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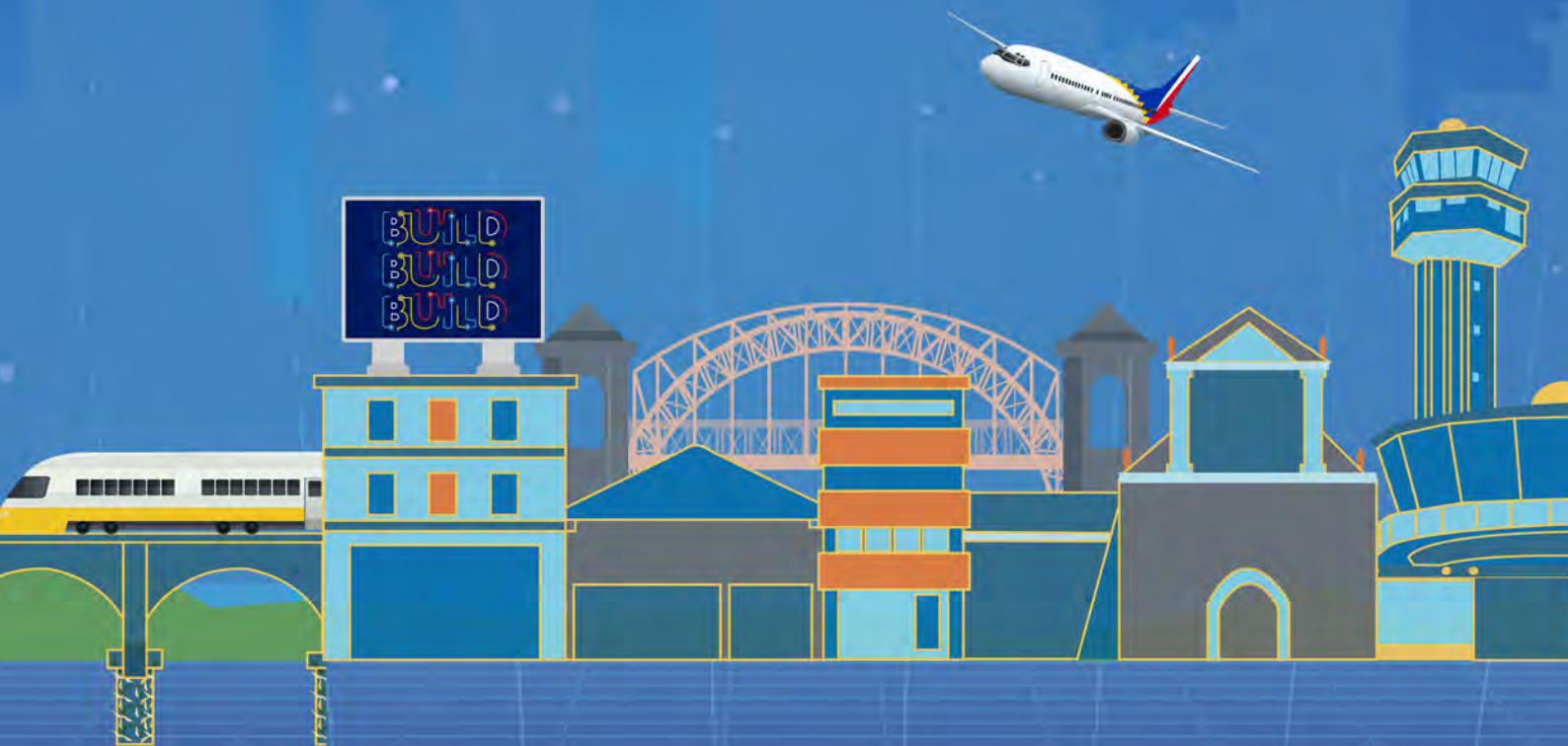
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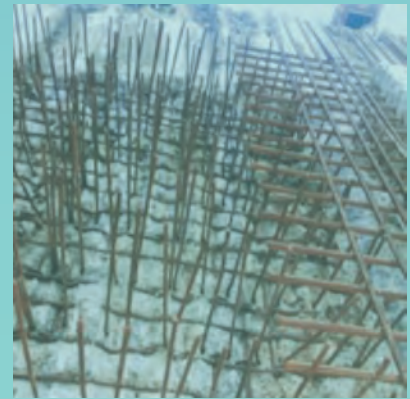
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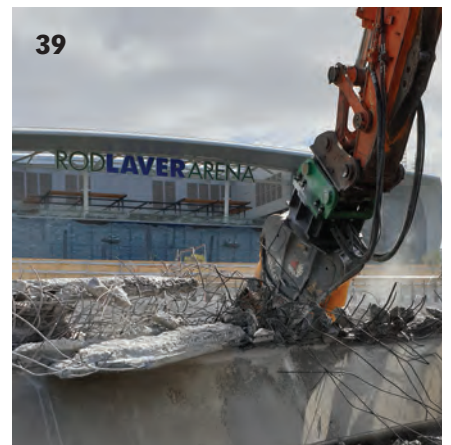
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Arup to help develop Upper Wawa dam for Metro Manila

Arup has been appointed as the owner's engineer for the Upper Wawa dam project in the Philippines. The facility aims to serve as a new water source for Metro Manila, one of the most densely populated urban areas in the world.

Currently fed by the Angat, Ipo and La Mesa dams, drought conditions across the region combined with a growing population have led to difficulties in meeting water needs. As a result, residents have experienced supply issues ranging from low pressure to no water at all.

To help deliver a reliable supply for the ever-expanding population, the Upper Wawa dam is being developed as a new water source. It is planned to start supplying water to Metro Manila by 31 December 2021, with an initial capacity of 80 mil l/day. By 31 December 2025, the dam is expected to be capable of 518 mil l/day, which would be sufficient to cater for around three million people.

Acting as the owner's engineer to the project developer, WawaJVCo, Arup will provide technical support during the bidding period and then oversee the implementation of the two main contracts. Arup will carry out design review services, site supervision and contract management works.

"We look forward to closely working with the team at Arup to deliver this project of critical importance to the East Zone consumers of Metro Manila," said Guillaume Lucci, president of Prime Infra, parent company of WawaJVCo. "The Upper Wawa dam



The existing Wawa dam over the Marikina River in the Philippines, downstream of the future Upper Wawa dam.

will be the largest privately-owned bulk water supply infrastructure in the country."

Adrian Marsden, Arup's associate director commented, "We have been involved in a number of major water projects in the Philippines, from fresh water supply to wastewater treatment and sewerage. With this landmark development, we are delighted to be able to work with WawaJVCo to support the delivery of a new water source, a fundamental part enhancing the water resilience of Metro Manila." ■

GuocoLand secures green loan to build sustainable project in Singapore

GuocoLand Limited, through its indirect subsidiaries, MTG Apartments Pte Ltd and MTG Retail Pte Ltd, has secured a S\$730 million green club loan from OCBC Bank, DBS Bank and ICBC Singapore Branch to build a new luxury residential cum commercial development at Tan Quee Lan Street. This project is a joint venture between GuocoLand and two subsidiaries of Hong Leong Holdings – Intrepid Investments Pte Ltd and Hong Realty (Private) Limited.

In its announcement, GuocoLand said this is the company's first green loan and currently the industry's largest green loan for a development project in Singapore. Proceeds from the loan will go towards financing the project, including the efforts in sustainable development, water and energy conservation, and adoption of immersive urban greenery and landscaping. The project is expected to meet the criteria to receive Green Mark GoldPLUS certification by the Building and Construction Authority (BCA).

The new development at Tan Quee Lan Street, featuring 30 storeys, will be located right above the Bugis mass rapid transit (MRT) interchange station. It will have two residential towers with more than 500 units of luxury apartments, plus a retail podium with food and beverage establishments open to the public. The joint venture was awarded the tender for the 124,116 sq ft land plot in September 2019.

GuocoLand, together with OCBC Bank acting as the sole green financing advisor, developed a green loan framework that provides guidance for the evaluation of the new residential cum commercial development's eligibility as a green project based on its sustainability objectives, as well as the management of the loan proceeds.



GuocoLand's latest residential and commercial development at Tan Quee Lan Street is located above the Bugis MRT station and adjacent to Guoco Midtown.

"Climate change is one of the biggest challenge of our times. Our developments are always conceived, developed and managed with sustainability principles as the foundation," said Cheng Hsing Yao, group managing director of GuocoLand Singapore. "We were one of the first real estate developers to receive the BCA Green Mark Platinum award, and Guoco Tower was one of the earliest integrated developments in Singapore to receive both Green Mark Platinum and LEED Platinum Certifications.

"Our latest projects, Guoco Midtown and Midtown Bay, have been awarded the BCA Green Mark Platinum award this year and we are proud to continue developing buildings that are grounded on sustainability principles in the future, including this new development at Tan Quee Lan Street." ■

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New 3D Singapore Sandbox for geospatial data access

Singapore Land Authority (SLA) recently launched 3D Singapore Sandbox, a first-of-its-kind collaborative environment for technology industry partners and developers. This initiative aims to encourage the use of 3D city models and geospatial data to develop and test new applications and services, which can benefit both the public and private sectors.

The 3D Singapore Sandbox is open to industry partners who wish to leverage on 3D geospatial data to support better decision-making, and to develop smart solutions to drive operational efficiencies and value for business end-users.

“We believe the global geospatial industry is set to undergo a major transformation from 2D to 3D in the coming years,” said Ng Siau Yong, geospatial & data director and chief data officer at SLA. “By making available 3D city models that we have built, as well as other geospatial data through the Sandbox, we hope innovators, entrepreneurs, industry partners and the technology community can develop and test new services and solutions that will add to Singapore’s effort in becoming a smart city.”

The Sandbox provides users with access to SLA’s 3D geospatial data, including 3D models of over 160,000 buildings mapped nationwide in Singapore. Users will also have access to geospatial solutions provided by industry partners - Autodesk, Bentley Systems, Esri Singapore and Hexagon Geospatial. In addition, SLA has collaborated with global data analytics provider LOTADATA to provide access to ‘people movement intelligence’ data for geo-analytics.

SLA has identified businesses in the architecture, real estate, construction and logistics industries as potential first movers. They are encouraged to leverage on the Sandbox to collaborate with industry partners to co-create and develop innovative solutions, which would enhance their business operations and processes. For example, real estate developers could use the Sandbox’s 3D geospatial data, models, and tools to visualise how their new building construction would synergise with the surrounding urban environment to improve overall liveability for the neighbourhood.

The Sandbox is located at GeoWorks, Southeast Asia’s first geospatial industry centre set up by SLA in 2018 to promote business growth, drive innovation and foster a well-connected community of geospatial firms.



Autodesk’s virtual model of Singapore with a wide pool of data allows users to not only explore and conceptualise their infrastructure projects, but also optimise their designs by using flood simulation and dynamic site analysis.



The visibility study conducted on this 3D-rendered building on the ArcGIS platform, from Esri Singapore, allows users to identify the clearest line of sight at each level, gauged by the distance of the furthest visible point.



Bentley Systems’ open and federated workflows enable data sources from various agencies to be integrated, while keeping it in its native file format. The above image shows data from CityGML, GeoTIFF, Shape and DEM files.



The architecture, real estate, construction and logistics industries have been identified as potential first movers. They are being encouraged to leverage on the 3D Singapore Sandbox to collaborate with industry partners.

GeoWorks currently hosts 42 companies - known as GeoMembers - that consist of a combination of geospatial scale-ups and large established geospatial organisations. These GeoMembers come together to share and build expertise, network access, and business opportunities for the whole geospatial industry.

“We are delighted to support the Singapore Land Authority in its ongoing efforts to build a more liveable environment in land-scarce Singapore through digital transformation. With Integrated Digital Delivery (IDD), a key thrust in Singapore’s Construction Industry Transformation Map, I am confident that Autodesk solutions can improve infrastructure planning and design sustainability through better collaboration and workflows,” said Matthew Dewees, ASEAN head of architecture, engineering and construction at Autodesk.

Kaushik Chakraborty, vice president for Southeast Asia and India at Bentley Systems commented, “Bentley systems is pleased and proud to join Singapore Land Authority’s 3D Singapore Sandbox initiative, to collaborate with the infrastructure ecosystem partners in delivering value to the citizens. As a

forward-thinking nation, Singapore has always pushed the boundaries in terms of setting up best-in-class infrastructure across transportation, utilities, housing, etc, to improve the quality of life for its citizens and residents. With our global experience in working with users that design, build, and operate infrastructure, we are looking forward to actively contribute to this initiative.”

“The Singapore Land Authority continues to lead efforts to leverage geospatial technology and practices – to continuously discover and expand space possibilities within the country. As a long-time partner, Esri Singapore is proud to be part of this ongoing collaboration to drive geospatial innovation through the offering of an open and interoperable platform within the 3D Singapore Sandbox. We hope to continue making progress through this enduring partnership towards building geospatial competencies for Singapore’s future,” said Thomas Pramotedham, CEO of Esri Singapore.

Businesses interested to use the 3D Singapore Sandbox should visit the GeoWorks website for more information (www.geoworks.sg). ■



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ECRL gets greenlight for Kota Bharu-Dungun realignment

Malaysia's federal government has given its final approval for the East Coast Rail Link (ECRL) project's Railway Scheme for Section A, paving the way for construction work on the 210.4-km realignment from Kota Bharu, Kelantan to Dungun, Terengganu to commence soon.

Malaysia Rail Link Sdn Bhd (MRL), the project and asset owner of the ECRL, said that it recently received a letter from the Land Public Transport Agency (APAD) highlighting that the proposed realignment to the ECRL Railway Scheme for Section A had been approved by the Minister of Transport.

According to MRL, the approval for the ECRL Railway Scheme for Section A would include, among others, the final alignment route, location of passenger/freight stations, and the number of lots to be under land acquisition for the Kota Bharu-Dungun stretch. In addition, a 14.4-km future spur line is planned to link the ECRL mainline in Kelantan with the port of Tok Bali.

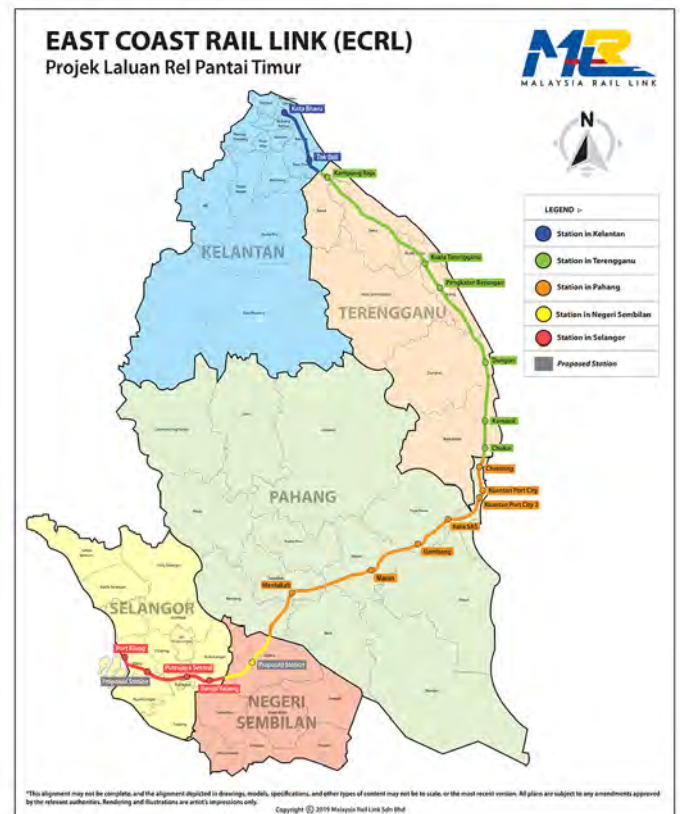
"The ECRL will now have six stations under Section A, consisting of Kota Bharu and Pasir Puteh in Kelantan as well as Jerleh, Bandar Permaisuri, Kuala Terengganu, and Dungun in Terengganu," announced MRL in its statement.

Tan Sri Dr Ismail Bin Haji Bakar, chairman of MRL, pointed out that the federal government's approval for the ECRL Railway Scheme for Section A augurs well with the project's time frame of ensuring preparatory works and earthworks for the Kota-Bharu-Dungun stretch to kick off by mid-2020.

He mentioned that the ECRL Heritage Impact Assessment (HIA) report for Section A as well as the Environmental Impact Assessment (EIA) report for Section A have also received approvals. Meanwhile, the Section A Social Impact Assessment (SIA) report is awaiting approval from the relevant authority.

The 640-km ECRL project is divided into three sections: Section A (Kota Bharu- Dungun), Section B (Dungun-Mentakab), and Section C (Mentakab-Port Klang). The rail infrastructure will traverse the East Coast states of Kelantan, Terengganu, and Pahang before linking with Negeri Sembilan, Selangor, and WP Putrajaya.

On the progress of the ECRL, Dr Ismail said the project's overall completion rate currently stands at 16%, noting that certain construction works such as those involving tunnels and viaducts have since resumed in Section B for several weeks. In mid-April 2020, the Ministry of International Trade and Industry (MITI)



The overall alignment of the East Coast Rail Link (ECRL) network.

had approved the application by ECRL's main contractor, China Communications Construction (ECRL) Sdn Bhd, to operate during the Movement Control Order (MCO) period.

"We view the impact of the Covid-19 pandemic on the progress of the ECRL project to be minimal at this stage, considering that construction works are already back on track," said Dr Ismail, adding that the project's progress was slightly ahead of schedule when the MCO was implemented on 18 March 2020.

Scheduled for completion by December 2026, the ECRL is expected to cut travel time and link Kota Bharu with WP Putrajaya in approximately four hours. ■

Vinci wins contracts to upgrade motorways in Australia

Seymour Whyte, a Vinci Construction subsidiary based in Australia, has won two contracts in Queensland, Australia. The first contract - in a joint venture with John Holland (50:50) - will deliver important flood proofing and congestion-busting upgrades along the Bruce Highway in the Sunshine Coast region, north of Brisbane. This contract, worth A\$185 million, includes works to upgrade interchanges, new road connections, new bridges, and new drainage structures under the highway.

The second contract, totalling A\$97 million, covers the

first package of the M1 Pacific Motorway upgrade - from the Varsity Lakes to Tugun (VL2T) - near the Queensland/New South Wales border. The work involves widening a 2-km section of motorway to three lanes in each direction, as well as the construction of the Gold Coast's first ever Diverging Diamond Interchange at Burleigh Heads. These upgrades, which will incorporate smart motorways technologies, will ease the travel time of more than 90,000 motorists using this section of the Pacific Motorway every day. ■

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Black & Veatch to work on HK sustainable projects

The Drainage Services Department (DSD) of Hong Kong Government has selected Black & Veatch to conduct a three-year investigation into upgrading the Tai Po Sewage Treatment Works (STW). Built inside Tai Po Industrial Estate (TPIE), it is the second largest secondary sewage treatment works in Hong Kong, serving the TPIE, Tai Po, Lam Tsuen and Ting Kok areas.

“Black & Veatch is committed to support our clients, like DSD, through infrastructure lifecycle opportunities. Black & Veatch specialises in the design of integrated wastewater treatment and resource recovery facilities. These facilities effectively achieve environmental protection goals through sustainable treatment, optimum biosolids use and economic value. Our professionals have worked on many advanced STW projects worldwide which required innovative approaches to overcome constraints that are similar to those in Tai Po STW,” explained Andy Kwok, managing director for Black & Veatch Asia North.

One objective of the Tai Po STW upgrade is to increase the capacity of sewage treatment, biosolids management, energy recovery and sewage discharge disposal to support the housing and economic needs of the Tai Po District. Another objective is to provide facilities that receive and digest sludge from the sewage treatment works in eastern New Territories for co-digestion with pre-treated food waste. Featuring a compact design, the upgraded STW is anticipated to accommodate the new regional sludge treatment facilities and future expansion.

Black & Veatch has been tasked to provide review, site investigation, impact assessments and preliminary design for the upgrading of Tai Po STW. Core innovations that will be assessed in this project include: uncertainty-based dynamic process modelling, which enables the use of statistical techniques in combination with process models to evaluate solutions - it provides the ability to right-size process systems and equipment; low-energy solutions, for example biological nutrient removal incorporating sustainable nitrogen removal strategies; and high solids digestion, a compact solution that offers more effective management of high strength feedstocks.

Woody waste recycling plant

In another development, Hong Kong is embarking on a semi-research project to facilitate territory-wide recycling of woody waste material. The Environmental Protection Department (EPD) of Hong Kong Government has appointed Black & Veatch to be the owner's engineer of the city's first pilot plant for woody waste recycling. The facility will have a capacity of 24 t per day and will be constructed in EcoPark, Tuen Mun.

Reducing waste is one of Hong Kong's strategies to optimise resources and reduce landfill disposal, while supporting sustainability. Woody waste recycling is a core element of the city's bio-waste management strategy to divert valuable biomass resource from the landfills.

“Black & Veatch is ready to support Hong Kong's sustainability visions. We have worked with a large number of utilities and government agencies on waste-to-energy projects throughout the world, and many of them involve the conversion of biomass by means of pyrolysis or gasification to energy products,” said Mr Kwok.

James Chan, project director of Black & Veatch Hong Kong added, “The unique aspect of this pilot project is its focus on the production of biochar-type products, which are expected to find sustainable outlets in the Hong Kong market.”

Biochar is similar to charcoal and made by burning biomass in a process called pyrolysis. Biochar improves soil fertility and captures and stores carbon dioxide safely. In addition, the pilot plant project will explore if biochar can be produced to meet higher quality standards for other beneficial uses. For Hong Kong's woody waste recycling plant, the potential feedstock includes used pallets, yard wastes as well as spent bamboo scaffolds.

Black & Veatch Hong Kong is tasked to review the technology, market, environmental and regulatory aspects of the project's proposed biochar plant. The company is responsible for preparing a reference design, assisting in procurement, supervising construction and commissioning, and overseeing the pilot testing. ■

Carmix expands into Australia with new subsidiary

The Italian company Carmix has expanded into Australia with a new subsidiary, Carmix Concrete Pty Ltd. It supplies a complete range of mobile off-road concrete batching plants, self-loading truck mixers, dump trucks and silos, suitable for open-pit and underground mining applications.

The new subsidiary will not only sell and rent machines, but also provide concrete and services. “The goal of Carmix Concrete Pty Ltd is to fill a gap in the Australian market by offering effective and efficient solutions, allowing concrete production directly on site,” said Manuela Galante, Carmix marketing manager.

“Our goal is to strengthen the Carmix brand throughout Australasia (i.e. Australia, New Zealand and the neighbouring islands in the Pacific Ocean), and expand the footprint of our machines in all workplaces, from large cities to remote villages.”

According to Carmix, the Australasian market is the largest market served by the company. As such, there will be two offices controlling the operations of Carmix Concrete Pty Ltd - one is



Carmix 3500 TC mobile concrete batching plant.

located on the east coast and the other on the west coast of Australia, covering the whole country, especially remote inland areas and the surrounding islands. ■

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Gammon awarded major contracts in Hong Kong

Gammon Construction has been awarded the design and build contract for the Artist Square Bridge and relevant modification works for its connection by the West Kowloon Cultural District Authority.

The design of the bridge calls for an iconic arch structure, spanning 73-m across Austin Road West. Gammon said the site presents a number of major constraints - including traffic and pedestrian management and existing utilities - and the company's construction solution will involve assembly of structural modules south of Austin Road and push launching the completed bridge into its final position.

Construction is scheduled to commence in the first half of 2020, with target completion in late 2021. The Artist Square Bridge will provide a direct, round-the-clock, barrier-free connection between the developments above MTR Kowloon Station and Artist Square of West Kowloon Cultural District (the District), including easy access to the new M+ Museum and the existing Art Park and Water Promenade, making the District more accessible and integrated to the nearby transportation hub located at Kowloon Station.

In addition, Gammon has been awarded a HK\$7.2 billion contract by the Airport Authority Hong Kong to construct tunnels and related works for an automatic people mover (APM) and baggage handling system (BHS) at the Hong Kong International Airport (HKIA).

The APM and BHS Tunnels and Related Works (Contract 3802) forms a major part of the Three Runway Systems (3RS) project at the airport, and will facilitate travellers to move between the



An artist's impression of the Artist Square Bridge.

new Third Runway Concourse and the expanded Terminal 2. The scope of work includes combined 1.8-km-long eight-cell tunnel structures for the APM and BHS systems, 19 ancillary buildings, as well as building services and airport systems installations.

Thomas Ho, chief executive of Gammon said, "We are delighted that the Airport Authority Hong Kong has chosen Gammon to deliver this key element of the 3RS works. We bring a highly mechanised approach to the works that includes the use of specialist plant that will allow us to improve productivity. We have also been able to reduce the labour content of the work using innovative temporary works solutions and have chosen designs that support reuse of struts.

"Our modular solutions for 75% of the electrical and mechanical works for the tunnels will mean an increase in activities carried out off site in controlled factory environments for improved end quality of product and safer, more streamlined installation for our workforce."

According to Gammon, the company will adopt an 'Integrated Digital Project Delivery' approach on the contract, for which centralised and shared building information modelling (BIM) will form a key element. Its strength in DfMA will also maximise consistency, efficiency, precision and quality in the project.

Gammon also plans to utilise some of its considerable in-house resources to deliver the project, including Civils and Foundations departments, Gammon E&M, Gammon Concrete, Gammon Plant and Lambeth Associates for temporary works design. Around 1,500 staff and workers are expected to be engaged during the peak construction period. ■

KSK Land launches 8 Conlay in KL

Malaysian lifestyle property developer KSK Land has unveiled its new mixed-use development in the heart of Kuala Lumpur, named 8 Conlay. It features three towers atop four-storey experiential retail space. The three towers consist of a five-star Kempinski hotel and two luxury residential towers created in partnership with the global design group, YOO, called YOO8 serviced by Kempinski. Designed by Malaysian architect Hud Bakar (of RSP Architects), with landscaping by Thai landscape architect Pok Kobkongsa (of TROP Studio), 8 Conlay marks the inaugural development by KSK Land.

KSK Land is a wholly-owned subsidiary of KSK Group Berhad, a Malaysia-based investment holding company. Having an existing presence in the general insurance business across Southeast Asia with KSK Insurance Indonesia and KSK Insurance Thailand, KSK Group has expanded into the property development market in Malaysia with KSK Land. ■



An artist's impression of the 8 Conlay development by KSK Land.

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Surbana Jurong acquires Prostruct Consulting

Surbana Jurong has acquired Prostruct Consulting, one of Singapore's leading urban and infrastructure protection firms specialising in security, blast consultancy and testing. This move augments Surbana Jurong's portfolio of built environment services, which includes solutions to protect buildings and infrastructure against blast and other effects of explosions and weapons.

Iconic buildings and infrastructure that attract high crowd density or provide essential services are typically common targets for terrorist attacks. This underscores the need to incorporate protective security features into the design and development of the built environment. With Prostruct's specialisation in designing blast resistant structural systems, Surbana Jurong can couple it with its existing architectural and civil and structural engineering expertise, and deliver building designs with integrated security measures. The process - dubbed Security by Design - ensures that security measures are effectively incorporated into the building without compromising the design of the building or requiring expensive retrofitting during the later stages of the development life cycle.

Surbana Jurong said this newly acquired specialist capability is timely for the group as the Singapore government has enacted an Infrastructure Protection Act, which requires designated buildings to integrate security measures - such as strengthening against blast effects - into their designs before they are built or renovated. These designs must be assessed by certified security and blast consultants.

Wong Heang Fine, group CEO of Surbana Jurong said, "Prostruct's expertise in blast consultancy complements the group's civil and structural engineering capability and security services, allowing us to safeguard urban and infrastructure projects globally. The combined strengths reinforce Surbana Jurong's commitment to build safe, secure and sustainable spaces for communities to live, work and play in."

Prostruct Consulting has provided blast consultancy for a wide range of projects including industrial, commercial, healthcare, recreation, transportation and defence facilities in the public and private sectors. It is a Singapore Accreditation Council accredited commercial blast testing service provider, and has conducted blast tests to assess the blast resistance of building structures such as door systems and protective structures.

Dr Ang Choon Keat, founder and managing director of Prostruct Consulting commented, "Joining Surbana Jurong enables Prostruct to leverage the group's global presence and multidisciplinary services across the urban and infrastructure development value chain, and extend our reach beyond the Singapore market. Since the acquisition, Prostruct has secured new projects jointly with other disciplines and member companies within the Surbana Jurong Group."

One of Prostruct's innovations is blast resistant roller shutter. It has been designed such that the panels of the shutter do not detach, and are able to withstand the enormous blast pressure and heat from an explosion. Using these shutters prevent flying fragments from detached panels from causing more injury during an explosion. The shutters are easy to operate and can be retrofitted to existing buildings without excessive structural works.

Prostruct has also teamed up with Singapore's Nanyang Technological University and JTC to develop a type of fibre reinforced polymer (FRP) that is ready-to-stick and can be easily



FAR LEFT: Actual installation of blast resistant roller shutter.



LEFT: Fire resistance test for blast resistant roller shutter.



FAR LEFT: Brick wall without fibre reinforced polymer (FRP).



LEFT: Brick wall with FRP.

All images © Prostruct Consulting

applied onto building structures to reinforce and protect them. This innovation is especially useful for the repair and rehabilitation of ageing infrastructure and buildings. Blast tests conducted by Prostruct have demonstrated that FRP is suitable for strengthening any structure against blasts.

Another innovation from Prostruct is crash bollards, which protect the perimeters of buildings as they can withstand high impact from heavy vehicles crashing into them. According to Prostruct, crash tests and simulations of a crash bollard system have proven the resistance of the bollards against crash.

Committing towards net zero carbon buildings by 2025

Surbana Jurong has also signed the World Green Building Council (WorldGBC) Net Zero Carbon Buildings Commitment. This commitment challenges companies, cities, states and regions to reach net zero operating emissions in their global portfolios by 2030, and to advocate for all buildings to be net zero carbon by 2050. A net zero carbon building is highly energy efficient and fully powered from on-site and/or off-site renewable energy sources.

Surbana Jurong is one of 96 global businesses, cities and states that have signed the commitment. The commitment from businesses which are part of this net zero movement is expected to reduce more than 3.3 mil t of carbon emissions collectively.

To act on its commitment to catalyse change, Surbana Jurong will develop and implement a carbon decarbonisation roadmap outlining key actions and milestones to achieve net zero carbon by 2030, and embark on sustainability reporting to demonstrate enhanced energy performance, reduced carbon emissions and progress towards net zero carbon.

Surbana Jurong will also continue to lead and advocate the transition towards net zero carbon buildings through its sustainability and multidisciplinary consultancy services, and test bedding of innovative technologies. The group has worked on net zero energy buildings such as the NUS School of Design and Environment 4, designed by SJ Architecture, and the Mohawk College Joyce Centre for Partnership & Innovation, designed by B+H, a member of the group. ■

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Tadano Oceania opens new head office in Brisbane

Tadano has reaffirmed its commitment to supporting customers across the Oceania region with the opening of a new, purpose-built head office in Brisbane, Australia. Located in the northeastern suburb of Lytton, the A\$10 million facility greatly enhances Tadano's offering to customers within greater Brisbane as well as its operations across Oceania. It also provides customers for the first time with a common location in the city to access both Tadano and Demag parts and service.

"This is an exciting time for the business and for the customers we serve," said Anthony Grosser, managing director of Tadano Oceania. "We were in the process of looking for a larger premises, and the acquisition of Demag in 2019 accelerated the process. Our new head office at Lytton is now the largest dedicated crane repair facility in the southern hemisphere."

The new 14,000 sq m head office significantly improves Tadano Oceania's offering to customers in several key ways. "One major change is that the new location in northeast Brisbane is closer to port facilities and the industrial heart of Brisbane," said Mr Grosser. "It is located off the Port of Brisbane Motorway and so is extremely accessible to customers."

The new facility is also a step-up from Tadano Oceania's previous head office in the suburb of Darra, both in terms of size and services offered. "We now have more than 8,000 sq m of hardstand for the commissioning, repair and reconditioning of cranes, as well as two wash pads – one internal and one external," explained Mr Grosser. "There are 12 fully equipped service bays, meaning customers' needs can be addressed promptly, reducing their downtime."

Other notable features include tilt-panel construction, floor-to-ceiling glazing in the offices, a 10-t gantry crane, an internal service pit, and multiple roller shutters.

Mr Grosser said the site features 3,100 sq m of enclosed space, including offices, training facilities and spare parts and stock storage. Some 1,000 sq m of space has been dedicated to parts alone. While Tadano parts and services have been available on site since the opening on 1 June 2020, the Demag offering will be



ABOVE AND LEFT: Tadano Oceania's new head office in Brisbane, Australia, provides customers with a common location in the city to access both Tadano and Demag parts and service.

phased in throughout July. The Demag parts and service facility was previously at Eagle Farm.

Tadano's customers are not the only ones pleased with the new facility. Staff will benefit from the new head office's proximity to rail transport and its modern ergonomic features, designed to make their working days safer and more comfortable.

Mr Grosser further highlighted that the new facility brings Tadano's total commitment to the region close to A\$20 million since 2010. "This shows just how important Oceania is to Tadano and how committed the company is to the region." ■

Atkins Arup JV wins Hong Kong's Tung Chung Line Extension project

Hong Kong's MTR Corporation has awarded the design consultancy contract for the Tung Chung Line Extension project to Atkins Arup Joint Venture, marking an important step forward in a project that is set to benefit the existing and new population intake in the Tung Chung new town.

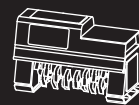
The scope of the consultancy includes development of the scheme into an engineering design, preparation of the construction programme, gazette plans and project cost estimate, and liaison with government departments and other stakeholders. The Atkins Arup Joint Venture will work closely with MTR's projects team to deliver this work.

"The award of this contract is an important milestone for the Tung Chung Line Extension project. This will be a

community railway so throughout the planning, design and construction stages of the project, we will ensure an ongoing dialogue with the local communities," said Roger Bayliss, projects director of MTR Corporation. Other works that have also commenced include ground investigation and a survey of existing utilities.

In April of this year, the Hong Kong Government invited MTR to proceed with the detailed planning and design of the project. The project will incorporate a new Tung Chung East Station, located between the existing Sunny Bay and Tung Chung stations and a new terminal station at Tung Chung West. Construction of the project is targeted to start in 2023, and scheduled to complete in 2029. ■

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New Tremco CPG unites several product brands

Tremco Construction Products Group (CPG) has announced its new formation, bringing together several construction product brands. This move aims to simplify the supply chain process by providing customers with a one-stop-shop for high-performance construction materials for all six sides of the building.

Thanks to the collaboration, a broad portfolio of product brands is now available through Tremco CPG in Asia Pacific. These include: Tremco, Dryvit, Nudura, NewBrick, Willseal, Euclid Chemical, illbruck, Flowcrete, Nullifire and Vandex. With more than 30 years of presence in the region, as well as manufacturing capabilities in South Korea, Malaysia and Australia, the group of brands is well experienced in catering to the local preferences of the diverse markets that are spread across Asia Pacific.

Tremco CPG has positioned itself as a world-leading supplier of complete solutions for the entire building enclosure. From the foundations and floor finishes to the protective roof system and everything in between, construction professionals can effectively design, engineer and construct building structures using products all from a single point of contact. The combined strength of regional support and world-class product technology will provide customers with an understanding of international best practice and deliver quality assurance throughout the stages of the construction process.

Many of the construction solutions from Tremco CPG are developed and manufactured with the Asia Pacific market in mind, with popular European and American technologies being transferred to local production. For example, Tremco's TREMproof 201/60, which has been applied in various large-scale projects in the region, utilises the manufacturing capacity of Tremco CPG's facility in Kuala Lumpur, Malaysia, to provide shorter lead times to customers.

Tremco CPG APAC managing director, Saptak Roy, said, "Tremco CPG's edge over our competitors stems from us being a one-stop construction solution business. This allows members of the building industry to benefit from a single source of sustainable building



ABOVE AND LEFT: A broad portfolio of product brands is now available through Tremco CPG Asia Pacific, including Tremco, Dryvit, Nudura, NewBrick, Willseal, Euclid Chemical, illbruck, Flowcrete, Nullifire and Vandex.

and construction components, thereby eliminating unnecessary time and money. Moreover, our expanding sales support for all technologies into new geographies broadens our ability to service customers wherever they are located in Asia Pacific."

Tremco CPG APAC is a subsidiary of Tremco Inc based in Cleveland, USA, which offers high-performance silicone and urethane joint sealants, waterproofing membranes, drainage protection, air barrier systems, deck coatings, expansion joints, a full line of passive fire protection systems, and the industry's only comprehensive line of glazing systems including silicone sealants, tapes, gaskets, and setting blocks. ■

PUB and Sembcorp sign agreement for Singapore's largest floating solar system

Singapore's national water agency, PUB, and Sembcorp Floating Solar Singapore, a wholly-owned subsidiary of Sembcorp Industries, have signed a 25-year power purchase agreement (PPA) to build a 60 megawatt-peak (MWp) floating solar photovoltaic (PV) system on Tengeh Reservoir. This latest move followed PUB's announcement in February 2020 that it has appointed Sembcorp to design, build, own and operate this project.

When fully operational in 2021, the project aims to be a global showcase of operational excellence and safety as Singapore's largest, as well as one of the world's largest, inland floating solar PV systems. The solar power generated will meet the day-to-day energy needs for operations at PUB's five local waterworks, including Marina Barrage. This would make Singapore one of the few countries in the world to achieve 100% green waterworks when the project is completed, said PUB.

Under the agreement, Sembcorp Floating Solar Singapore

will deploy over 146,000 solar panels at Tengeh Reservoir in Tuas, covering an area of around 45 football fields. At 60 MWp, the floating solar PV system will generate enough energy to power about 16,000 four-room HDB flats for a year and offset about 32 kilotonnes of carbon emissions annually.

Utilising highly efficient PV modules that maximise solar energy yield, the panels would be installed on corrosion-resistant floats that are certified to be of food-grade quality. Prior to deployment, extensive studies have been conducted to ensure that the PV modules pose minimal impact to the environment and water quality.

"With this floating solar power plant, which we believe to be one of the largest in the world, PUB takes a big step towards enduring energy sustainability in water treatment. Solar energy is plentiful, clean and green, and is key to reducing PUB's and also Singapore's carbon footprint," said Ng Joo Hee, chief executive of PUB. ■



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Ahern Companies partners with Trackunit for telematics

Ahern Companies has selected Trackunit as its telematics platform partner. "We conducted an expansive search of more than 14 telematics providers, including a multi-month pilot scheme. At the conclusion of the study, our telematics committee selected Trackunit as our telematics partner," said Don Ahern, CEO and owner of Ahern Companies.

"Our requirements are expansive since we encompass rental, manufacturing and distribution, and we resolved that Trackunit was the best-suited to the needs of our customers. With the integration points to our existing ERP software suites, we expect to be able to recognise the full value of the Trackunit platform across the family of companies."

Ahern Companies includes Ahern Rentals, considered the largest independently-owned rental company in North America, and high reach OEMs, Xtreme Manufacturing and Snorkel, as well as an extensive global distribution network,



Trackunit has been chosen as Ahern Companies' telematics platform partner.

including Diamond A Equipment in the US and Ahern International dealerships in Argentina, Australia, Canada, Chile, Germany, Ireland, Japan and Spain.

Trackunit will be deployed across the Ahern Rentals fleet within the next three years, and new Xtreme and Snorkel lifts will be assembled with a Trackunit compatible connection for customers who wish to install the telematics. This is expected to become

available in late 2020, and rolled out across the global manufacturing footprint by model type with OEM branded dashboards. The Trackunit telematics solution will also be available on products sold through the Ahern Companies distribution channels, including Diamond A Equipment and Ahern International.

Ahern Companies signed the agreement with Trackunit in early May 2020, and is commencing roll-out in the rental fleet with immediate effect. Jeff Cohen, president of Trackunit said, "We are extremely excited to begin this partnership with Ahern Companies at a time of transformation within our industry, as the focus shifts from gathering to utilising data. Ahern Companies' decision to roll-out the telematics solution across their business during this time is testament to their commitment to using data for the long-term benefit of their businesses, their customers, and the industry." ■

New president for Terex AWP

Terex Corporation has announced that John L. Garrison, Jr., chairman and CEO of Terex Corporation, will take on additional responsibilities as president of Terex Aerial Work Platforms (AWP), effective immediately. Matt Fearon, the current AWP president, is leaving the company on 1 August 2020 after 25 years with Terex, AWP and Genie, AWP's flagship brand.



FROM LEFT: John L. Garrison, Jr., Matt Fearon, and Simon A. Meester.

Simon A. Meester, vice president of global sales and marketing administration for AWP, will be promoted to chief operating officer, Terex Aerials. Mr Meester and Clint Weber, general manager of Terex Utilities, the company's other business in the AWP segment, will both report directly to Mr Garrison in his role as president of Terex AWP. The Terex executive leadership team will continue to report to Mr Garrison in his role as chairman and CEO of Terex Corporation.

"We thank Matt Fearon for his many contributions to Terex," said Mr Garrison. "Matt has been a dynamic and much-admired leader who helped Genie grow from a regional brand to a global powerhouse. He arrived as an engineer 25 years ago and went on to key roles including VP operations, VP and managing director of EMEAR, VP and general manager, Americas, and ultimately president of AWP."

Mr Meester joined Terex in 2018 from Eaton Corporation, where he was VP and general manager of the Industrial Control Division. Earlier, he spent 14 years in progressively senior roles at Caterpillar, before becoming president of Sandvik Mining and Construction in India. Mr Meester has managed global teams and operations for 20 years, based in seven countries, including eight years in the United States. ■

Astec Industries to close Telsmith manufacturing facility

Astec Industries will cease all production activity at its Telsmith manufacturing facility located in Mequon, Wisconsin, the US on 14 August 2020, as part of its decision to close Telsmith.

The closing of Telsmith will occur in phases starting 14 August 2020 and ending 31 March 2021, when the Telsmith facility will be permanently closed. According to Astec, this move aims to simplify and focus business units and develop product lines on a company-wide basis, as well as to maximise efficiencies within the Materials Solutions group, consolidate operations, and to become more flexible in production capabilities to meet customers' demands.

"Our decision to close Telsmith was not an easy one, but we feel it is necessary for the continued growth of Astec. We are incredibly proud of the strong brand and innovative products we have built with Telsmith, and I want to assure our customers that we will continue to grow the brand," said Barry Ruffalo, president and CEO of Astec Industries.

The Telsmith product lines will continue to be developed and manufactured at other Astec locations. Customers will still be able to purchase new equipment and continue to be supported with parts and service through the Astec direct and dealer channels. ■



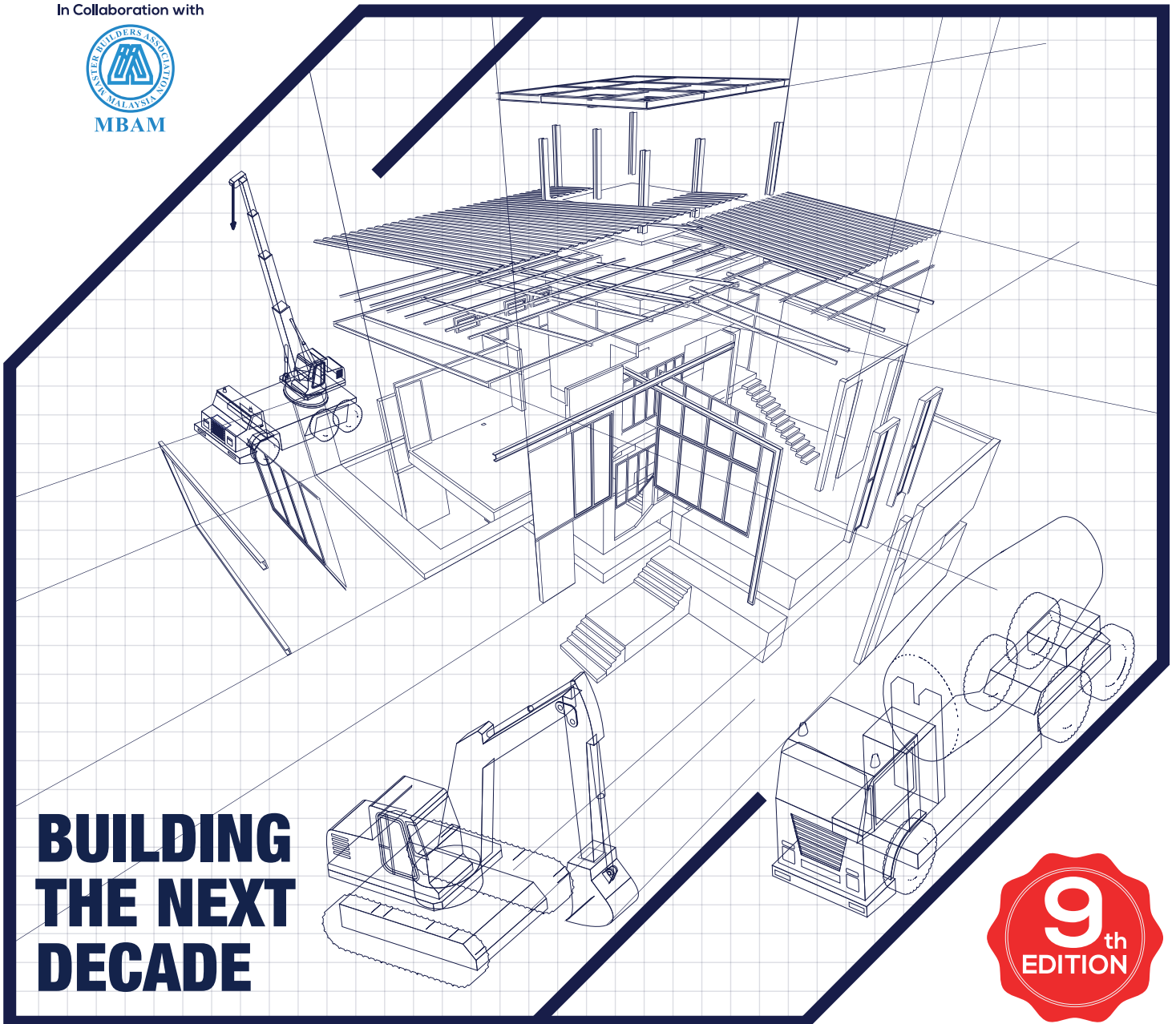
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Date	Events outside Asia	Organiser & Contact
19 to 22 Jan 2021	World of Concrete 2020 Las Vegas Convention Centre Las Vegas, Nevada USA	Informa Exhibitions Tel: +1 972 536 6368 Email: contactus@worldofconcrete.com Website: www.worldofconcrete.com
25 to 28 May 2021	Bauma CTT Russia 2020 Crocus Expo International Exhibition Centre Moscow Russia	Messe München Tel: +49 89 949 20251 Email: info@bauma-ctt.com Website: www.bauma-ctt.ru/en
22 to 24 Jun 2021	Hillhead 2021 Hillhead Quarry Buxton, Derbyshire, England United Kingdom	The QMJ Group Ltd Tel: +44 115 945 4367 Email: hillhead@qmj.co.uk Website: www.hillhead.com

Note: The show organisers may change the dates of the event or postpone/cancel it without prior notice, so readers are advised to visit the show websites regularly for the latest information.



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bauma Conexpo India gathers construction sector online

On 23 April 2020, bauma Conexpo India conducted its first exclusive webinar on 'Dealing with current challenges & determining the way forward for business continuity.' Drawing over 1,500 delegates, this online event focused on the Indian infrastructure sector and the strategies of OEMs under the shadow of the Covid-19 pandemic.

The webinar was organised in association with the show's official media partner - NBM&CW - and moderated by Rajesh Nath, managing director of VDMA India. The panel members consisted of local industry leaders and experts, including: Arvind Garg, chairman of bauma Conexpo India - task force, and also EVP and head of construction and mining machinery at Larsen & Toubro Ltd; Dimitrov Krishnan, managing director of Volvo CE India Pvt Ltd; Deepak Garg, managing director of Sany Heavy Industries India Pvt Ltd; V G Sakthikumar, managing director of Schwing Stetter India Pvt Ltd; and D.K. Vyas, managing director of Srei Equipment Finance Ltd.

The welcome note was delivered by Bhupinder Singh, CEO of bC Expo India Pvt Ltd, raising the pressing issue of the severely impacted economy due to the pandemic, the consequent lockdown, and how the government can revive the economy by accelerating infrastructure projects. Mr Arvind Garg weighed in, "With activities on 70% of National Highways Authority of India (NHAI) projects being restarted, as well as road building activity to be increased to 60 km per day along with various other projects, I believe that the government understands that the best way to boost the economy is by kickstarting infrastructure projects in a big way."

The webinar also covered the important topic of pooling of idle equipment, strengthening rental companies, and flexible financing through non-bank financial companies (NBFCs). It emphasised the need to ensure that such arrangements serve as a win-win proposition for both buyers and OEMs who are facing a liquidity crunch. The predominant opinion in this matter remained that corporate social responsibility (CSR) activity has proven to become more than just a regulatory requirement and needs to be part of day-to-day business. Mr Vyas pointed out, "It is evident that there will be a shift in customer behaviour and hence, it has become crucial to create an eco-system that starts providing services such as renting. The rental business releases plenty of capital in the system, and going forward the industry needs to capitalise on renting opportunities."

The discussion also centred around MSME and SME sectors, and whether the OEMs can support the burgeoning sector. "The biggest challenge the MSME sector faces today is cash flow. It is the need of the hour for the OEMs to have a sympathetic outlook towards this sector, find ways and means to provide them with liquidity support," said Mr Krishnan. "Communication is critical and as OEMs, we are deeply engaging with the MSME industries in this crucial time."

The pandemic has resulted in disruptions of the supply chain. The webinar further highlighted how construction and mining equipment manufacturers are handling this disruption. Mr Sakthikumar emphasised the fact that the viable option right now is, "to support Indian manufacturers. It will not only support the MSME sector but also prove to be much more economical." Mr Garg also confirmed that higher levels of localisation can be expected in the near future.

Another point discussed was the three-month moratorium that has been extended by the Reserve Bank of India (RBI), which may



Members of the panel at the first bauma Conexpo India webinar, which took place in April 2020.

impact the participation of NBFCs in the construction equipment sector. Mr Vyas provided insights on this subject, mentioning that he is seeing NBFCs being supported by RBI, which will help maintain funding for the sector.

In addition, the webinar generated insights on the Troubled Asset Relief Program, a modular approach to boost productivity in the infrastructure sector. The event then concluded with panellists discussing an effective post-Covid-19 approach to boost employment, productivity, and ROI in the long run.

Linking the industry and government

The second bauma Conexpo India webinar took place on 15 May 2020, drawing over 2,419 delegates. It was brought together by bC Expo India Pvt Ltd and Indian Construction Equipment Manufacturers Association (iCEMA), focusing on the topic 'Business continuity for infrastructure development projects and construction equipment industry'. General (Dr) Vijay Kumar Singh (Retd.), India's Minister of State for Road Transport and Highways, was the chief guest at this online event.

The panel members included some leaders and experts from the first webinar - Mr Arvind Garg, Mr Deepak Garg, Mr Vyas, and Mr V G Sakthikumar - as well as Sandeep Singh, managing director of Tata Hitachi Construction Machinery and president of iCEMA; and Sorab Agarwal, executive director of Action Construction Equipment Ltd. The webinar was once again moderated by Mr Nath.

General (Dr) Vijay Kumar Singh (Retd.) shared his insights on the current industry situation, in light of Covid-19 and stressed on the importance of strategising. "This is an opportunity to critically re-examine, rethink and put up proposals to people that can bring about change; since the way we do business in the future will surely change." He also shed light on steps taken by the government by asserting that "measures have been taken by the government to ensure the flow of liquidity. As of today, we have already started 1,119 projects. The government is also trying to rationalise and streamline procedures and is moving towards digitalisation."

Moreover, iCEMA underlined the importance of the recent stimulus package in creating demand and the National Infrastructure Pipeline of Rs. 102 lakh crore announced by the government to boost infrastructure growth.

This year's bauma Conexpo India is scheduled to take place from 3 to 6 November 2020 in Gurugram, Delhi, covering an exhibition area of 195,000 sq m. ■

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IPAF guidance for safe working to minimise virus risk

Guidance has been issued by the International Powered Access Federation (IPAF) to assist those using mobile elevating work platforms (MEWPs), mast-climbing working platforms (MCWPs), construction lifts and hoists to work safely and minimise the risk of spreading coronavirus.

The new document has been developed and reviewed by IPAF's safety experts and members with specialist knowledge of health & safety best practice. It is centred on a hierarchy of risk, with guidance on how to mitigate possible exposure to the virus to help protect employees, colleagues, customers and users of powered access equipment. At all times the latest government advice should be adhered to.

The hierarchy is ranked from eliminating risk entirely, through reducing risk, isolating users from risk and controlling risk to protecting against risk through use of personal protective equipment (PPE).

Peter Douglas, IPAF's CEO and managing director said, "Governments and economies are currently looking to ease some of the restrictions imposed to halt the first wave of infections, but we appreciate it will not just be back to 'business as usual' while the risk of contracting this virus



remains heightened. Therefore, we have issued what we feel is a comprehensive set of guidelines for operating safely in light of this elevated risk, with sensible advice about how to identify risk, maintain social distancing and workplace hygiene, and use of additional PPE.

"While back-office staff may be able to work remotely and IPAF training candidates can take some or all of their course via eLearning, there is guidance for IPAF training centres on how to maintain social distancing for those who must attend in person, for instance to complete a practical assessment to obtain or renew a PAL Card.

"On construction sites, enhanced risk assessment, cleansing of machines, use of additional PPE such as face masks and visors, and using extra machines to allow a 'one operator per platform' rule to maintain social distancing are all

recommended. If contractors need to hire additional machines, it's important to only ask trained and familiarised operators to use the equipment and for work to be adequately supervised.

"Never ask someone who isn't properly trained to use a MEWP, MCWP, lift or hoist, and always ensure you have the right machine for the job. These basic principles have not changed. Likewise, powered access equipment should be provided in a safe working condition and subject to correct inspection, maintenance and thorough examination at all times.

"Work should be supervised to ensure best practice is being observed, and it is recommended supervisors or managers should also be trained, for instance using IPAF's MEWPs for Managers training, which can be conducted wholly via eLearning."

Mr Douglas further stressed, "Powered access equipment is key to conducting work at height safely; the services our members provide are of vital importance on construction sites, maintenance and infrastructure projects around the world. If powered access firms can't do this work, projects will be hampered and safety while working at height could be compromised." ■

IPAF adds facial recognition to online operator theory module

IPAF has modified its eLearning operator theory module to include facial recognition technology currently deployed as a security measure on its MEWPs for Managers eLearning course. By utilising the camera on the candidate's device or computer, it ensures only the trainee under assessment is able to undergo the eLearning.

This extra security is intended to give all IPAF-approved training centres additional flexibility and confidence to offer distance learning as an alternative to sessions in the classroom, where maintaining distance between trainees and the instructor might be more difficult.

IPAF-approved training centres are being given the option of moving the theory element of their MEWP operator courses to online-only eLearning, increasing the number of practical assessments they are able to carry out in a day and reducing the need for candidates to congregate



in classrooms – a sensible precaution to reduce the risk from coronavirus.

Candidates can complete the theory element of their training online, which provides an alternative to face-to-face instruction and allows training centres to focus more on the practical element and assessment if they so wish. These can usually be conducted in well-ventilated depots and outdoor compounds, to allow physical distancing and help comply with risk management measures.

IPAF's training matrix has also been

amended to allow training centres to conduct 12 practical assessments per day, up from a maximum of eight previously for candidates who have successfully completed the eLearning theory module.

Giles Councill, IPAF's director of operations said, "We have seen how effective the facial recognition technology is, as it has been used in our revamped MEWPs for Managers course since the beginning of 2019. It was a logical step to integrate this additional security measure into the existing IPAF operator theory eLearning module.

"The changes will allow our test centres to operate more flexibly while getting to grips with new ways of working to manage risks posed by coronavirus. We hope the changes will help IPAF test centres deal with any training backlog they may have in helping people gain or renew their PAL Card." ■



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Haulotte expands vertical mast range with Star 6 Crawler

The new electric rough-terrain Star 6 Crawler vertical mast from Haulotte offers excellent terrain capabilities, providing easy access to all jobsites. It can be used both indoor and outdoor, up to a 6 m working height. The machine is ideal for various applications such as maintenance, finishing and landscaping works.

The crawling system not only enables the mast to go over the roughest terrains, but also significantly reduces the ground pressure, which is essential when driving on sensitive floors. The machine can get over unstable, wet or uneven grounds and cross slopes up to 25%. A mobile axis on the intermediate oscillating rollers provides an optimal ground adherence.

The machine can elevate inside and outside on any kind of flat surface. It is particularly suited for working on fragile floors, due to its low ground pressure. Load capacity is up to 200 kg, allowing two operators to work indoors. For better comfort and efficiency, a 40 cm basket extension offers an extra outreach. The AC motors deliver high torque and great manoeuvrability. With a narrow turning radius, operators can manoeuvre in highly confined spaces.

For the platform, a non-skid step integrated into the machine's design and a swing door entry gate allow for a safe entry. The vibration-proof rubber buffers under the platform ensure a smooth lowering. The ergonomic control box gathers all commands together, so that they are all accessible with one hand. For maximum flexibility, the Star 6 Crawler can be lifted lengthwise during transport phases, thanks to its forklift pockets.

All components are protected against water projections and are easily accessible in order to facilitate the maintenance of the machine. The Star 6 Crawler is equipped with AGM batteries and asynchronous motors, which require no regular maintenance. The machine's simple design with no chain and no cable minimises risks of breakage. The tracks and charger plug are also protected from shocks as they are located inside the chassis frame. To save time in troubleshooting, operators can access to the Activ'Screen display and functions, thanks to the Haulotte Diag app.

According to Haulotte, the Star 6 Crawler is available for pre-order now, and will be available for sale in the second half of 2020 in Europe and Asia Pacific countries (except Russia). ■

Website: www.haulotte.com



ABOVE AND LEFT: The new Haulotte Star 6 Crawler vertical mast offers excellent terrain capabilities, providing easy access to all jobsites. It has a load capacity of up to 200 kg.

BELOW AND BELOW LEFT: The Star 6 Crawler can be used both indoor and outdoor, up to a 6 m working height.



Sandvik Peak Screening solution for better productivity

Peak Screening is a complete screening solution from Sandvik Mining and Rock Technology, including the right screen, screening media, and warranty/service programme for any budget or need. It is designed to maximise the full potential of the customer's screening operation.

Sandvik screening equipment, screening media and services are designed to work optimally with each other and ensure the screening operation is as productive as it can possibly be. The customers will also benefit from having ongoing access to experienced Sandvik specialists who can help with the right configuration, optimisation, troubleshooting, and much more.

"Peak Screening shows our understanding of customers' productivity needs, and commitment to solving their challenges in unconventional, industry-first ways. We want to help customers benefit from the competitive advantage Peak Screening can provide, while establishing it as the defining screening performance standard of our industry," said Mats Dahlberg, vice president of lifecycle service for stationary crushing and screening at Sandvik.

Sandvik has also introduced three new ranges of modular screens that are more versatile and reliable, faster to get on-site, and safer to operate. They feature a maintenance-friendly design, and come with high quality screening media as standard – including Sandvik exclusive options such as the WX6500 tensioned rubber screening media.

According to Sandvik, the WX6500 offers up to 15 times longer wear life than standard wire mesh, but with the same screening accuracy for better productivity and uptime.

In addition, Sandvik provides a reliability and performance (R&P) package that consists of a two-year extended equipment warranty, regular inspections, maintenance recommendations, troubleshooting and performance analyses that can help optimise service intervals and avoid costly breakdowns. ■

Website: www.rocktechnology.sandvik/peakscreening



The Peak Screening solution from Sandvik aims to ensure that the customer's screening operation is highly productive.

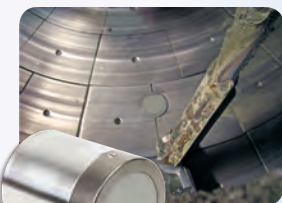


Sandvik has also introduced three new ranges of modular screens that are more versatile, reliable and safer.

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Ammann asphalt plants help expand roads in Asia

An Ammann ABA 240 UniBatch asphalt plant has helped build a new road infrastructure for the Way Kambas National Park in Indonesia, while minimising the project's environmental impact.

Located in the Lampung province, Way Kambas is home to Sumatran tigers, elephants, rhinoceroses and rare birds. The park also attracts many visitors, who provide the funds needed to preserve the rare wildlife.

The roads that support the tourism - which in turn enables the retention of the sensitive habitat - were in need of replacement and expansion. Local company PT. Usaha Remaja Mandiri opted for the Ammann ABA 240 UniBatch plant to produce asphalt mix for the project.

According to Ammann, the ABA UniBatch is the highest capacity plant operating in Indonesia. It is the first unit with a 3.3-t mixer, offering an output capacity of 210 t/hr - this is essential as the mix had to cover around 500,000 sq m of area.

The plant provides many environmental benefits for PT. Usaha Remaja Mandiri. For one, it was equipped with sensors that alerted operators to potential issues early, improving efficiency and safety. Only white steam was visible from the chimney. "There was no dust," said an operator.

Another highlight is that the mix from the plant retained heat for long periods. Only about 5° C was lost during two to three hours of transport. This heat retention enabled the mix to be produced at lower temperatures, reducing fuel burn and emissions.

Fuel efficiency was reportedly exceptional, and one of the operators also praised the ease of control. "The plant is very user friendly, and the automatic settings are very accurate," he said.

Way Kambas is one of about 50 ASEAN Heritage Parks worldwide. The goal of such designated parks is to preserve particularly sensitive areas of biodiversity. The park is focused on saving the critically endangered birds and animals that reside there.

"The use of the ABA UniBatch and its baghouse filter enabled the plant to work without dust," said Hengki Widodo, president director at PT. Usaha Remaja Mandiri. "The hot-mix product from the ABA UniBatch is cleaner, and the quality is better. The mix even looks different - it looks more shiny."

In China, local contractor Xingtai Road & Bridge Co has utilised an Ammann ABP 400 Universal asphalt plant to produce mix for the reconstruction and expansion of the Xinjiang Wukui Expressway, a key component of the Belt and Road Initiative - a global development strategy adopted by the Chinese government.

Ammann said the ABP 400 Universal was its first plant sold to Xingtai Road & Bridge. The unit's green features, including a fumes mitigation system, were believed to be key drivers of the purchase.

"The Ammann ABP 400 Universal is the largest and most environmentally friendly plant in Northwest China," said Qingyu Li, manager at Xingtai Road & Bridge. Other environmental benefits of the plant include reduced sound and dust levels and an ability to utilise recyclables.

The focus on sustainable production has become a cornerstone of Xingtai Road & Bridge's business. "It helped us build our brand awareness in the Xingtai region," said Mr Li. "Furthermore, we won a bid in the southeast coastal area, which is highly regulated for environmental protection. The Ammann plant and the success on the expressway were key to being considered for the project."

The Xinjiang Wukui Expressway, a crucial link to Kazakhstan and Europe, was said to be a high-profile project that drew plenty of



Ammann ABA 240 UniBatch asphalt plant has played a role in building a new road infrastructure for the Way Kambas National Park in Indonesia (above), while the ABP 400 Universal asphalt plant has been involved in the reconstruction and expansion of the Xinjiang Wukui Expressway in China.



attention. The Xinjiang region connects China to its neighbours, and is considered the western gateway to the Middle East and Europe. It is also rich in resources - yet sparsely populated. Roadbuilding here has been slow to occur, but now is moving forward and proving vital to the region.

It is quite challenging to pave the area due to its cold winters, and this makes it all the more urgent to maximise production in the months when the weather is favourable. "Thousands of kilometres of expressway construction need to be built in the short summers," said Mr Li. As such, Xingtai Road & Bridge operated the plant near or at its capacity of 400 t/hr during that time.

Mr Li continued, "The project required a plant that was consistent and produced mix at the highest possible output. The ABP 400 Universal did this and completed the project ahead of time."

Quality was also important, and the plant delivered on this front as well. "The quality of the mix and the finished product are excellent," noted Mr Li. "The plant was also able to provide mix to other customers, providing even more profitability."

Ammann added that Xingtai Road & Bridge has been so happy with the ABP Universal plant that it purchased another model - the ABA 320 UniBatch. The unit will soon be installed on a project, featuring a highly efficient drying and heating process that conserves energy and ultimately reduces costs. ■

Website: www.ammann.com

Indeco hard at work at sports facilities in Australia

The Kooyong Tennis Club and Rod Laver Arena in Australia recently underwent some restructuring – with the help of Indeco equipment. Both jobs were carried out by City Circle Demolition & Excavation, one of the country's largest demolition companies.

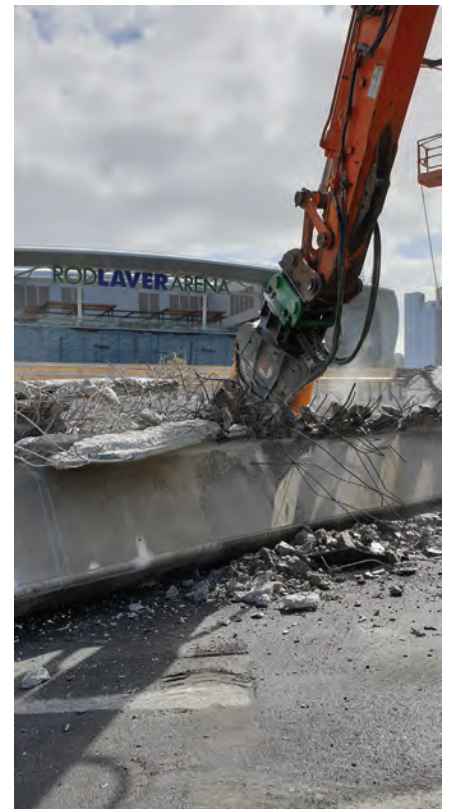
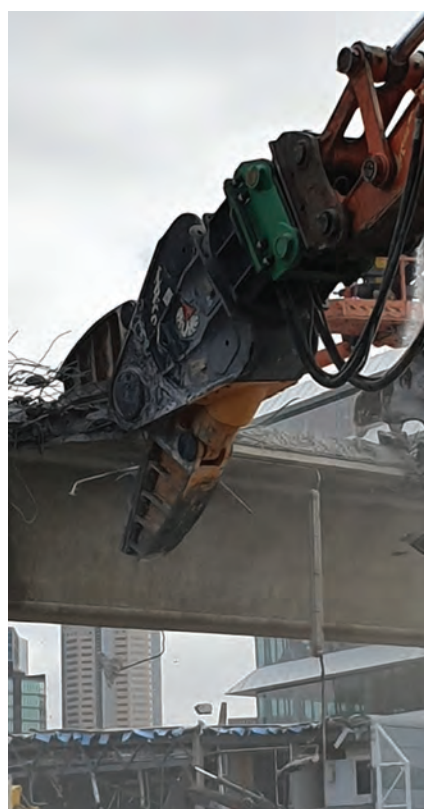
The refurbishment of the Kooyong Lawn Tennis Club aimed to improve the facilities for members, such as extending the club house and building a new multi-storey car park. The job lasted around two months, using various Indeco hammers and an IRP 29 X for the demolition side, while an IMG 2300 and an IMG 2800 were deployed for material handling and sorting.

The modernisation of the Rod Laver Arena is one stage in the Melbourne Park redevelopment project, for which the federal government has set aside A\$972 million. The redevelopment will breathe new life into Rod Laver Arena, delivering improved amenities.

For the Rod Laver Arena project, the demolition and renovation works on five different floors will likely take a total of five years so as to enable various sports events, the Australian Open, concerts and other entertainment events to be held throughout. With this ambitious project, City Circle required reliable, productive equipment such as Indeco hammers of various sizes, ISS shears, IMG multigrabs and the IMP 45 for demolishing some concrete suspension bridges.

City Circle Demolition & Excavation is a customer of Indeco Australia, which owns a number of Indeco products in its fleet, including shears, multiprocessors, multigrabs, pulverizers and hammers from the HP 150 to the HP 7000. ■

Website: www.indeco.it



TOP: Indeco equipment has been used for the refurbishment of the Kooyong Lawn Tennis Club, including several hammers and an IRP 29 X for the demolition side, while an IMG 2300 and an IMG 2800 were deployed for material handling and sorting.

MIDDLE, RIGHT AND FAR RIGHT: Indeco equipment also joined the modernisation of the Rod Laver Arena. It comprised hammers of various sizes, ISS shears, IMG multigrabs and an IMP 45 for demolishing some concrete suspension bridges.

Cat 950 GC makes job efficient for ASAS Bina Enterprise

Malaysian company ASAS Bina Enterprise Sdn Bhd has been using the Cat 950 GC wheel loader to help carry out its work. "We found that it's compact and suitable for our use," said Mohamad Haiqal bin Ramli, project manager at the company.

Operating in the construction business industry for 10 years, with 60 employees at four different sites (Teluk Muruh, Lumut Port, Kampung Baru, and Teluk Senangin), Mr Ramli said that Cat machines "are more efficient and have lower maintenance compared with other brands, which brings us higher profits. In total, we currently own 20 heavy equipment, and four of these are from Caterpillar. We were planning and finally decided to buy the Cat 950 GC."

The Cat 950 GC wheel loader allows customers to achieve greater productivity and do more with less fuel. The Z-bar linkage geometry with performance series buckets offer excellent penetration into the pile and high breakout forces. Combined with best-in-class standard dump clearance, this leads to low fuel consumption and exceptional production capabilities.

The load sensing pilot hydraulic system produces flow and pressure for the implement system only when needed, improving machine productivity and resulting in lower fuel consumption. The electronically controlled, hydraulically driven variable speed fan adjusts to meet the varying cooling requirements of the machine. This results in a reduced average fan speed, lowering fuel consumption, noise levels and radiator plugging.

"It is very good in terms of safety, handling and cabin comfort. It is very easy to maintain, just greasing every day is needed," said Syarifuddin, the wheel loader operator.

The Cat 950 GC has ladders on both sides of the machine for easy access to the platforms, and the platforms are equipped with guard and handrails for safe access to the cab. The spacious cab features easy, intuitive controls and excellent visibility, which provides a comfortable working environment for efficient all-day operation. The extended windows are wide, flat, and distortion-free front windshield and spot mirrors offer unmatched visibility.

Maintenance is also simple for the Cat 950 GC. Grease fittings for hard-to-reach components are grouped conveniently and at ground level for easy and quick preventive lubrication. Hydraulic and electrical service centres provide convenient access to numerous maintenance and service points, enhancing convenience for operators and service technicians.

The Cat 950 GC also comes with Fuel Guarantee and Customer Value Agreement (CVA) services. As part of hassle-free ownership, Caterpillar offers a single monthly payment for maintenance along with machine at point of sale, providing one monthly payment for all customer needs with Cat Financial.

For hassle-free maintenance, Cat genuine parts and fluids would be delivered on time (as per recommended service interval) at the customer's location of choice. Dealers would also customise additional service modules, operator training modules and safety modules to develop a hassle-free maintenance environment for the customer's machine.

As part of security of expert dealer support, one constant that customers would always get with the CVA offering is a two-year extended protection plan (EPP). For peace of mind from equipment health management, it features easy access to asset information via machine alerts and the Cat app. TA1 inspections and fluid health and asset monitoring would be a mandatory portion of



ABOVE AND LEFT: ASAS Bina Enterprise has selected the Cat 950 GC wheel loader to help carry out its work.

BELOW: The Cat 950 GC's Z-bar linkage geometry with performance series buckets offer excellent penetration into the pile and high breakout forces. Combined with best-in-class standard dump clearance, this results in low fuel consumption and exceptional production capabilities.



the customer's CVA to help them provide all the information and recommendation on the machine and performance.

Caterpillar added that Fuel Consumption Guarantee is also offered on the Cat 950 GC. If the machine burns more than the fuel consumption threshold on an average, the company will pay back the additional fuel cost. ■

Website: www.caterpillar.com



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Revitalisation of The Mills

Textile was one of the major industries in Hong Kong between the 1950s and 1980s, comprising spinning, weaving, dyeing and garment manufacturing. At its peak, the industry reportedly employed more than half of Hong Kong's total workforce, and contributed as much as 30% of the city's GDP.

Established as a small factory in Tsuen Wan in 1954, Nan Fung Textiles factory expanded its operations rapidly. A series of cotton mills (No. 1 to 6) were built in the 1960s and early 1970s, when the textile industry reached its peak. Since 1980s, however, the industry started to decline and Nan Fung moved into property development, investment services and social initiatives. Then the mills ceased operations - Mills 1, 2 and 3 were knocked down in the 1980s, while Mills 4, 5 and 6 were turned into warehouses in 2008.

In 2014, Nan Fung celebrated its 60th anniversary and launched The Mills revitalisation project. This was inspired by the desire to preserve its roots in Tsuen Wan while giving new life to Mills 4, 5 and 6. The ultimate goal of the project was to transform and revitalise The Mills into a destination for innovation, culture and learning.

Revitalisation project

Global design, engineering, and advisory company Aurecon was commissioned to support this landmark revitalisation project and was responsible for detailed design and construction administration of the mechanical, electrical and plumbing (MEP) services. Key tasks included the design and construction of new main MEP plant room while taking consideration of the existing structural elements.

All MEP plants were upgraded to meet the latest standards including transformer rooms, central chiller plant, fire protection pump room, lift, escalator, plumbing and drainage. The design of new MEP system took into consideration energy efficiency, flexibility and ease of maintenance.

Energy efficiency features including LED lighting fixtures, automatic lighting control system and free cooling were also introduced in the building. To provide flexibility to retail floors, mechanical ventilation, water supply, plumbing and drainage are designed to enable successful license application for restaurants and cafés. Web-based Building Management System (BMS) and BMS apps were developed.

The BMS app allows building management officers to monitor systems performance and change settings by using their mobile devices. When an incident occurs, officers will receive alarms, prompting response and action. In addition, energy meters were installed to monitor and record energy consumption in the public and tenant space. The data is used in energy management of the building.

Aurecon also provided building information modelling (BIM) services to facilitate the work. BIM models were used for clash detection, cost estimation and space management; thus facilitating the description and coordination between the different design consultants. This allows the architects to review the model before the start of construction, thereby reducing abortive work.

Challenges and solutions

One of the challenges was limited headroom of the building because the existing structure had to be retained. The additional steel beam used in structural strengthening work had further reduced the headroom and made design more complicated. With the help of BIM, Aurecon's MEP designs integrated with the existing structural elements successfully, thus achieving the required headroom optimisation. In addition, the steel beam was seamlessly blended into the industrial-styled interior design.

The gallery is one of the important areas in the building. Humidity and lighting controls were the key considerations in the



OPPOSITE IMAGES AND LEFT: In 2014, Nan Fung celebrated its 60th anniversary and launched The Mills revitalisation project - giving new life to Mills 4, 5 and 6, while preserving its roots in Tsuen Wan.

BELOW LEFT: Aurecon was tasked to help transform The Mills. The company was responsible for detailed design and construction administration of the mechanical, electrical and plumbing (MEP) services.

BELOW AND BOTTOM: Following its successful completion in 2018, The Mills is now a destination for innovation, culture and learning.

All images © Nan Fung Textiles Second Mill Ltd



design to prevent ageing of the exhibits displayed in the gallery. Pre-action sprinkler system is also provided to prevent water damage to the valuable exhibits from water leakage. The design of the gallery's store room was fitted with a gas flooding system and humidity control to protect the valuable exhibits that were kept in the room.

A Tenant app was developed and integrated with the BMS to provide a convenient way for tenants to apply for extension of air conditioning services. The central chiller plant operation schedule is automatically updated in the BMS once the building management office has approved the applications in the system. Technical staff are no longer required to adjust the schedule manually. The app also records the additional air conditioning service hours for billings. In this way, the building management office can easily manage the air conditioning schedule and invoicing with minimal manpower and error.

New heritage destination

With successful completion of the project in 2018, The Mills is now a destination consisting of a business incubator, experiential retail, food & beverage, design studios with training facilities, art gallery, textile industry museum, multi-purpose spaces, and a non-profit cultural institution. It is also an arts and cultural complex, a haven for innovative and start-up enterprises, and a retail space.

Regular guided tours in The Mills allow visitors to learn about the reinvention and transformation of the factory. Visitors can discover a number of visual throwbacks that have been retained, including the old bulky and rounded concrete stair banisters,



sprayed-on 'no smoking' signs, abandoned door leaves, old scratched fire buckets, unused fabric being left on the floor, noticeable red Chinese characters of Nan Fung Mills on the outside of the buildings. All these historical elements form part of the building's history and story.

The Mills was awarded 'New Design in Heritage Contexts' by UNESCO Asia-Pacific Awards for Cultural Heritage Conservation in 2019. ■

Website: www.aurecon.com



'Under' The Sea

Opened in 2019, the Under restaurant in Spangereid, Norway, is a monolithic structure made from reinforced concrete. It is 34 m long and slopes away into the sea down to a depth of 5 m, where it rests on the seabed just off Lindesnes, the most southerly point of the Norwegian coast.

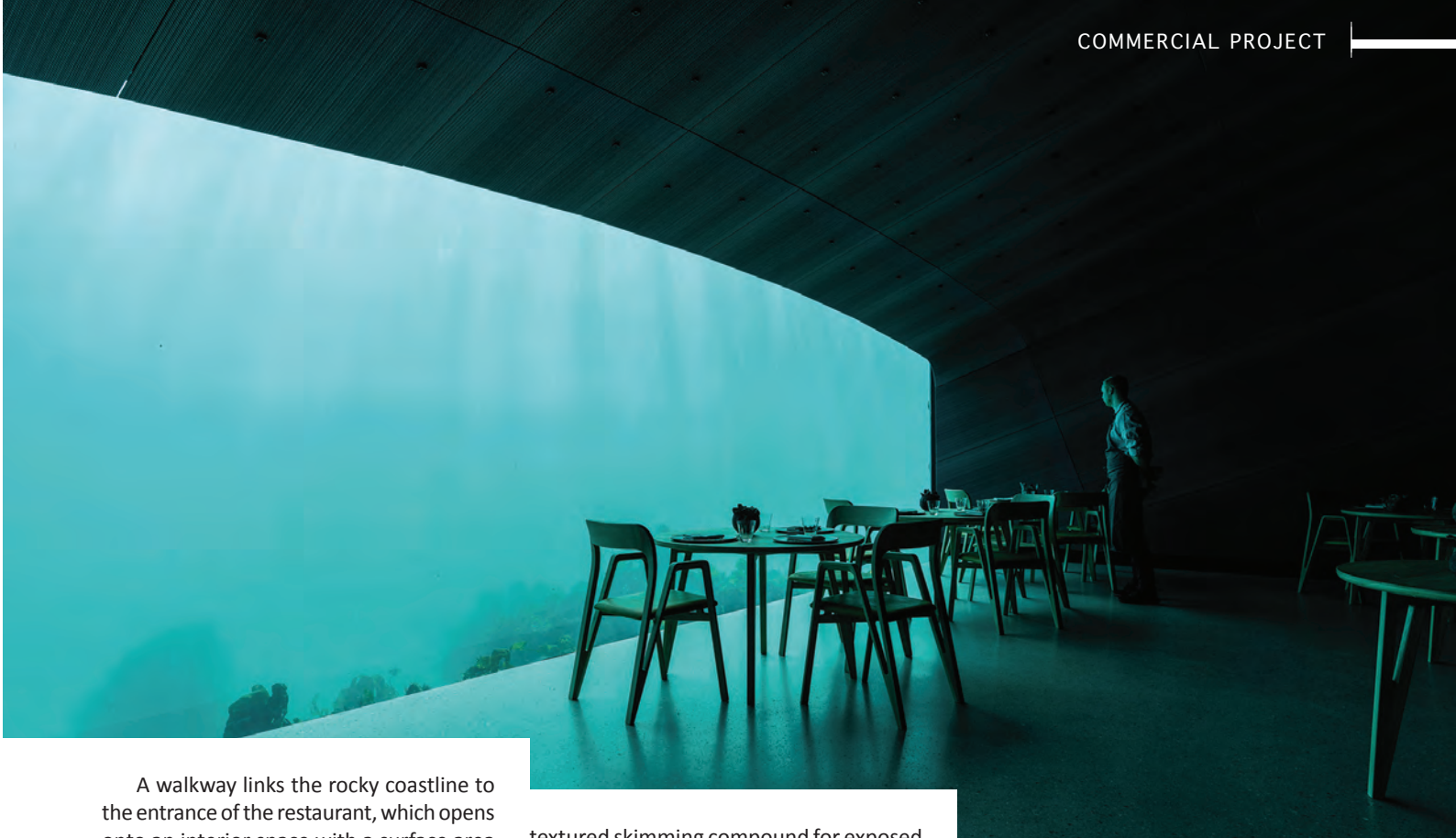
The interior spaces of the restaurant are protected by a 1-m-thick reinforced concrete shell, designed to withstand the pressure of the water and particularly the harsh climatic conditions both above and below sea level. The exterior surfaces feature a rough, exposed concrete finish to encourage the growth of seaweed and mussels below the waterline, as well as to make the structure seem part of the rocky coastline where it is situated.

Thanks to its specific location, the building is also intended to become an observation point to control the surrounding marine environment. The structure is made from precast modules and is anchored to a block of concrete.



TOP: Located 5 m below sea level, the Under restaurant is made from precast modules and is anchored to a block of concrete.

ABOVE: Construction work on the project started in 2018 and it was completed in 2019.



A walkway links the rocky coastline to the entrance of the restaurant, which opens onto an interior space with a surface area of 600 sq m over three levels descending into the sea. On the top floor, there is a reception and cloakroom, followed by a bar at the mezzanine level and then a restaurant on the lower floor, with seating for up to 100 guests. The dining room has a panoramic window with a double layer of acrylic glass looking out directly onto the seabed.

Owned by Lindesnes Havhotell, the Under restaurant was designed by Norwegian architecture company Snøhetta. Construction work started in 2018, carried out by main contractor BRG Entreprenør AS. Subcontractors Rencon AS and Murermester Arnt Kristensen AS were also part of the project.

Protecting the structure

Because of its special design and complexity, the project required a large range of high quality and technologically advanced products. Among them were solutions from Mapei, supplied for protecting the concrete, structural anchoring, concrete admixture and installing ceramic tiles.

Several Mapei systems - Confix, Confix Fin and Redirep 45 RSF - were used to repair the concrete, while Mapei's epoxy resin-based products and hi-flow mortars (such as Mapepoxy BI, Mapepoxy LR, Mapepoxy L and Nonsett 400) were applied for anchoring elements in place.

Mapei also provided its Mapefix VE SF system for chemical anchors, and Mapeprimer M epoxy primer for treating concrete substrates with surface moisture. Other Mapei systems on the project included the Planitop Fine Finish ultra-fine-

textured skimming compound for exposed concrete, Resfoam 1KM and Resfoam 1KM AKS resin for waterproofing structures subject to intense water seepage, and Superflyt superplasticising admixture for mortars.

Confix, Confix FIN, Redirep 45 RSF, Mapepoxy BI, Mapepoxy LR, Mapepoxy L and Nonsett 400, Mapeprimer M, Resfoam 1KM AKS and Superflyt are all manufactured and distributed on the Norwegian market by Mapei As.

In addition, Mapei's Ultrabond MS Rapid adhesive was chosen for its high sucker effect and rapid setting properties to install the 3D ceramic tiles in the bathrooms. This is a one-component,

deformable, thixotropic adhesive with a high modulus of elasticity made from sililated polymers, characterised by its high initial tack and rapid final hardening.

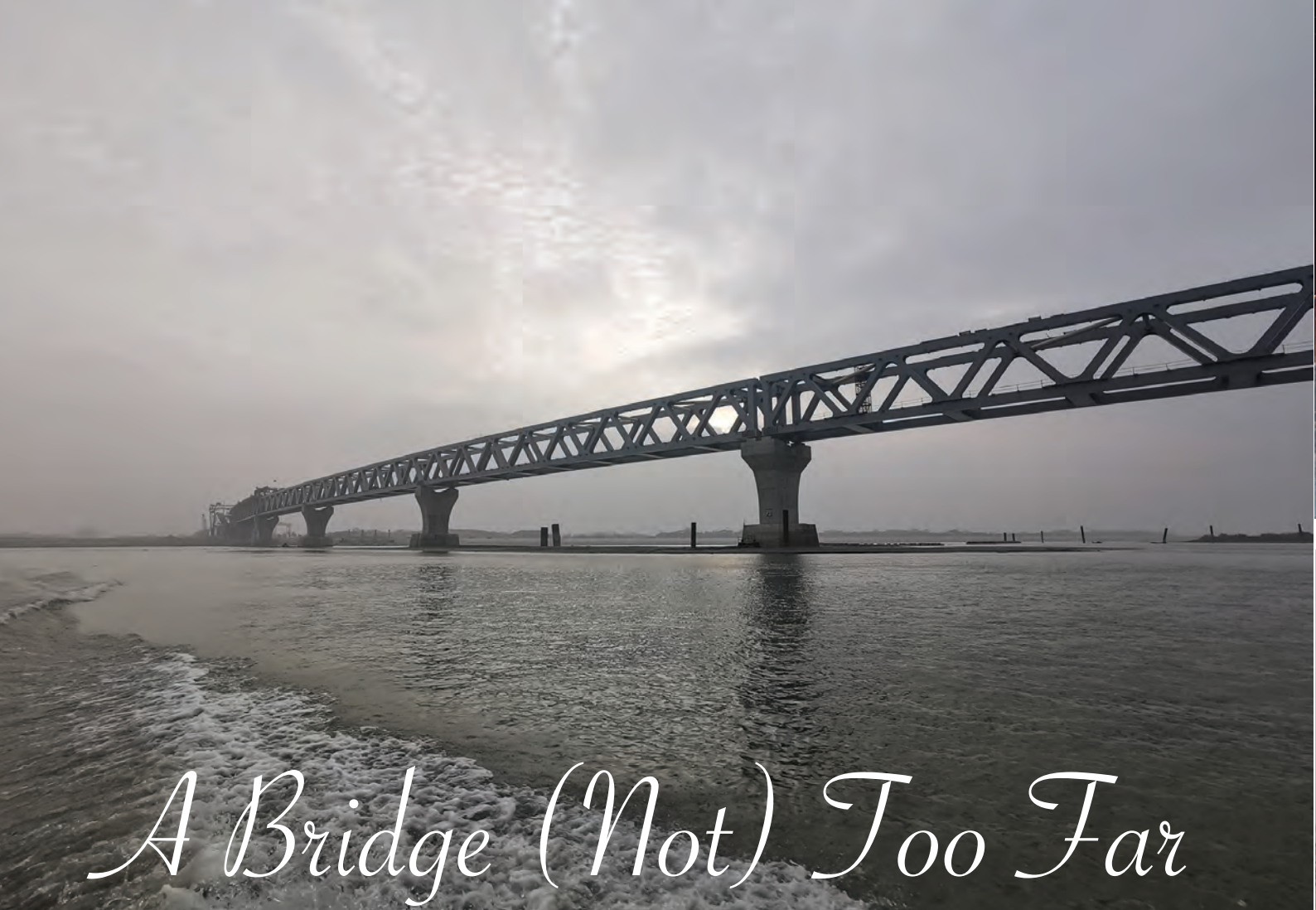
The Ultrabond MS Rapid is recommended for bonds where a strong initial tack and high mechanical strength are required after a short curing time. It features rapid polymerisation and is especially suitable for bonding cement and cement-derived materials, bricks, stone, wood and wood-derived materials, metals, painted surfaces, ceramics, glass, rigid and flexible plastics. ■

Website: www.mapei.com.sg



TOP: The restaurant is situated on the lower floor, with seating for up to 100 people. ABOVE: The 3D tiles in the bathrooms were installed with Mapei Ultrabond MS Rapid (inset).

All photos © Trond Helgedagsrud/Tomasz Majewski Photography



A Bridge (Not) Too Far



TOP AND ABOVE: The Padma Bridge in Bangladesh is a multipurpose road-rail bridge across the Padma River, which spans approximately 6.15 km long. Upon completion, it is expected to be the largest bridge in the country.



ABOVE LEFT AND ABOVE: The foundation design is a critical element of the project, to ensure the stability and durability of the bridge. Here, five units of ChemGrout CG680/3x8/DH grouting equipment were supplied to help strengthen the foundation of the bridge pier.

LEFT AND BELOW: The ChemGrout CG680/3x8/DH machines were used to carry out 'skin grouting work', which allows cement grout to permeate and fill the void spaces between the soil, leading to an increase in soil strength and a reduction in soil permeability.



The Padma Multipurpose Bridge Project is still underway. When completed, it is expected to be the largest bridge in Bangladesh. It will connect Louhajong, Munshiganj with Shariatpur and Madaripur, linking the southwest of the country to northern and eastern regions.

This road-rail bridge across the Padma River spans approximately 6.15 km long. The upper level consists of a highway for cars, while the lower level features a railway track for trains.

The stability and durability of the bridge is a key consideration, and so the foundation design is a critical element of the project. Here, the CG680/3x8/DH grouting equipment from ChemGrout has been chosen to help strengthen the foundation of the bridge pier.

'Skin grouting work'

A total of five ChemGrout CG680/3x8/DH machines were provided for the project by Acme Equipment Pte Ltd, a ChemGrout dealer based in Singapore. The machines were used to carry out 'skin grouting work', which allows cement grout to permeate and fill the void spaces between the soil, leading to an increase in soil strength and a reduction in soil permeability.

The ChemGrout CG680/3x8/DH has a 17 cu ft homogenising colloidal mixer, a 17 cu ft agitated storage tank, and a 32 gpm grout pump. The colloidal mixing tank comes with a bridge breaker, which breaks apart the material before entering the 2X3X12 high-shear centrifugal diffuser-type pump. This pump disperses the cementitious material down to its finest particle size to achieve complete particle wetness.



The mixed material is then transferred to the CG680/3x8/DH agitator tank that is equipped with a variable speed high-efficiency paddle mixer, which will maintain a thoroughly mixed grout while waiting to be pumped. When ready, the grout will be released from the agitator tank to the connected 3x8 double plunger variable-speed output pump to inject the material into the soil.

Acme Equipment started to supply a ChemGrout machine to the project in 2016, and the grouting work has recently been completed. According to the company, every single pier has to be injected with grout from the CG680. Each pier comprises six piles, and the pile diameter is 3 m with a length of 128 m. ■

Website: www.chemgrout.com / www.acme.com.sg



Innovative geotechnical solution for Singapore road project

Keller, a global provider of specialist geotechnical solutions, has carried out its first-ever vibro concrete column (VCC) project in Singapore. The company said this foundation work for a road in the Lorong Halus area “opens up new benefits for clients and distinguishes Keller in a market more familiar with piling and deep soil mixing.”

For almost 30 years, the Lorong Halus area in eastern Singapore had been known as the country’s dumping ground (literally). It was home to the country’s largest landfill, built on the site of a former sewage works.

The landfill closed in 1999 and since then, the area has been gradually transformed into an attractive, ecologically diverse coastal wetland. With these positive changes has come the need for greater infrastructure.

The Singapore government has invested heavily in a major roadbuilding programme in Lorong Halus. Given difficult ground conditions caused by years of buried waste, the consultants in charge of the project turned to Keller.

An innovative alternative

“We were approached by the consultants, who were looking for

a solution to the problematic soil,” said Edward Koh Cho Meng, senior business development manager at Keller Singapore. “After analysing the soil conditions, we explored the possibility of using deep soil mixing, vibro stone columns or vibro concrete columns. Based on our analysis, vibro concrete columns were the best solution.

“Our team in Keller Malaysia has faced a similar situation in Penang, Malaysia where VCC was used to support water tanks in Penang’s sewage treatment plant, also built on landfill soil. The nature of the technique introduces concrete into the soil and pushes the problematic, landfill soil to the side. This way, strength gained from the columns are independent of surrounding soils.”

Vibro concrete columns can be used in a variety of soils to reduce settlement and increase bearing capacity, explained Keller. They offer an economical alternative to traditional piling methods and produce very little spoil.

As Keller had not done any previous vibro concrete column projects in Singapore, the company drew on expertise from its vibro global product team, as well as its team in Malaysia.

“With this support, we were able to create a rigorous process design and modify our vibrocat machines accordingly,” said Mr Koh.



Keller Singapore has been commissioned to carry out foundation work for a road project in the Lorong Halus area. Given difficult ground conditions, the company decided to use the vibro concrete column (VCC) method to complete the job successfully.

“We had the opportunity to demonstrate our capabilities to the main contractor by showcasing the long-term success of vibro projects in Malaysia and road projects in Singapore where similar techniques were used.”

The project called for detailed planning. Vibro concrete columns require a continuous supply of a specific concrete mix, and thus Keller coordinated closely with the concrete supplier to ensure the supply satisfied daily requirement.

One of the keys to the project’s success, as Keller pointed out, was pre-loosening the top layer of stiff soil – which had been heavily compacted with years of domestic waste – so that the company’s vibrator could penetrate the soft clay layer below.

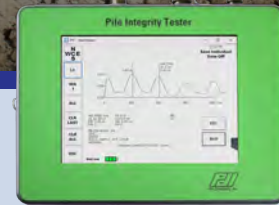
Keller started on site in mid-January 2020 and the company managed to complete the project three weeks ahead of schedule, owing to the VCC method. “The client visited the site in February to see how the project was going and was really impressed with the quality of our work, site control and safety,” said Mr Koh. “That’s all thanks to the excellent cooperation between our business development, design and operation teams, overseen by our management. Together they ensured everything on the job was done in accordance to Keller’s high safety and quality standards.

“By proving our capabilities on this project, we can now offer vibro concrete columns as an alternative technique, adding value to our Singapore clients and giving us a competitive advantage in a marketplace largely offering conventional piling methods and deep soil mixing.” ■

Website: www.keller.com



Pile Integrity Tester (PIT)



Pile Dynamics' PIT:

The PIT system is used to perform low strain integrity tests to existing piles to determine unknown lengths, reveal defects, and test structural integrity. The test uses Pulse (or Sonic) Echo or Transient Response Methods to collect acceleration data and display curves to reveal significant changes in cross section. PIT can be used on most concrete or wood foundations. The system gathers data quickly, saving project costs on time.





Capturing coastal construction site in 3D

In February 2018, the construction of Hyosung Vina Chemicals Port began in the Ba Ria-Vung Tau province, southern Vietnam. A collaboration between the Vietnamese Government and South Korean industrial conglomerate Hyosung Corporation, the new port is a part of the Hyosung Chemical Complex - which includes a propane dehydrogenation (PDH) production plant, a polypropylene (PP) plant, a liquefied petroleum gas (LPG) storage tank, and an LPG and petrochemical product warehouse in the Cai Mep Industrial Zone in Ba Ria-Vung Tau, located near Ho Chi Minh City.

One of the final tasks in the development was the construction of the port's LPG jetty. Portcoast, a leading Vietnamese port and coastal survey consultant, was engaged in creating the 3D mapping for the topographic survey, the as-built model of the LPG jetty and facilities, and to conduct the inspection report for the revetment protecting the jetty.

As the consultant for the project, Portcoast had been involved since the first package of the reclamation work for the new port. All construction work was completed on 3 March 2020, and the port has been operational since 20 March 2020.

Challenging task

The topographic survey covered an area of over 5 ha – and with much of the area located in the water, Portcoast's level of specialist knowledge and experience was essential for collecting data in these hard-to-reach areas. To compound the inaccessibility challenges, whilst some areas of the complex were still under construction, others were already operational. Portcoast opted for Leica Geosystems' products to help carry out the job.

Dr Hoang Hiep, Portcoast team leader on the project explained, "The main challenge for scanning the whole port was the selection of scanning positions in a complex where there was significant traffic and where disturbances from the ongoing construction work could compromise the stability required for precision scanning." To mitigate the challenges of working in this disruptive, heavy



TOP: The construction of Hyosung Vina Chemicals Port in the Ba Ria-Vung Tau province, southern Vietnam, began in 2018 and was completed in March 2020.

ABOVE: As the consultant for the project, Portcoast was engaged in creating the 3D mapping for the topographic survey, the as-built model of the port's LPG jetty and facilities, and to conduct the inspection report for the revetment protecting the jetty.

traffic environment, Portcoast decided to conduct the scans from elevated locations above the internal road.

"Working from high above the site required a scanner which could deliver a high level of precision over a long measurable range. The Leica ScanStation P50 delivered an accuracy of up to 3 mm so we could cover the full range with confidence and precision," said Dr Hoang Hiep.

Whilst the ScanStation P50 was used to capture the data on top of the bridge, under the bridge the team used specially modified



LEFT: Portcoast carried out the project with the help of Leica Geosystems' products. Among them was the ScanStation P50 laser scanner (pictured), which was used to capture the data on top of the bridge.

BELOW: Leica RTC360 laser scanner was also used in the project.

BELOW LEFT: Point cloud data of the whole project.



equipment, such as customised cranes to install the Leica RTC360 and Leica BLK360 to measure and capture highly-detailed data in the complex, narrow and inaccessible areas, such as the liquid tanks, the pipeline systems, access bridge and the marine loading arm.

"Not only was the training time for the team almost halved by working with the Leica Geosystems team, but the high speed of capturing data with Leica's equipment significantly reduced the survey time," revealed Dr Hoang Hiep. "In a project like this, the topographic survey of revetment would usually take around 12 hours with a survey grid of 20 m per setup. Whereas it can be reduced to 3 hours when using the ScanStation P50. Accelerating the process also reduced our operational risk and the number of employees required for this work."

Collaboration between site and data analysis office

To scan the port, Portcoast needed to combine thousands of points and also combine the data from different devices, such as total stations, GNSS and laser scanners – something that would usually prove to be a very complex and time-consuming process. The seamless integration of Leica Geosystems' equipment and software solutions meant the data could easily be passed between the off-site team processing the data and the field team.

Having worked in similar projects across Southeast Asia, Pakistan and UAE, Portcoast was particularly conscious of the importance of fast data transfer in tropical countries. The rapidly changing weather conditions demand fast data transfer between field and office teams to verify data and prevent any loss of data. After collecting the point cloud data from the geodetic equipment, Portcoast used the Leica Cyclone, Leica Cyclone 3DR and Leica Infinity off-site to process the data.

"The high-speed and high-level accuracy of capturing field data helped to avoid delays in office post-processing as the software helped us to check the points every time we needed to. With Infinity and ConX it is easy to transfer data between the field and the office within 1 min," explained Dr Hoang Hiep.

"The outcome map produced by Cyclone is a very accurate model, which we can use to create a 3D model and VR system. Using Cyclone 3DR we can then further refine the model to provide high levels of accuracy and visibility."

By collecting point cloud data at different times and using Leica CloudWorx for Revit to convert this into as-built drawings, the margin (a matter of millimetres) for settlement or displacement of the pipe racks could be estimated with the utmost precision.

The as-built drawings and BIM will support the facilities management aspect of the port, providing a reference for the inspection report and enabling Hyosung to plan and model future developments and renovations for the port using the digital model.

The work that took the team of seven engineers just weeks to complete will significantly reduce the site visits required for future maintenance, and can be used to enhance and protect the operations of the port for decades to come.

"When we took on this project, only half of the team had any prior experience with this geodetic equipment. The increased efficiency from the integration across the Leica Geosystems product ecosystem saved considerable time, and now the whole team is eager to use the Leica Geosystems geodetic equipment regularly," concluded Dr Hoang Hiep. ■

Website: www.leica-geosystems.com



Building 'strong foundation' in the Philippines

Bauer Spezialtiefbau GmbH has been active in the Philippines since 1995, offering its specialist foundation engineering expertise for a wide range of infrastructure, energy generation and building projects across the country.

One of the recent projects is the construction of a new highway called Metro Manila Skyway, designed to minimise traffic congestion in the metropolitan area around the Philippine capital Manila. Bauer Foundations Philippines - the local subsidiary of Bauer Spezialtiefbau - has been involved in a number of construction phases and, since August 2019, has been working on the expansion of the highway between the cities of Sucat and Alabang in southern Metro Manila.

The road, which is constructed on pillars above existing roads, is currently being expanded from two to six lanes. In addition to this, the highway will be extended from Alabang to the city of Muntinlupa.



TOP: Since August 2019, Bauer has been involved in the expansion of the highway between the cities of Sucat and Alabang in southern Metro Manila.

ABOVE: For the Cebu Integrated Resort on Kawit island, Bauer built 17,864 sq m of mixed-in-place (MIP) wall and 1,267 stone columns with a diameter of 1,100 mm.



All images © Bauer Group

In this first phase of the expansion project, all toll roads in the southern Manila metropolitan area will be upgraded to relieve the major roads and permanently reduce traffic jams. As part of the order, Bauer is installing 188 bored piles with diameters of 2,800 mm and a maximum depth of 30 m. Also, 226 ductile piles with a length of 16 m will be installed using the PGF (pressurised grouted full displacement) system.

A special challenge on this project is that works need to be performed without interrupting traffic on a busy road. “Efficient traffic management and good logistical organisation are the most important factors for successful execution of this project,” said Mohammed Hussieny, senior project manager at Bauer Foundations Philippines.

Furthermore, Bauer Foundations Philippines has been commissioned to carry out drilling work for a geothermal power plant on the island of Leyte - the project is part of a large investment programme by Energy Development Corp (EDC), a leading provider of energy from geothermal heat in the Philippines. Over a period of four months, a Bauer BG 40 rig was used to create multiple drill holes with a diameter of 1,200 mm. The slurry stabilised drilling hole was executed up to a depth of 150 m, despite difficult soil conditions, and was successfully completed in March 2020.

Bauer Foundations Philippines is also involved in commercial developments. Among them is the Cebu Integrated Resort - a hotel, business and leisure complex on Kawit island, located off the coast of Cebu City. The project will provide both commercial and private investment opportunities. Apart from bars, restaurants, a shopping and convention centre, a casino, a theme park and a theatre, there are also three hotels planned for the site. In total, 17,864 sq m of mixed-in-place wall (MIP) were constructed up to a depth of 11 m as well as 1,267 stone columns with a diameter of 1,100 mm and a length of 12 m. The works started in December 2019 and were completed in April 2020.

In another project, the new 30-storey Seaview City building complex is being built on an area of around 200,000 sq m, located directly on Manila Bay. The development will offer new commercial spaces and luxurious residential units, plus an on-site



TOP (LEFT AND RIGHT): Bauer BG 40 rig carried out drilling work for a geothermal power plant on the island of Leyte.

ABOVE: Bauer also installed 480 piles for the Seaview City building complex, located on Manila Bay.

entertainment and casino area. For preparation of the building foundations, 483 bored piles were installed over a total of 14 weeks. Three Bauer drilling rigs - BG 40, BG 15 and BG 14 - were used for the works, which began in November 2019 and were completed in March 2020.

“There are many more and increasingly complex projects being planned and implemented to fulfil people’s needs for better infrastructure, safe energy supply, living space and entertainment,” said Thomas Albrecht, director of Bauer Foundations Philippines. “Over the past 25 years, successful completion of demanding projects means that we have been able to establish ourselves in the region as a reliable partner for specialist foundation engineering projects.” ■

Website: www.bauer.de

Global construction industry comes together... *in Las Vegas*

The global construction industry recently gathered at the Conexpo-Con/Agg & IFPE 2020, which took place from 10 to 14 March 2020 at the Las Vegas Convention Centre and Festival Grounds in Las Vegas, Nevada, the US. According to the organisers, registrations for the show totalled over 130,000, with cancellations from international visitors (mainly due to the Covid-19 outbreak) totalling less than 1% at the conclusion of the show.

“This has been one of the best editions of Conexpo-Con/Agg – ever,” said Mary Erholtz, vice president of marketing at Superior Industries and Conexpo-Con/Agg 2020 show chairperson. “We refer to Conexpo-Con/Agg as the ‘heavy metal’ show, but it’s more than that. It’s also small equipment, education and technology. And that was reflected in every way this week.

“Giant machines, incredible exhibits, fantastic education and huge expectations. Organisers of Conexpo-Con/Agg have a legacy of building and innovating on previous shows, and the 2020 gathering extends that record of success.”

Exhibitors across the show, from the Festival Grounds to North Hall to Bronze Lot to South Hall, have expressed enthusiasm for the tremendous engagement they received from contractors and producers looking to purchase equipment.

The IFPE show chairperson, David Price, who is also global marketing manager of HydraForce Inc, said, “The crowd was much better than expected under the circumstances and most importantly, the right buyers were on the show floor. We were very pleased with the strong showing from the 300-plus exhibitors at IFPE 2020, and we are looking forward to the 2023 show.”

Mike Ballweber, president of Doosan Bobcat echoed those sentiments. “Tuesday for us was record breaking in terms of leads and attendance at our booth, which is how we measure how successful the show is for us,” he said. “We had more people to our booth on the first day than all of the 2017 show. This is a one-every-three-years show, and our dealers and customers were really excited to be here.”

With growing concerns about Covid-19, show management worked closely with the Las Vegas Convention and Visitors Authority and the Southern Nevada Health District to make sure exhibitors, vendors and visitors were provided with heightened cleaning services and hand sanitisers, in order to help reduce the spread of germs and enable show participation to stay healthy onsite at the show.

“We have been pleased with the success of the overall show and attendance in our booth,” said Ingo Schiller, president and CEO of Tadano America Corporation. “The management team at



Conexpo-Con/Agg has been monitoring the situation and they made a very difficult decision to close the show a day early. We appreciate their leadership and we look forward to Conexpo-Con/Agg 2023.”

Key metrics reflect overall quality of the visitors: US buyer attendance increased 8% from the 2017 show, and total buyer attendance improved by almost 5%; overall contractor and producer attendance grew by 14%; six-in-seven visitors serve in a decision-making role; total registered attendance reached over 130,000 for the week; and visitors purchased a record-breaking 75,622 tickets for education sessions at the show, a 46% increase from the 2017 show.

At the same time, the technological change revolutionising these industries was pervasive across the show’s 2.7 million-plus net sq ft (over 250,000 sq m) of exhibits featuring 2,300-plus exhibitors from leading US and global manufacturers, from multinational giants to small firms with specialised products.

Other highlights at the show included: partnership with women in construction groups to underline the growing role women play in the industry, such as unveiling the world’s largest 3-D printed statue of a human to honour the growing role women play in the construction industry; workforce solutions area in the Festival Lot that showcased industry recruitment best practices; the Tech Experience returning for a second year and focusing on modern



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ALL IMAGES: Scenes from Conexpo-Con/Agg 2020.

mobility, sustainability and smart cities; and the first-ever Fluid Power Hour for the co-located IFPE show, which featured an opportunity for engineers to network with their peers on the show floor.

Tech Experience

Whether it is artificial intelligence, autonomous equipment, big data, small gadgets, new energy technologies, sustainable highways or the future of cities themselves, Conexpo-Con/Agg's Tech Experience focuses on what contractors and manufacturers need to know to keep ahead of the technology curve.

"I'm amazed at what some of the minds we have here at the Tech Experience think up," said Helen Horner, director of education programmes at the Association of Equipment Manufacturers (AEM), which co-owns and operates Conexpo-Con/Agg. "What we're seeing in bringing all these ideas to one place is how some of them connect to form new ideas. Hopefully, those ideas germinate after the show to give us even more amazing technology to explore at the next Conexpo-Con/Agg."

One example was a Tech Talk on wireless energy transfer built into roadways to continuously charge electric vehicles while they drive, followed by a talk on turning concrete into a battery.

"New ideas and new connections are the core of what we want people to experience at Conexpo-Con/Agg," said show director Dana Wuesthoff. "The big iron and big deals are definitely fun, but the technology, information and education are what secure the future of this industry, and the continuing viability of the businesses that attend and exhibit here."

Some of the Tech Talk highlights included:

1. Driving Decisions with AI: The insights that artificial intelligence can now gather for an organisation are unparalleled. In this presentation, attendees found out how construction data can be used to identify the right projects, people and problems before it is too late.

2. Smart Cities: The technology to build smart cities of the future is available today. Digital solutions are providing data to better manage job sites. New generations of construction employees will leverage the big data, advanced automation and virtual site mapping to build the smart cities of tomorrow.

3. 3D Printing Buildings – Current Possibilities & Future Implications: Branch Technology presented its first demonstration structure as a house created entirely by 3D printing. Using the world's largest freeform 3D printers, the shape of the next generation of housing appeared in several weeks instead of several months.

4. Wireless Energy Transfer: Imagine an electric vehicle like a Tesla or BMW driving down the road and maintaining a 60-80% charge the entire way! Wireless power transfer on roadways means that electric vehicles can charge as they drive.

5. Prevention & Protection of Traumatic Brain Injuries: Prevention of work-related traumatic brain injuries (wrTBI) is of uttermost importance. One study showed that 45% of patients had not returned to work five years after the accident. This presentation provided an overview of wrTBI in the construction industry in North America and Europe, with a focus on the events causing wrTBI.

Held every three years, the next Conexpo-Con/Agg is planned to return from 14 to 18 March 2023. ■

Website: www.conexpoconagg.com

CARMIX

The 3500 TC is a flagship model from Carmix. This smart mobile concrete batching plant features an innovative weighing system, Concrete-Mate, which is a mix design manager equipped with the 'RMC Plant standard level' management software.

The Concrete-Mate system uses four sensors in the mixing unit, ensuring a high quality concrete mix that complies with international concrete production standards (UNI 206-1, ASTM, ACl, etc) and total control over production costs. Thanks to this system, the Carmix 3500 TC can guarantee maximum control, consistent performance, high quality standards, work certification and worksite cost monitoring.

Carmix relies on continuous design and technological developments to offer a complete range of self-loading concrete mixers, off-road mobile concrete batching plants and other tools that enable high quality concrete to be produced and guarantee work efficiency on the jobsite. For example, using the 3500 TC in combination with the Carmix Bagger mini silo enhances machine productivity, thus reducing cement-loading time by up to 50% with zero environmental impact. According to Carmix, such solutions and innovative tools can guarantee a 20-25% reduction in running costs and project lead times. ■

Website: www.carmix.com



ABOVE: Carmix 3500 TC mobile concrete batching plant is seen here working with Carmix Bagger mini silo.

BELOW AND RIGHT: The 3500 TC is equipped with Concrete-Mate system, which helps produce high quality concrete mix.



GOLDHOFER

Goldhofer showcased its transport solutions for oversized and ultra-heavy loads, including the PST/SL-E 6 heavy-duty module, STZ-P 9 semi low-loader and STZ-VL 3+1 low-loader semitrailer.

The PST/SL-E heavy-duty module is ideal for transporting very heavy loads, even on a challenging terrain. Its electronic multiway steering makes the self-propelled vehicle highly flexible and manoeuvrable. Whether towed (THP), self-propelled (PST) or a combination of the two (ADDrive), Goldhofer's heavy-duty modules offer many benefits such as low deadweight, low-profile decks and a high bending moment.

The ADDrive combines the advantages of a towed vehicle with those of a self-propelled heavy-duty module. This avoids the need to transfer the cargo from a road transport vehicle to one or more self-propelled vehicles, which may be necessary several times on certain routes – for example, when crossing bridges with low load limits or on twisting roads with narrow bends.

The Goldhofer STZ-P 9 highway semitrailer features 3x3 pendular axle bogies, with a loading length of more than 27.5 m. The vehicle's hydromechanical forced steering and robust pendulum axle technology allow for a steering angle of up to 60 degrees and a maximum axle stroke of 600 mm.

The STZ-P 9 can work on narrow roads with tight bends as well as on uneven and potholed road surfaces. Its rear bogie can be retracted under load, so the vehicle's length can be reduced when the situation requires and then use a tractor to re-extend it. As such, the STZ-P 9 can be deployed in city centres.

In addition, the Goldhofer STZ-VL 3 is suitable for carrying heavy loads - such as excavators and other heavy items - thanks to its high axle load, low deadweight, huge steering angle and longer decks. The STZ-VL lowloader semitrailer is designed for quick and simple front-end loading and, in spite of its low deadweight, the vehicle is able to transport very high payloads. With the reduced difference in height between the deck and bogie, cargos with a small angle of approach can also be transported.

Featuring a suspension stroke of 270 mm and a steering angle of 45 degrees, the STZ-VL has the manoeuvrability to cope with any situation on the road. A flip axle can be added for extra versatility and it also provides the flexibility to manage jobs on routes that cross state lines with changes in regulations. ■

Website: www.goldhofer.de



The STZ-VL 3+1 low-loader semitrailer from Goldhofer.

LIUGONG

The LiuGong 9018F, 9027FZTS and 922F excavators - part of the company's new F-series - made their North American debuts. Launched at BICES Beijing in September 2019, the F-series is the sixth generation of LiuGong excavators. It was designed for North America, Western Europe and China, but is also suitable for emerging markets and is well-suited to a variety of applications from construction and mining to forestry.

The 9018F has an operating weight of 1,900 kg, with a 0.045 cu m standard bucket capacity and 2,290 mm maximum digging depth. The 9027FZTS offers an operating weight of 2,750 kg, with a 0.08 cu m standard bucket capacity and 2,853 mm maximum digging depth.

Both the 9018F and the 9027FZTS (zero tail swing) compact excavators are equipped with load sensing hydraulics ensuring smooth and precise operations, and are powered by Yanmar engines for reliability and efficiency. The engine has auto-idle and auto shutdown, combined with variable flow proportional auxiliary hydraulics, making the excavators powerful whilst energy-saving.

The 9018F is a standard configuration length HEX with retractable undercarriage for a minimum width of 980 mm to a maximum width of 1,290 mm and a foldable dozer blade, enabling the machine to pass through narrow spaces. It is easy for operators to load and unload from trailers. The excavator is also fitted with standard boom and dozer cylinder guards.

The 922F excavator features integrated technology, intelligence and environmental protection. It has an operating weight of 23,400 kg, a standard bucket capacity of 1.1 cu m, and a maximum digging depth of 6,700 mm. The model offers the latest electronically controlled hydraulic systems, consisting of a main pump with large displacement, low-speed, high-torque engine and main electro-hydraulic proportional control valve.

The 922F is also designed with improved hydraulic flow distribution, greater operator control and more precise operator placement of bucket or attachment, increasing quality of performance and operational efficiency. The auto engine shut down and integrated work modes help owners to easily get higher productivity and enhanced fuel economy.

The cab on the 922F is spacious for comfortable operation and better visibility. A 10-in LCD screen integrates 3D machine control options and a dig assist system to optimise job productivity and efficiency. The machine's operation is also improved with single pedal drive for straight travel, follow-me mode, pay-load system, and smart maintenance.

LiuGong also displayed several compact excavators of special interest to the North American rental market, including the 9035EZTS and 909ECR excavators. The 9035EZTS is a zero-tail swing design with 0.11 cu m bucket capacity. The 909ECR is a compact radius tail swing excavator with 0.28 cu m bucket capacity. These machines are ideal for tight workspaces such as those often encountered in utility and landscape work. A straight blade with blade float comes standard on the 9035EZTS and is available as an option for the 909ECR.

In addition, LiuGong showcased its next generation 2D machine control platforms for excavators. Intuitive, easy-to-learn software running on simple operating systems enables operators of all skill levels to work faster and more productively. The 2D/3D platform is becoming the industry standard for excavators and is being applied to both LiuGong's E and F-series and select dozers.



FROM TOP: LiuGong's 9018F mini excavator, 922F excavator, and 856H wheel loader.

Another highlight at LiuGong booth was its new Stage V 856H and Tier 4 Final 877H models. The Stage V 856H was launched in Europe last April. The 877H, which fills a gap in LiuGong's offerings of wheel loaders' bucket capacity, making it complete from 1.9 to 5.42 cu m. Other machines were the 950E excavator, 388B skid steer loader, LSC0607DE slab scissor and 2025G, 2025G-C and 2030H forklifts. ■

Website: www.liugong.com

COMANSA

The Comansa LCL310 luffing-jib tower crane with an 18-t maximum capacity was showcased at Conexpo. Its maximum jib length is 60 m, and the different configurations allow for maximum jib steps every 5 m. Featuring a compact design and reduced out-of-service radius, this luffing-jib model is ideal for use in cities or congested building sites.

Comansa also exhibited its Cube cab, which is fitted as standard on most of the company's cranes. It combines a new design, comfort and maximum productivity, as well as innovative advantages in terms of ergonomics and features.

In addition, Comansa promoted the latest versions of its cranes developed over the last year, including the new 21LC1050 and 21LC1400 models that offer maximum capacities of up to 50 t and 66 t respectively. These cranes are aimed to improve productivity and offer more options for the users.

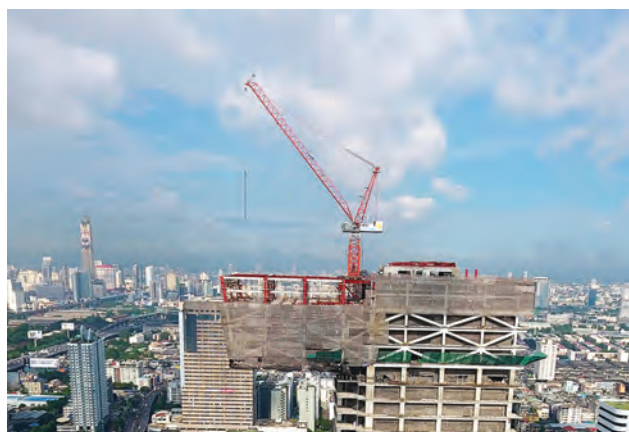
Similarly, Comansa introduced its new Quick Set system - a new technology designed to simplify the commissioning of cranes. With Quick Set, the set up and calibration times can be significantly reduced using a system that leads to easier, safer and more intuitive adjustments, thus resulting in faster and less labour-intensive calibration. It is readily available across the entire 21LC range and, during 2020, it will be expanded to the 11LC and 16LC ranges.

Comansa has been present in North America since 2002, providing sales, after-sales, engineering and training services,



with a head office in Pineville, near Charlotte, North Carolina. The company also owns a large warehouse to store components and spare parts, plus technical training rooms for better customer service, and has subsidiaries in Washington and Texas. ■

Website: www.comansa.com



TOP RIGHT AND ABOVE: Comansa LCL310 luffing-jib tower crane with an 18-t maximum capacity and maximum jib length of 60 m.

LEFT: Comansa Cube cab.

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MANITOU

Manitou premiered its new telehandler, the MTA 12055, targeted at the North American market. With a maximum lifting capacity of 5.5 t, this new model offers a lifting height of 17 m (and can take 2.5 t to full extension).

The MTA 12055 is suitable for infrastructure, bridge and construction projects. With a turning radius of only 3.7 m, the machine can manoeuvre easily on tight work sites. It has a maximum travel speed of 22.8 mph, and is equipped with a 120 hp engine and powershift transmission.

The Gehl RS 4-14 telehandler, launched in 2019, was presented at Conexpo with a new sealed cab, which provides optimal protection of the dashboard and the electrical components. The boom head has also been redesigned to improve visibility of the load carried on the forks, resulting in greater safety for the operator. Simple to use, the RS 4-14 is ideal for home renovation work, where space is often limited. The machine offers a maximum load capacity of 2 t and a lifting height of 4.3 m.

The Manitou TJ 85 telescopic boom lift features a platform height of 26 m for a lifting capacity of 350 kg or three people with equipment. It has a remote control, which gives the ability to fold the jib under the telescopic arm to reduce the length of the machine when loading onto a truck.

The TJ 85 has a working height of 28 m and horizontal outreach of over 21 m. The machine is equipped with an on-board diagnostics screen, so that technicians do not need to carry a tablet to resolve potential problems, thus reducing downtime and total cost of ownership.

The Manitou VJR 26 vertical mast is perfect for interior applications at medium height. Thanks to its working height of 8 m, this new platform facilitates maintenance operations, such as fitting electrical conduits, plumbing and other tasks related to industrial finishing. Its compact size enables it to access narrow spaces for a smooth ride.

Easy to operate because of its compact size and intuitive controls, the VJR 26 provides a high level of safety with unobstructed visibility due to the compactness of the telescopic mast. There are fork pockets on each side of the turret to safeguard loading operations onto trucks and reduce the time taken.

In addition, Manitou gave a preview

of its Gehl electric skid loader concept, highlighting the group's focus on alternative energies. Powered by lithium-ion batteries, this zero emissions concept machine has been designed based on the R 165 compact skid loader model, with the same rated capacity of 750 kg.

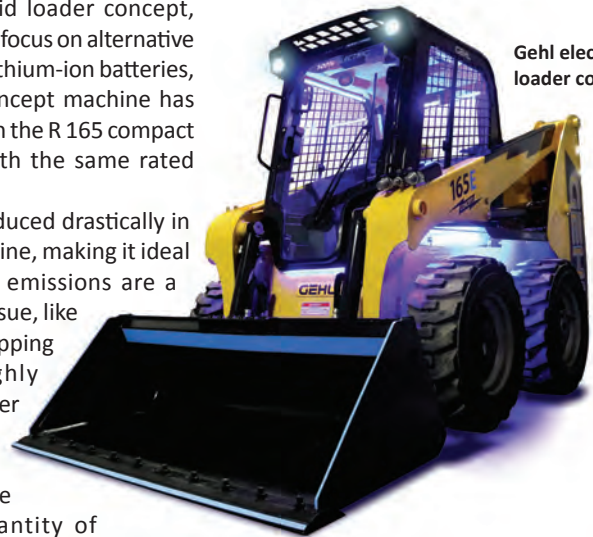
Noise levels are reduced drastically in this new concept machine, making it ideal for sites where noise emissions are a particularly sensitive issue, like schools, hospitals, shopping malls and other highly populated areas. Another key advantage is the machine's simplified servicing, thanks to the reduction in the quantity of hydraulic oil needed.

Manitou also showcased its Gehl RT 135 compact track loader. The machine was launched in September 2019, meeting the needs of rental companies. It is highly compact and easy to use, thanks to its pilot joystick, which facilitates manoeuvring. This model is suitable for renovation projects and landscaping works.

Equipped with an automatic track tensioning system, Ideal Trax, the Gehl RT 135 features a load capacity of up to 612 kg, hydraulic flow of 64 l/min and maximum lifting height of 2.80 m. According to Manitou, the machine has an hourly preventive maintenance cost of S\$1.07/h (€0.97/h), which is 30% less than previous versions. Such a difference can partly be explained by an increase in oil drain intervals: 1,000 hours vs 500 hours previously for hydraulic oil, and 500 hours vs 250 hours for engine oil.

The compact and versatile rough-terrain Manitou MC 30 forklift is ideal for rental companies as well. The total cost of ownership is reduced with this new model, with preventive maintenance down by 22% compared with previous versions, said Manitou. A new mast is also available on the whole range of rough-terrain forklifts with less than 3.6 t capacity. Thanks to a new mast profile design, visibility has been improved by 35% (up to 45% depending on the model), significantly improving safety for the operator and the surrounding area.

Other highlights at Conexpo included the Mustang AL 708 T articulated loader,



Gehl electric skid loader concept.



Manitou MC 30 forklift (above) and TJ 85 telescopic boom lift.

fitted with a telescopic arm that extends to 5 m for a maximum capacity of 3.5 t, and the Mustang AL 608, featuring a capacity of 2.9 t for a lifting height of 3.3 m - this model is now available with a Tier IV engine, and its preventive maintenance costs are 38% lower than those of the previous version. ■

Website: www.manitou.com

POWER CURBERS

Power Curbers showcased the latest model of its 5700 series, the 5700-D – which replaces the 5700-C as the ‘one machine solution’ for concrete slipform applications. The new 5700-D excels in curbing, sidewalk, barrier, ditches, paving, tunnel, agricultural and specialised applications. It features a compact size, simple design, easy operation, high productivity and versatility.

The new Power Curber SlipSmart control solution makes the 5700-D highly responsive. The system’s simplicity and accuracy provide contractors with a new level of precision. The SlipSmart controls come ready to interface with Topcon, Leica, and Trimble 3-D/Stringless systems.

Other new features that enhance the versatility of the 5700-D include: ‘All up’ jog switch that raises or lowers all crawler posts simultaneously; improved cross-slope control; auto-calibration for the radius steer sensor; fine scaling of speed controls; engine display replacing individual gauges; easy-pivot conveyor; wires that are etched with descriptive label text matching machine schematics; cold air dam between engine and console to keep the console and operator cooler; improved wand-activated high-pressure water system; redesigned door latches, including a single, lower latch to access the engine compartment; as well as toolbox end doors and shovel holders at conveyor.

The 5700-D is also equipped with a new vibrator master scaling



Power Curber 5700-D curb and gutter machine.

knob, which allows the operator to increase or decrease vibration across all vibrators while individual vibrator adjustments remain relative to each other. Furthermore, there are improvements and additions to optional equipment such as a new canopy, enhanced low-pressure water system, and improved barrier lift kit with the reach doubled up to 1,220 mm. ■

Website: www.powercurbers.com



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LINK-BELT

Link-Belt Cranes displayed several models, including its recent additions to the rough terrain line-up, the 100|RT and 120|RT, as well as the HTC-86110 telescopic truck crane and the 348 Series 2 lattice crawler crane. Following extensive endurance, road, field-testing and the first shipment delivered in the fourth quarter of 2019, the 175|AT also made its North American debut.

First shipments of the 90-t 100|RT rough terrain crane were carried out in the third quarter of 2019, delivered to a variety of projects - from general construction to chemical plant work. The crane offers an outstanding reach with a five-section (12.3 – 47.2 m) full-power formed boom. Link-Belt SmartFly is available on the 100|RT - a two-piece (10.7 – 17.7 m) on-board offsettable fly with manual offsets at 0, 15, 30 and 45 degrees. A 4.9 m lattice insert extension provides a maximum tip height of 72.2 m.

The 100|RT's six-speed transmission is powered by a dual compliant Cummins Stage V/Tier IV QSB 6.7L (173 kW) engine, while a Cummins Tier III QSB 6.7L 179 kW diesel engine is also available. Four 29.5x25 tyres mounted on axles affixed to the carrier via greaseless four-link suspension, thereby eliminating 10 previous grease points. Centralised electrical locations, remote mounted filters, and easy-access fluid checks make routine service a breeze. The 100|RT also features Link-Belt's V-CALC (Variable Confined Area Lifting Capacities) system.

First shipments of the 110-t 120|RT rough-terrain crane were carried out domestically and internationally in the fourth quarter of 2019. The 120|RT features a six-section (11.6 – 50 m) pin and latch formed boom, and is available with Link-Belt SmartFly system. Two 4.9-m lattice insert extensions provide a maximum tip height of 79.8 m.

The 100-t HTC-86110 telescopic truck crane is equipped with a 50 m main boom. Link-Belt SmartFly is available with a 17.6 m on-board fly that features four offset positions of 0, 15, 30 and 45 degrees. The fly also features an integrated 3.0 m fly that reeves up to four-parts of line and is capable of 21.7 t lifts. The 3.0 m fly is ideal for applications where two load lines are necessary for lifting one load. Two additional 4.9 m lattice boom extensions bring the maximum tip height to 79.7 m.

The 150-t 175|AT is Link-Belt's newest



CLOCKWISE FROM ABOVE: Link-Belt's TCC-800 telescopic crawler crane, 348 Series 2 lattice crawler crane, and 175|AT all-terrain crane.



five-axle all terrain crane, offering a 60.1 m main boom with six-sections of pin and latch telescopic boom that, like all Link-Belt formed booms, ride on Link-Belt's greaseless wear pads. The crane is powered by a 432 kW Cummins QSX15 engine. The chassis is also fitted with all-wheel ABS disc brakes, engine and powertrain braking, and speed dependent all-wheel steering.

The Link-Belt SmartFly system on the 175|AT is a 16.8 m on-board fly that features the customer's choice of four manual offset positions or variable hydraulic offset range from 0 to 45 degrees. The 175AT also features an integrated 3.0 m fly, and three additional 5.4 m lattice boom extensions bring the maximum tip height to 96 m.

Another highlight from Link-Belt at Conexpo was the 273-t 348 Series 2 lattice crawler crane, which can self-assemble with a live mast quick draw cylinder. An all-new 13-piece counterweight removal system lifts up to 102,965 kg of upper counterweight and is designed for easy handling with fewer connection points. The full counterweight system is pinned and unpinned at ground level.

In addition, the new Link-Belt TCC-800 telescopic crawler crane is expected to begin field-testing this year, with



first shipments scheduled in the fourth quarter. The crane comes with a new four-section (11.8 – 36.5 m) full-power boom that reaches a maximum tip height of 56.2 m with full boom and Link-Belt's SmartFly pinning system. The TCC-800 offers optional one or two-piece (10.6 – 17.6 m) fly.

Link-Belt SmartFly was also being showcased. The system is easy to erect and stow because of a logical design that is robust, simple and efficient (one-person operation). The development of SmartFly began with the introduction of Link-Belt HTC-86110 telescopic truck crane. Today, the company has broadened the SmartFly technology across its multiple product lines – from on-highway truck cranes to telescopic crawler cranes, rough terrain cranes, and all-terrain cranes. ■

Website: www.linkbelt.com

DOKA

Doka's digital solutions aim to boost productivity on construction sites. The company offers services ranging from the planning phase to building operations and analysis of construction workflows.

DokaXact is a wireless interactive sensor-based system that enables high-level accuracy in positioning wall formwork elements for vertical structures, such as high-rise concrete cores. DokaXact is used with climbing systems and allows construction site crews to quickly and precisely plumb and align wall formwork. It delivers accurate positioning with labour efficiency by reducing the amount of time needed and up to a 75% saving in surveying services, said Doka. It consists of a centralised processing unit that communicates wirelessly with multiple sensors and the DokaXact app.

Doka's Building Information Modelling (BIM) creates integrated formwork concepts on a virtual site, which boosts productivity on the jobsite and improves planning and reliability. In the near future, virtual construction is expected to become a standard tool and the physical jobsite will be more highly networked and automated.

Compared to traditional workflows, virtual design and construction (VDC)/BIM offers even closer matching of formwork solutions to a building's construction process, which contributes significantly to the success of the overall construction project with seamless and smooth collaboration. The VDC/BIM method allow processes to flow smoother through material management, with logistics solutions for formwork planning, model analysis and quality check.

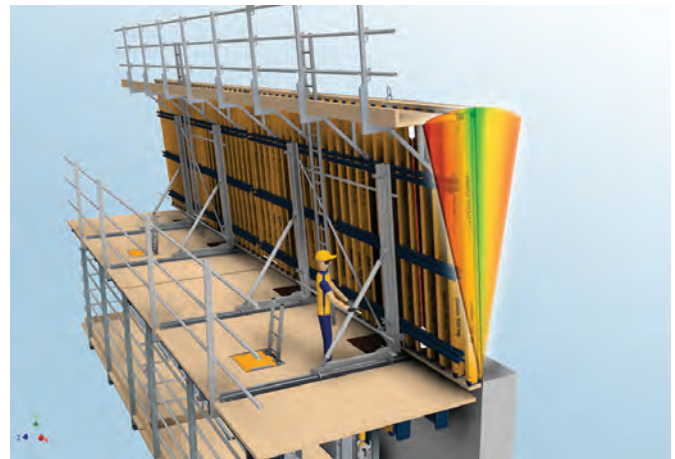
In addition, the Doka Augmented Reality (DokaAR) and Virtual Reality (DokaVR) applications enriches 2D drawings with 3D models. The DokaAR app transforms Doka's drawings into 3D AR models assisting with onsite assembly and setup of solutions. It also allows users to be teleported to a Doka jobsite to see the numerous innovative solutions in action, which alleviates errors. Both DokaAR and DokaVR apps are available on the Apple App Store and Google Play Store.

Doka's Concremote is a concrete monitoring system with digital sensors to measure the cast in-place concrete maturity (temperature × time) gradient. Using this data, the device calculates early-age strength. Concremote saves time, increases safety, enhances concrete quality and reduces costs.

Doka's Remote Instructor is a real-time collaboration software solution that can help answer formwork-related questions on the jobsite. It uses smart video-compatible with any mobile device to provide field support. Questions can be answered immediately on the jobsite with Remote Instructor, eliminating downtime when questions occur.

Users can use Remote Instructor in combination with a head-mounted tablet as a handsfree solution, zoom in to focus on details and receive live drawing explanations that appear in their field of vision. There is even live desktop sharing, so remote content can be accessed. Using Remote Instructor results in cost savings, since there are fewer stoppages and faster access to support. Each call, and the solution offered, are documented for future reference.

Doka's Easy Formwork Planner app makes it easy to plan and order formwork – right from the jobsite. With a swipe of the finger, plans can be created or visualised in 3D. Formwork materials and quantities can be calculated or changed on short notice. There is also an integrated option to generate a piece list and compare it to the inventory in myDoka. With the Easy Formwork Planner,



DokaXact, a wireless interactive sensor-based system that enables accurate positioning of wall formwork elements for vertical structures.



Doka's Building Information Modelling (BIM).



Doka concrete monitoring system, the Concremote.

jobsite foremen (and the entire crew) can work independently of engineers and other remote decision-makers.

Doka has its own online shop as well, which provides customers with access to a wide range of Doka and industry products. It can be accessed at any time through all commonly used devices and operating systems. Online shopping has the additional benefits of order tracking and status updates. Plus, customers can still take advantage of existing benefits such as customised pricing, discount scales and master agreements. ■

Website: www.doka.com

CHEMGROUT

The ChemGrout CG-460/2X8 HP colloidal series is specially designed for the grouting of hollow bars, tiebacks and ground anchors. The plant has two high-shear colloidal 265-l mixing tanks, and a double acting, high-pressure 2X8 plunger grout pump. This pump is fitted with fasteners that can significantly reduce disassembly time for quick cleaning and maintenance.

The dual colloidal mixing tanks allow for independent mixing of flushing and structural grouts. Each mixer is equipped with variable-speed, high-efficiency, high-shear disks rotating at speeds of up to 3,000 rpm for rapid and thorough mixing. The tank outlet valves feature a large 4-in butterfly type that assures full material flow into pump suction. The 2X8 plunger grout pump delivers 57 l/min and 138 bar, and an optional 3X8 pump delivers 76 l/min and 69 bar.

The CG-460 series is available in a variety of power options, including air, hydraulic, electric/hydraulic (25 hp electric motor), and diesel/hydraulic (33 hp Kubota engine). Both electric and diesel models require a separate skid-mounted power pack.

The ChemGrout CG-680 high-pressure (HP) series is a high-pressure, high-capacity, skid-mounted colloidal grout plant for mixing and pumping slurries of cement, fly ash, bentonite and lime flour. It is designed to provide a continuous mixing and pumping operation, with a 0.5 cu m homogenising colloidal mixer, 0.5 cu m agitated storage tank and 120 l/min grout pump. The CG-680 HP is commonly used in tunnelling, dam foundations, soil compaction and encasements, among others.

The CG-680's high-capacity, double-acting plunger grout pump is connected directly to the agitated storage tank to provide a continuous pumping operation. The colloidal mixer is equipped with a 2X3X12 high-shear centrifugal diffuser-type pump that disperses the cementitious material down to its finest particle size to achieve complete particle wetness.

The CG-680's mixing tank is also equipped with a bridge breaker to break apart the material before entering the colloidal mixer. The agitated storage tank has a variable-speed, high-efficiency paddle mixer that maintains a thoroughly mixed grout while waiting to be pumped.

In addition, the skid-mounted ChemGrout CG-050M manual hand pump is easy to use, designed for smaller jobs using high viscosity slurries and most pre-packaged grouts. The unit's rugged, lightweight aluminium construction offers mobility in areas where no air or electric power sources are available.

The CG-050M features a large 19-l holding hopper and durable 2-in piston pump that produces discharge head exceeding 45 m (ideal for vertical lifting). The manually powered, positive displacement piston pump can disassemble quickly without tools for simple cleaning and maintenance.

The CG-050M provides more than 14 bar of injection pressure, and an output capacity of 7-11 l/min. The unit weighs only 24 kg, measuring 44-in long, 11-in wide and 31-in high. ■

Website: www.chemgrout.com



ABOVE: The CG-680 high-pressure (HP) series.



LEFT: The CG-460/2X8 HP colloidal series.

RIGHT: The CG-050M manual hand pump with an operator.



LEFT: A wide range of ChemGrout grouting equipment at Conexpo.



WIRTGEN

The Wirtgen Group displayed more than 30 exhibits, including 10 world and North American premieres, as well as an interactive technology exhibition. Among the highlights were the new Wirtgen large milling machines.

The high-performance Wirtgen W 220 Fi and W 250 Fi large cold milling machines have now completed the company's new F series. They set standards in milling performance and machine efficiency, primarily thanks to the innovative Mill Assist machine control system.

The Mill Assist helps the milling machine operator optimise machine performance and significantly reduce diesel, water, and pick consumption as well as CO2 and noise emissions. Practical experience shows that users already use Mill Assist more than 90% of the time their machine is in operation, significantly cutting costs as a result.

The Wirtgen W 220 Fi and W 250 Fi large milling machines serve a wide range of applications at a maximum milling depth of 350 mm – from surface course rehabilitation and fine milling work to complete removal of the surface.

Various drive concepts are available to ensure maximum, optimal milling performance. These include a two-speed Dual Shift powershift transmission for the W 220 Fi, and an Active Dual Power dual engine drive for the W 250 Fi. The new models have an engine power of 801 hp (W 220 Fi) and 1,010 hp (W 250 Fi).

Like the other F-series models (the W 200 Fi, W 207 Fi and W 210 Fi), the W 220 Fi and W 250 Fi are also setting new standards in terms of milling performance and machine efficiency. In the automatic mode, the Mill Assist standard assistance system provides an optimal balance between performance and operating costs. This not only improves milling performance, but also reduces diesel, water, and pick consumption, as well as CO2 emissions.

The machine operator can also preselect a working strategy from 'cost-optimised', 'performance-optimised', or 'milling texture quality'. For example, it is possible to define the required milling texture quality on a scale of 1 (coarse) to 10 (very fine) in advance at the touch of a button.

Mill Assist also automatically controls the two-speed Dual Shift powershift transmission. Together with the diesel engine, the intelligent control of the two-speed powershift transmission extends both the upper and lower range of possible milling drum speeds. At lower speeds, fuel and pick wear can be significantly reduced. At higher speeds, high milling pattern quality is ensured even in the case of high area performances.

With the Active Dual Power dual engine drive of the W 250 Fi, depending on the project situation and the pre-selected working strategy, Mill Assist then automatically controls just one or both motors. In addition, the engines operate efficiently at optimally adapted speeds. This significantly reduces costs for diesel and cutting tools.

Furthermore, the Wirtgen Performance Tracker (WPT) calculates the precise surface milling performance, milling volume, and consumption values for the machine. All-important performance and consumption data are displayed on the operator's platform in real time for the milling machine operator and are also sent to the machine operator by e-mail in an automatically generated report immediately after completion of the milling work. ■



TOP AND ABOVE: The Wirtgen Group showcased more than 30 exhibits, including 10 world and North American premieres.



The new software-based solution WITOS Paving Docu from Vögele allows paving data and delivery notes to be captured directly on site and job site reports to be sent automatically.

The North American premieres of Vögele's WITOS Paving Docu, Hamm's HP 180i tyred roller, and Kleemann's Mobicat MC 120 Zi PRO jaw crusher also underscored the group's position as the innovation driver and technology leader in the road construction sector. The Wirtgen Group Technology Centre, where visitors could learn about the specialised product brands' application technologies in more detail, was also popular. ■

Website: www.wirtgen-group.com

LIEBHERR

One of Liebherr machines on display was the LB 45 drilling rig, the successor to the LB 36, featuring a torque of 450 kNm – this is an increase of approximately 10% in comparison to the LB 36. Both the counterweight and the leader of the LB 45 feature a modular design, allowing for quick and easy assembly and flexible application.

With the enhancement of the drilling axes by 500 mm, the LB 45 can be used for drilling diameters up to a maximum of 3.3 m. At the same time, the maximum depth for Kelly drilling with five-fold Kelly bar has been increased to 100 m. The strong winches with a maximum pull force of 42 t enable excellent performance, even under the most difficult conditions.

Another deep foundation machine from Liebherr was the LRB 355 piling and drilling rig, which offers an innovative design and intuitive assistance systems. Available globally, the LRB 355.1 can be used for various deep foundation applications, such as drilling with Kelly equipment or full displacement tools, and working with vibrators or hydraulic hammers.

The HS 8200 is the new Liebherr duty cycle crawler crane in the 200-t category. Thanks to its newly designed drive system, the machine's efficiency is increased by 15%. Its load capacity has also been increased by up to 15%.

Available globally, the HS 8200 is ideal for extraction work and is capable of not only using a dragline bucket but also a grab. For deep foundation purposes, the machine can be applied for dynamic soil compaction, as well as fitted with a casing oscillator or fixed leader. When digging a shaft, the winches can even be used with the full 35-t line pull in the fourth layer. Equipped with various counterweight options, the HS 8200 is also excellent for lifting operations.

The Liebherr A 922 Rail Litronic rail-road excavator has an operating weight of between 20.4 and 23.4 t and an engine power of 163 hp. The machine can be operated as a dual-purpose machine either on the road or on railway tracks. The other model, the A 920 Litronic wheeled excavator, features an operating weight of 18.3 to 21.3 t and an engine output of 175 hp. It is suitable for road, canal and pipeline construction as well as for classic earthmoving work.

Two of Liebherr Generation 8 crawler excavators, the R 926 and R 938, were exhibited for the first time in the US. The machines offer higher engine power, a heavier counterweight for higher bucket capacities, and minimal fuel consumption. A new equipment concept with a modified piece at the top of the boom helps to improve machine performance and equipment forces with reduced operating weight of the machine.

From the wheel loader series, Liebherr showcased the L 566 XPower with power-split travel drive, the L 586 XPower and the L 538. For customers in Central and South America, Liebherr offers the L 550 model, which is targeted at the less emission-regulated markets.

The Liebherr 125 K fast-erecting tower crane has been specially developed for civil engineering requirements, such as road traffic bridges and commercial projects, plus industrial building construction. It features a radius of 55 m and a maximum hook height of 41.5 m, with a maximum lifting capacity of 8 t.

The Liebherr 340 EC-B flat-top series was also on display. Three of the eight units are equipped with fibre rope, which offers four times longer service life than steel rope and enables fibre cranes to work with a significantly higher load capacity. The 340 EC-B



FROM TOP: Liebherr's LB 45 drilling rig, HS 8200 duty cycle crawler crane, and A 922 Rail Litronic rail-road excavator.

provides a maximum radius of 78 m, maximum lifting capacity of 12 t and maximum hook height of 84.7 m.

The Liebherr LTM 1650-8.1 is an eight-axle mobile crane - aimed to replace the 1500-8.1 model - available with 54 m and 80 m telescopic booms, and can travel with an axle load of 12 t (complete with its 54 m telescopic boom and the front supports).

The Liebherr 800-t LR 1800-1.0 crawler crane is designed as a powerful industrial machine for jobs with a luffing jib and derrick system, such as power plant construction and the petrochemicals industry. The boom system has lattice sections with three system dimensions, which can be telescoped into each other for transport.

Other Liebherr machines at Conexpo included the PR 736 dozer, LH 60 M and LH 30 M Industry Litronic material handlers, and THS 110 D-K crawler concrete pump ■

Website: www.liebherr.com

HAULOTTE

Haulotte's latest telescopic boom lift, the HT16 RTJ (named the HT46 RTJ in the US), provides a working height of 16 m. The machine is planned to be launched in Europe and Asia Pacific over the next few months.

The HT16 RTJ features an updated design utilising mechanical axles, which allows for a smaller engine while still maintaining the rough terrain performance of a larger engine. For optimal safety, the boom lift is equipped with Haulotte innovations: Haulotte Activ' Shield Bar to prevent crushing risks; Haulotte Activ' Lighting System to ensure safety during night-time loading and unloading operations; Haulotte Stop Emission System to limit pollution and noise; and Haulotte Activ' Screen to provide key information about the machine in real time.

Speaking on Haulotte's direction in the market, Carlos Hernandez, the company's executive managing director for the Americas explained, "We launched the Pulseo Generation in 2018, a new generation of all-electric off-road machines as part of our 'Blue Strategy'. All our thermal energy machines will gradually integrate the technologies developed on Pulseo. In fact, the new HT46 (HT16) telescopic boom that we are showing today will be the last internal combustion machine from Haulotte as we complete our telescopic range."

Mr Hernandez further mentioned that Haulotte machines are mainly used in urban or peri-urban areas. "We are seeing more and more 'low emission zones' appear, with more than 200 major cities in the world already prohibiting the use of polluting or noisy equipment. The future belongs to zero emission machines."

According to Haulotte, the company is currently building a strategy of providing a full solution portfolio, which includes machines but focuses on the customer and the network of services around the machines that make the customer successful. Haulotte also revealed that the development of its new service offers using fleet management solutions will be coming soon, and is expected to take centre stage in the coming years.

"Haulotte services are essential for all our customers, especially rental companies," highlighted Mr Hernandez. "We support them in the growth of their business model: through advice on product offerings, financing solutions, training, quality technical support, etc.

"Whether directly or through our distributor networks, we closely collaborate with our customers throughout the life cycle of our machines. From pre-sales to after-sales advice, we are in a relational approach, much more than transactional.

"That close relationship is also a key step in our development of new products. Most of the users of our equipment are not experts in driving aerial work platforms, so we must think about use around safety, simplicity and comfort of use to allow the productivity benefits expected by the operator. This is why close relations with our rental partners, we create specifications that meet both application expectations and fleet management requirements."

Total cost of ownership (TCO) is one of the essential guidelines for managing the development of a new machine. Thus, the new HT16 RTJ (HT46 RTJ) is designed from the ground up with TCO in mind, said Mr Hernandez. Built with an eye on the reduction and optimisation of maintenance costs, it is ready for new technologies such as IoT to make it possible to move from curative maintenance to preventive maintenance, which will then lead Haulotte to the goal of predictive maintenance.



TOP AND ABOVE: Haulotte HT16 RTJ telescopic boom lift.

Today, Haulotte generates 85% of its business internationally compared to 15% in France, where the company's headquarters is located. Its main area of activity, Europe, accounts for nearly 55% of total activity; Asia for nearly 30% and America for 15%. The company said it is counting on China's strong potential, which alone will - in the medium term - represent the equivalent of the European market. ■

Website: www.haulotte.com

GOMACO

The new Gomaco GP360 is both a slipform paver and a placer/spreader on two tracks. As a GP3 slipform paver, it is capable of slipforming up to 10.97 m wide. Add a 1,524 mm belt and it becomes a concrete placer/spreader for up to 19.97 m wide.

The new machine gives contractors the technology of the Gomaco GP3 slipform paver with the ability to convert the prime mover into a concrete placer/spreader. The prime mover is equipped with vibrator circuits for paving and auger drive circuits for placing.

Controlling the new technology is made possible with the Gomaco G+ digital control system. G+ is able to seamlessly handle the controls conversion needed for each application while also bringing onboard M2M (machine to machine) communication, sonic sensors, 3D machine guidance, and more.

The GP360 is powered by a Caterpillar C7.1 Tier 4 diesel engine delivering 302 hp to efficiently drive the conveyor belt and distribute concrete across the grade. The high-volume, 1,524 mm conveyor belt can be mounted on either the left or right-side, depending on jobsite conditions and the location of the haul road. It has a discharge speed of up to 150 mpm for fast and efficient concrete placement. A controllable material deflector directs the flow of concrete at the discharge end of the conveyor for placement accuracy. With the concrete placed on grade, a dual-drive auger system moves the material to the centre or outer areas and across the strike-off.

The GP360's strike-off has independent vertical adjustment to control the depth of the placed concrete without having to raise or lower the entire prime mover. The strike-off height is controlled by Smart Cylinders, independent of the prime mover. An optional sonic sensor system and Gomaco Navigator display can be added to monitor the depth of the concrete as it is placed.

The G+ control system on the paver utilises the information provided by the sonic sensors on the GP360 using M2M communication. This communication between the two machines, with the ability to independently control the strike-off depth, provides an optimum and consistent head of concrete in front of the paver for maximum, smooth-pavement results.

In addition, Gomaco's concrete slipform pavers now feature the new Navigator software and optional ground level touchscreen display. The Gomaco Navigator is software for pavers that brings all of the G+ paver accessories together for easy control and monitoring on an optional touchscreen display.

The touchscreen display can be mounted on the paver at ground level and allows ground personnel to make fine-tune adjustments to the paver's performance and also configure settings for the GSI, side bar inserters, tie bar inserters, and power transition adjusters. Ground personnel can monitor elevation and steering deviations for the paver and make as-needed adjustments to control sensitivities. The deviations meters are customisable and can be displayed in a G+ bar graph, circular, or oscilloscope/histogram mode.

The Navigator makes it possible to retrofit new G+ accessories to older Gomaco pavers still operating with the G21/G22 control systems. The magic of G+, along with the Navigator software, is advancing Gomaco paver controls and capabilities on a daily basis.

Ground personnel can easily monitor the pave-time operation of the paver's bar insertion systems and power transition adjusters (PTA) with the Gomaco Navigator. It supports up to four PTAs with



ABOVE: Gomaco GP360 placer/spreader slipform paver.

LEFT: The new Gomaco Navigator, a touch-screen display, is mounted to the side of a GP4 paver at ground level for easy control and monitoring of the G+ paver accessories.

simple-to-operate touchscreen control. To make a transition, the ground person simply enters the new target height values for each PTA, then enters the transition distance, and presses start transition.

A coloured, graphical display shows the height of each PTA, as well as the new target height. The Navigator can support four tie bar inserters and two side bar inserters. The display illustrates the moving machine position including transverse joint spacing and when the paver passes an insertion point, fire lamps for each tie bar or side bar inserter are illuminated.

The Navigator, combined with the GSI (Gomaco Smoothness Indicator), creates the ultimate system for monitoring pavement smoothness on-the-go. A GSI screen within the Navigator allows the paving smoothness of up to four GSI traces to be monitored using either a real-time localised roughness graph or a simulated California profilograph. It logs the paver's speed and travel information, along with paver start and stop events which allows contractors to correlate machine speed with pavement smoothness in relationship to the profile being slipformed for ultimate rideability.

The hardware for the mould-mounted GSI has been upgraded along with the software. New CAN-based slope and sonic sensors read the smoothness data anywhere on the slab's surface, including the wheel tracks. The information gathered by the sensors in each trace are used to establish the measurement of the slab.

New lightweight aluminium GSI mounts make handling and assembling the GSI units easier and require less maintenance. The new mounting system is low profile so a work bridge can be mounted directly above the GSI, while spacing the units evenly across the back of the paver for the most accurate measuring possible. Each of the GSI units now has its own digital LCD screen on its tracer bar for digital diagnostics right at the sensor location. ■

Website: www.gomaco.com

DEMAG

Among Demag all-terrain cranes on display was the AC 220-5, which features an overall length of 14.52 m and width of 3 m. It has a maximum main boom length of 78 m, and is able to reach up to 99 m with an optional main boom extension.

Thanks to its innovative IC-1 Plus control system, the five-axle AC 220-5 can handle lifts that are normally carried out by larger cranes. To do this, the system calculates the crane's lifting capacity for every boom position as a function of the superstructure's slewing angle, and in real time to boot. Therefore, the lifting capacity for a specific radius is no longer limited to the lowest value for a pre-calculated 360° lifting capacity, as used to be the case. Instead, the crane can always take full advantage of the maximum available lifting capacity. This advantage is particularly useful when the lifts require an asymmetrical outrigger setup.

The AC 220-5 is also cost-effective. Many of the components in Demag five-axle machines – like hoist 2, main boom extensions, runners, swing-away rooster sheaves and heavy-lift attachments – are interchangeable, resulting in easy maintenance and in turn lower operating costs.

The AC 220-5 is powered by Scania DC13 diesel engines with an output of 331 to 405 kW, complying with EU Stage V / Tier 4f (405 kW) or EU Stage III A / Tier 3 (331 kW) regulations. The power delivered by these engines is safely and reliably brought to the road by fully automatic ZF TraXon transmissions with 12 forward gears and two reverse gears via three or four driven axles. In addition, five-axle steering, combined with independent rear axle steering and dynamic launch control, makes the AC 220-5 highly manoeuvrable.

From the lattice boom crawler crane portfolio, the Demag CC 3800-1 offers a lifting capacity of 650 m at a radius of 12 m, and a maximum load moment of 9,152 meter-tonnes. This model is suitable for various projects, and is also excellent for erecting wind turbines with a hub height of up to 117 m without a Superlift system.

The CC 3800-1 comes with a 144-m main boom, but the crane's maximum system length can be extended all the way up to 171 m with an optional boom booster. The welded steel structure consists of up to seven sections with a length of 12 m and is designed to be directly mounted on the crane. It also boosts the main boom's stiffness, further increasing its lifting capacity.

When fitted with the boom booster and a lightweight rigid lattice jib, the CC 3800-1 has a maximum hook height of 185 m and lift loads of up to 71.5 t. Thus, the crane can tackle lifts that would normally be handled by cranes in the 750-t class.

With the optional 'Fall Protection Device', the CC 3800-1 offers maximum safety during setup and disassembly. So if a person on the lifeline falls, the system is able to arrest their fall at a large distance from the ground, significantly lowering the risk of injury.

The Superlift Split Tray, which is also optional, features quick coupling technology that makes it possible to easily uncouple the counterweight that is no longer needed after erecting the main boom. After doing this, the crane can simply move with the Superlift counterweight that is actually needed, saving assembly time, minimising the amount of personnel needed, and eliminating the need for an assist crane.

The optional Flex Frame unit can be used to replace the standard telescopic cylinder. As such, the Superlift counterweight radius can be adjusted to any dimension between 13- and 21-m



Demag AC 220-5 all-terrain crane (above) and CC 3800-1 lattice boom crawler crane.



with the full counterweight. This means less counterweight needs to be set up and removed, reducing setup times.

Demag also offers the CC 3800-1 crawler crane in a different form as the PC 3800-1 pedestal crane, which outdoes its 'brother' by 100 meter-tonnes with a load moment of 9,252 meter-tonnes. The Demag PC 3800-1 is available as a complete crane or as an additional carrier, and the quick coupling system allows the user to easily switch between the crawler and pedestal carriers.

A Demag PC 3800-1 equipped with axle lines can be easily configured for an axle load limit of 12 t or a total vehicle weight of less than 100 t, depending on the relevant regulations determining whether a vehicle is street-legal.

At the work site, a 390-kW Mercedes Benz diesel engine delivers ample power under all operating conditions. Moreover, the crawler tracks can be controlled independently of each other, as well as in opposite directions, with a tractive force of 1,400 kN per side. ■

Website: www.demagmobilecranes.com

SANDVIK

One of the highlights from Sandvik Mining and Rock Technology at Conexpo was the Leopard DI650i drill rig, which incorporates a new drilling simulator and SanRemo Mobile.

The Leopard DI650i down-the-hole (DTH) drill rig is designed for demanding high-capacity production drilling applications in surface mining, as well as large-scale quarry applications. Apart from a powerful engine and compressor, the machine features a highly ergonomic iCAB cabin, excellent serviceability, mobility and fuel economy, along with scalable automation packages, all of which aim to boost overall productivity.

Visitors were able to try out its performance using the Leopard DI650i drilling simulator to guide them through the whole drilling process. Presented at the show for the first time, the SanRemo Mobile is a mobile device-based connectivity solution for Sandvik surface drill rigs, which quickly and easily transfers cost-effective drill plans, reports and other drilling data to increase operational efficiency.

The Sandvik UJ440i mobile jaw crusher also made its appearance at Conexpo. The machine features trouble-free operation, thanks to its onboard integrated 'intelligence' system. This allows for ease of operation, as the UJ440i is continuously and automatically monitored by the control system that operates the unit, enabling full optimisation of production.

Designed on a fully tracked chassis and operated via radio remote control, the UJ440i is fitted with the Sandvik CJ412 jaw 1,200 x 830 mm, which offers great size reduction and consistent production, thereby maximising uptime and more efficient operation. Specifically suited to aggregate production and mining applications, the model is highly versatile and can be offered in three different variants to suit the customer's specific application.

Also on display from Sandvik's mobile crushing and screening offering was the modular double deck hanging screen, which connects to Sandvik QH332, QS332 and QJ442 tracked crushers. Unique benefits of the screen include its ability to be quickly adapted for operation in open or closed circuit configurations, an adjustment system that allows the screen to be quickly reconfigured to recirculate and produce a single sized finished product or two-sized finished product.

In addition, the new Sandvik CH840i cone crusher features mechanical upgrades, connectivity, advanced automation and rebuild possibilities - predicting performance, maximising uptime and offering the best in sustainability at the lowest possible cost.

The cone crusher comes with the Automation and Connectivity System (ACS) as standard, to continuously monitor and optimise crusher performance and control the complete lubrication system, increasing uptime and reliability. Connected to My Sandvik, the Sandvik 800i crushers enable managers and operators to make fact-based decisions and directly identify areas for improvement.

Sandvik's new SJ2463 circular motion screen range is specially designed for extra heavy-duty, medium and fine screening applications. This inclined screen range is ideal for screening after primary and secondary crushing, as a splitter screen to divide flows within a plant and for final screening of a finished fraction. With a wide variety of options and adjustability, the new screening range can be optimised to each application.

For demolition and recycling equipment, the latest hammer offering from Rammer Excellence and Rammer Performance lines were also showcased, as well as Rammer's RD3 remote monitoring



ABOVE: Leopard DI650i drill rig from Sandvik.



LEFT: SanRemo Mobile app improves the connectivity of Sandvik surface drill rigs.

BELOW: Sandvik UJ440i mobile jaw crusher.



device. This RD3 uses the MyFleet Telematics service to track and monitor fleet equipment usage without needing to go to site to collect the data - ideal for dealers, rental companies and operators.

Rammer cutter crushers, pulverisers, grapples, shears and multiprocessors are designed to perform a broad array of duties. Engineered for both primary and secondary applications, these products provide optimum operational flexibility. The attachments can cut, crush, segregate and pulverise a wide variety of construction materials to facilitate more controlled dismantling, effective recycling and material handling.

Furthermore, Sandvik launched its new digital solutions, including Remote Monitoring Services and Expertise-On-Site. A new My Sandvik 2.0 platform will continue to develop digital services to improve lifecycle cost, uptime and equipment reliability. ■

Website: www.rocktechnology.sandvik

SNORKEL

Making its global debut at Conexpo 2020, the Snorkel 2100SJ 'mega boom' is breaking records with a maximum working height of up to 65.8 m, horizontal outreach of up to 30.4 m, and excellent working envelope with an area volume of 155,176 cu m. Shown as a preview, Snorkel was accepting pre-orders at the show with deliveries scheduled to commence in early 2021.

Snorkel also unveiled its 'mega scissor' lift at the show. The new S9070RT-HC is the first in a family of four new ultra-high capacity large deck construction scissor lifts, which will be introduced through the remainder of 2020, offering lifting capacities of up to 1,814 kg. With a maximum working height of 23.3 m and lifting capacity of up to 907 kg, the S9070RT-HC comes equipped with dual powered extension decks and a spacious platform area of 18.76 sq m.

Alongside the new ultra-high capacity construction scissor lift family, Snorkel launched a line of three large deck construction scissor lifts, featuring working heights ranging from 11.8 to 17.9 m. The mid-size S9043RT model, with a maximum working height of 15.1 m and lifting capacity of 680 kg was on display at Conexpo.

In the electric slab scissor lift family, Snorkel is expanding its range and lifting height with the introduction of the new S4740E. This becomes the largest electric slab scissor lift offered by Snorkel, with a maximum working height of 14.0 m, measuring just 1.19 m wide. Ideal for working in tilt-up warehouse spaces and confined high-rise indoor spaces, the S4740E is Snorkel's first lift to be offered with a choice of either hydraulic or electric drive.

Weighing 3,100 kg and with a lifting capacity of up to 250 kg, the S4740E shares the same features and benefits of Snorkel's existing electric slab scissor lift family, including saloon-door style entry gates, 'inside-out' access to key components for easy servicing, and a fixed upper control box with integrated power outlets. The S4740E was being shown for the first time at Conexpo and was available to order at the show.

Snorkel also highlighted its new lithium-ion electric powered models, alongside the lithium-electric Snorkel Speed Level that was launched in November 2019. The company previewed a lithium-ion electric



CLOCKWISE FROM ABOVE: Snorkel 2100SJ telescopic boom lift or 'mega boom', S9043RT scissor lift, S4740E scissor lift, and 660SJ telescopic boom lift.



compact rough terrain scissor lift, as well as a lithium-powered compact telehandler, the new Snorkel SR5719E.

In the mid-size telescopic boom lift range, Snorkel showed two new innovations to its existing 400S/460SJ and 600S/660SJ models. Displayed for the first time, Snorkel's new 'all terrain' package for the 600S/660SJ telescopic boom lifts features four independent rubber tracks for use on difficult terrain or where low ground pressure is required.

Snorkel is ANSI A92.20 ready, with models at the show highlighting compliance

to customers, including the Snorkel S3010E low-level self-propelled mini scissor lift - which has recently been updated to include a platform overload system.

During the show, Snorkel also provided a preview of its new BIM library, which is currently in development. Snorkel is rolling out RFA format 3D models of popular lifts over the coming months to enable customers to visualise the equipment on architectural and construction jobsites, helping to identify the right equipment for the right job. ■

Website: www.snorkellifts.com

CATERPILLAR

Visitors had the opportunity to experience three Caterpillar exhibits totalling more than 5,574 sq m of outdoor and indoor space, featuring more than 30 machines and roughly 10 engine displays that include the latest hybrid technology.

New for Conexpo 2020, Caterpillar's outdoor operator stadium at Festival Grounds showed the company's commitment to services and technologies with hubs for customers to learn about the latest offerings. In addition to products on display, the exhibit had live equipment demonstrations and was the site of the Global Operator Challenge championship. Only nine regional champions remained from the more than 10,000 operators who had participated in local competitions throughout 30 countries.

Caterpillar's new range of machines at the show included five new Next Generation hydraulic excavators. The latest models comprise wheeled, small, medium and large hydraulic excavators (M318, 313 GC, 315, 325, 395), dozers (D3, D7), centre-pivot backhoe loader (420XE), motor grader (150 AWD), wheel loader (920) and 725 articulated truck offerings.

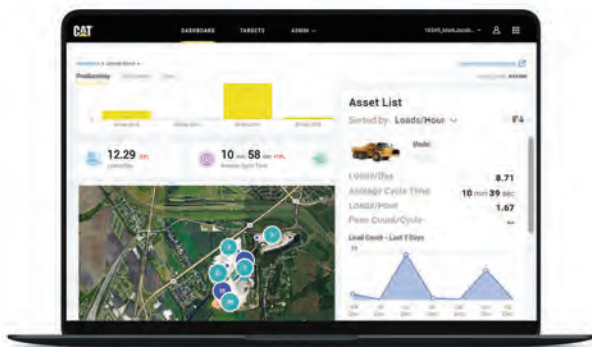
Newly introduced technologies included Cat Productivity, a web-based productivity management tool; an expanded remote-control Cat Command, allowing the capability to control multiple pieces of equipment from a single station; Command for Compaction, automating the compaction process; and the recently released Cat Remote Services that include Remote Flash and Remote Troubleshoot.

Show visitors were also able to explore the Cat App, VisionLink for better fleet management, and an augmented reality experience to learn about getting a second life out of machines with Cat Certified Rebuild. Plus, there was a dedicated section for visitors to learn more about Cat Customer Value Agreements (CVA) that offer customisable ownership and maintenance plans.

Also new this year in the North Hall, the Caterpillar Foundation hosted an immersive activation called The Community Builder, showcasing the issues and decisions facing leaders who are building stronger, more sustainable communities. Visitors were immersed in one of three locations around the world, where they would decide how best to build resilience in a crisis. By completing the experience, visitors would activate a donation by the Foundation to a community-building non-profit.

"This year's Caterpillar Conexpo experience celebrates the people who operate our equipment, work in our industries and demonstrates how we put the customer first," said Ramin Younessi, Caterpillar's group president for Construction Industries. ■

Website: www.cat.com



FROM TOP: Caterpillar's D3 dozer, 150 motor grader, and Next Generation 395 large hydraulic excavator.

LEFT: Cat Productivity, a cloud-based application that provides a complete overview of machine and jobsite production.

MANITOWOC

Manitowoc unveiled six new models from the Manitowoc, Potain, Grove and National Crane ranges. Other models that were introduced in 2018 and 2019 were also on display at the company's booth, with several making their North American debuts.

One of the new cranes was the Grove GRT8120 rough-terrain crane. This model has a capacity of 120 t and a 60 m main boom, with an 80.8 m maximum height when equipped with the 17.6 m bi-fold swingaway extension that comes in either manual or hydraulically offsettable configurations.

New to the GRT8120 is the MAXbase asymmetrical outrigger system for ultimate versatility in jobsite setups. This feature, combined with the lightweight, compact carrier and long boom, make the crane ideal for congested jobsites that require maximum reach.

The new Grove GMK6400-1 all-terrain crane sets new standards in the 400–450 t class, featuring a main boom of 60 m. When fitted with its full complement of jib, it can achieve a maximum tip height of 136 m. The crane also boasts a compact design, with a length of 17.5 m and boom overhang of 1.8 m. Plus, it offers the MAXbase outrigger option for better flexibility in on-site positioning.

The capacity-enhancing MegaWingLift attachment is available as an option for the GMK6400-1, and the self-rigging addition can be ready in less than 20 minutes without the need for an assist crane. This attachment increases lifting capacities up to 70% and makes the crane well-suited to applications such as bridge construction, wind farm work or tower crane assembly, while the crane is also likely to prove popular in general construction or on petrochemical and industrial plants.

In addition, the new Potain MDT 569 can lift large loads of material at a time. Options for its maximum hoisting capacities are 20 t, 25 t and 32 t, while its maximum jib length is 80 m. Tip capacity is up to 4.2 t when using the 25-t-capacity model and working with 80 m jib. Maximum line speed is 195 m/min when the crane is equipped with the 150 HPL hoist. The crane can be equipped with a new 8 m cross-shaped base that is simple to assemble and more cost effective compared to previous bases.

The new MRH 175 is the latest release



CLOCKWISE FROM ABOVE: **Grove GRT8120** rough-terrain crane, **Potain MRH 175** hydraulic luffing jib tower crane, and **Manitowoc MLC150-1** crawler crane.



in Potain hydraulic luffing jib crane series. Freestanding heights of up to 62.8 m are available with the 2 m K-mast sections, and the crane is also compatible with 1.6 m K-mast sections. On the hoisting drum, up to 956 m of rope is available with the 90HPL25 winch, allowing users to choose either 478 m in a two-fall configuration with a 5 t maximum capacity or 239 m in a four-fall configuration with a 10 t maximum capacity.

Potain's hydraulic luffing design features a shorter counter-jib and out-of-service radius than rope-luffing alternatives. This frees up valuable space on jobsites, with the MRH 175 delivering an out-of-service radius of only 10.2 m, regardless of jib length.

From the Manitowoc crane range, the new MLC150-1 offers a 150-t base capacity and a maximum boom length of 78 m. A fixed jib of 24 m with a 27 t capacity is available for the crane, and a 52 m luffing jib with a capacity of 46 t is another strong option for the job site.

The MLC150-1 also features quick assembly. The boom butt mounted sheave enables self-assembly without the boom top; it features a button style rope termination, and a gantry-raised counterweight reduces components. The



boom cap, jib butt and struts ship as a single package for fewer connections.

National Crane has launched a new addition to its popular NBT boom truck range with the NBT40-2 series, which has the option for either a 36.3 t or 40.8 t capacity, and a 38.7 m or 43.3 m main boom. The crane offers a two-piece 9.4 – 16.8 m telescoping jib, and a maximum tip height of 45.7 m, which can extend to 62.2 m with the jib. ■

Website: www.manitowoc.com

KOBELCO

One of Kobelco's notable machines at Conexpo was the SK210HLC-10 Hybrid excavator, which boasts up to a 15% decrease in fuel consumption, a 7% increase in digging volume and an 88% decrease in NOx when compared to the standard SK210LC-10 machine.

The Kobelco SK210HLC-10 Hybrid uses lithium-ion batteries that have a runtime of up to 17.6 times longer compared to capacitors to power the electric swing motor; these can also be used for regeneration to recharge the battery, and can assist the engine for digging and travelling by utilising the electric swing motor, thus removing the swing motor load from the engine and hydraulic pumps.

Kobelco conventional excavators were also displayed, comprising eight models ranging from 14,900- to 84,230-kg operating weight. They are engineered for maximum performance capacity and improved cost efficiency with additional features that go easy on the earth – resulting in dependable power, wide-range digging strength and reduced fuel consumption.

These Generation 10 excavators deliver a 7% increase in work volume per hour, while providing up to a 10% increase in fuel efficiency in S-mode and a further 6% increase in Eco-mode. Much of that boost in efficiency comes from a new hydraulic regeneration mechanism in the arm, which recycles energy from lowering the boom into force that can push the arm out.

Transferring all that power into the job is backed up by an enhanced attachment structure, making the Generation 10 excavators more durable than ever. A higher boom foot cross-section, thicker arm-foot base plate and stronger foot bases are provided for added reinforcement. Additionally, a new boss shape improves overall stability, while a redesigned boom foot evenly distributes digging forces for optimum durability.

Conventional Kobelco machines are equipped with impressive features, including an industry leading swing torque, powerful engines and breakout forces, and rear counterweight swing flashers that come standard on each model. These excavators also incorporate a no time limit, operator controlled power boost for heavy-duty digging conditions, as well as the ability to set both flow and pressure for up to 18 different attachments right from the operator's seat.

In addition, the Kobelco mini excavator line is currently comprised of six models with operating weights between 1,665- and 5,380-kg. Being offered in North America, they include the SK17SR-5E, SK25SR-6E, SK30SR-6E, SK35SR-6E, SK45SRX-6E and SK55SRX-6E. Once on the jobsite, the machines provide full size performance with wide swing angles despite their compact size.

The mini excavators come with a blade as standard equipment for backfilling and dozing work. Minimal rear swing radius and zero tail overhang makes for safe and easy operation in confined spaces with excellent side-ditch digging performance, allowing the operator to concentrate on the work in front of them for greater efficiency. This size/class machine is ideal for small landscape and construction jobs, as well as utility work.

Kobelco also offers its line of SR excavators in North America, consisting of the new SK75SR-7, SK85CS-7, SK140SR-7 as well as the ED160-5 Blade Runner, SK230SR-5 and SK270SR-5. They range from 8,490 to 27,200 kg of operating weight.

The Kobelco iNDR Cooling System, found in all models of this series, reduces dust and cuts noise to extremely low levels, while



Kobelco K210HLC-10 Hybrid excavator (above) and SK75SR-7 excavator.

Next-3E technology enables users to dial in the perfect balance of performance and fuel economy.

Next-3E (enhancement, economy and environment) comprises the Kobelco approach to lower fuel consumption and maximise work volume onsite. And the new Eco-mode in select models creates even greater fuel savings while optimising job fuel to production efficiencies. Large capacity fuel tanks combined with enhanced fuel efficiency and an automatic acceleration/deceleration function, which reduces engine speed when placed in neutral, allows for longer hours of continuous operation and greater productivity on the job.

The SK75SR-7 and SK85CS-7 models feature a completely redesigned cab that boasts premier operator comforts, such as an optimised control layout with a new jog dial and 10-in colour monitor, built-in rear, left and right-side cameras with a customisable split-screen display function to enhance operator awareness and jobsite safety, and a standard ergonomic lever and air ride suspension seat to reduce operating force and fatigue by 25%. Enhanced multi-function capabilities include an attachment selection system with adjustable flow-rate presets for the bucket, breaker, nibbler and thumb, allowing the operator to change between tools quickly and easily.

The SR models are popular in applications where working ranges are limited, like in cities where traffic needs to continue to flow and in residential or commercial applications where noise may become an issue. Other highlights at Kobelco booth included demolition excavators, mass excavators, high & wide excavators, and long reach excavators. ■

Website: www.kobelco-usa.com

SKYJACK

Skyjack's full fleet of next generation equipment joined Conexpo this year, including DC electric scissor lifts, telescopic and articulating booms, telehandlers, and the new SJ9263 RT, the largest scissor lift from the company to date.

"We anticipated lower attendance numbers for this year's show, especially given that we ourselves cut back," said Ken McDougall, president at Skyjack. "It's important that people prioritise their health and take necessary precautions, which is why Skyjack team members travelling internationally, especially those from Covid-19 high-risk areas, did not attend the show. It was still an impressive turnout and we're happy we had the opportunity to showcase our next generation of products to a new group of attendees."

Skyjack announced its updated boom lineup in February 2020 and showcased its SJ66 T+ model at Conexpo. With a work height of 22.02 m and newly installed foam-filled tyres as standard, the telescopic boom also now features a dual capacity rating of 300/454 kg.

"Using the success of our SJ85 AJ as a baseline, most of our next generation booms now feature a dual capacity rating," explained Barry Greenaway, senior product manager at Skyjack. "Increasing capacity in all of our next generation boom models expands the functionality, and frankly the applications the machine itself can be used on."

Skyjack has also been promoting new ANSI A92.20 changes to its DC scissor lifts and understands that it's important to broadcast new features and functionalities to the end user.

"While the new A92.20 standards don't impact all of our customers, the changes made that go beyond new standards have been made throughout our global product line," said Mr McDougall. "This was also the first time that we unveiled our new SJ9263 RT, which is our tallest scissor lift to date. The full-size range was announced in 2019 and, as this is an entirely new class for us, we went through extensive testing and design phases to ensure we were putting out a product that aligned with our simply reliable philosophy."

The new SJ9263 RT is the last model in Skyjack's new range of full-size rough terrain scissor lifts, providing a working height of 21.03 m. The unit is capable of working at six stories, making it ideal for rental companies.

The SJ9263 RT is rated for four people and offers a platform that spans 7.12 m with the dual extension deck option. This model also shares common features with the rest of the full-size range, including Skyjack's axle-based four-wheel drive, Axldrive, Smartorque engine, pairing peak performance with low maintenance, and fully accessible service components.

With the SJ9263 RT being a brand new class for Skyjack, the company has ensured it took the time needed for additional testing and redesign prior to launch. The scissor lift is currently in its final stage of testing and is expected to be in full production at Skyjack's Ontario facility, Canada, starting in the second quarter of 2020.

"We wanted to ensure this machine matches the rest of our product line in the sense that when it comes to market, it is a simple and reliable product," said Corey Connolly, product manager at Skyjack. "The market was stuck between what's always been offered and niche products that come with higher acquisition costs, so we wanted to keep the design simple and at a price point that makes sense for our customers." ■

Website: www.skyjack.com



TOP AND ABOVE: Skyjack SJ9263 RT full-size rough terrain scissor lift.
BELOW: Skyjack SJ66 T+ telescopic boom lift.



BAUER

Bauer Equipment America, the US subsidiary of Bauer Maschinen Group, took part in Conexpo 2020 along with its partner, Equipment Corporation of America (ECA). They presented a wide range of products from Bauer Maschinen, RTG Rammtechnik, KlemmBohrtechnik, and Bauer MAT Slurry Handling.

One of Bauer drilling rigs was the BG 15 H BT 50, on display with a Kelly set-up. The machine generally excels for its fast and simple set-up, and can also be transported with a Kelly bar. It offers all the benefits to meet the challenges of small sites. Optimally tuned hydraulics translates into significant savings in terms of fuel consumption.

A newly developed drilling tool of the Bauer BlueLine series was showcased with the BG 15 H for the first time: the BlueLine drilling bucket type KBF-K with a diameter of 900 mm, a working length of 1,750 mm and a total length of 2,300 mm. This standardised, price-optimised drilling tool series is perfectly suited for use in very dense sand and gravel, as well as in soft to medium hard rock.

Another Bauer drilling rig, the BG 23 H, features simple installation of mast extensions. This allows for a significant increase of drilling depths in the area of single-pass applications. Even in the extended SPEX (Single-Pass Extreme) equipment configuration, an active vertical trust force is available over the entire feed length through the crowd winch system for penetrating hard and compact soil strata.

The BG 23 H was displayed with equipment for auger drilling. Despite its compact size, the BG 23 H achieves a stupendous drilling depth of 25 m with an auger cleaner fitted. Optional assistance systems for drilling and concreting provide help and relief for the operator as well as a consistently high pile quality.

The BG 23 H is also versatile. Besides the single-pass application, the rig is able to meet giant drilling challenges with the Kelly method. Simple conversion for switching between methods forms the basis for rapid operational readiness on various construction sites. And thanks to its flexible mast design, the rig can be used for low headroom applications.

In addition, the RG 19 T BS 65 RS from RTG Rammtechnik GmbH was exhibited with an MR 145 V hydraulic vibrator. "Visitors to the booth were particularly interested in the new adjustable auxiliary winch at the mast head, the remote control for all machine functions (which makes single-person operation possible), as well as the sheet pile assistant for quick and secure insertion of the sheet piles into the clamp of the vibrator," said Shaun Nelson, sales manager at Bauer Equipment America.

KlemmBohrtechnik introduced its new KR 806-4GM anchor drilling rig with a 160 kW Volvo Penta motor. This model meets the growing US demand for mechanised manipulation of the drill string. The powerful drill for overburden drilling with the remote controlled MAG 6.1 magazine scores with more compact dimensions and lower weight, in comparison to the established and widely available KR 807-7 series.

The other model, the KR 801-3GS, is currently the most compact, fully equipped drilling rig in the Klemm portfolio. Powered by a 117 kW Caterpillar motor C4.4 ACERT, the machine boasts universally suitable kinematics for anchor drilling applications. The double-head system can be moved laterally from the drilling axis to fit rebar cages or anchors into the bore hole, for example. Low headroom situations can be accommodated by a feed with divisible length.



Bauer displayed its drilling rigs as well as products from its subsidiaries Klemm and RTG, plus Bauer MAT Slurry Handling Systems plant.



The new adjustable auxiliary winch on the mast head of the RG 19 T and the sheet pile assistant from RTG attracted great interest among visitors.

The drives of the KR 806-4GM and KR 801-3GS correspond to the US emissions standard EPA Tier 4 final. Both models significantly reduce fuel consumption and noise levels with their integrated Energy Efficiency Package (EEP). They are also entirely radio remote-controlled.

Bauer MAT Slurry Handling Systems exhibited its CMS 45 container mixing system in UL version. As a special feature, the mixer, the water tank, the agitator container, and the control cabinet are permanently installed in a 20-ft container frame and connected via flexible hoses. This makes the equipment compact, space-saving, and easy to move, which would save time during assembly and dismantling.

The centrepiece of the CMS 45 is a 1.8 cu m colloidal mixer, which features an eccentrically mounted mixing tool and an external circulation pipe for optimum dispersion of the slurry with simultaneous enhancement of the mixing capacity. A 15-in touch display allows for the input of up to 10 different formulations with 10 sequences each, and provides the operator with access to the current batch data at any time.

The integrated booster pump automatically cleans the mixing tank and protects against unwanted deposits that are inevitable when using bentonite or other binding agents. The powerful batch mixing system is ideal for soil mixing applications, in the construction of diaphragm walls and in jet grouting techniques. ■

Website: www.bauer.de

DRESSTA

Dressta has developed a revolutionary dozer that sets a new benchmark for visibility, the TD-16N. This machine features a mid-cab design over a mid-mounted automatic, dual path hydrostatic drive train. It comes with a standard six-way angle blade and is compatible with 2D and 3D grade control systems.

The TD-16N has an operating weight of 19,090 kg and net horsepower of 170 hp. Controls are easily accessible, intuitive, and easy to use thanks to the electro-hydraulic joysticks.

“We literally started with the operator, the blade and the tracks and then built everything around them without compromise. The result is a dozer with unrivalled all-round visibility encompassing 309 degrees,” explained Edward Wagner, executive director of new technology at LiuGong.

“We set out to create the best visibility in class – I think we’ve achieved that, but the real test is to put a seasoned operator in a cab and ask him,” said Gary Major, executive director of industrial design at LiuGong.

A select group of operators was invited to preview and test the TD-16N. One of them was Neil John Mckeown, an Irish operator. “It’s like sitting without a cab – you have the visibility right round you,” he said.

“The visibility is second to none. Floor to ceiling glass, no obstructions, you can’t do better than that,” added Rob Winmill, an American equipment owner and dealer.

The Dressta TD-16N dozer is also versatile, thanks to its undercarriage design that utilises a single-track gauge for all track shoe widths. This allows the machine to be reconfigured at any point in its life, from standard to LGP undercarriage, by simply just changing the track shoes and the blade. Such a feature increases versatility and will improve resale values by allowing future owners to reconfigure the machine to perfectly match their needs.

Another priority when designing the TD-16N is the operator safety. “Every operator out there has a story about falling off the tracks. This is the first machine where you don’t have to get onto the tracks,” said Mr Major.

Firstly, the design team designed non-slip steps at the rear of the machine totally negating the need to step onto the tracks. Complete with safety handrails, these steps allow easy access to and from the cab with three points of contact maintained at all times. The TD-16N is believed to be the only dozer in its size class with this type of ‘no tracks’ access.

Secondly, the design team ensured that all access points for daily checks, maintenance and fuelling were reachable from ground level. “The steps up the back give really easy access – good idea!” said Mr Mckeown. “Daily checks are perfect, you don’t have to go on to the tracks, it’s all done from the ground.”

Howard Dale, chairman of Dressta said, “Everything we do, we do to make our machines deliver more. The superior visibility of this machine will certainly help operators be more productive and do a better job in less time. We also know that this machine will make the worksite safer for everyone. The easy access for daily checks and maintenance is going to reduce downtime and ensure that this machine keeps working and delivering.”

The Dressta TD-16N has recently been named a winner of Red Dot Product Design Award 2020 - following on from the success of LiuGong 4180D motor grader, which won the same award in March 2019.



ALL IMAGES: **Dressta**
TD-16N dozer.



“As with our previous award-winning motor grader the 4180D, we set out to create the best visibility in class with the TD-16N,” said Mr Major. “I think it’s also true to say that benchmark visibility is becoming one of the defining characteristics of our design ethos. We know how important visibility is, not only for safety, but for productivity and operator satisfaction too.”

“It’s a great honour to win back-to-back Red Dot Awards,” said Mr Dale. “It’s an unbelievable achievement that underlines the amazing work Ed, Gary and the whole design team do every day. I think it says a lot about how far we have come as a business and where we are heading. Chinese manufacturers are not usually known for design but our growing reputation for design excellence is making the industry sit up and take notice. Our investment in R&D has reached new records and we are making giant leaps in intelligent and connected machine technology.” ■

Website: www.dressta.com

AMMANN

The new Ammann ACP 300 ContiHRT is a continuous asphalt plant designed to produce mix consisting of more than 60% RAP. Its preheating process minimises fuel consumption and reduces emissions.

Additional plant innovations include the proprietary as1 control system. This advanced system is intuitive to operate yet provides data – and ultimately efficiencies – that enable high production while maximising the use of fuel and aggregates.

Among the plant service products showcased was Amdurit, Ammann's wear-protection system for asphalt plants; and Ammlub, a labour-saving smart system that automatically lubricates key points on the asphalt plant.

Ammann's mixed reality solution, a remote support system, was another highlight. At the plant, the customer only needed to put on a virtual reality device and safety helmet, and the Ammann support team would have a live view of what he was seeing. The Ammann team then addressed the challenge immediately. Mixed reality provides connection to Ammann support staff anytime, anywhere. It helps novice and experienced operators, and also offers effective pre-maintenance inspection.

The Ammann ARS 70 and ARS 110 soil compactors feature technological solutions that are more productive, meet the latest emissions standards, reduce fuel usage, and provide valuable data that eliminates unnecessary passes of the machines on jobsites.

Also on display was the new line of light tandem rollers – the ARX 16-2, ARX 26-2 and ARX 45-2. The ARX compactors utilise an upgraded articulation joint that enables quick drum adjustment from in-line to off-set configurations, which would be useful when working close to obstructions.

In addition, Ammann presented its 'Lightweight Champions' – light compaction machines that pack a powerful punch. These included a wide range of vibratory plate compactors, fitted with a low-vibration guide handle that minimises stress on the operator and makes the machine easier to control.

Walk-behind rollers combine two applications in a single machine. The operator chooses whether to utilise a high-amplitude setting for work on gravel/soil or a low-amplitude setting for asphalt and bituminous materials.

Ammann is believed to be the only manufacturer that



Ammann ACP 300 ContiHRT asphalt plant (above) and ARX 45-2 light tandem roller (below).



continues to offer both articulated and skid-steered versions of their trench rollers. These machines perform well in cohesive soil types, such as clays, which could be very difficult to compact.

Ammann APA add-on compactors are attachment plates that can be mounted on any standard excavator arm, and are true champions in terms of compaction forces and compaction speed. ■

Website: www.ammann.com

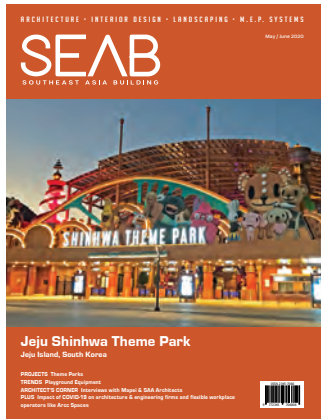


Ammann's light compaction machines (left) and mixed reality solution, a remote support system for Ammann asphalt plant.

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BROKK

To combat harmful silica dust and other airborne particles created by the demolition process, Brokk offers its new dust suppression system. The unit produces atomised fog that effectively binds dust particles in the air while also providing ground-level dust suppression. Additionally, the mist dissipates, rather than forming puddles, for a safer, cleaner jobsite.

Available for all Brokk remote-controlled demolition robots, the new atomised water mist system provides an ideal solution to mitigate hazardous dust in demolition applications such as concrete cutting.

“Safety has always been paramount for Brokk, which is why, for more than 40 years, our engineers have constantly produced machines, attachments and technologies that allow operators to step away from the most dangerous and backbreaking operations,” said Martin Krupicka, president and CEO of the Brokk Group. “However, silica dust remained a concern because it is difficult to contain. Previous dust suppression methods helped, but we wanted to find a more efficient solution that optimised safety without the mess.”

Health and safety organisations have identified silica dust as a significant hazard and have enacted regulations that limit the permissible exposure for workers in the construction and demolition industry. Meeting these regulations has taken several forms on the jobsite. Some contractors choose to use spray systems, hoses, sprinklers, and water trucks to combat silica dust.

However, these interventions are often considered inefficient and, in some cases, ineffective against crystallised silica dust. The problem stems from the size of the water droplets, which are much larger than the silica dust they are meant to trap. Silica particles range from 0.1 to 1,000 microns while traditional methods produce water droplets that are 200 to 1,000 microns in size.

The size and velocity of these larger droplets cause air and silica particles to flow around them in a phenomenon known as the ‘slipstream effect.’ Hose and water truck spray methods are believed to be the most inefficient since they produce the largest droplets, but even smaller onboard systems produce large droplets that can deflect silica particles, which can then be breathed in.



Brokk dust suppression system.

Since silica particles are more likely to bond with water droplets of similar size, Brokk engineered the dust suppression system to produce 10-micron mist droplets. This creates a fog of atomised water that captures dust particles in the air and spreads along the ground for optimal dust suppression. The system is incorporated into the tool mounting instead of the tool itself like previous systems, allowing operators to provide silica dust protection with any Brokk attachment - including breakers, concrete crushers and drum cutters. A hydraulic water pump is attached to the machine and can be fed with a freshwater hose or water tank.

In addition to providing superior dust suppression, the water mist requires less water than other methods - just 0.2 l per minute - making it significantly more economical and environment-friendly than most other spray methods. This conservative use of water also eliminates the puddles and slurry left behind by alternative methods, reducing the need for cleaning at the end of the day and reducing slips and falls, ultimately resulting in a safer, more efficient jobsite. ■

Website: www.brokk.com

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