SOUTHEAST·ASIA CONSTRUCTION

JANUARY - FEBRUARY 2026

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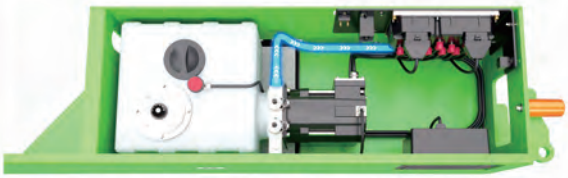

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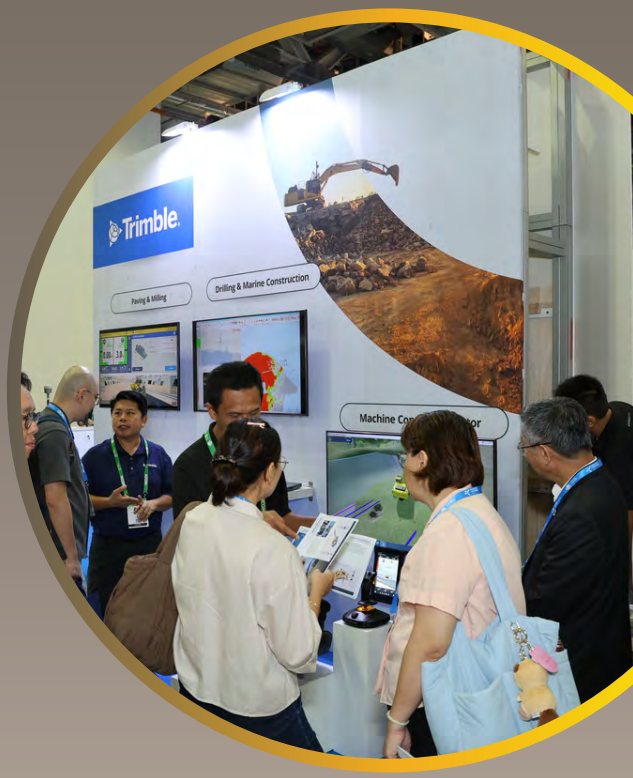

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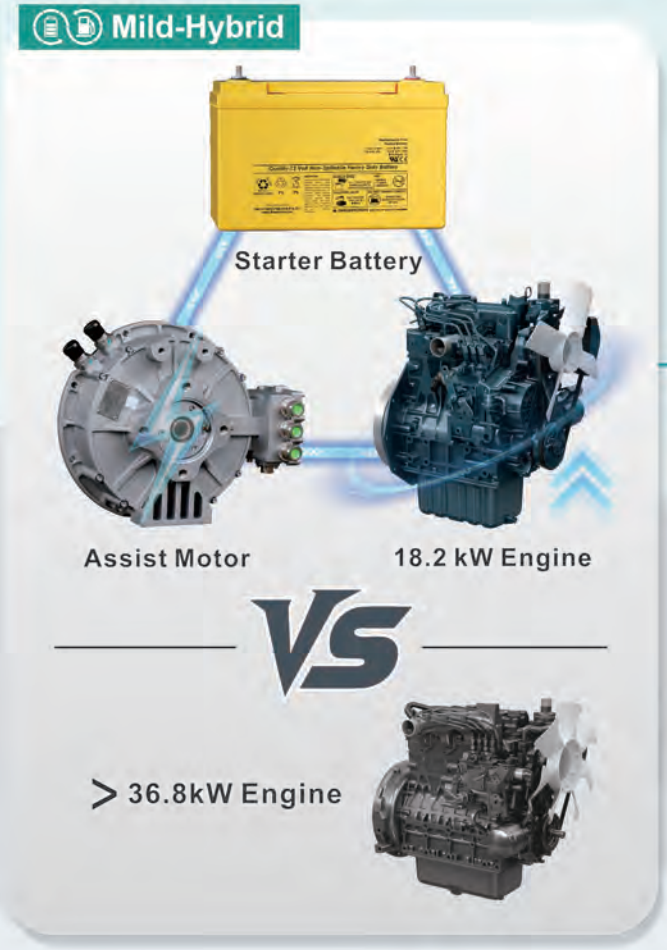

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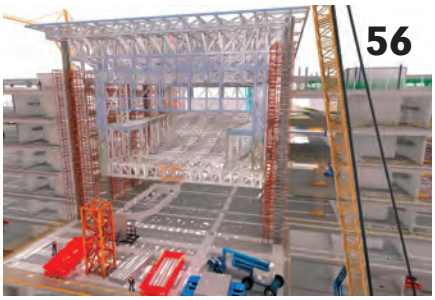

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Masdar to develop Southeast Asia's largest floating solar plant in Malaysia

UAE-based renewable energy company Masdar has announced its first project in Malaysia, with the signing of a power purchase agreement to develop a 200 MW floating solar photovoltaic (PV) plant at the Chereh Dam in Pahang state.

This project will be developed by a consortium led by Masdar, together with Malaysian partners Citaglobal and Tiza Global. The agreement was signed with Tenaga Nasional Berhad, Malaysia's national utility company.

Once operational, the 200 MW Chereh Dam plant is set to become the largest floating solar project in Southeast Asia, said Masdar. Occupying approximately 950 acres, the facility will have a generation capacity of more than 300 MWp (200 MWac), enough to power the equivalent of over 100,000 homes.

Malaysia has targeted increasing the share of renewables in its national energy mix to 35% by 2030, and floating solar is expected to play a key role in achieving these goals. The Chereh Dam project is estimated to cost more than US$208 million.

"This milestone project, our largest floating solar development globally and our inaugural project in Malaysia, reaffirms Masdar's expertise in floating solar and our position as a trusted partner across the region," said Mohamed Jameel Al Ramahi, CEO of Masdar. "By leveraging our experience in delivering utility-scale solutions worldwide, we can provide affordable, secure clean energy to the Malaysian people. We look forward to working closely with Citaglobal, Tiza Global and the Government of Malaysia to help deliver the country's ambitious renewable energy roadmap."

The Chereh floating solar plant will be the inaugural project of the 10 GW renewable energy roadmap agreed between Masdar and the Malaysian Investment Development Authority (MIDA) in 2023. Masdar is also progressing a feasibility study for a major floating solar installation at the Murum reservoir in Sarawak, in collaboration with Sarawak Energy and Gentari. This project would further boost Malaysia's renewable capacity and support key national strategies including the National Energy Transition Roadmap and the New Industrial Master Plan 2030.

Image: Masdar

Floating solar PV plants offer a land-efficient, scalable energy solution, suited to water-rich, densely populated countries like Malaysia.

A core pillar of the project is Masdar's commitment to working closely with Malaysian authorities and local stakeholders throughout development, construction and operations. These partnerships, such as the site agreement signed with Pahang Water & Energy Resources, are designed to ensure seamless execution, strong local integration and long-term continuity beyond commercial operation date, reinforcing the project's role as a durable national asset.

According to Masdar, the project will deploy state-of-the-art floating solar technology specifically designed to address the unique shape and characteristics of the Chereh Dam, optimising performance, resilience and long-term operational efficiency. The development will be financed through a non-recourse project finance structure, with participation from international lenders, reflecting strong market confidence in the project's fundamentals. ■

Manitou Group opens new subsidiary in Indonesia to drive rental growth

Manitou Group has established a new subsidiary in Indonesia, PT Manitou Indonesia Perkasa, strengthening the group's presence in the market. The entity was created to expand the rental business of Manitou Group equipment across the country and to better support its existing dealers, PT Indo Traktor Utama for the Manitou brand and PT Uniquip for the Gehl brand.

With this initiative, PT Manitou Indonesia Perkasa will focus on supporting and supplying the rental industry nationwide, providing partners with access to Manitou's full range of machines. By doing so, the company enables its partners to respond more effectively to the growing demands of their customers and the evolving market needs.

"Indonesia is a dynamic and rapidly growing market, and rental solutions are becoming increasingly important to support the construction, infrastructure and industrial sectors," said Bernd Freudenmann, vice president APAC at Manitou Group. "Through PT Manitou Indonesia Perkasa, we are committed to working closely with our existing partners and rental companies to ensure they have the right solutions to serve their customers with confidence."

PT Manitou Indonesia Perkasa has officially been set up in Indonesia to provide a dedicated rental offering of Manitou Group machines.

PT Manitou Indonesia Perkasa has a registered office at the Indonesian French Chambers of Commerce and Industry (IFCCI), Sona Topas Tower (7th Floor), and operations yard at Block B of the MCM Industrial Area, Jalan Diponegoro Km. 39, No. 108, Tambun, Bekasi. ■

AECOM to deliver HKIA Dongguan Logistics Park

AECOM has been appointed by the Hong Kong-Dongguan Sea-Air Intermodal Transshipment Logistics Park Management (Dongguan) Limited, a wholly-owned subsidiary of Airport Authority Hong Kong (AAHK), to deliver the HKIA Dongguan Logistics Park.

This strategic initiative will establish a direct link between Hong Kong International Airport (HKIA) and Dongguan, a key manufacturing hub in the Chinese mainland. By combining Hong Kong's robust air cargo ecosystem and Dongguan's export-driven manufacturing strength, the project aims to unlock new efficiencies and drive significant economic growth across the Greater Bay Area (GBA).

As the lead consultant for Phase 1 of the project, AECOM is overseeing the design, contract and construction management of the key infrastructure, building on the team's previous end-to-end services, spanning masterplanning, design and technical studies. This initial phase includes an air cargo terminal complex, a barge terminal, freight forwarder warehouses and highly-automated facilities. A wide array of advanced digital technologies are introduced, including an intelligent guided vehicle (IGV) system and customised containers.

The new logistics park is set to become the world's first sea-air intermodal trans-shipment hub. Export cargo will be screened, palletised and airline-approved in Dongguan to comply with Hong Kong's air cargo security requirements. Dedicated vessels will then transport the cargo directly to the airside of HKIA for onward trans-shipment to global destinations. Once operational, the facility is expected to handle up to 1 mil t of cargo annually, further strengthening HKIA's status as a leading global logistics hub. ■

As the lead consultant for Phase 1 of the HKIA Dongguan Logistics Park, AECOM is overseeing the design, contract and construction management of the key infrastructure

Nemetschek Group and NTU Singapore partner to advance AI for sustainable construction

The Nemetschek Group and Nanyang Technological University, Singapore (NTU Singapore) have announced a strategic partnership to accelerate the translation of cutting edge research into deployable solutions that enhance productivity, resilience and sustainability across the built world.

The partnership brings together Nemetschek's integrated software ecosystem with NTU's expertise in physics-informed AI, microclimate modelling, generative design optimisation and AI safety frameworks. Joint workstreams will focus on turning frontier research into practical applications that address urgent industry needs in performance, climate responsiveness and risk management.

"This partnership exemplifies how we are imagining the way the world builds," said Charlie Sheridan, chief AI and data officer at Nemetschek Group. "Through dedicated forums and workshop series with NTU, we are co-shaping research agendas that keep the industry ahead of transformative trends in AI, sustainability and industrialised construction, delivering immediate value through practical, high-impact AI applications."

The partnership was formalised in a signing ceremony between Professor Ho Teck Hua, NTU president (right) and Yves Padrines, CEO of Nemetschek Group.

Professor Lam Khin Yong, NTU's vice president (industry), added, "This collaboration pairs NTU's strengths in science and technology, and proven track record in research translation, with Nemetschek's global innovation platform to accelerate adoption not just in Asia Pacific. By validating new methodologies in live projects and integrating them into curricula, we will speed up climate-responsive design, embodied carbon intelligence, secure AI frameworks and industrialised construction practices."

The collaboration strengthens the Nemetschek Global Academic Programme (NGAP), connecting students and educators with industry-leading technologies to prepare the next generation of AEC/O (architecture, engineering, construction and operations) professionals for an AI-driven, data-centric future. Research in climate intelligence, generative design and secure AI deployment will feed directly into learning pathways and connect with the Nemetschek AI & Data Innovation Hub to deliver real-world applications.

There will be mentorships, advanced lab experiences and project opportunities that bridge academia and industry, giving students and faculty hands-on access to Nemetschek's portfolio while contributing to research that shapes the next generation of digital solutions.

"Leveraging AI-based research to enhance environmental engineering innovation, advanced construction material knowledge and offsite construction is the essence of the NTU-Nemetschek collaboration," said Marc Nézet, chief strategy officer and chief division officer operate & manage at Nemetschek Group. ■

Construction of Singapore's new North-South Line station to start in H1 2026

Singapore's Land Transport Authority (LTA) has awarded the civil contract for the design and construction of the new North-South Line (NSL) NS3A station and viaduct to Obayashi Corporation, at a contract value of around S$281 million. Construction works are expected to start in the first half of 2026, and passenger service for the station is targeted to commence in 2034.

Obayashi has an established track record in infrastructure projects which include rail stations and tunnels, both locally and abroad. The contractor is also currently involved in Cross Island Line Phase 2 projects under a joint venture with Shanghai Tunnel Engineering Co (Singapore) Pte Ltd for the design and construction of Turf City station and tunnels, as well as the design and construction of bored tunnels between Fairways Drive and Sin Ming Walk.

Located between Choa Chu Kang and Bukit Gombak stations on the North-South Line, the new NS3A station will be the third MRT station to be built on an existing elevated rail line after Canberra station (NSL) and Dover station (East-West Line). When completed, it will serve existing and future residential developments in Keat Hong Estate, Bukit Batok West, Pavilion Park Estate and Brickland District in Tengah Town. It will also serve existing educational institutions in the vicinity, such as ITE College West, Swiss Cottage Secondary School and St. Anthony's Primary School, by providing more direct access to the rail network.

Significant engineering works are required for the addition of the NS3A station to the current rail network. These include:

• A new viaduct that will be built to facilitate the staged diversion of train services from existing viaducts. This will allow modification works to be carried out safely on the current rail infrastructure and systems, while still maintaining NSL train operations during the period of construction.

• New crossover tracks to be laid between existing tracks and new tracks, and the creation of a new siding which can be used in the event of train faults, thus improving service recovery and resiliency along this stretch of the NSL.

• Installation of a temporary protection enclosure over some stretches of the tracks during construction, as well as the carrying out of some works at night after train operation hours, to ensure the safety of the commuters. ■

Image: LTA

A view of the new NS3A station along Bukit Batok West Avenue 5 and Bukit Batok Road. Construction works are expected to start in the first half of 2026.

Coteccons acquires Geo Foundations Vietnam (formerly Bauer Vietnam)

Vietnamese construction firm Coteccons has approved the acquisition of 100% equity in Geo Foundations Vietnam (formerly Bauer Vietnam), a company with 100% foreign investment in Vietnam by Bauer Spezialtiefbau Gmbh of Germany. This move will strengthen Coteccons' core technical capabilities, expand the company's BuildTech ecosystem, and accelerate its growth strategy in anticipation of the public investment cycle for 2026–2030.

Geo Foundations Vietnam inherits the full technological platform, processes and quality standards from its parent company in Germany – Bauer, a world leader in specialised foundation engineering and underground construction. Boasting over 50 years of deep expertise, Bauer has executed thousands of complex projects worldwide and set high technical standards for modern foundation construction.

Established in 2006, Geo Foundations Vietnam has achieved significant milestones by participating in large-scale projects across various sectors, including oil refineries, shopping centres, high-rise residential buildings, commercial-service complexes, key infrastructure and government projects. The company has been involved in approximately 60 infrastructure, industrial and high-rise projects, including notable works such as the Ben Thanh – Suoi Tien metro line, CT2 Hanoi, Cam Ranh International Airport, Noi Bai Airport, Dung Quat Oil Refinery, and Deutsches Haus in Ho Chi Minh City.

As Vietnam targets GDP growth of around 8% and public investment continues to be a key driver, Coteccons anticipates that the 2026–2030 period will see a boom in transportation, urban and industrial infrastructure projects. With a low public debt-to-GDP ratio and significant urbanisation potential, Vietnam has a solid foundation for launching large-scale projects nationwide.

The combination of Geo Foundations Vietnam's foundation engineering expertise and Coteccons' comprehensive construction ecosystem creates strong synergies, enabling the company to master foundation technologies and solutions, optimise costs, control schedules, improve quality and safety, and strengthen competitiveness in infrastructure and public investment projects.

This transaction provides a framework for potential commercial cooperation, under which Bauer may supply state-of-the-art foundation equipment incorporating the latest geotechnical technologies to support Coteccons' projects across Asia and beyond, while enabling Coteccons receiving ongoing support from the top-tier, world-class technologies of Bauer. ■

Hong Kong's Kwu Tung Station on the East Rail Line tops out; completion targeted in 2027

Construction of Hong Kong's Northern Link project has achieved another milestone, with the topping out of the Kwu Tung Station on the East Rail Line. A ceremony to mark this important stage was held on 19 November 2025.

The project will now enter the electrical and mechanical (E&M) works stage. Scheduled for completion in 2027, the Kwu Tung Station on the East Rail Line is expected to become the 100th station serving the public under the MTR network.

"The structural works for Kwu Tung Station have been exceptionally challenging, as it required us to build a station atop the operating railway. Over the past two years during construction, the project team has also successfully maintained the daily operation of the East Rail Line, ensuring safe and smooth train services," explained Dr Jacob Kam, CEO of MTR Corporation.

"This accomplishment exemplifies the power of strong teamwork, close collaboration, meticulous planning and execution, alongside the extensive application of advanced technologies and innovative techniques, which have ensured both quality and timely progress."

According to MTR, civil works for Kwu Tung Station are substantially complete and all platform screen doors have been installed. The project team will continue to leverage the 'golden two hours' after daily train services conclude to expedite internal fitting-out, as well as E&M and building services installations while minimising the impact to daily operations. These works include installation of lifts, escalators, communication facilities, signalling systems, tunnel ventilation, overhead lines, and other systems. Comprehensive integrated testing between different systems will also be conducted to ensure seamless and reliable operation upon commissioning. ■

The project team will continue to leverage the 'golden two hours' after daily train services conclude to expedite internal fitting-out and E&M and building services installations.

The topping out ceremony for the Kwu Tung Station on the East Rail Line took place on 19 November 2025. The project will now enter the electrical and mechanical (E&M) works stage.

Scheduled for completion in 2027, the Kwu Tung Station on the East Rail Line features a three-level underground design with two entrances at ground level.

Samsung C&T E&C to become AI-native construction company

South Korea's Samsung C&T Engineering & Construction (E&C) has announced a major transformation initiative to evolve into an 'AI-native' construction company, where every work process and decision is supported by AI-powered intelligence.

On 11 November, the group held the 2025 AI Day at its headquarters in Gangdong-gu, Seoul, with the theme 'Build the Future with Intelligence'. The event was designed to share global AI trends, present the latest project results, and outline the group's AI-driven innovation strategy for the years ahead.

Delivering his welcome remarks, Samsung C&T president and CEO, Se-chul Oh, emphasised the growing importance of AI in large and complex construction projects and encouraged employees to recognise AI as a strategic partner. He highlighted the company's accumulated experience from global megaprojects and its potential to transform this knowledge into next-generation AI capabilities.

In the keynote address, Byungsik So, executive vice president and head of ENG innovation, described the current state of AI development, the gap between personal AI use and low adoption in professional workflows, and the strategic opportunities this gap presents. He identified three core pillars of AI innovation at Samsung C&T:

- Knowledge accumulation: Developing AI based on the group's unique data, insights and expertise
- Active intelligence: Moving beyond passive responses to AI that asks questions and makes proactive suggestions
- Shift in perspective: Evaluating AI not by external benchmarks but by its ability to solve Samsung C&T's business challenges

The data operations group then introduced three AI agent projects co-developed with Amazon Web Services (AWS), showcasing their capabilities through live demonstrations:

- AI-ITB Reviewer: Automatically analyses large volumes of bid documents to identify potential risks quickly
- AI-Contract Manager: Supports legal and contractual decision-making by detecting risk factors and providing specialised guidance
- AI-Project Expert (AIPEX): Integrates and analyses scattered on-site data to uncover hidden insights and support project management

During the event, Samsung C&T also revealed its roadmap for evolving into a fully AI-native company. Beginning in 2026, the group plans to apply AI-ITB Reviewer and other AI agents across all new construction projects. Over the next three years, the group will implement a phased approach to AI transformation with the goal of enabling AI-centred intelligent workflows across the entire construction value chain by 2028.

A Samsung C&T representative stated that the event served as an important opportunity to share a unified vision for how AI will redefine the construction industry and to reinforce the company's commitment to building an organisation that grows together with AI. ■

Southern Group takes delivery of Volvo CE's first New Generation EC360 excavators in Thailand

Volvo Construction Equipment (Volvo CE) has achieved another milestone in Thailand with the delivery of the first two New Generation EC360 excavators, further strengthening its presence in the market through authorised dealer Chairatchakarn Bangkok (CHAB).

This delivery follows a series of successful New Generation excavator launches and customer engagement events held throughout 2025, underscoring strong market interest in the New Generation machines. It also represents another important step forward for CHAB, which has already built strong momentum in Thailand with the introduction of the New Generation EC210 and EC220 excavators.

The New Generation EC360s were handed over to Southern Group, making it the first customer in Thailand to operate the 36-t excavator. The company operates extensively within Thailand's mining and quarry sectors, managing multiple projects across several regions, with a strong footprint in the southern part of the country.

"The delivery of the first two New Generation EC360 in Thailand is a proud moment for CHAB," said Nunnapin Petcharapirat, CEO of CHAB. "Southern Group shared positive feedback on the machine's performance, particularly its strong productivity and lower fuel consumption, which are critical for demanding mining and quarry applications. This reinforces our confidence in the New Generation lineup and our commitment to delivering solutions that create real value for our customers."

CHAB delivers the first two New Generation EC360 excavators in Thailand.

The EC360 is part of Volvo CE's New Generation excavator lineup, offering enhanced fuel efficiency, improved operator comfort and robust performance in tough working conditions. The machine is well-suited for mining, quarrying and heavy-duty earthmoving operations. ■

Denzai completes heavy lifting works on S. Korea's S-Oil Shaheen Project

Denzai International Projects Co Ltd has completed heavy lifting works on the S-Oil Shaheen Project in Ulsan, South Korea – with zero incidents. To mark this milestone, the company was presented with an achievement award from contractor Hyundai Engineering & Construction.

For the project, Denzai International Projects – the Korean subsidiary of Japan's Denzai K.K – conducted more than 200 heavy lifts, including components weighing 1,160.5 t – believed to be the heaviest lift by a crawler crane in South Korea – as well as lifts of 973 t and 902 t.

The S-Oil Shaheen Project is a US$7 billion development aimed to convert crude oil into petrochemical feedstock. Here, Denzai performed crucial heavy lifting work involving its LR12500-1.0 (2,500-t capacity) and LR11350 (1,350-t capacity) crawler cranes.

"Thanks to Denzai's highly cooperative and safety-focused support, we were able to complete all heavy lifting works for the S-Oil Shaheen Project successfully and without incident," said Hyunyoung Lee, project director at Hyundai Engineering & Construction (HDEC). "We are truly grateful to Denzai, and we sincerely hope to continue working together on future HDEC projects both in Korea and overseas."

"The successful completion of the S-Oil Shaheen Project is a pivotal milestone for Denzai, strengthening our position not only in Korea but also as a global heavy lifting company," said Jeong Won Seo, country manager of Denzai International Projects. "With this achievement, we must further solidify our organisation and set our sights on the global market – and we are confident in our ability to do so."

Kohki Uemura, president and CEO of Denzai International Projects, added, "We are extremely honoured to receive this award from this project, which is one of Korea's leading large-scale plant construction projects. I am proud of the project team, who completed the construction on schedule without any accidents." ■

Denzai's crawler cranes lifting a 973-t component.

Denzai's LR12500 and LR11350 crawler cranes lifting a 902-t cold box on the S-Oil Shaheen Project.

ABOVE: **Denzai International Projects receives an achievement award from Hyundai Engineering & Construction.**

LEFT: **The 1,160.5-t component is believed to be the heaviest lift by a crawler crane in South Korea.**

YTL Cement strengthens sustainability leadership with EPDs across its product portfolio

YTL Cement has become the first cement and precast producer in Malaysia to obtain Environmental Product Declarations (EPDs) for products across its ECOCem, ECOConcrete and precast product ranges, marking a major milestone in the group's sustainability journey.

An EPD is a third-party verified document that reports a product's environmental impact throughout its life cycle, following international standards such as ISO14025 and the ISO14040 series. EPDs are widely used in green building certifications and help architects, contractors and developers make informed material choices to meet sustainability goals.

The newly EPD-certified products include Castle Cement – a Singapore Green Label certified cement formulated for bricklaying, screeding and concreting, as well as ECOConcrete Grade 40 and Grade 35, which are designed to reduce embodied carbon while maintaining strength and durability. YTL Cement's precast arm, Eastern Pretech, has also obtained EPDs for its range of precast concrete products including hollow core slabs, beams, planks and double tee slabs, marking the first EPD for precast concrete products in Malaysia.

This EPD milestone builds on YTL Cement's ongoing efforts to decarbonise the construction value chain. The group was the first in Malaysia to introduce its ECO range: ECOCem, ECOConcrete, ECOSand and ECODrymix and has partnered with CREAM, the research arm of CIDB Malaysia, to advance sustainable construction.

Through its Construction Development Laboratory (CDL), YTL Cement drives research and innovation in low-carbon building materials, while the CDL Academy, the group's training and development arm, promotes industry awareness and upskilling. Together, these initiatives have supported more than 10,000 professionals and students in sustainability and innovation training.

YTL Cement leaders celebrate becoming Malaysia's first cement and precast producer to obtain Environmental Product Declarations (EPDs) across its ECOCem, ECOConcrete and precast product ranges.

"The attainment of EPD certification for our range of ECO products marks a significant milestone in our journey towards sustainable construction," said Rachel Yeoh, executive director of YTL Cement. "It underscores our commitment to innovation and efforts to provide low-carbon building materials and solutions that empower our customers to build more sustainably."

YTL Cement's EPD-certified products provide added assurance of transparency and performance for customers, underscoring the group's long-term commitment to environmental responsibility. Looking ahead, the group will continue to collaborate with regulators, industry bodies and research partners to strengthen sustainable construction practices and support Malaysia's carbon neutral ambitions. ■

ADB to help upgrade road networks in Maharashtra, India

The Asian Development Bank (ADB) has approved a US$400 million results-based lending (RBL) programme to help the state of Maharashtra develop climate-resilient, low-carbon, safe and inclusive road networks, with a particular focus on enhancing connectivity for rural communities.

The Maharashtra Roads Connectivity for Inclusive Growth Program will improve all-weather road connectivity in 34 districts, particularly in the climate-vulnerable and economically lagging Marathwada and Vidarbha regions, linking rural communities to markets, logistics hubs, health care, education and other essential services. Over 1.7 million people living within walking distance of improved roads will benefit, including residents of at least 80 villages and around 410 rural communities. These upgrades cover nearly 350 km of state highways and 2,577 km of rural roads.

Using a programmatic approach, the initiative will enhance rural connectivity comprehensively by developing state highways, major district roads and rural road networks as an integrated component of rural development. The RBL modality allows the implementing agencies to pool resources and align efforts towards shared results, ensuring coordinated development assistance and common targets.

The programme will strengthen road safety management using the International Road Assessment Programme (iRAP) methodology and the safe systems approach. It will support safer road designs and treatments, including school and village gateway improvements, while building institutional capacity and training at least 120 engineers in road safety.

The programme will also promote gender equality by establishing gender and safeguards units within implementing agencies.

The RBL operation will further support the development of modern road and bridge information and asset management systems for the implementing agencies. These systems will incorporate multi-hazard climate and disaster risk assessments and guide long-term, lifecycle-based maintenance planning. ■

JTC awards Singapore's first public sector NEC4 collaborative contract for Jurong Innovation District

JTC has awarded a collaborative contract for infrastructure works at CleanTech Park in Jurong Innovation District (JID) to Eng Lam Contractors Co (Pte) Ltd. The contract, adopting the New Engineering Contract 4 (NEC4), is the first public sector project in Singapore to implement this collaborative contracting framework.

One of the main challenges faced by the construction sector is risk management, including cost overruns and project delays. Traditional contracts allocate risks and rewards separately, often leading to inefficiencies and disputes. NEC4 aims to address these issues by encouraging collaboration and allowing risks and cost savings to be shared more equitably among contracted parties.

Originating from the UK, NEC4 contracts have been successfully adopted in other regions such as Hong Kong, where projects have achieved overall time and cost savings, and contracting parties have also evolved to be more collaborative and cordial.

In Singapore, the Building and Construction Authority (BCA) started looking at NEC4 in 2024 with NEC, and local adaptations were made to the contracts to align them with Singapore's legal and industry requirements. Prior to this, other forms of collaborative contracting under the Public Sector Standard Conditions of Contract (PSSCOC) have been piloted in other projects.

Image: JTC

The NEC4 contract involves extending CleanTech Loop from The Potter's Garden (formerly Jurong Eco Garden) to the upcoming MRT station and building an elevated walkway linking the station to the northern part of CleanTech Park.

Greater collaboration and mutual trust

Unlike traditional contracts, which often allocate risks and rewards separately, the NEC4 contract emphasises on collaboration and mutual trust. It incorporates three key features:

- Pain-gain share: NEC4 allows for a target cost approach where project parties share cost savings or overruns as they occur, rather than relying on a fixed lump sum contract. This promotes transparency and shared incentive for all parties to work together. It also drives innovation and teamwork to resolve project challenges.
- Early warning: NEC4 includes an early warning system for potential issues to be identified at an early stage, enabling proactive action to resolve them before they escalate. This approach enhances risk management, helping projects to stay on track and within budget.
- Holistic dispute management: NEC4 promotes openness and transparency through clear communication. It provides platforms for early identification of potential issues, allowing parties to collaborate on resolutions before they escalate.

The NEC4 contract will be piloted by JTC through an infrastructure project at CleanTech Park in JID. This project involves extending CleanTech Loop from The Potter's Garden (formerly Jurong Eco Garden) to the upcoming MRT station and building an elevated walkway linking the station to the northern part of CleanTech Park. It will improve access to public transport and enhance connectivity for commuters and road users. The works are scheduled for completion in the second half of 2027.

JTC will assess the effectiveness of NEC4 in managing risks, controlling costs and identifying potential time savings through this pilot. In collaboration with BCA, lessons learned and insights from this pilot will be shared with other public sector agencies to promote more adoption of NEC4 for future public projects.

Nelson Liew, group director, new estates at JTC, said, "NEC4 emphasises mutual trust and collaboration between the contracting parties. The tender award gives construction stakeholders the opportunity to experience collaborative contracting first-hand, providing feedback to refine the model and contribute as first-movers to progressive industry transformation. JTC will share our learnings on the use with the sector to ease their collaborative contracting and NEC4 journey."

Ang Lian Aik, group director, business development group at BCA, said, 'This is a significant milestone in our efforts to champion the adoption of collaborative contracting. Such an approach results in better project outcomes, such as building trust, strengthening communication and facilitating a more balanced share of risks among contracting parties."

"We've been working in close partnership with JTC, who has stepped forward as the first public agency to implement a NEC4 project in Singapore," added Mr Ang. "It will demonstrate how NEC4 and collaborative contracting can help to address the current industry challenges and serve as a valuable reference for wider implementation in the BE sector."

"This landmark project demonstrates the transformative potential of collaborative contracting in delivering complex infrastructure projects," commented Rekha Thawrani OBE, global director of NEC contracts. "The NEC4 framework's emphasis on early warning, transparency and shared problem-solving creates the foundation for better project outcomes and stronger relationships between all parties.

"Singapore's thoughtful approach to adapting NEC4 with localised clauses while maintaining the spirit of collaboration sets an excellent example for the region. We look forward to supporting JTC and BCA as they lead this important shift towards more collaborative and efficient project delivery in the public sector." ■

HKCRC pioneers AI tower crane system in Hong Kong's Pak Tin Estate redevelopment project

The AI tower crane system, developed by the InnoHK Hong Kong Centre for Construction Robotics (HKCRC), has been implemented for the first time in the redevelopment of Block 13 of Hong Kong's Pak Tin Estate. This technology brings transformative improvements in both site safety and construction efficiency.

As a key component of the strategic collaboration between HKCRC and the Hong Kong Housing Bureau, the development and application of the AI tower crane system aim to address labour shortages in the construction industry, enhance site safety and meet future massive public housing demands.

Traditional crane operation requires workers to work long hours at high altitudes, facing risks from elevated work and extreme weather conditions. HKCRC's AI tower crane system, through a remote intelligent control cabin, allows operators to direct lifting operations from the ground, completely avoiding the safety hazards associated with high-altitude work.

One operator said, "The new system allows us to work in a comfortable environment, completely solving basic needs like restroom breaks and meals." In addition, the system addresses long-standing occupational health issues for tower crane operators:

- Reduced physical strain: Eliminates the fatigue from frequent climbing and prolonged stationary postures in traditional crane operation, lowering the risk of back injuries and musculoskeletal disorders.
- Avoidance of environmental hazards: Operators are no longer exposed to high temperatures, strong winds, or heavy rain, effectively preventing heatstroke and accidental injuries.

The system's AI safety monitoring function can automatically identify personnel within a 3-m radius of the hook, providing immediate warnings of potential risks and significantly reducing site accident rates. The current AI system is compatible with tower cranes of different brands and suitable for various site environments, achieving a 98% accuracy rate in AI monitoring and recognition.

Integrating laser and satellite positioning technologies, the system supports 'point-to-point' automatic path planning, capable of stabilising hook swing within 10 seconds, with precision equivalent to that of an operator with 30 years of experience. Actual measured data show that the AI tower crane can perform up to 130 lifts per day, approximately 30% more than traditional cranes, significantly shortening the public housing construction timeline.

The AI tower crane system was jointly developed by HKCRC and the Hong Kong Housing Authority, representing an innovative application case in Hong Kong's public housing projects. Dr Liang Haobo, associate director of HKCRC, explained, "Considering the long-term development of the AI tower crane system, we designed this system to be highly versatile.

"It is applicable to different brands and models of tower cranes without requiring redevelopment for different crane models. We plan to collaborate with crane manufacturers, hoping to make this system a standard factory feature, promoting the local application of Hong Kong's R&D outcomes and moving towards internationalisation, further enhancing Hong Kong's international position in the field of intelligent construction."

Romeo Yiu, head of innovation and technology at the Housing Department, said, "The AI tower crane system not only enhances construction safety, but also provides technical support for accelerating public housing supply through its efficient lifting capabilities." The technology will be promoted to the Tung Chung Area 42 public housing project in the future and gradually incorporated into new engineering contracts. ■

Dr Liang Haobo, associate director of HKCRC (left) and Romeo Yiu, head of innovation and technology at the Housing Department (centre), with AI tower crane operator Mr Chung (right).

Actual measured data show that the AI tower crane can perform up to 130 lifts per day, approximately 30% more than traditional cranes, significantly shortening the public housing construction timeline.

The system's AI safety monitoring function can automatically identify personnel within a 3-m radius of the hook, providing immediate warnings of potential risks and significantly reducing site accident rates.


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// Events in Asia

Digital Construction Asia
31 Mar to 1 Apr 2026
Sands Expo and Convention Centre
Singapore
Website: www.digitalconstructionasia.com

Trenchless Asia
10 to 11 June 2026
Queen Sirikit National Convention Centre
Bangkok, Thailand
Website: www.trenchlessasia.com

MBAM OneBuild & OneWare
5 to 7 Aug 2026
Kuala Lumpur Convention Centre
Kuala Lumpur, Malaysia
Website: www.mbamonebuild.com.my / www.oneware.com.my

BEX Asia & IBEW
2 to 4 Sept 2026
Sands Expo and Convention Centre
Singapore
Website: www.bex-asia.com / www.ibew.sg

Construction Indonesia
9 to 12 Sept 2026
Jakarta International Expo
Jakarta, Indonesia
Website: www.constructionindo.com

BCT Expo (Building Construction Technology Expo)
16 to 18 Sept 2026
Impact Exhibition and Convention Centre
Bangkok, Thailand
Website: www.bct-construction.com

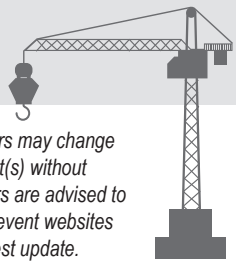
CBA Expo & Concrete Expo Asia
23 to 25 Sept 2026
Bangkok International Trade and Exhibition Centre
Bangkok, Thailand
Website: www.cba-expo.com / www.concrete-expoasia.com

Bauma Conexpo India
28 Sept to 1 Oct 2026
India Expo Centre
Greater Noida, India
Website: www.bcindia.com

Bauma China
24 to 27 Nov 2026
Shanghai New International Expo Centre
Shanghai, China
Website: www.bauma-china.com

// Events outside Asia

Conexpo-Con/Agg
3 to 7 Mar 2026
Las Vegas Convention Centre
Las Vegas, USA
Website: www.conexpoconagg.com



Note: *The organisers may change or cancel their event(s) without prior notice. Readers are advised to visit the respective event websites regularly for the latest update.*

Conexpo introduces Ground Breakers Stage and Shops Talks and Walks Workshop

Conexpo-Con/Agg 2026 will debut the Ground Breakers Stage, a new keynote platform showcasing autonomous tech, sustainable solutions and workforce innovations from global construction leaders. Speakers will range from the CEOs of Fortune 100 companies to successful entrepreneurs.

Among the speakers is Jahmy Hindman, senior vice president and chief technology officer at John Deere, who will spotlight the innovation and technological advances propelling the construction industry forward. He will be joined by John Deere colleagues Maryanne Graves, manager, product management, as well as Jonny Spendlove, manager, precision construction, on Tuesday 3 March at 11 am.

In addition, Dave Kranzle, director of IoT Services at Amazon Web Services (AWS), will look at how advances in AI, automation and connected technologies are reshaping the construction industry, reducing costs and creating safer, more sustainable jobsites. He is scheduled to speak on Thursday 5 March at 10 am.

Caterpillar group president of construction industries, Tony Fassino, is also one of the keynote speakers on Wednesday 4 March at 1 pm. He will highlight how Caterpillar is tackling the industry's toughest challenges head-on, pushing boundaries and shaping the future for its customers like never before.

"Every three years, Las Vegas transforms into the epicentre of construction innovation with companies ready to show you what's next. We are excited to show you what's ready right now during Conexpo-Con/Agg's new Ground Breakers Stage series," said Mr Fassino.

Another confirmed speaker is Autodesk. The company's chief sustainability officer, Joe Speicher, and global vice president, product management and engineering – construction, Lalith Subramanian, will take to the Ground Breakers Stage on Wednesday 4 March at 10 am, sharing insights on the innovation, technological advances and sustainable practices shaping the future of construction.

"Sustainability isn't a trend or a buzzword – it's a global force driving the future of construction," said Mr Speicher. "Autodesk is committed to helping the industry reduce its environmental impact while improving efficiency and resilience. The Ground Breakers Stage is the perfect platform to share how technology can empower builders to deliver smarter, more sustainable projects at scale."

Shops Talks and Walks Workshop

Conexpo will also feature Shop Talks and Walks Workshop on Saturday 7 March – ideal for technicians, operators and maintenance pros who keep machines humming and jobsites productive.

This immersive, hands-on event is designed for industry professionals eager to sharpen their skills in preventive maintenance and equipment efficiency. It offers a full day of interactive sessions, expert demonstrations and real-world insights that help attendees reduce downtime, lower operating costs and improve safety.

Held from 8:30 am to 1:30 pm in the West Hall, the workshop provides equipment deep-dives, live Q&A sessions and maintenance-focused demos led by top industry manufacturers

The new Ground Breakers Stage will showcase autonomous tech, sustainable solutions and workforce innovations from global construction leaders.

The Shop Talks and Walks Workshop is designed for industry professionals eager to sharpen their skills in preventive maintenance and equipment efficiency.

including Caterpillar, Hyundai, John Deere, Kubota, Sany, Vermeer and Volvo.

The day begins with a breakfast spotlight panel titled 'The Future of Maintenance: Insights from Tech Leaders in Equipment Solutions'. Speakers include: Austin Conti, CEO and co-founder of Tenna; Alex Craft, CEO and founder of Heave; and Luke Powers, CEO and co-founder of Gearflow. They will discuss how artificial intelligence, predictive analytics and digital tools are transforming maintenance practices across the construction industry.

Following the keynote, attendees will take part in guided sessions on the show floor, exploring topics such as fleet health management, service strategies and next-generation maintenance technologies.

Workshop features:

- Equipment deep-dives for learning by doing
- Live demos and Q&As with maintenance experts
- How-to sessions tailored to today's equipment and technologies
- Knowledge-sharing forums for building industry connections

Who it's for:

- Maintenance professionals looking to refine their craft
- Owners and operators seeking performance and cost-saving improvements
- Technicians ready to explore the latest tech and best practices

What you'll gain:

- Strategies to reduce downtime and boost productivity
- Exposure to leading-edge maintenance trends and technologies
- Actionable tools for optimising equipment performance
- A stronger community of industry peers with shared goals. ■

Website: www.conexpoconagg.com

‘High-end, Green, Smart and Future’: BICES 2025 draws visitors from 73 countries and regions

The 17th edition of China (Beijing) International Construction Machinery, Building Material Machines and Mining Machines Exhibition (BICES 2025) recently took place at the China International Exhibition Centre (Shunyi Venue) in Beijing, from 23 to 26 September.

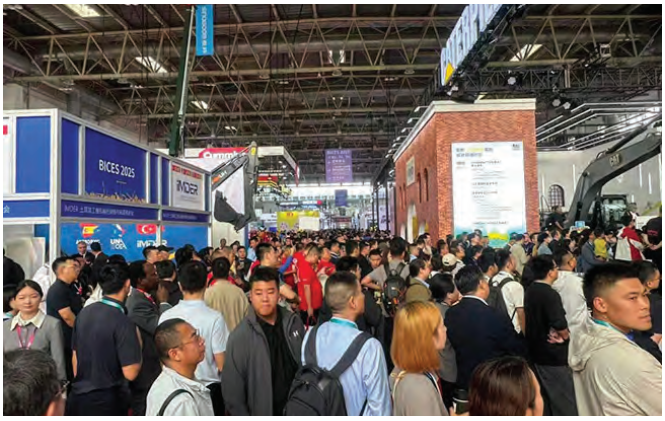
With the theme ‘High-end, Green, Smart and Future,’ the event brought together nearly 1,300 local and international companies, covering a total exhibition area of over 150,000 sq m. It drew approximately 148,000 visitors from 73 countries and regions.

The 2025 BICES featured four major themed halls and 13 specialised zones, showcasing a variety of innovations and insights into industry trends. In addition, there were more than 100 conferences, forums and interactive activities, which provided ideal opportunities for exhibitors and visitors to connect, engage in international cooperation, or exchange knowledge and experiences.

The event also served as a valuable platform for international visitors to take a closer look at China’s construction market and gain an in-depth understanding of the local construction machinery sector.

Held every two years, BICES is organised by the China Construction Machinery Association (CCMA), China Construction Machinery Co Ltd (CNCMC), and China Council for the Promotion of International Trade – Machinery Sub-Council (CCPIT – MSC).■

Website: http://en.e-bices.org



ALL IMAGES: **BICES 2025 brought together nearly 1,300 local and international exhibitors, with approximately 148,000 visitors from 73 countries and regions.**

Korea's K-Consafety Expo to return in October 2026; exhibitor registration now opens

Korea International Construction & Industrial Safety Expo (K-Consafety Expo) is set to return on 14-16 October 2026 at the Korea International Exhibition Centre (Kintex) in Goyang, South Korea. Exhibitor registration is now open, with early-bird discounts available until 27 February 2026.

Supported by major government ministries, public institutions and more than 40 industry associations, K-Consafety Expo serves as an internationally certified exhibition that brings together the latest advanced construction technologies and smart safety solutions in one venue.

According to the organiser, the 2026 edition will place a strong emphasis on AI, robotics and drone-integrated safety technologies, offering practical solutions that enhance accident prevention and emergency-response capabilities for project owners, contractors and facility management authorities.

In line with the global construction market's rapid 18.6% annual growth in AIoT technologies, the event will also work to expand participation by global technology companies and strengthen international buyer programmes, said the organiser.

In 2025, despite the Korean government's strengthened safety policies, construction sites and various industrial sectors continued to experience frequent accidents. As a result, the government is shifting its focus from post-accident response to proactive accident prevention, and is expected to expand policies centred on AI-, robotics- and smart-technology–based disaster and safety management throughout the coming year.

This shift was reflected at K-Consafety Expo 2025, held in September. A wide range of cutting-edge safety technologies – including AI-powered control platforms, digital-twin–based site monitoring systems and robotic devices for entering high-risk areas – were showcased, drawing strong attention to their effectiveness and growing necessity in the field.

The 2025 event also featured 31 conferences organised by prominent construction and safety institutions, along with a Special Pavilion on Underground Safety, enabling visitors to gain an in-depth understanding of emerging industry issues such as smart construction, digitalisation and advanced site-safety management.

The last edition achieved a record-breaking performance with 186 exhibiting companies, over 20,000 visitors and more than 2,000 business consultations, highlighting its growing influence as a leading industry platform. ■

Website: www.k-consafetyexpo.com

ABOVE AND LEFT: **Korea International Construction & Industrial Safety Expo (K-Consafety Expo) will return on 14-16 October 2026. Exhibitor registration is now open.**

BELOW AND BELOW LEFT: **The 2026 event will place a strong emphasis on AI, robotics and drone-integrated safety technologies.**

NOTE: Exhibitor registration is available on the event website. Companies that apply by **27 February 2026** will receive early-bird discounts as well as pre-event promotional support.

Terratec completes flood mitigation tunnel project in northern Thailand

Terratec has completed tunnelling works for the Chiang Mai Flood Mitigation Project (Phase 2) in northern Thailand. Commissioned by the Department of Public Works and Town & Country Planning, the project was finalised in early 2025, marking the delivery of a key underground infrastructure system for the region.

This achievement is particularly significant as tunnelling projects of this scale are less common outside Bangkok, said Terratec. The works centred on the construction of a 2.60-m-diameter, 256-m-long drainage tunnel, designed to integrate with Chiang Mai's existing stormwater network.

In addition to the tunnel drive, the scope included launching and reception shafts, steel pipe connections, HDPE pipeline installation, hydraulic structures and surface drainage channels.

The tunnel was excavated using a Terratec tunnel boring machine (TBM), with reinforced concrete universal tunnel segments forming the lining. Each ring was engineered for both straight and curved alignments, ensuring durability and precision throughout the drive. Rigorous settlement monitoring confirmed ground stability during operations.

The project was delivered by Summit Grade Ltd, Part. (Sam Prasit) in joint effort with SCG 1995 Co Ltd, acting as subcontractor. Both companies worked under the supervision of Panya Consultant Co Ltd, with Terratec providing technical expertise and equipment support.

With its completion, the Chiang Mai Flood Mitigation Tunnel strengthens the city's resilience against flooding and safeguards urban communities. ■

Website: www.terratec.co

ABOVE RIGHT: **The works centred on the construction of a 2.60-m-diameter, 256-m-long drainage tunnel, designed to integrate with Chiang Mai's existing stormwater network.**

RIGHT: **The tunnel was excavated using a Terratec TBM, with reinforced concrete universal tunnel segments forming the lining.**

Specialised heavy lifting and transport solutions for Singapore's offshore island

The Pulau Tekong Polder – a groundbreaking land reclamation project on an offshore island in Singapore – has paved the way for the country's first polder, reclaiming about 800 ha of land. Led by the Housing and Development Board (HDB) and constructed by the Boskalis Penta Ocean Joint Venture (BPJV), this project employs the innovative 'empoldering' method, a first for Singapore.

Unlike traditional land reclamation, which involves infilling with sand, the empoldering approach creates a low-lying tract of land, known as a polder, by constructing a dike around the area and draining water from it. The dike shields the polder from the sea, and water levels are controlled by a network of drains and pumps. This significantly reduces the amount of fill material required, leading to lower construction costs.

As part of the project, a stormwater collection pond within the polder was constructed to collect excess stormwater. Various floating equipment and barges were used to deepen this large body of water. Once it was completed, the equipment and barges – now landlocked – needed to be retrieved and relocated for continued operations.

Transporting barges

A total of 12 barges, ranging in weight from 680 to 990 t, had to be recovered from the stormwater collection pond, transported across the newly built haul road to the dike, and launched back into the sea – a complex undertaking requiring advanced technical expertise and specialised equipment.

Mammoet was selected for the task due to its extensive experience and successful track record on similar projects worldwide, particularly in using airbags and winches for vessel launching. A team of local and international experts was assembled, bringing a wealth of knowledge to the site.

The project advanced in carefully planned phases. Mammoet used 68 airbags and four winches, with capacities ranging from 60 to 85 t, to retrieve and launch each barge from the designated pond. Precision and careful management were essential to ensuring the safe extraction of the barges.

Airbags were placed under the bow of each barge, and once all cables were connected, two winches pulled the barge out of the water to a point where 18 climbing jacks were positioned. Once the barge was retrieved, it was jacked up to allow the airbags to be removed and SPMTs (self-propelled modular transporters) were inserted underneath.

The SPMTs then transported each barge to the launch area, to be set afloat. The launch process mirrored the retrieval operation, and this was repeated for all 12 barges.

Despite unforeseen weather conditions, Mammoet adhered to a strict schedule and was able to meet the tight deadlines. ■

Website: www.mammoet.com

Each barge was pulled out of the water by winches with airbags underneath.

Once retrieved, the barge was jacked up to remove the airbags and insert SPMTs underneath.

Transporting the barge on SPMTs.

Setting down the barge onto climbing jacks at the launching site.

Dancers in preparation for the Kaohsiung Railway Station relocation ceremony.

Jacking Method: *A Successful Application in Urban Construction*

BY: **JIA-LIN CHEN, STRUCTURAL ENGINEER AT CIVIL ENGINEERING DEPARTMENT, CTCI RESOURCES ENGINEERING INC.**

1. Background

The Kaohsiung Railway Station, located in Kaohsiung, Taiwan, is a historic building from the Japanese colonial period. Built in 1941 in the Imperial Crown style, it features a three-storey, high-ceilinged reinforced concrete structure. As the urban area began to rapidly expand in the 1970s, the at-grade railway gradually became a barrier to the city's traffic flow. To facilitate comprehensive urban development, a project was initiated to relocate the entire railway system underground.

In 2002, before the railway underground project was approved, the Kaohsiung MRT Red Line project commenced. As its construction area overlapped with the original station building, demolition was initially proposed. However, the main building was preserved in recognition of its historical and cultural significance, leading to the first relocation of the station that same year.

Considering the complexity, cost, and schedule constraints of the relocation project, only the central Imperial Crown–style section of the station, including the entrance hall and main hall, was preserved, while the office and dormitory were dismantled. The preserved building covered an area of approximately 570 sq m, with a height of 15.87 m, a width of 25 m, a length of 26.5 m, and a total weight of 2,114.2 t *(Figure 1)*. As there were no aboveground or underground obstructions along the first relocation route at that time, the structure was moved 82.6 m southeast along a straight line without the need for vertical lifting. This job was executed by another company.

Following the approval of the railway underground project and to accommodate the construction of the new Kaohsiung Railway Station, the historic station was relocated again in 2020 *(Figure 2)*. As the second relocation route passed over newly built underground structures, the project utilised a hydraulic jacking method. This involved lifting the building and then moving it horizontally to its permanent site, located northwest of its temporary location. The task was commissioned to CTCI Resources Engineering Inc. (CTCI REI), a professional engineering services provider with expertise in structure jacking.

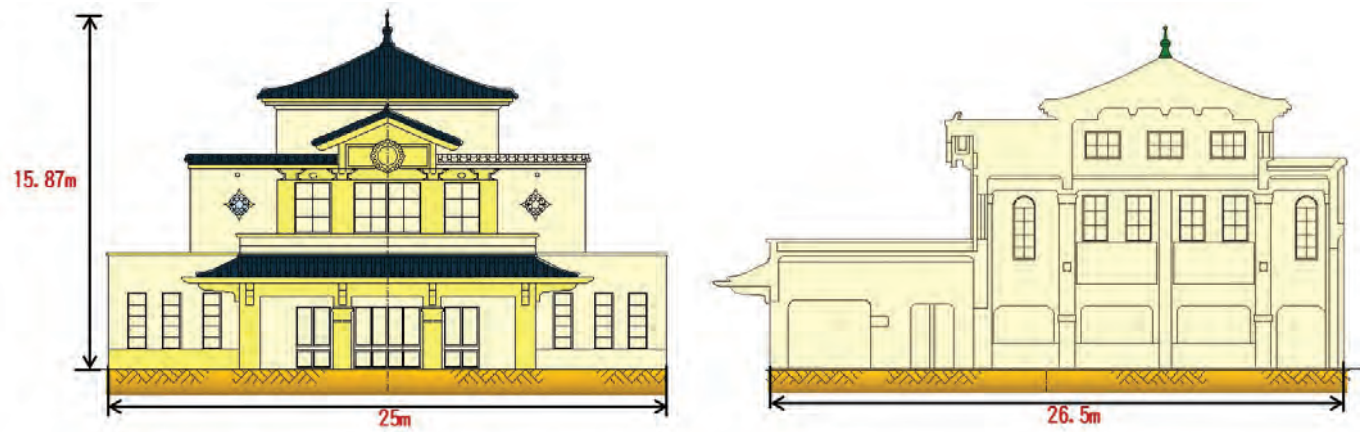


Figure 1: Dimensions of preserved main building.

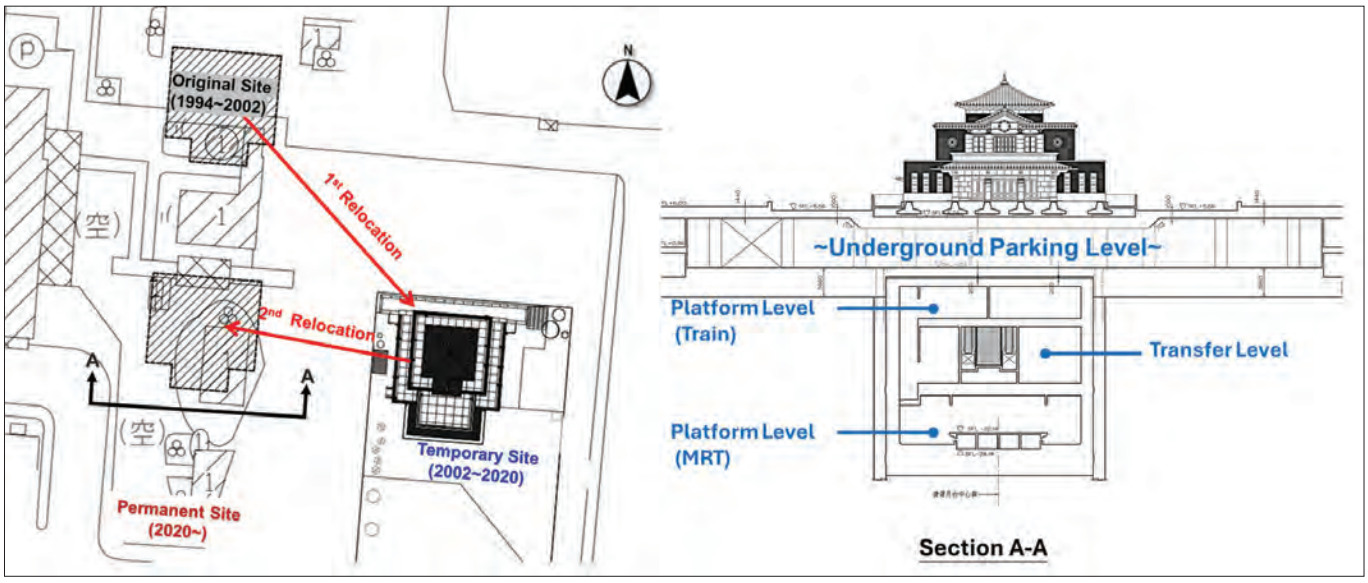


Figure 2: Station relocation overview.

2. Structural protection and monitoring

To minimise the risk of crack propagation or structural damage during the relocation, five types of monitoring instruments were installed both inside and outside the station. These devices measured crack width variation, column inclination, relative displacement between columns, and settlement of the structure *(Table 1)*.

The relocation route also crossed an underground parking structure. Prior to moving the station building, heavy-duty temporary shoring systems were installed beneath the parking slab to ensure its structural safety during the operation.

Table 1: Monitoring instruments

Devices	Quantity	Installation
Vibrating Wire Crack Meter	9 sets	Installed at visible or potentially hazardous existing cracks
Electronic Crack Gauge	35 sets	Installed around openings and edges of exterior walls
Dual-Axis Inclinometer	95 sets	Installed on the ground beam connecting two major load-bearing columns
Vibrating Wire Strain Gauge (2 per set)	11 sets	Installed on the diagonal reinforcement steel in the original foundation
Structural Settlement Point	36 sets	Installed on top of RC foundation

3. Station relocation process

The relocation was carried out in three major stages: jacking, horizontal sliding, and lowering *(Figure 3)*.

3.1 Jacking stage

For the station's second relocation in 2020, structural analysis determined that the footings and grade beams required strengthening by increasing their thickness by 30 cm to resist the anticipated jacking forces during the lifting phase. To account for the increased footing thickness, the height constraints of the underground parking, and the extra elevation needed to accommodate the relocation devices during the sliding stage, the total jacking height was determined to be 3.94 m.

The jacking operation was carried out in two phases. In the first phase, the necessary portions added in the first relocation were cut and removed to separate the building from its temporary supporting pads, after which the grade beams were thickened. The jacks were then placed beneath the grade beams to synchronously lift the building by 1.8 m *(Figure 4)*. Once sufficient headroom beneath the footing was achieved, the footings were reinforced and thickened.

In the second phase, the jacks were repositioned directly beneath the reinforced footings then to complete an additional 2.14 m lift, achieving the required total lifting of 3.94 m *(Figure 4 & 5)*.

The first phase involved a repetitive lifting sequence, with each stroke raising the building by 12.5 cm. The operation cycle was as follows:

Step 1 – Use hydraulic jacks beneath the grade beams to lift the building by 12.5 cm.

Step 2 – Install temporary supports (H-shape member) under the footings.

Step 3 – Release the jacks and remove them from beneath the grade beams.

Step 4 – Add another H-shape member layer below the grade beams and reposition the jacks.

Step 5 – Re-pressurise the jacks to continue lifting.

The same sequence was followed in the second phase, with the jacks relocated under the footings. Due to limited workspace during the first phase, 50-t jacks were used; the second phase employed 70-t and 140-t jacks to complete the lifting operation.

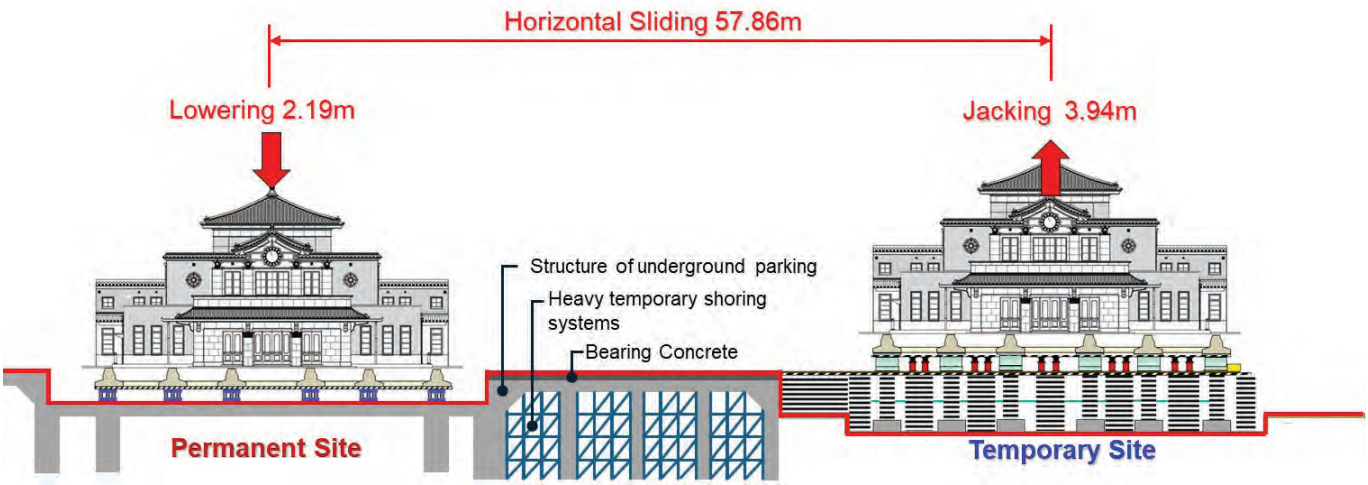


Figure 3: Elevation of relocation path.

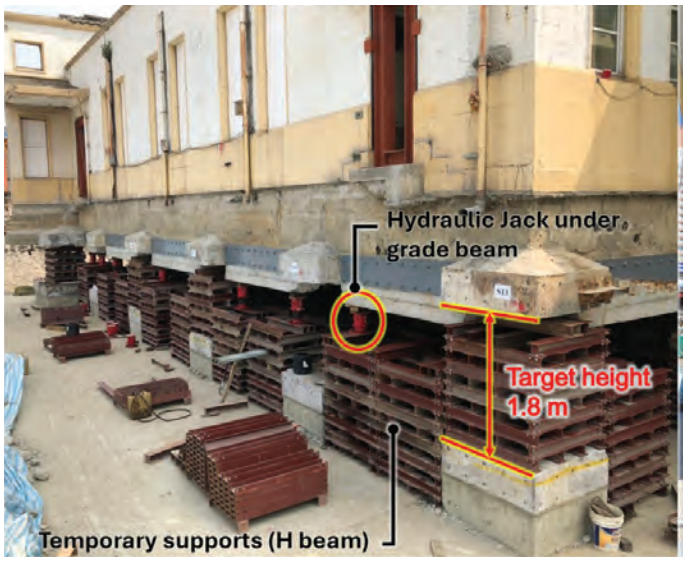


Figure 4: The first phase of jacking.

Figure 5: The second phase of jacking.

3.2 Horizontal sliding stage

Preparatory work

After jacking was completed, a solid reinforced-concrete bearing slab, supported by H-shape members, was constructed beneath the station building to facilitate sliding *(Figure 6)*. This slab would later be demolished once the relocation was completed. A rail system had to be installed to facilitate the movement. Temporary working platform system made of cover slabs and H-beams *(Figure 7)* were installed along the movement route and dismantled afterward.

Relocation operation

The relocation system consisted of rails, moving assemblies and pushing devices. The rails were laid according to the column grid, and the moving assemblies were installed under the footings. The pushing devices – comprising horizontal hydraulic jacks and fixed reaction blocks – advanced the station building along the rails by applying controlled hydraulic thrust *(Figure 8)*.

Moving assembly transmitted the building's weight to the bearing system. Each assembly consisted of H-shape members and round steel rollers. The H-shape members supported the station structure, and the rollers enabled smooth, controlled rolling along the rails. Vertical adjustment jacks were installed under the footings.

During movement, if differential settlement exceeded the control threshold, the jacks were immediately re-pressurised to restore levelness. Wooden wedges on both sides ensured even load transfer and stability. The pushing system comprised horizontal hydraulic jacks and anchored reaction blocks, which were fixed to the rails. By applying hydraulic thrust against the reaction blocks, the jacks generated the force required to advance the station along the rails.

Figure 6: Bearing slab system.

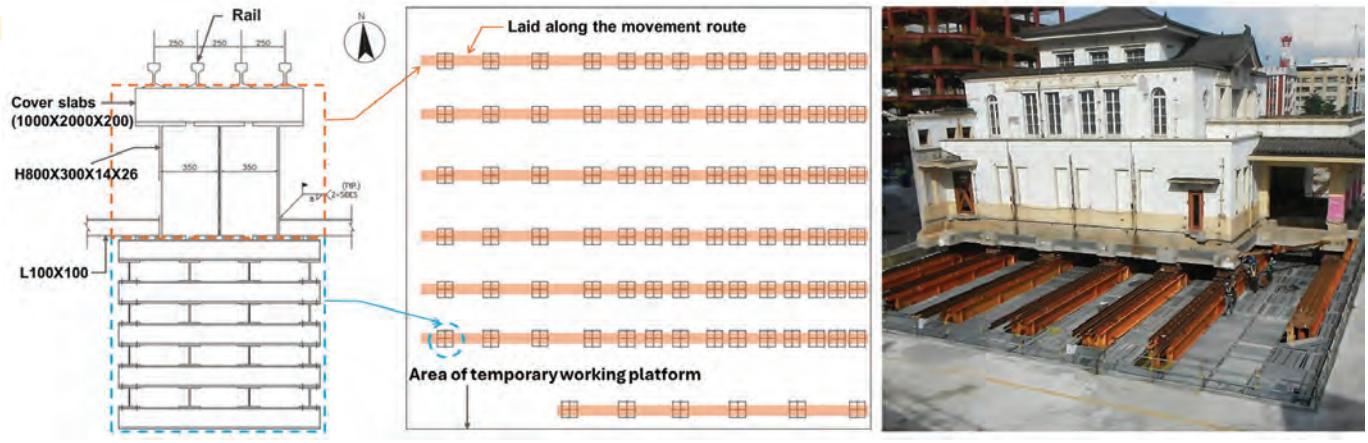


Figure 7: Temporary working platform system.

Figure 8: Moving assemblies and pushing devices.

3.3 Lowering stage

After reaching the permanent location, support frames were erected beneath the grade beams of station. The H-beams, cover slabs, rails and moving devices were then dismantled sequentially. Hydraulic jacks were placed under each footing to perform a controlled lowering 2.19 m to the final foundation elevation. After each stage, elevation surveys were conducted to confirm levelness and structural safety.

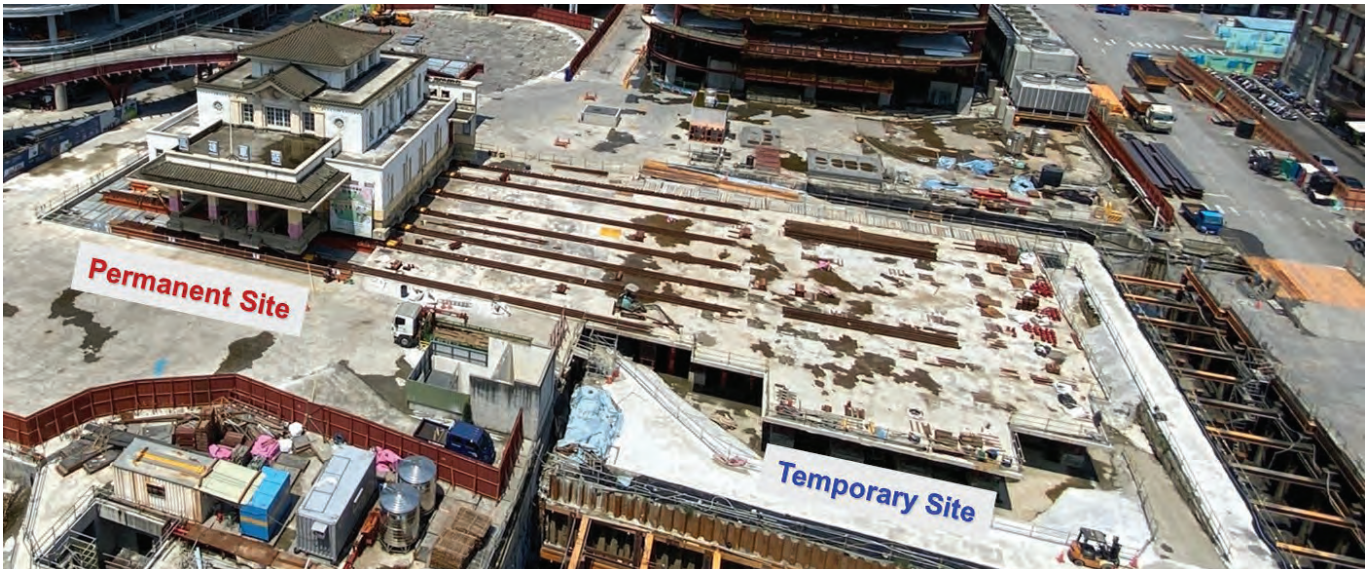


Figure 9. Station relocated to its permanent site.

4. Seismic isolation system

As a designated historic building, the relocated station building needed to meet current seismic design requirements while preserving its architectural appearance. Seismic isolation bearings were installed between the superstructure and the new foundation to increase the building's natural period. These devices allow up to 40 cm of displacement during an earthquake, enabling the original structure to satisfy seismic performance standards without additional strengthening.

The relocation work took about 14 months, which was started in September 2020 and completed in November 2021 with the final placement of the building. This historic station has now become a new symbol and cultural landmark of the city, sitting in front of the new, modern station. Once repaired, its final function will be decided by the city government and the railway administration.

The entire railway underground project was completed in December 2024, and the new Kaohsiung Railway Station commenced its operations on 28 December 2024.

5. Conclusion

The second relocation of the historic Kaohsiung Railway Station exemplifies Taiwan's advanced capability in combining heritage preservation with civil engineering innovation, with the project team demonstrating exceptional precision in structural control and execution..

Utilising hydraulic jacking and precision sliding technologies, this nearly century-old Imperial Crown style building was successfully moved – without dismantling – by nearly 4 m vertically and over 60 m horizontally. At its new foundation, a seismic isolation system was incorporated to ensure resilience against future earthquakes while preserving its historical integrity.

This achievement represents not only a technological milestone but also a model of cultural preservation and engineering excellence in modern Asia. ■

The historic Kaohsiung Railway Station (bottom centre) sits in front of the new railway station in the background.

ABOUT CTCI REI

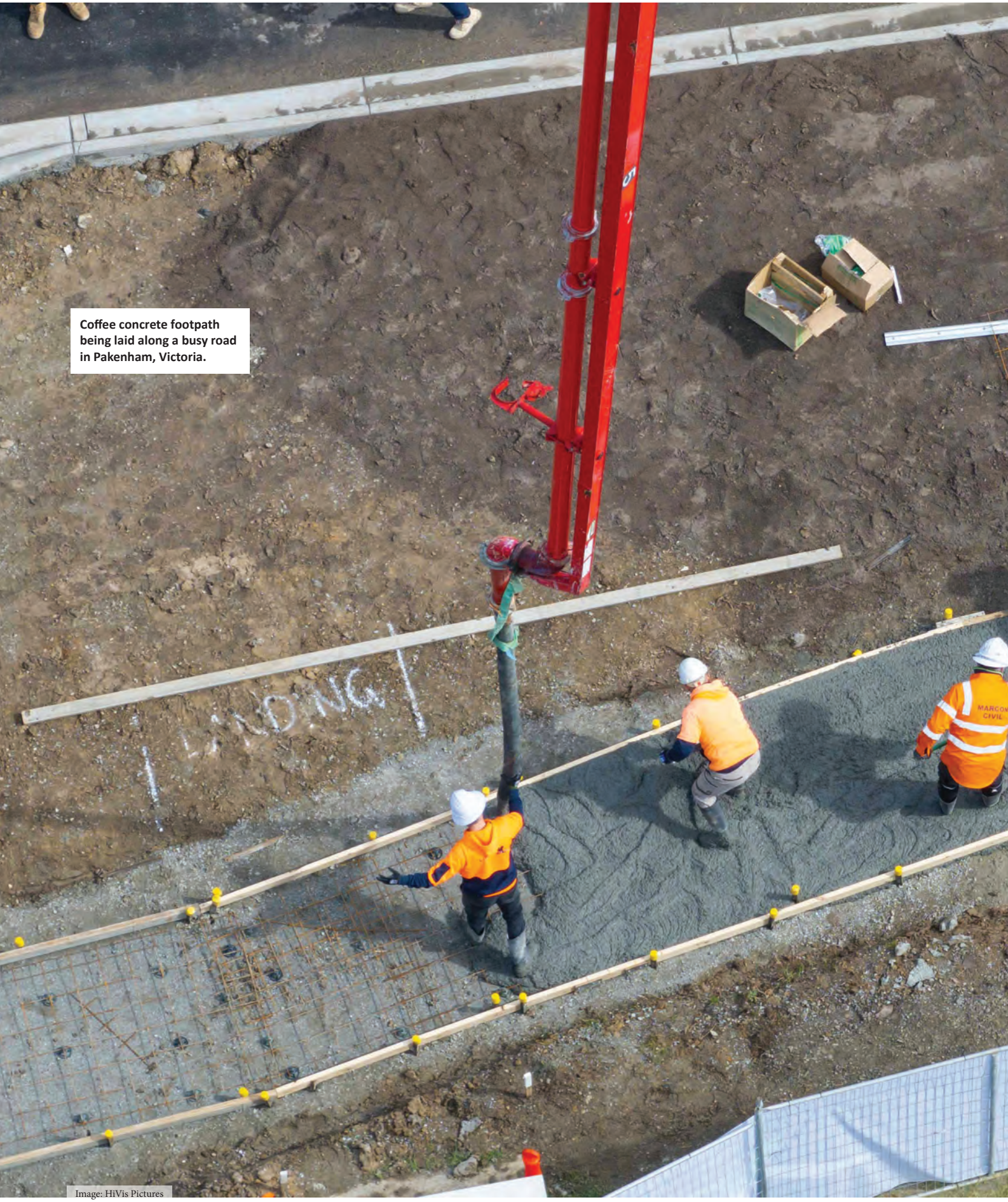
Based in Taipei, Taiwan, CTCI REI is an award-winning engineering company that provides planning, design, construction, testing and verification services, particularly for road and rail, architecture and structure, hydraulics and harbours, drainage and sewage, power, and geotechnical projects. Committed to delivering reliable total solutions to its clients, the company has won multiple national public construction quality awards, safety awards and architecture award.

Website: www.rei.ctci.com

Note:

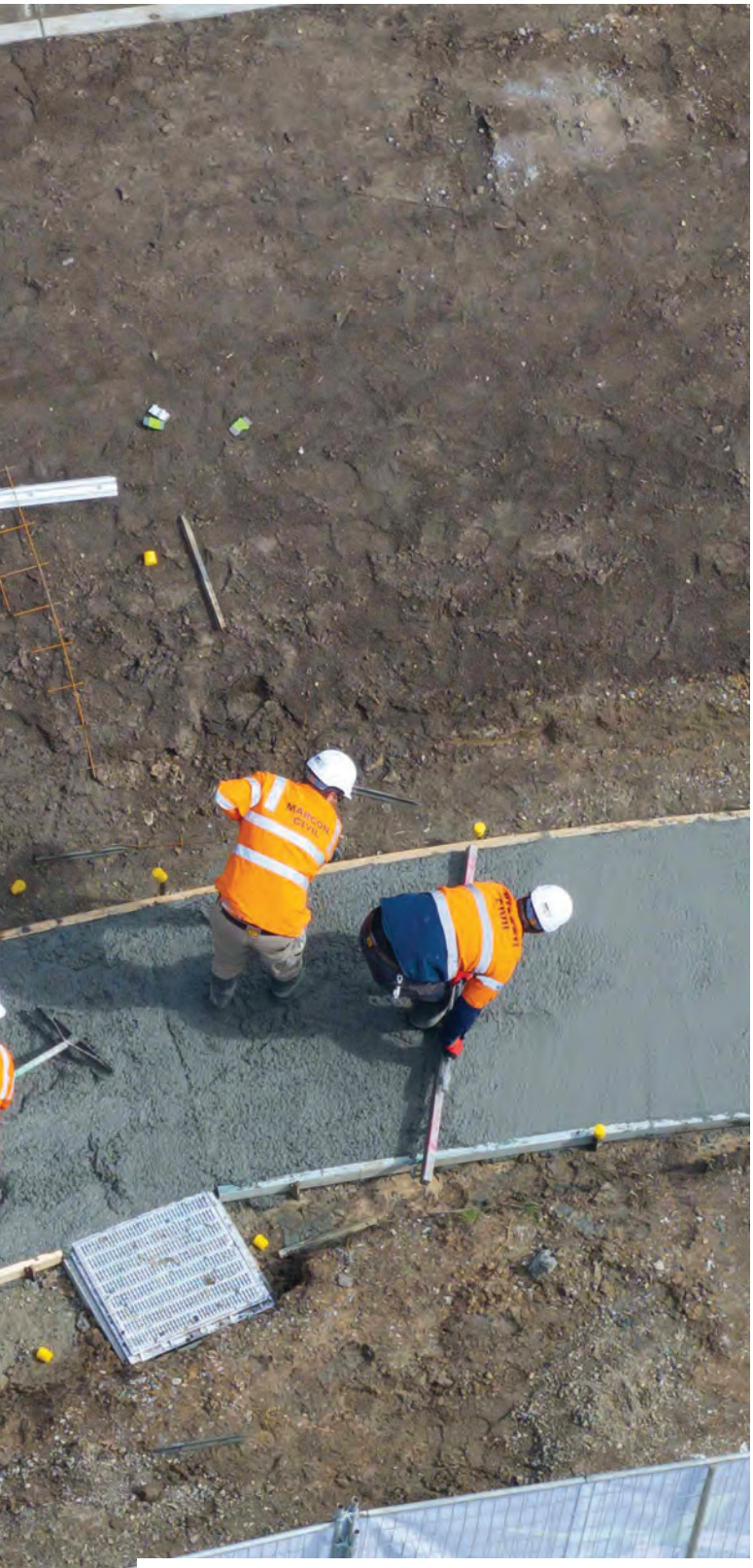
CTCI REI has also used this hydraulic jacking method in other countries. One instance is for a project in Thailand in 2018, where the company applied the solution to raise the steel-structure roof (50 m x 24 m) of a factory by 2.7 m.

All images: CTCI REI



Coffee concrete footpath being laid along a busy road in Pakenham, Victoria.

Image: HiVis Pictures



COFFEE WASTE HELPS MAKE GREENER CONCRETE

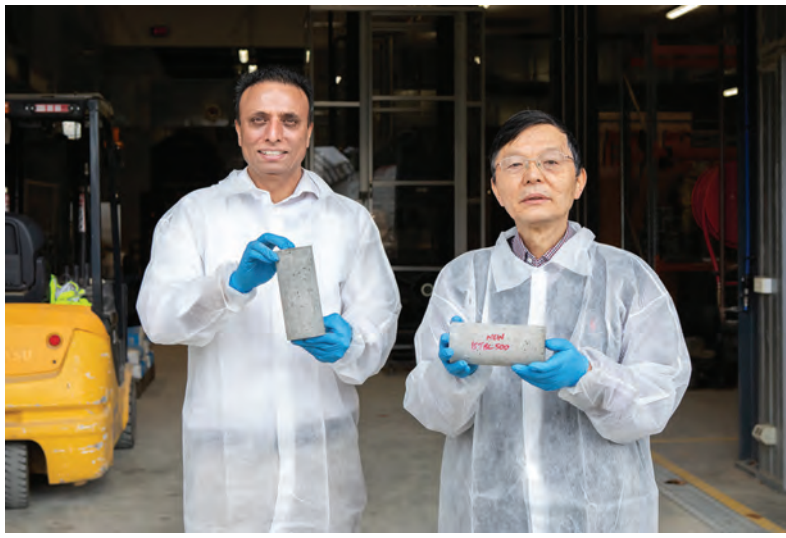
RESEARCHERS AT AUSTRALIA'S RMIT UNIVERSITY ARE ADVANCING NEW WAYS TO CUT THE CARBON FOOTPRINT OF INFRASTRUCTURE BY TURNING EVERYDAY ORGANIC WASTE INTO USEFUL CONSTRUCTION MATERIALS.

A LIFE-CYCLE ANALYSIS HAS SHOWN, FOR THE FIRST TIME, THAT BIOCHAR MADE FROM SPENT COFFEE GROUNDS CAN HELP PRODUCE A LOWER CARBON CONCRETE WHILE SUPPORTING STRENGTH BENEFITS SEEN IN EARLIER LAB TRIALS.

Earlier experiments by the RMIT team heated used coffee grounds at about 350°C without oxygen to make a fine biochar. When this replaced 15% of sand in concrete, 28 day strength increased by about 30%, pointing to a practical way to reduce pressure on natural sand supplies.

ABOVE: **The team's coffee biochar (left) next to spent coffee.**

BELOW: **Dr Rajeev Roychand (left) and Professor Jie Li with coffee concrete samples.**



Building on that foundation, a new study led by Dr Jingxuan Zhang and Dr Mohammad Saberian presents a comprehensive life-cycle assessment – a cradle to grave analysis that measures carbon emissions, resource use and other environmental impacts from production through to end of life.

The results show life-cycle carbon dioxide reductions of 15, 23 and 26% at 5, 10 and 15% biochar replacing sand, along with up to 31% lower use of fossil fuels and improvements in impacts on rivers and lakes.

Dr Zhang, from the School of Engineering, affirmed that the findings strengthened the case for real-world trials. “We showed that coffee biochar can cut concrete’s carbon footprint in the scenarios we assessed, while earlier trials demonstrated strength gains using the same approach,” she shared.

Professor Chun-Qing Li, who provided guidance to the team, pointed out that the innovation turned organic waste into a practical ingredient for lower carbon infrastructure. “Using moderate amounts of coffee biochar offers a clear, measurable pathway to lower impact concrete,” he noted.

According to Dr Saberian, the team was already engaging with industry as well as state and local governments on construction projects. “Next steps include larger pilots, mix optimisation and alignment with standards so projects can adopt this confidently,” he said, adding that “we welcome collaboration on supply chains and field deployments.”

RMIT and partners have already advanced public demonstrations, including a footpath pilot and the first coffee biochar concrete section on the Victorian Big Build, and showcased the concept through the National Gallery of Victoria’s Making Good: Redesigning the Everyday exhibition.

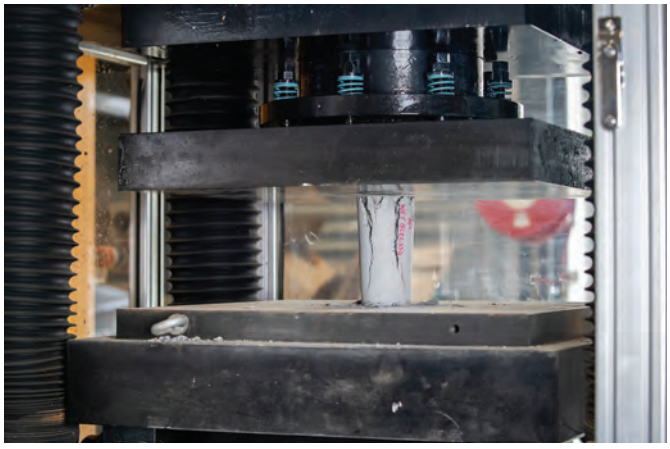
The study, ‘Carbon footprint reduction in concrete using spent coffee grounds biochar: a life cycle perspective’, has been published in the International Journal of Construction Management. ■

Image: Will Wright, RMIT University

ABOVE: **Professor Jie Li, Dr Rajeev Roychand and Dr Mohammad Saberian (left to right) with coffee biochar in their lab at RMIT University.**

LEFT: **Dr Jingxuan Zhang said the findings strengthened the case for real-world trials.**

Dr Rajeev Roychand (left) and Professor Jie Li add coffee biochar into a concrete mixer in their lab at RMIT University.



A concrete sample undergoing a strength test in the researcher’s lab at RMIT University.

Open for local and international collaboration: Prospective industry and government partners interested in pilots, product development or supply chain scale up can contact RMIT’s research partnerships team at **research.partnerships@rmit.edu.au**

TOP: **Council officers and the RMIT research team were present for the pour of the coffee concrete for the footpath trial in Gisborne, Victoria.**

ABOVE: **Contractors prepare the wood chip biochar concrete for the footpath trial in Gisborne.**

INSET: **The first pour of the coffee concrete for the footpath trial in Gisborne.**

All images: Carelle Mulawa-Richards, RMIT University (unless stated otherwise)

Shaping Tomorrow: HOW **LIEBHERR** IS TRANSFORMING CONSTRUCTION SITES

AT ITS RECENT INTERNATIONAL PRESS TOUR 2025 IN TELFS, AUSTRIA, HELD ON 22-23 OCTOBER, LIEBHERR PROVIDED UPDATES ON ITS GENERATION 8 CRAWLER DOZERS AND GENERATION 6 TELESCOPIC HANDLERS. THE GROUP ALSO SHARED ITS LATEST TECHNOLOGIES THAT WILL TRANSFORM THE WAY MACHINES OPERATE.

The PR 776 G8 is Liebherr's flagship mining dozer. Launched in 2024, this 70-t machine has now been used in several countries.

Generation 8 crawler dozers

Liebherr's Generation 8 crawler dozers comprise several models, ranging from the PR 716 to PR 776 G8. They have different operating weights and power outputs to meet diverse jobsite requirements worldwide.

The PR 716 G8, with an operating weight of 13,300 kg, is ideal for compact, precise work, while the PR 776 G8, weighing up to 73,189 kg and delivering 565 kW, is designed for the most challenging heavy-duty tasks. Multiple blade types are available, including six-way and straight blades.

Manufactured at Liebherr's facility in Telfs, Austria, all Generation 8 models feature a hydrostatic travel drive that ensures smooth, precise movement, maximising efficiency across all operating conditions. Integrated driver assistance systems support operators by automatically controlling blade positioning for accurate grading, reducing fatigue and improving productivity on long shifts.

The machines' cabs have been designed with operator comfort as a priority, equipped with fully adjustable suspended seats, advanced climate control, large windows for optimal visibility, and intuitive touchscreen displays for easy control of functions.

Highly versatile

The Generation 8 dozers offer optimised fuel efficiency and low emissions, combining high performance with sustainable operation. These enhancements make the machines highly versatile, capable of handling everything from large-scale earthmoving to fine grading and slope work.

They are engineered for various applications, such as urban infrastructure projects, mining operations, road construction and environmental projects. With a robust undercarriage, powerful engines and adaptable blade configurations, the machines are suitable for a wide range of terrain, from soft soils and sand to rocky landscapes.

The PR 716 G8 and PR 726 G8 are particularly effective in precision tasks like trenching, landscaping and fine grading. Both the 736 and the 746 are well suited to more demanding jobsites. Meanwhile, the larger crawler dozers from PR 756 G8 and PR 776 G8 excel in heavy-duty earthmoving, dam construction and quarry operations.

The GNSS readiness and smart Eco modes allow operators to execute tasks automatically with high accuracy while minimising fuel consumption. In addition, the hydrostatic drive train delivers

up to 20% fuel savings compared to conventional drive trains, further enhancing efficiency.

These dozers are built to operate reliably in extreme climates, from hot and arid regions to cold and wet environments. Thus, they are a perfect choice for construction companies around the world.

PR 776 G8 – flagship mining dozer

The PR 776 Generation 8 was officially unveiled at MINExpo 2024 in Las Vegas, the US. Since then, this 70-t machine has been put to work in a number of countries – in Ghana, Canada, Australia, Spain and the US, among others.

Liebherr will also deploy the first LiReCon (Liebherr Remote Control) teleoperations system in a mining application for SQM – a global mining company operating in northern Chile – in 2026. Two PR 776 G8 dozers will operate under the control of the LiReCon system.

The PR 776 G8 integrates advanced Operator Assistance Systems (OAS), previously available only on smaller dozer models. There are two additional packages available for mining dozers: the Blade Control Assistance package which offers control over the blade to increase performance while reducing operator fatigue, and the Ripper Control Assistance package which automates repetitive ripper tasks to also reduce operator fatigue.

For the PR 776, OAS can be installed as first fit or retrofitted onto machines already in operation. Liebherr Assistance Systems for all mining equipment models are available within the Liebherr Mining IoMine technology portfolio.

A new Load Control package that builds upon the existing packages will be launched in 2026 for the PR 776 G8. The new OAS package is designed to maximise traction, reduce track slip and support consistent performance across varying ground conditions.

Expanding Telfs facility

To support the production of the Generation 8 line-up, Liebherr has made significant investments in its Telfs facility. The upgrades encompass expanded manufacturing capacity, reducing lead times, advanced assembly lines, and the introduction of energy-efficient production technologies.

Notably, a new logistics centre has been taking into effect at a cost of approximately €35 million; and there is a new administration building, including a new customer hospitality area, as well as substantial investments in the R&D department. These investments not only enhance output but also ensures that the facility maintains its high manufacturing standards, in order to fulfil the growing demand for high-performance machinery across global markets.

ABOVE: **All Generation 8 dozers feature a hydrostatic travel drive that ensures smooth, precise movement, maximising efficiency across all operating conditions. Here is the PR 736 G8 model.**

BELOW: **Live demonstrations of Generation 8 dozers at Liebherr's Telfs facility during the press tour.**

Liebherr is also reinforcing its readiness for future innovation by integrating smart manufacturing processes and quality control systems. These measures guarantee that every Generation 8 machine meets the company's stringent standards for reliability, safety and performance.

Generation 6 telehandlers

Liebherr's Generation 6 telescopic handlers, also manufactured in Telfs, are available to global markets. Their hydrostatic drive system continues to ensure exceptional manoeuvrability, minimal wear and excellent power transmission.

The machines are suitable for use in a wide range of industries, including building construction, material handling, rental fleets and demanding industrial environments, to name a few. Load capacities

Martin Längle, managing director sales at Liebherr-Werk Telfs, shares a variety of products manufactured at the Telfs plant and major investments Liebherr has made in this facility.

LEFT: **The expanded Telfs facility not only enhances output, but also ensures that it maintains high manufacturing standards to meet the growing demand for high-performance machinery across global markets.**

of up to 4.2 t in the 'S' models have been increased by up to 9% compared with their predecessors.

New comfort and precision

The redesigned driver's cabin plays a central role in the Generation 6 concept. Together with the external ROPS/FOPS grille, it provides better all-round visibility and a more spacious room. The ergonomically optimised steering column requires just 3.5 turns from lock to lock and ensures intuitive handling, similar to that of a passenger car.

All control elements are arranged for maximum convenience. The joystick with electronic pilot control, integrated directly into the driver's seat on 'S' models, enables highly precise operation of the working hydraulics with minimal fatigue, even during long shifts.

Additional refinements, such as improved floor mats, an optimised brake pedal and reduced cabin noise levels, create a more pleasant working environment. The optional air-conditioning system has been upgraded with a larger fresh-air filter and enhanced air distribution for greater comfort in all-weather conditions.

The Generation 6 telehandlers are equipped with modern LED lighting systems that illuminate the working area evenly and efficiently. New warning beacons and acoustic seat-belt reminders increase occupational safety, while the latest generation of assistance systems, including improved fine-hydraulic control, bucket-shaking and automatic power management, make operation not only safer but also more productive.

The robust design of the telescopic boom and the use of high-strength steel ensure long service life, even under heavy-duty conditions. Simplified access points, central lubrication options and clearly arranged maintenance components support rapid service and maximum availability on the jobsite.

Expansion into 8-m class

A highlight of the current line-up is the new T 48-8s. This model marks Liebherr's entry into the 8-m lift-height class and represents a strategic extension of the range in the industrial segment. Based on the platform of the larger T 55-7s, the T 48-8s combines ample lifting power with the compact dimensions and manoeuvrability. The machine is ideal for loading trucks or handling materials in confined industrial environments.

The introduction of the 8-m class underscores Liebherr's intention to serve an even broader spectrum of applications, from construction sites and recycling facilities to agricultural, logistics and industrial operations.

As part of the Liebherr's commitment to sustainability and technological leadership, the development of the Generation 6 telehandlers has also focused on efficiency and environmental performance. The hydrostatic drive concept contributes to lower fuel consumption and reduced CO2 emissions, while smart hydraulic management minimises energy losses.

S1 Vision: New material haulage concept

The S1 Vision is Liebherr's new haulage concept with a design that focuses on the core components necessary for moving material. It aims to enhance productivity, increase safety and reduce emissions.

Comprising primarily a single axle and two tyres, the S1 Vision is designed to be scalable, offering a payload ranging from 220 kg up to 131 t. As such, the truck can be adapted for a wide range of applications, including earthmoving, farming and agriculture, construction, mining, and more.

The S1 Vision is "electric, driverless, modular and self-balancing," said Altan Enginalev, CEO of S1 Vision, speaking to the media during the press tour.

The PR 776 G8 dozer on display at the Telfs facility. Delivering 565 kW, the machine is designed for the most challenging heavy-duty tasks.

ABOVE: **The new T 48-8s telehandler marks Liebherr's entry into the 8-m lift-height class and represents a strategic extension of the range in the industrial segment.**

BELOW: **The hydrostatic drive system, a defining feature of all Liebherr telehandlers, continues to ensure exceptional manoeuvrability, minimal wear and excellent power transmission.**

ABOVE AND LEFT: **The Generation 6 telehandlers, seen here in Telfs, are available to global markets and suitable for a wide range of industries. Load capacities of up to 4.2 t in the 'S' models have been increased by up to 9% compared with their predecessors.**

This new haulage concept was a collaborative effort between Liebherr Corporate Ventures AG, the group's business unit for innovation and technology development, and Liebherr Mining Equipment Newport News Co, the group's mining truck R&D and manufacturing facility.

According to Liebherr, the technology has now become an important innovation beyond the mining division and could prove itself as pioneering for several product segments. The S1 Vision is "a single platform for many industries," said Mr Enginalev. It can be used at various different jobsites, "from underground to open fields."

Excellent manoeuvrability

To work effectively on a single axle, the S1 Vision is equipped with a self-levelling system that ensures maximum stability and safety, even on bumpy or rough terrain. This technology reduces the risk of tipping, providing smooth and secure operation across varying environments.

The zero-turn radius means the truck can simply turn on the spot and travel all directions, making it ideal for applications in tight spaces that require precise movements and flexibility.

The S1 Vision is powered by an electric drive, resulting in lower greenhouse gas emissions during operation. The advanced sensors help the truck navigate independently, avoid obstacles and efficiently manage traffic.

If multiple S1 Vision trucks are operating in one location, the system enables them to connect and share real-time information, which optimises fleet operations, minimises congestion and enhances overall efficiency.

With a compact structure, the truck can be transported and deployed on the jobsite easily, added Mr Enginalev. Its design also allows for rapid maintenance, with critical components easily accessible for quick servicing.

Transforming how machines operate

Liebherr sees itself as a major player in the digital transformation of the construction industry. The automation of machines and processes plays a key role here, as it increases the safety, efficiency and cost-effectiveness of construction sites. These are important aspects for the group's customers in an increasingly challenging competitive environment.

Image: moodley

ABOVE: **The S1 Vision haulage concept is designed to focus on the core components necessary for moving material. It features a self-levelling system to ensure maximum stability and safety, even on bumpy or rough terrain.**

BELOW: **Altan Enginalev, CEO of S1 Vision, presents the new haulage concept to the media. The truck is scalable, offering a payload ranging from 220 kg up to 131 t.**

Intelligent control and assistance systems ensure that the machines can react independently to potential obstacles and sources of danger, among other things, and guarantee the precise, efficient implementation of complex processes, such as filling the excavator bucket.

However, there is no such thing as the optimum degree of automation, Liebherr pointed out. Instead, the machine type, area of application and customer requirements define how much automation makes sense at the current time and is desired by the customer.

High or even complete automation makes sense for work profiles that are characterised by great monotony. On urban construction sites with complex, volatile environmental conditions, intelligent assistance systems or partial automation systems that support employees in creative work or for specific solution concepts are an option instead.

Liebherr Remote Control

Liebherr Remote Control (LiReCon) enables precise control of construction machines from a safe distance. For example, the system provides access to areas that would be too dangerous for direct manned processing on site. It is also the optimal solution after disasters or for accessing terrain that has become impassable.

With LiReCon, the machine operator swaps the driver's cab of the construction machine for a teleoperation stand. From there, they use joysticks and screens to remotely control the machine equipped with the LiReCon control architecture and assistance systems via a video remote control system.

Providing fast and stable data transmission, the remote control becomes part of the automated work, as the assistance systems take the strain off the machine operator and visualise all relevant machine data in real time. For example, the blade of a 70-t dozer can be used to precisely grade a constant slope angle hundreds of kilometres away from the jobsite.

Liebherr said LiReCon already fulfils a wide range of customer requirements. It can also be used as a remote maintenance system for offshore cranes. The cross-divisional development makes it possible to remotely control different machines with the LiReCon system and switch between a tower crane, an off-shore machine or earthmoving machines.

LiReCon delivers many advantages, particularly in terms of productivity, as access to the machine is easy. The fact that work is carried out from the operating stand enables quick and safe shift changes, and the operation of different machines increases uptime and optimises the production process. Downtimes are minimised and only affect the machine and not the operator.

With LiReCon system, Liebherr machines can be controlled remotely via the real operator workstation, equipped with all the necessary controls and system information.

Florian Falbesoner, group leader for technology and pre-development at the Liebherr plant in Telfs, explains the benefits of using LiReCon.

"In future, LiReCon will make it possible for certain tasks to come to the operator and for the operator to no longer have to come to the work," said Florian Falbesoner, group leader for technology and pre-development at Liebherr's Telfs facility. LiReCon also reduces physical strain, as the machine operator is not exposed to vibrations, noise or dust. Thus the system offers a barrier-free, ergonomic workplace for the future.

LEFT AND FAR LEFT: **The LiReCon system can be applied to various different machines, such as dozers, wheel loaders, tower cranes, excavators, and more.**

Liebherr Autonomous Operations

When it comes to recurring routine tasks such as digging or transporting and installing materials, the autonomous wheel loader from Liebherr can do this independently. But not only that – it recognises obstacles, calculates optimal movement paths and adapts independently to the changing environment.

Taking integrated artificial intelligence into account, the machine continuously learns and increases efficiency with every use based on what it has learnt. At the heart of this autonomous wheel loader is the Liebherr Autonomous Operations system and the Autonomous Job Planner web application.

The high degree of autonomy results in simple operation. The machine works on the basis of a graphical task definition and makes all the necessary decisions for each work cycle independently. This reduces the need for human monitoring and enables almost round-the-clock operation. The autonomous wheel loader performs its tasks with the utmost precision, and in turn achieves excellent results with lower energy consumption and wear.

S1 Vision

The new battery-electric, autonomous, single-axle truck concept impresses with its compactness and flexibility. With a payload of 220 kg up to 131 t, it can be used for a wide range of applications – for example in construction, logistics, agriculture or mining. The innovative digital control system makes the S1 Vision particularly future-proof, as it can communicate with other machines in a digital ecosystem.

Liebherr Connect

Liebherr's modern connectivity solution, Liebherr Connect, forms the basis for new technologies such as autonomous control, AI-supported maintenance and networked construction sites. The tool networks man, machine and environment into a powerful system and therefore creates the basis for autonomous processes. Access to comprehensive machine and process data is only possible through intelligent networking.

In mining operations, Liebherr uses the IoMine platform for networking. It facilitates the transition to integrated operation with a fully networked ecosystem of human-guided and autonomous machine solutions. Liebherr Mining's expanded technology portfolio increases efficiency, safety and sustainability through real-time data, remote diagnostics and intelligent energy use – reducing costs and optimising fleet management.

Liebherr's autonomous wheel loader carries out the job completely independently in a defined work area and continuously adapts to a changing environment.

ABOVE: **Operators start job planning using the Liebherr Autonomous Job Planner web application. Work orders can be defined easily in a 3D operating environment without any special IT knowledge.**

Intelligent control and assistance systems enable machines to react to potential obstacles and sources of danger, thus ensuring the precise and rapid realisation of complex processes.

Construction site of the future

Liebherr believes that autonomous construction machines will not replace conventional equipment, but rather complement it. Assistance systems support people where they can utilise their strengths to solve problems creatively. If it makes sense, the machine can also be operated remotely from outside the driver's cab, as with LiReCon, or it can work autonomously in monotonous applications.

Liebherr offers web applications and digital interfaces (API) to analyse the machine data sent and to optimise operations in terms of consumption, idle time, handling capacity and many other aspects. This makes it easier to plan and coordinate processes on the construction site.

Automating recurring tasks speeds up construction projects and significantly reduces costs, stressed Liebherr. At the same time, the use of remote-controlled or autonomous machines in hazardous environments minimises the risk for construction site personnel: a real step forward for safety and productivity on the construction site of the future. ■

Website: www.liebherr.com

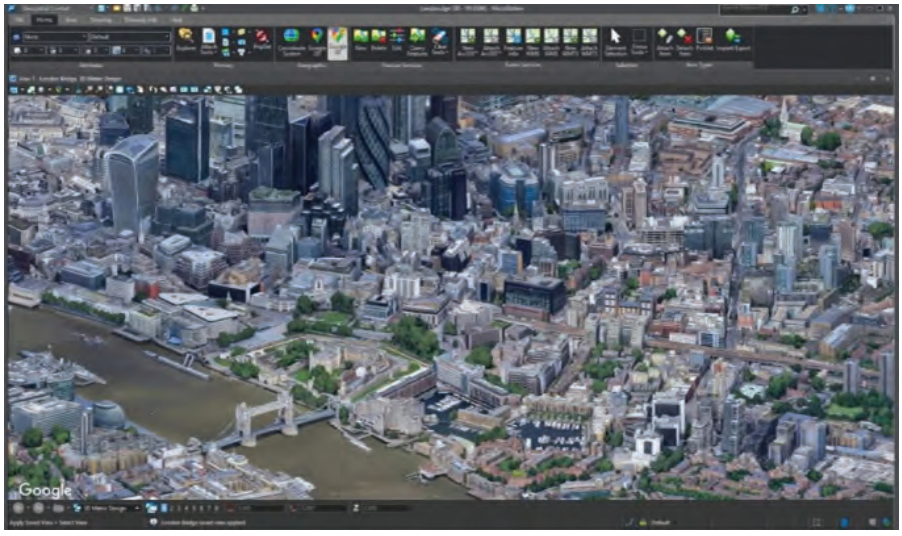
Bentley bolsters Cesium with reality modelling capabilities and introduces Bentley Infrastructure Cloud Connect

Bentley Systems has announced the availability of reality modelling services in Cesium, advancing its open platform for the built and natural environment. The company also unveiled geospatial capabilities for project delivery and asset performance and a new immersive engagement application for infrastructure teams and stakeholders, all powered by Cesium.

Since acquiring Cesium a year ago, Bentley has made significant progress in integrating technologies from both companies, powering its own products and empowering developers to build applications that visualise infrastructure data in real time and in full geospatial context.

"Our vision for infrastructure engineering is built on openness," said Patrick Cozzi, Bentley's chief platform officer. "With the integration of iTwin and Cesium capabilities, we are creating the open platform for the built and natural environment – providing all the necessary data for infrastructure professionals to design, build and operate in a real-world context."

At the Year in Infrastructure (YII) 2025 conference, Bentley announced the availability of reality modelling services in Cesium, advancing its open platform for the built and natural environment.



MicroStation 2025, the latest release of Bentley's CAD software for infrastructure design, introduces support for 3D Tiles via Cesium.

Reality modelling

Bentley has added reality modelling services from iTwin Capture to Cesium ion, creating a complete, automated pipeline from data capture through geospatial visualisation. iTwin Capture creates engineering-grade reality models from imagery and applies AI-powered feature detection, while Cesium ion allows developers to create and host content in the cloud to power 3D geospatial applications.

With the new reality modelling capabilities, Cesium ion can create detailed 3D visualisations – reality meshes, point clouds and Gaussian splats – directly from imagery, annotated by AI, ready to stream within applications using open standards. Creating an accurate, engineering-grade digital model of the existing built and natural environment and offering it as rich 3D geospatial context allows infrastructure professionals to make better informed decisions throughout the infrastructure lifecycle.

"Being able to generate photogrammetry, point clouds and Gaussian splats as 3D Tiles from drone imagery, stream them seamlessly to the web, and analyse the point clouds is a major milestone," said Osarodion Victory Igbinobaro, co-founder and CEO of Aero AI, a Cesium user. "This release brings end-to-end 3D reality modelling into one accessible, high-performance pipeline."

Geospatial context

Cesium capabilities are also enhancing Bentley's product portfolio, bringing geospatial context to Bentley Open Applications and Bentley Infrastructure Cloud.

MicroStation 2025, the latest release of Bentley's CAD software for infrastructure design, introduces support for 3D Tiles via Cesium. Engineers can now seamlessly integrate any 3D Tiles content, including Google Photorealistic 3D Tiles and their own high-fidelity reality data, directly into their design projects. This reduces the need to manually model existing conditions, accelerating project setup and allowing teams to focus on designing solutions. These same capabilities are coming to Bentley Open Applications built on MicroStation, for designing roads, railways, bridges, and more.

Cesium is also powering the geospatial experience in Bentley Infrastructure Cloud Connect, Bentley's unified environment to connect data and people across the infrastructure lifecycle. With this geospatial context, also featuring Google Photorealistic 3D Tiles, users can navigate more intuitively across and within their projects and assets available in Bentley Infrastructure Cloud.

Introducing iTwin Engage

Another highlight from Bentley is the new iTwin Engage, which enables infrastructure teams and their stakeholders to engage immersively with digital twins of future and existing infrastructure assets.

Engineers often need to create immersive, photorealistic renderings to present their design work. Traditionally, this process is slow and inefficient, requiring specialised skills and resulting in static visuals that quickly become outdated as the design models evolve.

With iTwin Engage, powered by Cesium and game engine technology, anyone can build impactful, narrative-driven content that brings projects and assets to life. Experiences are automatically generated, always current thanks to a live connection to the digital twin, and interactive – enabling not only design reviews, but also digital rehearsals for construction, immersive remote inspections, and more.

"The opportunity to present and communicate the project plan through iTwin Engage, in such an appealing manner, is fantastic," said Simon Beards, principal planner at Laing O'Rourke, a participant in an early access programme. "The greater

iTwin Engage, powered by Cesium and game engine technology, enables infrastructure teams to build impactful, narrative-driven content that brings projects and assets to life.

ABOVE: **With the new reality modelling capabilities, Cesium ion can create detailed 3D visualisations – reality meshes, point clouds and Gaussian splats – directly from imagery, annotated by AI, ready to stream within applications using open standards**

LEFT: **Patrick Cozzi, Bentley Systems' chief platform officer, at the YII 2025 conference.**

the involvement the team has on the plan, the more likely there is a chance of success, as it supports a more collaborative way of engineering improvements."

Bentley Infrastructure Cloud Connect

Bentley Infrastructure Cloud Connect – the new foundational layer of Bentley Infrastructure Cloud – provides a connected data environment and unified experience for infrastructure professionals interacting with project and asset data, improving collaboration across the infrastructure lifecycle and value chain.

"Infrastructure data lives everywhere – in models, PDFs, inspection forms, photos, IoT sensors, and more – and it's rarely connected," said Julien Moutte, chief technology officer at Bentley Systems. "That changes with Bentley Infrastructure Cloud Connect. Infrastructure professionals can access and manage all project and asset data in one place – fully contextualised and connected – from design through construction to operations."

Connect enables users to explore a big-picture view of their entire portfolio in full geospatial context, dive deep into project and asset details, and collaborate, track progress and identify issues – all in one environment.

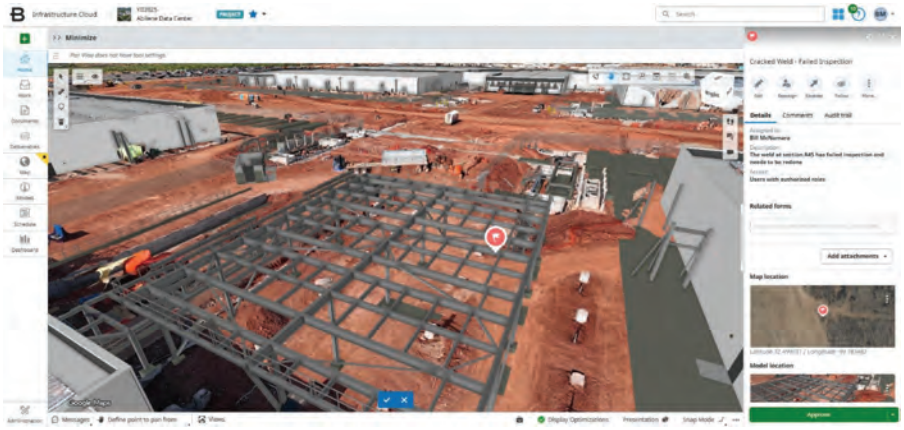
"Bentley Infrastructure Cloud's unified environment helps our project stakeholders quickly and clearly understand the impact of design decisions during constructability reviews," said Andy Kaiyala, vice president of digital construction management (DCM) at WSB, an early adopter. "With curated views of 72 projects now accessible to over 900 external stakeholders from 86 organisations, it's become a key differentiator for us – helping project teams avoid costly missteps and save millions in potential rework."

Connect provides a secure, open and scalable environment for engineering services firms, construction firms and owner-operators to store and manage infrastructure files and data. It leverages Bentley's iTwin platform to ingest data from over 50 distinct file formats and integrate with a variety of enterprise systems, unifying engineering, operational, enterprise, geospatial and subsurface data into digital twins of existing or planned assets in their full built and natural environment.

With Connect, collaboration is seamless across infrastructure ecosystems. Users can view and share infrastructure files and data, capture feedback and markups, and manage deliverables and correspondence with clients, suppliers and other stakeholders in their value chain. It supports traditional file-based collaboration while also enabling more integrated, data-centric workflows.

Connect also features a unified web experience to visualise infrastructure data in full geospatial context, powered by Bentley's Cesium 3D geospatial capabilities. A dedicated mobile app enables users to stay connected to project or maintenance workflows – wherever they are.

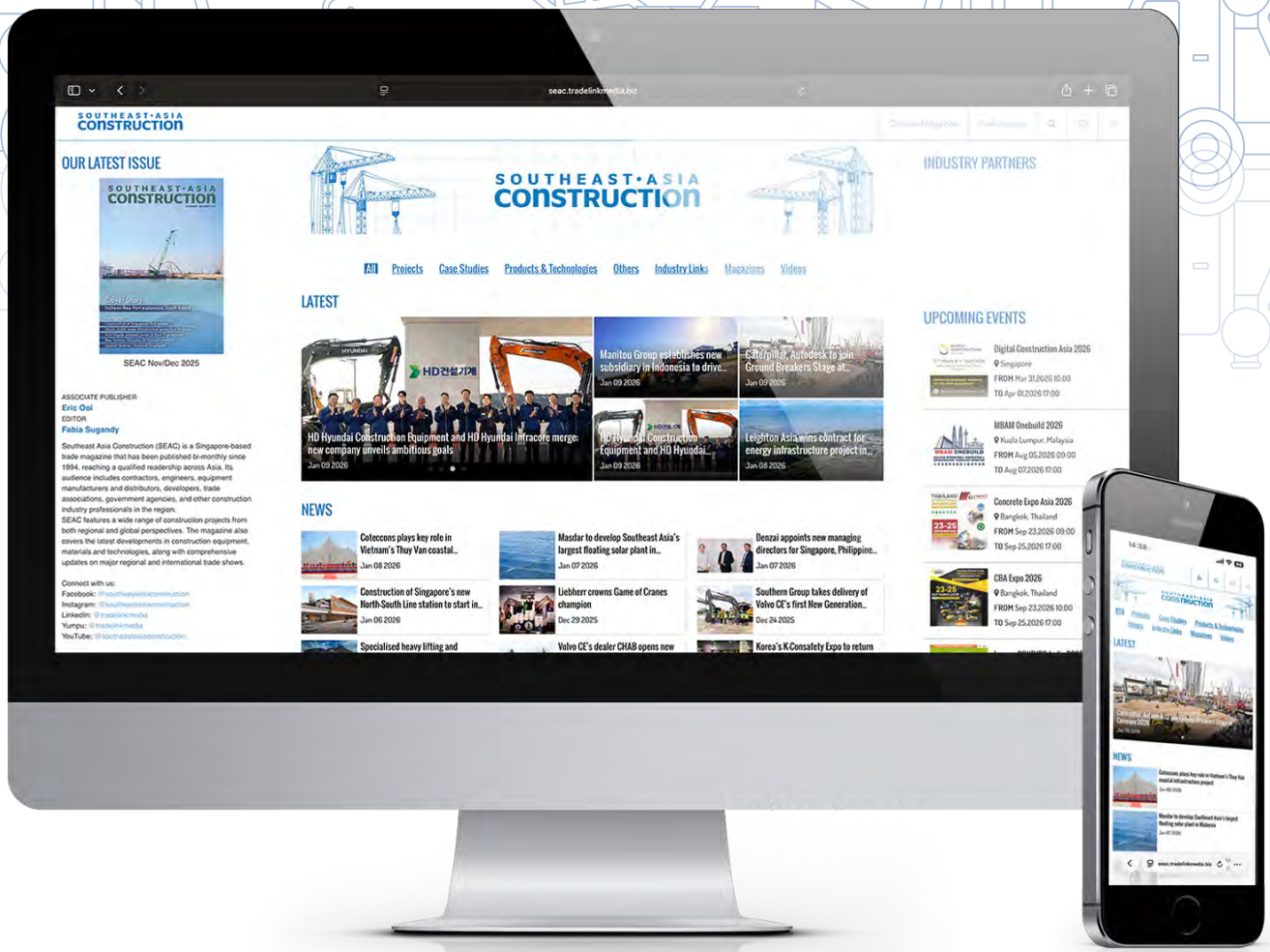
According to Bentley, Connect is the new entry point to Bentley Infrastructure Cloud. Users can progress to ProjectWise for advanced design and construction workflows, and AssetWise for additional asset operations and maintenance workflows. ■



TOP AND ABOVE: **Introduced during the YII 2025 conference, the new Bentley Infrastructure Cloud Connect provides a trusted foundation to connect data and people across the infrastructure lifecycle and value chain.**

Julien Moutte, Bentley Systems' chief technology officer, at the YII 2025 conference.

All images: Bentley Systems



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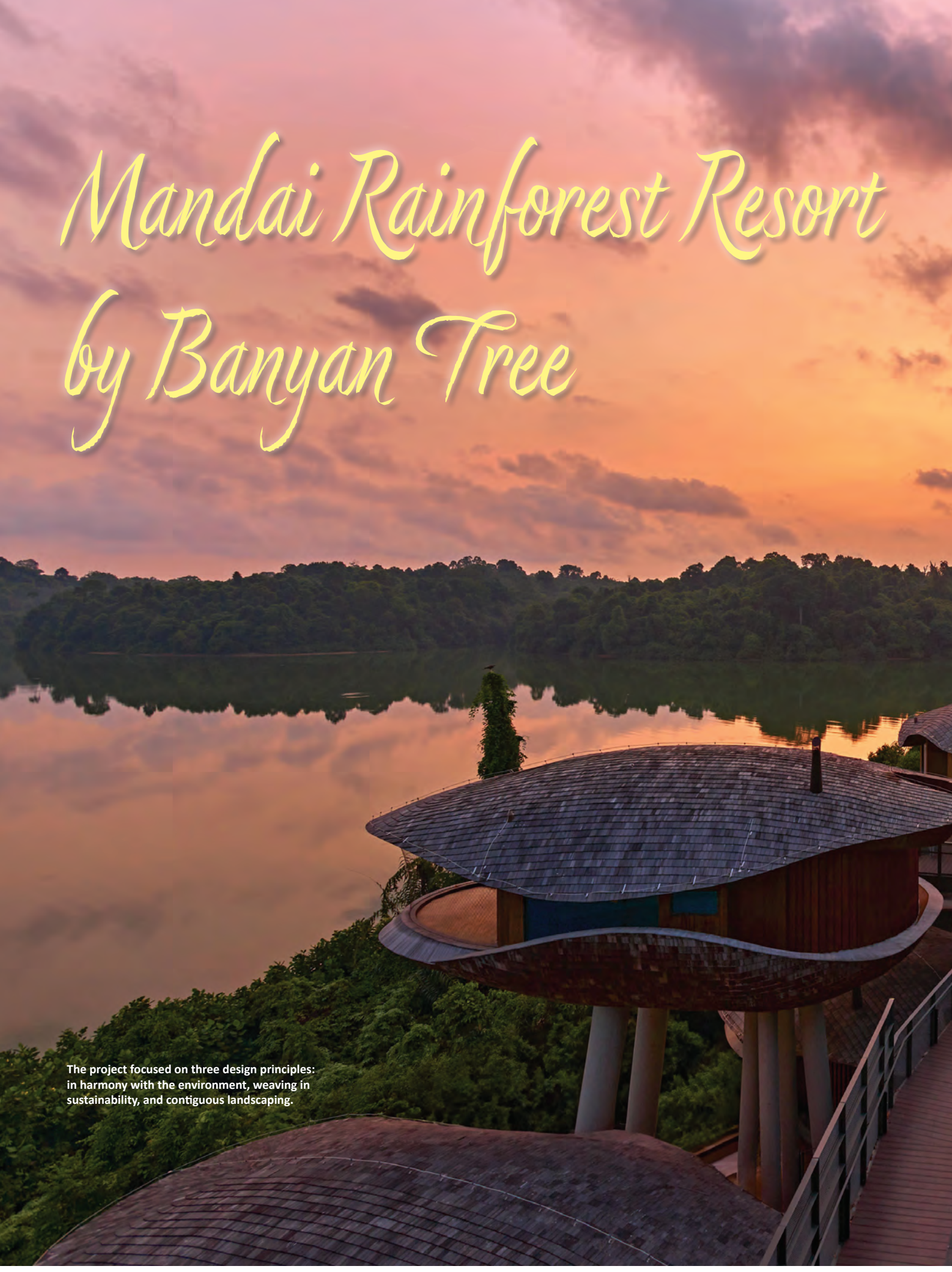
Mandai Rainforest Resort by Banyan Tree



The project focused on three design principles: in harmony with the environment, weaving in sustainability, and contiguous landscaping.

OFFICIALLY OPENED ON 26 NOVEMBER 2025, THE MANDAI RAINFOREST RESORT BY BANYAN TREE HAS WON THE BCA PROJECT OF THE YEAR AWARD 2025 IN THE COMMERCIAL BUILDINGS CATEGORY. LOCATED WITHIN THE MANDAI WILDLIFE RESERVE, THIS NEW DEVELOPMENT WAS BEAUTIFULLY DESIGNED TO BLEND IN WITH NATURE, WITH SUSTAINABILITY PRACTICES ADOPTED THROUGHOUT THE CONSTRUCTION PROCESS.

The project focused on "three design principles: in harmony with the environment, weaving in sustainability, and contiguous landscaping," explained David Goh, project director at Mandai Wildlife Group.

Salvaged tree barks and branches from the site were recycled as moulds for off-form precast concrete walls, allowing the facade to capture natural textures. Such an effort eliminated separate architectural finishing works. As a result, the speed of completing the building's exterior doubled, saving approximately 77% of man-hours.

Some other green features include "the use of passive displacement ventilation (PDV) for the treehouses, onsite water recycling through rainwater harvesting, and guest room management system and smart room panels to encourage energy conversation by guests," added Mr Goh.

Image: Mandai Rainforest Resort by Banyan Tree

Image: Mandai Rainforest Resort by Banyan Tree

Salvaged tree barks and branches from the site were recycled as moulds for off-form precast concrete walls, allowing the facade to capture natural textures. Such an effort eliminated separate architectural finishing works. As a result, the speed of completing the building's exterior doubled, saving approximately 77% of man-hours.

The contractor, Lum Chang, developed a 6D BIM that was handed over to the client, Mandai Wildlife Group. The system could enable a fully digital approach across design, construction and operations – facilitating automated data transfer from the building model to the facilities management system. If adopted, it could reduce man-hours needed to process operational data by up to 30 times.

There were also the implementation of BIM-to-field workflows, monitoring and progress tracking with the use of drones, and the adoption of Autodesk BIM 360 Docs for structured exchange of models between consultants, contractors and subcontractors. "Data from the drones was used for site planning, safety inspections and work coordination," said Mr Goh.

Off-site construction

Advanced manufacturing and assembly (AMA) methods were employed on the project, including extensive off-site fabrication of various structural, architectural, and mechanical, electrical and plumbing (MEP) elements.

Among these prefabricated elements are "spiral steel staircases, elevated walkways, east and west pool pavilions, and wellness pods," shared Mr Goh. First, the units were designed and coordinated in 3D BIM. They were then constructed in the factory, before being disassembled for transport and reassembled on-site.

The AMA initiative shortened the construction time, minimised disruptions to the surrounding areas, and reduced the environmental impact.

Mr Goh further highlighted that to enhance on-site productivity, the project team provided a comprehensive training and mentorship programme for migrant workers, and also a training programme for subcontractors.

Collaborative business practices, such as providing feedback channels for open communication, as well as using virtual meetings and digital tools to create more efficient meetings, helped ensure the successful delivery of the project. ■

PROJECT TEAM:

Developer/Owner: Mandai Wildlife Group
Builder: Lum Chang Building Contractors Pte Ltd
Architect: WOW Architects Pte Ltd
Civil & Structural: Ramboll Pte Ltd
Mechanical & Electrical: Arup Singapore Pte Ltd
Quantity Surveyor: Asia Infrastructure Solutions Singapore Pte Ltd

Image: Mandai Wildlife Group

ABOVE: **Advanced manufacturing and assembly (AMA) methods were employed on the project, including extensive off-site fabrication of various structural, architectural, and mechanical, electrical and plumbing (MEP) elements. This shortened the construction time, minimised disruptions to the surrounding areas, and reduced the environmental impact.**

BELOW: **The Mandai Rainforest Resort by Banyan Tree has received the Building and Construction Authority's (BCA) Project of the Year Award 2025 in the Commercial Buildings category. David Goh, project director at Mandai Wildlife Group, is seen here (fifth from left) at the awards ceremony in September. The event was also attended by Minister for National Development Chee Hong Tat (centre) and BCA CEO Kelvin Wong (second from right).**

Image: BCA

Hong Kong's Central Kowloon Bypass (Yau Ma Tei Section) opens

The Central Kowloon Bypass (Yau Ma Tei Section), a major new transport corridor in Hong Kong that strengthens Kowloon's east–west connectivity and enhances overall network efficiency, opened on 21 December 2025.

This dual three-lane bypass stretches 4.7 km connecting the Yau Ma Tei Interchange in West Kowloon with the Kai Tak Development Area and Kowloon Bay in East Kowloon. It includes a 3.9-km tunnel running beneath some of the most densely built-up areas in the city with two complex interchanges at both ends.

By enabling traffic to bypass central Kowloon, the new route will significantly reduce congestion and improve journey reliability. Travel time between Yau Ma Tei and Kowloon Bay during peak hours can now take about five minutes instead of the usual 30 minutes.

The Arup and Mott MacDonald joint venture delivered comprehensive multidisciplinary services for the project – from conception through to completion. Over the years, the team has successfully navigated complex engineering challenges, drawing on expertise in transportation, environmental protection, highways, tunnelling, bridge structures, mechanical, electrical and plumbing (MEP) and ventilation design.

'New era of connectivity'

Working within highly constrained conditions, including tunnelling beneath existing buildings while maintaining live traffic in one of Hong Kong's busiest districts, the Arup and Mott MacDonald team adopted advanced digital tools and innovative engineering solutions to safely manage risks throughout construction.

A defining environmental feature of the project is the extensive landscaping and urban greenery introduced along the bypass, creating high-quality public spaces and new recreational opportunities for the community. The Yau Ma Tei Landscaped Deck, spanning approximately 32,000 sq m, provides a vital green connection between Yau Ma Tei and the landscaped deck of West Kowloon Station, encouraging active travel and enhancing walkability across the district.

Sustainability has been embedded at the heart of the project's design and delivery. The Kai Tak Administration Building has achieved the Platinum rating in the final assessment under the 'BEAM Plus New Buildings Version 2.0' issued by the Hong Kong Green Building Council.

The Central Kowloon Bypass (Yau Ma Tei Section) also passes through areas of significant heritage and conservation value. Throughout planning and construction, the project team worked closely with stakeholders to safeguard the character and integrity of important local landmarks, including the former Yau Ma Tei Police Station, Temple Street Night Market, Tin Hau Temple at Yau Ma Tei and Kowloon City Ferry Pier, ensuring the district's cultural identity is preserved alongside modern infrastructure development.

ABOVE: **The newly opened Central Kowloon Bypass (Yau Ma Tei Section) stretches 4.7 km, connecting the Yau Ma Tei Interchange in West Kowloon with the Kai Tak Development Area and Kowloon Bay in East Kowloon.**

RIGHT: **The bypass includes a 3.9-km tunnel running beneath some of the most densely built-up areas in the city. The Arup and Mott MacDonald joint venture delivered comprehensive multidisciplinary services for the project – from conception through to completion.**

"With the new Central Kowloon Bypass (Yau Ma Tei Section), we are not just opening a transport corridor, we are unlocking a new era of connectivity and vitality for Kowloon. By delivering this complex and innovative project, we are actively shaping a smarter, greener and more efficient Hong Kong," said Theresa Yeung, East Asia managing principal at Arup.

"This achievement reflects our commitment to pushing the boundaries of what's possible to enhance the quality of life for our communities. It has been a privilege to work with the Highways Department and Mott MacDonald to turn this ambitious vision into a landmark project that will underpin Kowloon's prosperity for decades."

LEFT: **By enabling traffic to bypass central Kowloon, the new route will significantly reduce congestion and improve journey reliability. Travel time between Yau Ma Tei and Kowloon Bay during peak hours can now take about five minutes instead of the usual 30 minutes.**

Working within highly constrained conditions, including tunnelling beneath existing buildings while maintaining live traffic in one of Hong Kong's busiest districts, the Arup and Mott MacDonald team adopted advanced digital tools and innovative engineering solutions to safely manage risks throughout construction.

A defining environmental feature of the project is the extensive landscaping and urban greenery introduced along the bypass, creating high-quality public spaces and new recreational opportunities for the community.

"The commissioning of the Yau Ma Tei Section is an important step toward more reliable east–west journeys across Kowloon," said Hyvan Wong, Mott MacDonald managing director for China and Hong Kong. "Working alongside Arup and the Highways Department, we're proud to have supported the delivery of engineering solutions for this complex urban environment.

"Beyond improving traffic flow, this project brings lasting benefits to Hong Kong, enhancing connectivity, supporting economic growth, and creating greener, safer public spaces for everyone." ■

LEFT: **The Central Kowloon Bypass (Yau Ma Tei Section) also passes through areas of significant heritage and conservation value. Throughout planning and construction, the project team worked closely with stakeholders to safeguard the character and integrity of important local landmarks.**

All images: Arup

New Central Manpower Base (CMPB)

The new Central Manpower Base (CMPB) at Bukit Gombak has won the BCA Project of the Year Award 2025 in the Institutional Buildings category. Developed by MINDEF and Defence Science and Technology Agency (DSTA), this integrated hub brings together all National Service (NS)-related services under one roof.

Officially opened on 14 October 2025, the facility also offers a range of amenities – which are available to the public – such as a food court, jogging trail, football field and exercise corner, among others.

Digital and advanced construction methodologies

To deliver the new CMPB in a safe and productive manner, the project team leveraged advanced technologies and implemented new methodologies, said Pang Lu Kit, programme director (CMPB), Building and Infrastructure Programme Centre at DSTA.

Building information modelling (BIM) and integrated digital delivery (IDD) tools were used to conceptualise, design and build the new CMPB digitally, including the auditorium, state crest and elliptical column fins, before construction work began on site. This eliminated errors and minimised waste of resources due to unnecessary reworks.

Virtual reality (VR) simulations were used to augment the design process, while robots were deployed to install glass facade panels and perform LiDAR scanning. The adoption of digital solutions reduced manpower requirements by close to 30%.

Another highlight is the "suspended complex steel structure auditorium," shared Mr Pang. Dubbed the first of its kind in

ABOVE: **The new CMPB, officially opened on 14 October 2025, brings together all National Service (NS)-related services under one roof. An energy-efficient and environment-friendly facility, the project incorporates various sustainable features.**

LEFT: **The building is supported by elliptical column fins measuring 32-m high and 3-m wide, constructed using patented modular steel joint system. This eliminated the need for extensive temporary supports and sped up the construction process by 20%.**

LEFT: **The state crest and faceted wall panels at the front facade were built using precast glass fibre reinforced concrete (GFRC) panels. Developed by MINDEF and DSTA, this project has won the Building and Construction Authority's (BCA) Project of the Year Award 2025 in the Institutional Buildings category. It has also attained the BCA Green Mark Platinum Super-Low Energy certification.**

BELOW: **The suspended complex steel structure auditorium is a highlight of the project. Dubbed the first of its kind in Singapore, the design optimises space utilisation with a column-free design underneath the structure, which also accommodates a flexible mixed-use event space on the floor below the auditorium.**

BOTTOM: **To deliver the new CMPB in a safe and productive manner, the project team leveraged advanced technologies and implemented new methodologies. For example, robots were deployed to install glass facade panels and perform LiDAR scanning.**

Singapore, the design optimises space utilisation with a column-free design underneath the structure, which also accommodates a flexible mixed-use event space on the floor below the auditorium. The state crest and faceted wall panels at the front facade were built using precast glass fibre reinforced concrete (GFRC) panels, instead of installing massive formwork and casting in-situ.

In addition, the building is supported by elliptical column fins measuring 32-m high and 3-m wide, constructed using patented modular steel joint system. This eliminated the need for extensive temporary supports and sped up the construction process by 20% (equivalent to saving about 544 man-hours).

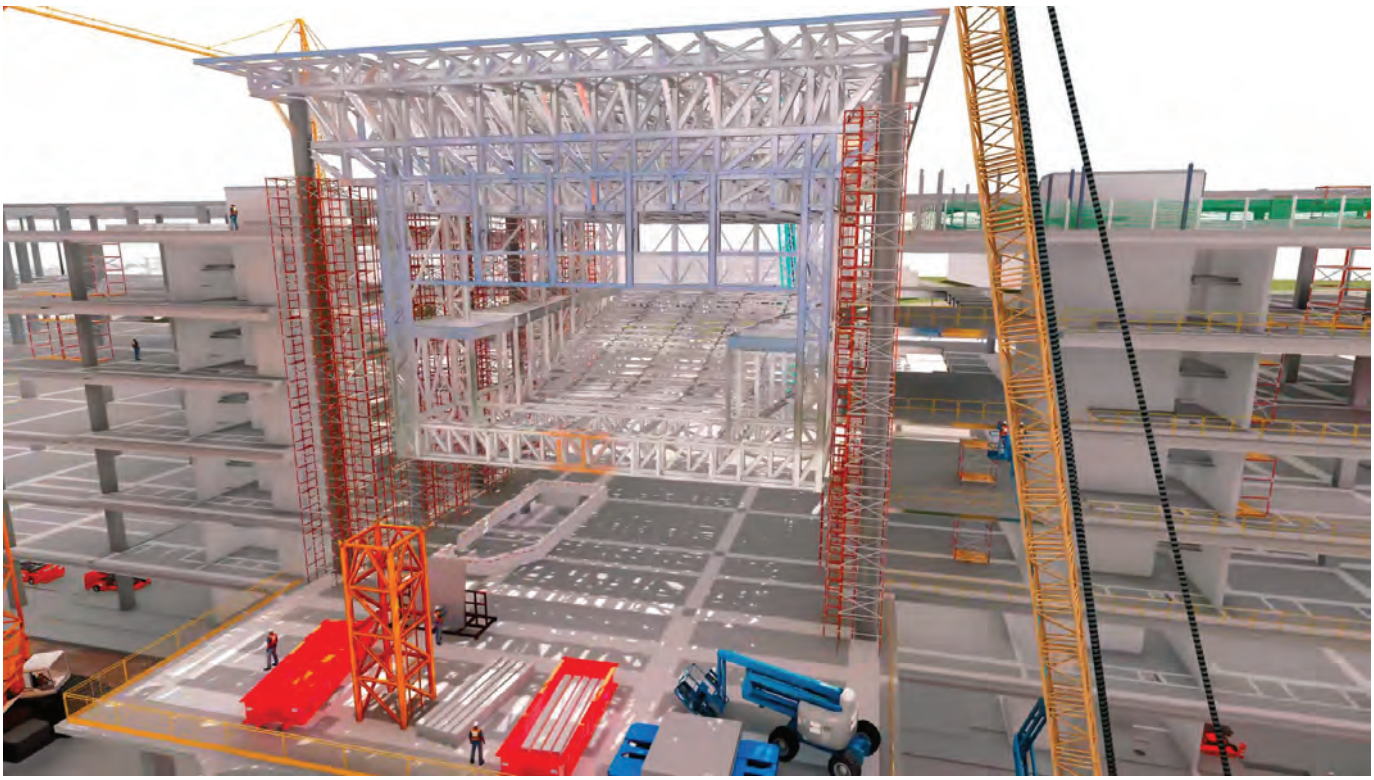
Mr Pang pointed out that the new CMPB was "one of the first institutional projects to adopt BCA's virtual Temporary Occupation Permit (TOP) inspection." The method employed the 360-degree capture technology, resulting in more than 30% savings in man-effort (equivalent to saving about 300 man-hours) compared to traditional on-site inspections.

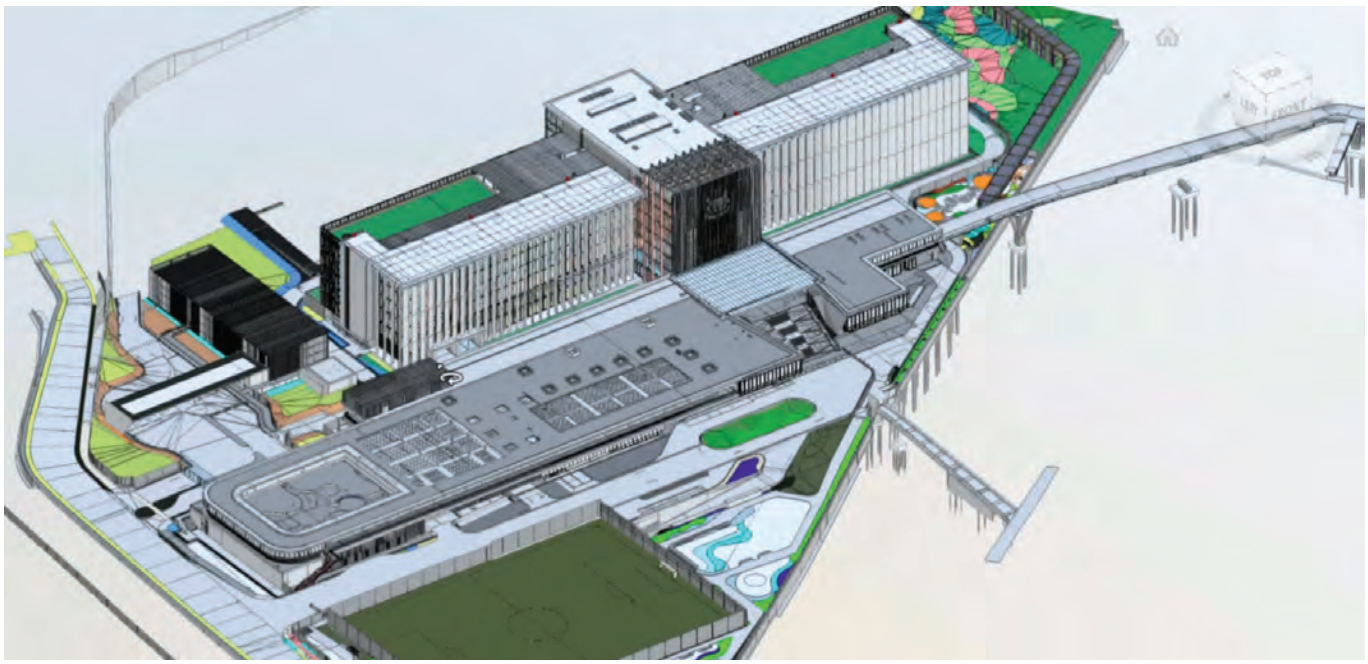
Green facility

Designed as an energy-efficient and environment-friendly facility, the new CMPB incorporates various sustainable features. The project team utilised computational fluid dynamics simulations to determine optimal building placements which allow seasonal winds to flow through between buildings in order to ventilate and cool the place.

RIGHT: **The new CMPB was one of the first institutional projects to adopt BCA's virtual Temporary Occupation Permit (TOP) inspection. The method employed the 360-degree capture technology, resulting in more than 30% savings in man-effort compared to traditional on-site inspections.**

BELOW AND BOTTOM: **Building information modelling (BIM) and integrated digital delivery (IDD) tools were used to conceptualise, design and build the new CMPB digitally, before construction work began on site. This eliminated errors and minimised waste of resources due to unnecessary reworks.**





"The facility also harvests daylight through voids and glazed facade to reduce the need for artificial lighting," said Mr Pang.

The green roof, green facade and solar shading elements further cut down the heat that comes onto the buildings. "The green roof enhances biodiversity, creates visual interest and aids with stormwater attenuation," added Mr Pang.

Highly efficient mechanical & electrical (M&E) systems paired with automated monitoring and control in building management system were implemented, which track consumption and maximise building energy efficiency and performance.

Mr Pang revealed that overall, the project can achieve total energy savings of 7.2 GWh/yr (equivalent to powering 1,650 four-room HDB apartments); total water savings of 24,750 cu m/yr (equivalent to consumption of 135 four-room HDB apartments); and total carbon emissions reduction of 2,970 t/yr (equivalent to planting 119,000 new trees).

For its extensive sustainability efforts, the new CMPB has attained the BCA Green Mark Platinum Super-Low Energy certification. ■

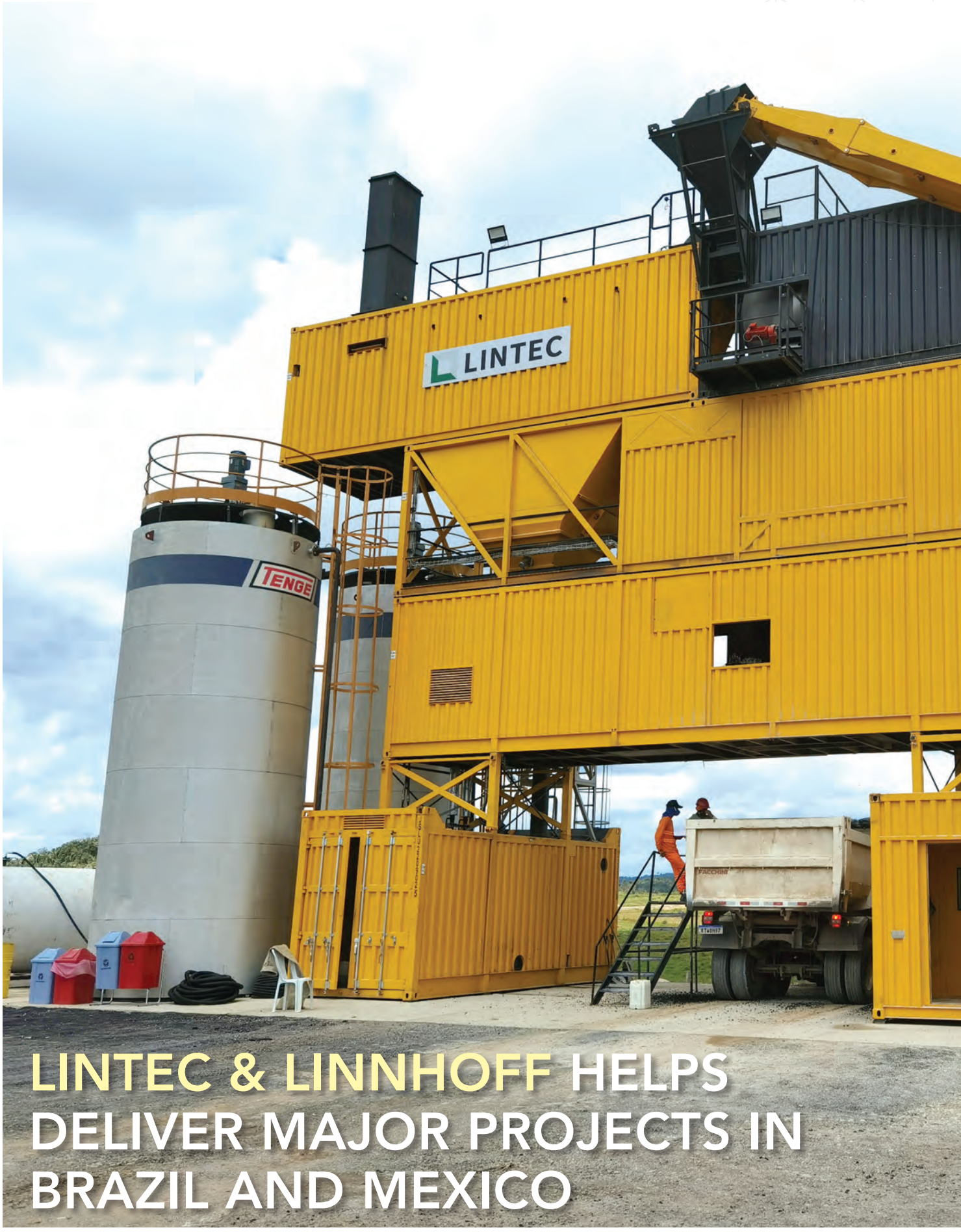
PROJECT TEAM:

Developer: Ministry of Defence / Defence Science and Technology Agency
Builder: Tiong Seng Contractors Pte Ltd
Architect: DP Architects Pte Ltd
Civil & Structural: Meinhardt (Singapore) Pte Ltd
Mechanical & Electrical: Meinhardt (Singapore) Pte Ltd
Quantity Surveyor: AECOM Cost Consulting and Project Management (Singapore) Pte Ltd

TOP: **Virtual reality (VR) simulations were used to augment the design process. The adoption of digital solutions reduced manpower requirements by close to 30%.**

LEFT: **The project team at the BCA Awards ceremony in September 2025. Pang Lu Kit, programme director (CMPB), Building and Infrastructure Programme Centre at DSTA, is seen here (second from right). The event was also attended by Minister for National Development Chee Hong Tat (centre) and BCA CEO Kelvin Wong (second from left).**

All images: DSTA



LINTEC & LINNHOFF HELPS DELIVER MAJOR PROJECTS IN BRAZIL AND MEXICO

The Lintec CSD1500 delivers reliable asphalt production for Brazil's BR-163 highway, a key route powering the nation's agricultural supply chain.

Three Lintec asphalt mixing plants from Lintec & Linnhoff are currently working on key road projects in Brazil and Mexico, providing high-quality asphalt mix.

The BR-163 highway, stretching 3,579 km from Rio Grande do Sul to Pará, is a critical transportation route for Brazil's thriving agricultural sector. To support this essential corridor, two Lintec CSD1500 containerised asphalt mixing plants were deployed to produce consistent, high-quality asphalt.

Chosen by contractor Via Brasil and installed in 2022, the CSD1500 plants offered rapid installation, fuel and transport cost savings, and robust performance in remote areas. With a capacity of 120 t/hr and a 1,650 kg batch size, the plant's ISO-certified, containerised design allowed for easy transport and efficient setup – on compacted soil without a foundation.

Key technologies such as the CSD2500B's double screen drum, which integrates heating and screening into a single process, help reduce fuel consumption, lower maintenance needs and cut emissions, making the solution ideal for environmentally sensitive regions like Pará.

In Mexico, Lintec & Linnhoff is supporting the federal government's ambitious National Road Infrastructure Program, which includes 263 km of road improvements and the construction of new bridges to better connect underserved areas. With a planned investment of M$150 billion, the programme aims to stimulate economic growth and improve mobility nationwide.

The Lintec CDP14000M asphalt mixing plant is at the forefront of this effort. Engineered for rapid deployment and optimal performance, the plant integrates up to 15% reclaimed asphalt pavement (RAP), helping to lower material costs, conserve resources and reduce environmental impact.

Its high-output capabilities, combined with enhanced mobility and quick setup, make the CDP14000M ideal for large-scale projects that require both speed and sustainability. As Mexico intensifies its infrastructure modernisation, Lintec & Linnhoff's technologies are helping deliver greener, more connected outcomes.

Latin America continues to be one of Lintec & Linnhoff's most dynamic and strategic markets. The company's asphalt and concrete plants not only enable faster and more efficient construction, but they

The mobile Lintec CDP14000M asphalt mixing plant supports Mexico's road modernisation programme. The unit features high-output performance with up to 15% RAP for greener, more cost-effective construction.

also help its partners meet ambitious sustainability targets.

This strong reputation is backed by comprehensive customer service and technical support provided before, during and after installation. Designed to minimise environmental impact, many of the company's solutions offer high recyclability, energy efficiency and reduced emissions – core features that align with growing demand for greener construction practices across the region.

The Inter-American Development Bank (IDB) estimates that US$2.22 trillion in infrastructure investments will be required by 2030 to meet the region's development goals. Lintec & Linnhoff's solutions are helping bridge this gap through reliable, high-performance mixing plants that meet evolving industry demands for environmental stewardship and operational excellence.

As Latin America accelerates its infrastructure investments, Lintec & Linnhoff remains committed to supporting the region's ambitions with smart, reliable and sustainable technologies. The company's focus on continuous innovation, sustainability and strong local partnerships ensures that its solutions remain aligned with the region's long-term development goals. ■

Website: www.lintec-linnhoff.com

The Lintec CSD1500's ISO-certified, containerised design ensures fast setup and dependable performance even in remote regions of Brazil.

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Las Vegas Convention Center
January 20-22, 2026

CONEXPO CON / AGG
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March 3-7, 2026

GOMACO®

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GOMACO offers the full range of concrete slipform pavers, curb and gutter machines, trimmers, placer/spreaders, texture/cure machines, and bridge/canal finishing equipment. GOMACO equipment features our exclusive and proprietary G+® control system, created in-house by our software engineers from the wants and needs of contractors paving in the field. At the heart of GOMACO equipment is our passion for concrete and our commitment to our customers. We look forward to visiting with you at Bauma in Munich, Germany, about your upcoming paving projects and your concrete paving equipment needs. Our worldwide distributor network and our corporate team always stand ready to serve and assist you.

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