeXTimber range will be manufactured on Australia's first combined world scale softwoods CLT and GLT manufacturing line, within a purpose built manufacturing plant being constructed adjacent to Timberlink's state-of-the-art timber manufacturing facility in Tarpeena, South Australia. Production will begin in 2023.



CEO Ian Tyson with Minister David Bashim & Cr Shirley Little, during the SOD turning of the company's Tarpeena site in February 2022. Photo credit: Timberlink

**For more information, visit [www.nexttimber.com.au](http://www.nexttimber.com.au).**



## BuildTech Asia 2022

The 11th edition took place from March 15–17 2022 at the Singapore Expo in a hybrid event format. Read the exhibitor review over the next few pages.

## Buildo exhibits quality building materials and construction technology

**B**uildo Engineering Pte Ltd is a leading Autoclaved Aerated Lightweight Concrete (ALC) reinforced panel supplier in Singapore. The company actively promotes green architecture and advocates low-carbon life. The high-performance, low material consumption, good durability and other features of its products meet the requirements of the Green Building Evaluation Standard.

At BuildTech Asia 2022, the company promoted the award-winning Diathonite® cork-based range of thermal and acoustic insulation plasters as well as waterproofing solutions from Italy.



Buildo's booth at BuildTech Asia 2022.

Diathonite Thermactive.037 (ceiling and walls) and Diathonite Screed (floors) are two great thermal insulation examples of lighter weight solutions with minimum application thickness (compared to traditional solutions), greater thermal and mechanical performance, environmentally friendly, and natural products suitable for outdoors and indoors.

The Diathonite products feeds on cork and its magic: natural, renewable, versatile, and sustainable, composed of 80 percent of air that makes it lightweight and breathable. Cork is the primary ingredient for Diathonite products. It provides unique features that will guarantee efficient applications as well as excellent results.

Due to its ability to avoid condensation formation, cork is not modified by humidity; it reduces noise propagation, guaranteeing acoustic insulation; it reduces the warmth exchange, and it will make the house cooler during summer and warmer during winter. Thanks to its nature of bark protection, it resists fire, insects, and moulds. Moreover, it provides extraordinary features such as durability and healthiness in household environments. Without collecting electrical charges, cork avoids dust sediment which is the cause of always more allergies.

"Cork is a highly environmentally friendly product with many benefits. Through this product, we aim to bring good quality products and provide better living comfort for Singaporeans," said Adrian Sia, Business Development Manager, Buildo Engineering Pte Ltd.

**For more information, visit [www.buildo.com.sg](http://www.buildo.com.sg).**

## IDMC introduces HVLS Giant Stand Fan

**I**DMC Pte Ltd is a leading distributor of Roof Turbine Ventilator and HVLS Fans in Singapore. At BuildTech Asia 2022, the company unveiled a new HVLS Giant Stand Fan with a multi-purpose vertical pole – the first of its kind in Singapore.

This HVLS Stand Fan can be installed at both indoor and outdoor locations such as workplaces, events, schools, etc. It is a great choice for temporary installations. According to Ten Kam Wah of IDMC, "The stand of the fan has a strong base and the whole product can be easily assembled on site. It is great for outdoor use where short term installations are needed."

The HVLS fan with the stand is available for rental.

**For more information, visit [www.idmc.com.sg](http://www.idmc.com.sg).**



The IDMC team at their booth at BuildTech Asia 2022.

## Edgenta NXT drives change for efficiency



Adrian Tan (left) and Aiman Farhan (right) of Edgenta NXT.

Edgenta NXT offers a suite of technology-enabled solutions, ready to be rolled out into the market. These solutions cut across the healthcare, infrastructure, facility management and asset management consultancy sectors, all enabled through Edgenta NXT Cloud.

Its latest SaaS offering, Asseto, is a dynamically configurable, self-service, end-to-end IoT-enabled Total Asset Management platform that allows for early fault detection and diagnostics.

Asseto, which boasts automation at the forefront of its features, enables efficient repairs and maintenance on the back of its interoperability in streamlining data exchanges. With Asseto's insights-driven reporting optimising asset performance through intelligent analytics, real-time data can be harnessed through IoT sensors that also complies with the correct checklist at the correct date and time.

Asseto is an ideal ecosystem for building technicians, facility and transformation managers as well as customers exploring digitalisation in their asset performance and processes.

"We are targeting building developers and asset owners who are looking to monitor their assets, whereby via Asseto, a user is able to resolve these issues into a singular point of truth where you are able to predict, identify and rectify various aspects of a particular facility from all the different stakeholder perspectives" said Adrian Tan, Head of Business Development, Edgenta NXT Sdn Bhd.

**For more information, visit [www.edgentanxt.com](http://www.edgentanxt.com).**

## Magicsoft Asia Systems showcases IT solutions

Magicsoft Asia Systems is in the business of empowering companies to achieve their potential through cutting-edge IT services and solutions. Starting off as a small web-development house in 1997, the company has evolved and expanded into a full-fledged IT services business with offices across the region in Singapore, China, Myanmar, Malaysia and Indonesia.

Magicsoft specialises in the development of an wide array of applications from wireless, mobile and web-based to two-tier and three-tier architectures. Some of its recent achievements include the design and development of a diverse range of leading-edge IT solutions, including Construction Management, Health Information and Tunnel Excavation Monitoring systems for government and private sector companies.

At BuildTech Asia 2022, the company shared its two solutions to the show goers:

- (1) Access Control Management Systems (ACS) / Visitor Management Systems (VMS)
- (2) Workplace Safety & Health (Preparing, Establishing, Enabling, Reviewing)

"Both systems are browser based so there is no need to download any application or software to use them," said Sarah Umairah, Systems Analyst, Magicsoft Asia Systems Pte Ltd.

**For more information, visit [www.magicsoft-asia.com](http://www.magicsoft-asia.com).**



Sarah Umairah (left) with her colleagues.

## SIRIM QAS offers testing, inspection and certification services

**S**IRIM QAS is an internationally recognised conformity assessment body with decades of experience in providing testing, inspection and certification services to both local and international customers.

SIRIM QAS is accredited by the Department of Standards Malaysia (STANDARDS MALAYSIA) as an international Testing House under the National Laboratory Scheme (SAMM) in accordance with ISO/IEC 17025. SIRIM's test reports carry both the SAMM and ILAC MRA logos.

A regional leader in fire performance testing of building materials and products for over 20 years, SIRIM QAS is renowned for its fully integrated state-of-the-art lab testing facilities, immaculate track record, and impeccable service standards as well as professional expertise. Both local and international organisations make SIRIM QAS their preferred choice for their inspection, testing and certification needs.

It was SIRIM's first time participation at BuildTech Asia 2022. It wanted to explore the potential for fire products for its fire testing services located in Kuala Lumpur. "We want to let fire products companies, building owners, manufacturers, engineers, agents,

suppliers, property developers, building owners, regulators, and professional bodies dealing with fire safety, know that we have the biggest fire product testing facility in Southeast Asia in Kuala Lumpur," said Mohd Helmi bin Mohammad Meswan, Senior Executive, Marketing & Customer Experience Section, SIRIM QAS.

The other large-scale fire testing facilities are in Australia and New Zealand but since they are located geographically further from Singapore, they cost more. Therefore, SIRIM QAS aims to provide the services which are cheaper and also nearer to Singapore. "We have a lot of customers in Singapore and we hope to meet them," added Mohd Helmi.

The fire testing service for External Cladding Systems at SIRIM QAS is the first-of-its-kind in Southeast Asia. Cladding systems for facades are a potential fire hazard, as they have been found to aid the spread of fire through multi-storey buildings. It is therefore imperative to conduct full-scale testing on the fire performance of external cladding systems in order to prevent disastrous fire incidents. This testing service is designed for manufacturers and distributors of



Mohd Helmi at his booth.

facade / external cladding systems and related components, contractors, property developers, architects, facade consultants, engineering consultants, fire consultants, building and facility managers, and local authorities.

SIRIM QAS has four state-of-the-art furnaces: 1.3 x 1.3 metres; 3 x 3 metres; and 5 x 4 metres. The latest addition to existing furnace is 4 x 4 metres which will be ready to serve the industry by June 2022.

**For more information, visit [www.sirim.my](http://www.sirim.my).**

## Quantum Jump allows people to tour premises virtually



Raymond Ma at his booth.

**Q**uantum Jump provides a solution for business to deliver a SceneSite for their business or management, where people can tour and interconnect their premises virtually like in the real world.

SceneGram is another front end product from Quantum Jump. Individuals can create their own scenegrams for contents sharing or for personal profile link.

Businesses who own a SceneSite and individual with a SceneGram account can popularize their SceneSite or SceneGram on ScenesMap to let people explore the real world like real from their desktops or smartphones.

"We hope to build more connections and increase our presence in the building industry through the exhibition," said Raymond Ma, Business Development Manager, Quantum Jump Pte Ltd.

**For more information, visit [www.quantumjump.com](http://www.quantumjump.com).**

## Vicplas offers piping systems for diverse industries



Andrew Tan (on the right) and his colleague.

Vicplas Holdings Pte Ltd, a subsidiary of Vicplas International Ltd, is a leading designer, manufacturer and distributor of piping systems across diverse industries. Based in Singapore, the company's products are installed in various areas which include waste and potable water systems for residential homes, schools, commercial and industrial buildings; underground electrical and internal building wire / cable piping systems; and data and signal line piping systems by telecommunications companies.

At BuildTech Asia 2022, Vicplas came to increase brand awareness for its products. "We came here to showcase our wide range of products, as well as to create awareness and do some networking," said Andrew Tan, Sales & Marketing Executive, Vicplas Holdings Pte Ltd.

At BuildTech Asia 2022, the company launched VPONIC™ hydro-agriculture solutions. The VPONIC™ series of channels have been developed for high yield farming, operating on both indoor and outdoor hydroponic systems. Each channel has enhanced properties to reduce ultraviolet (UV), improve water flow and promote oxygenation. This series is further designed to use low levels of water, high space utilization rate and fast plant growth rate as well as to maximise the resources and reduce cultivation costs. Optional items include end cover inlet/outlet for water management (73mm channel only) and growth trays, etc.

For more information, visit [www.vicplas.com](http://www.vicplas.com).

## Kirby Building Systems specializes in Pre-Engineered Steel Buildings

Kirby Building Systems is one of the largest pre-engineered steel building (PEB) companies in the world and is a 100 percent subsidiary of Kuwait-based multinational and multi-billion-dollar business conglomerate - Alghanim Industries, one of the largest privately-owned companies in the Middle East.

Kirby pioneered the PEB technology first in Middle East in 1976 and later in India in 1999, and South East Asia in 2008. Its product list consists of pre-engineered steel buildings (PEB) applicable for factories, warehouses, metro rails, supermarkets, aircraft hangars, sports stadiums, auditoriums, etc. Other products include structural steel, sandwich panels, storage solutions, Kirby Roof (KR), Kirby Wall (KW), Kirby Deep Decking Panel and Kirby Standing Seam Panel (KSS-600).

Kirby has a total of five manufacturing facilities located in Kuwait, Ras-Al-Khaimah (UAE), Vietnam and India, with a total capacity of about 400,000 MT per annum supported by over 4,000 employees. The company operates 70 sales offices located across six geographical regions, namely the Gulf Cooperation Council, the rest of the Middle East, the Indian Sub-Continent, Africa, Eastern Europe and South East Asia. Kirby has more than 300 certified builders globally for providing erection of steel buildings along with other trades up to turnkey projects. Kirby has manufactured more than 65,000 buildings across the world.

The company has a sales office in Singapore. At BuildTech Asia 2022, Kirby showcased its solutions and strengths – one of which is their fast construction method. "Our construction is fast. Normally, it takes about one year to construct a RC building but due to our expertise in Pre Engineered Steel Structures, we take only six months to do it," said Praveen Kumar, Technical Sales Manager, Kirby South East Asia.

Kirby manufactures the steel structures in their factory and assembles it on the site similar to Lego blocks.



Mr Praveen Kumar (right) and his colleague.

For more information, visit [www.kirbyinternational.com](http://www.kirbyinternational.com).

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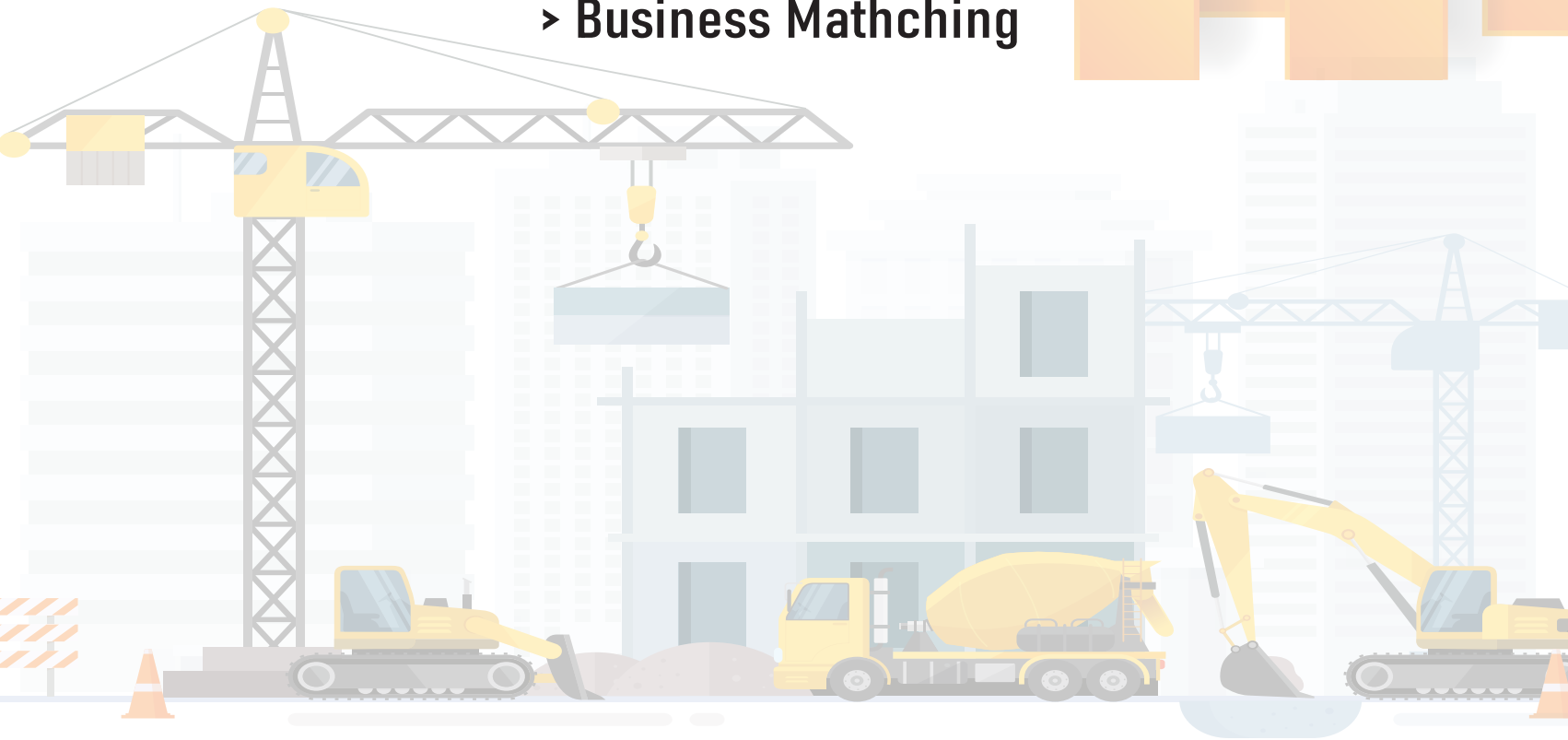
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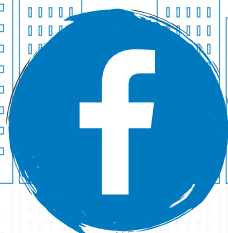
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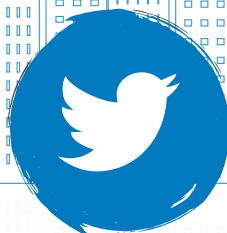
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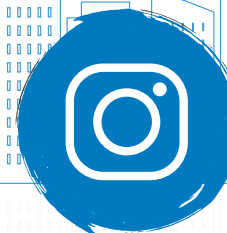
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Event	Date	City	Country	Website	Page
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Sydney Build 2022	1-2 June 2022	Sydney	Australia	www.sydneybuildexpo.com	58
MegaBuild Indonesia	16-19 June 2022	Jakarta	Indonesia	www.megabuild.co.id	59
Archidex 2022	29 June-2 July 2022	Kuala Lumpur	Malaysia	www.archidex.com.my	61
Shanghai Intelligent Building Technology (SIBT)	31 Aug-2 Sept 2022	Shanghai	China	www.building.messefrankfurt.com.cn	IBC
WORLDBEX 2022	31 Aug-20 Sept 2022	Manila	Philippines	www.worldbex.com	57
ConsBuild ASIA 2022	28-30 Sept 2022	Bangkok	Thailand	www.consbuild-asia.com	60

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



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### 1st company

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### Over 70 products

are covered by environmental impact data collected through our Life Cycle Assessment tool

### 15,500 tCO<sub>2</sub>e saved

through green electricity purchases and energy efficiency projects

### Over 2,000 employees

participated in our sustainability strategy survey

### 146 high-risk suppliers

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### 45% of our manufacturing sites

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### Questions?

We're happy to help!

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