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CONSTRUCTION

NOVEMBER - DECEMBER 2018

Cover Story:
Tanjong Pagar Centre
in Singapore

Features:
Link-Belt 100RT crane
Leopard D1650i drill rig
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Preview



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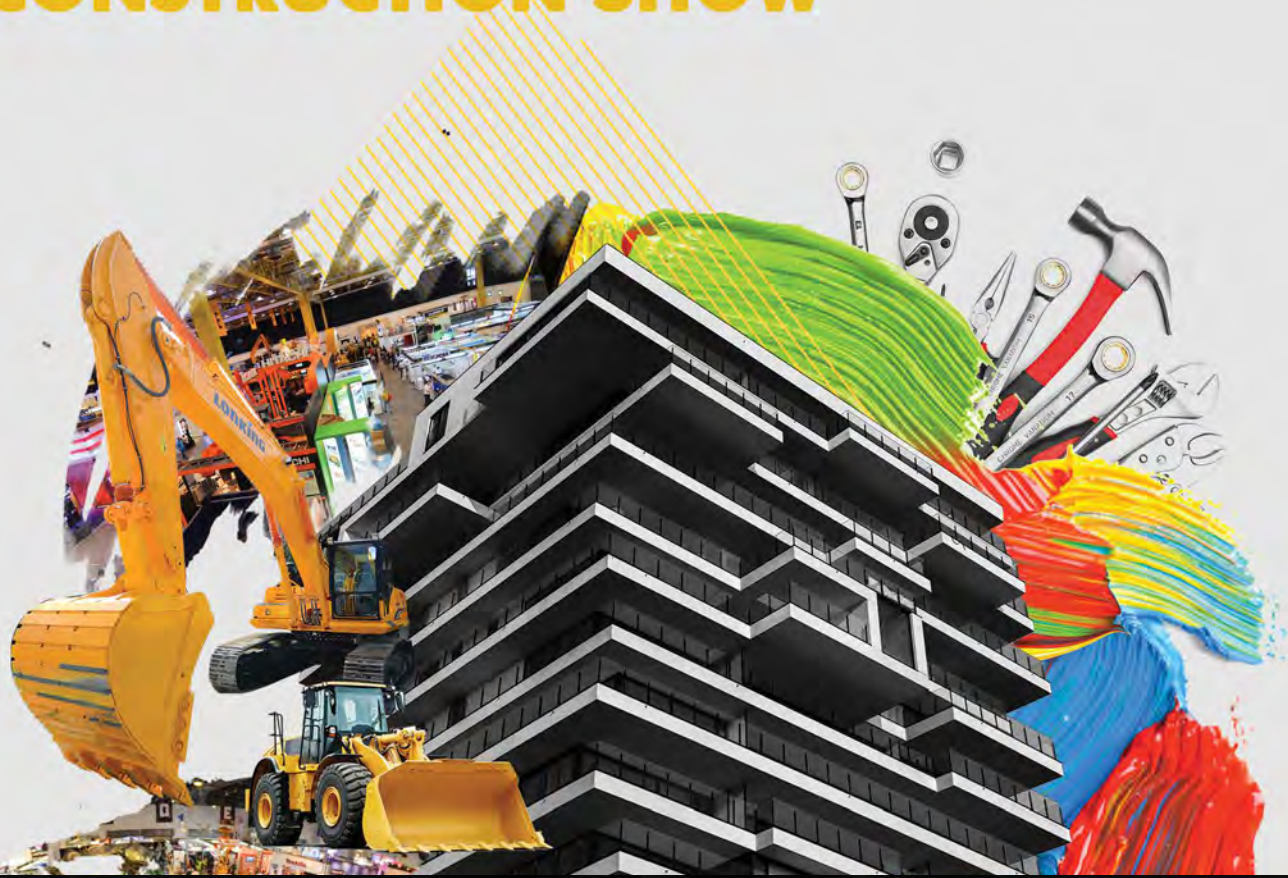
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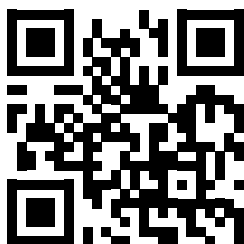
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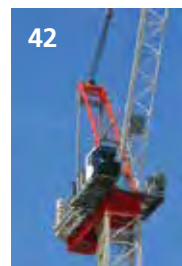
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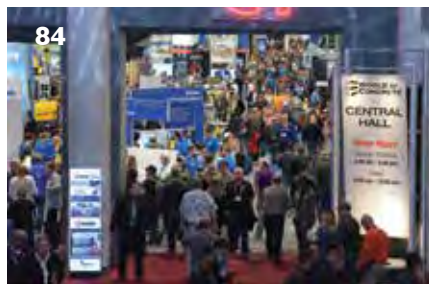
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Mace to deliver Mai House Hoi An project in Vietnam

Mace has been appointed by Mai House Hospitality Group to project manage the construction of Mai House Hoi An, a new luxury golf and hotel resort in Hoi An, Vietnam. The five-star resort will be situated directly on the main beach road between Hoi An and Danang covering a gross floor area of 105,000 sq m.

Mai House Hoi An is the first hotel project secured by Mace's Vietnam business and the team will be providing a range of services including design management, project management and construction management.

Set to be the most iconic building in the area, the new resort features the style of a distinctive Vietnamese lantern and has been modelled on the Burj al-Arab in Dubai but on a greater scale. With 300 rooms, 50 villas, 100 apartments, and with 100 shop houses integrated in front of the leading Vietnamese golf course, Montgomerie Link, this project is expected to become another landmark for Vietnam.

"Mace has been making big moves across Vietnam and we are looking forward to working with them on this project. The design of Mai House Hoi An is something never before attempted in Vietnam and we have every faith that the team will do a great job," said a spokesperson from Mai House Hospitality Group.

John Campbell, general director of Mace Vietnam commented, "We are very excited to be involved in this iconic five-star hotel project. The work done with the client over the last six months has paid off and the delivery promises to be an exciting one for all involved." ■



ABOVE AND LEFT: The new resort features the style of a distinctive Vietnamese lantern and has been modelled on the Burj al-Arab in Dubai but on a greater scale.

'ASEAN construction to grow by over 6% annually'

Construction output in the member states of the Association of South East Asian Nations (ASEAN) is forecast to expand by over 6% yearly on average during 2018 - 2022, according to a report by data and analytics company GlobalData.

The white paper titled 'ASEAN: Analyzing Prospects for Growth' was prepared by GlobalData for Interat ASEAN 2018 and Concrete Asia 2018, the region's trade shows for construction, infrastructure and concrete sectors that were held in Bangkok in September 2018. The report was built using data and information sourced from proprietary databases, primary and secondary research, and in-house analysis conducted by GlobalData's team of industry experts.

"The Southeast Asia region continues to develop at a rapid pace, with economic growth projected to reach an annual average rate of 5.1% during 2018 - 2022, the fastest among all global regions, and an acceleration from the healthy rate of 4.8% recorded in the past five years. Much of this growth is being driven by investment in new infrastructure, while increasing domestic demand is driving the expansion in construction of buildings across the residential and non-residential sectors," explained Danny Richards, GlobalData's lead economist for construction industry.

"Although there are disparities in the pace of growth in construction output among the ASEAN member states, the region's construction industry as a whole will grow by 6.1% on an annual average basis in the next five years. This is marginally behind the projected growth of 6.5% in the thriving emerging markets in the Middle East and Africa, but the ASEAN region presents investors and

developers with a lower level of risk of projects being put on hold or cancelled, according to GlobalData's Construction Risk Index."

Mr Richards continued, "Reforms to encourage public private partnerships (PPPs) are almost universal across the ASEAN region. The Philippines, Myanmar, Laos and Vietnam have undergone reforms to create more accessible markets for private sector investment in construction through PPPs. Indonesia has undergone similar reforms, expanding the construction sectors eligible for PPPs and increasing incentives to invest. Land ownership is another area that is under reform. Once a notoriously difficult process, acquiring land in Indonesia is now much fairer and more transparent. Vietnam has also implemented an initiative in which foreign investors are allowed to acquire land and hold a majority stake in a commercial or residential project.

"According to GlobalData, the combined value of mega projects (with a minimum value of US\$25 million) across ASEAN stands at US\$2.9 trillion. This includes all projects from the announcement stage to execution. An analysis of the pipeline by stage reveals that the region provides huge opportunities with respect to a large volume of early stage projects. Just under US\$1.5 trillion of projects are currently in the planning and pre-planning stages, suggesting significant construction spend is to occur for some time."

GlobalData's Construction Risk Index provides a standardised view of the underlying degree of country-level risk facing the construction industries in 50 major developed and emerging markets around the world, encompassing market, operating, financial, economic and political risk. ■



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CapitaLand to develop new residential projects in Asia

CapitaLand is planning to build a new residential development in Ho Chi Minh City, Vietnam. Covering an area of 60,000 sq m, the project is expected to offer more than 100 landed residential units, targeted for completion by 2021.

The site is located in Binh Trung Dong Ward in District 2 of Ho Chi Minh City. It is next to the Ring Road 2, about 6 km to the Phu My Bridge, providing a convenient access to many key destinations. Near the site, several major infrastructure developments such as the construction of the My Thuy interchange and Cat Lai bridge are underway. When completed, these will further enhance the connectivity of the area.

CapitaLand has also acquired two residential sites in Guangzhou, China, measuring about 150,000 sq m in total, where the company plans to build up to 1,300 homes by 2021. Part of a mature residential zone, the plot is surrounded by various amenities including malls, schools, a hospital, a library and other residential developments.

This project is situated in the heart of Zengcheng District, the engine of Guangzhou's industrial growth and the location of

the city's future second international airport. The government reportedly plans to increase the district's population from the current 1.15 million to 2.1 million by 2020, making Zengcheng the fastest growing district in Guangzhou.

According to CapitaLand, Guangzhou is part of five core city clusters that it has identified for growth in China. The company expects that the new development can create synergies with its ongoing Datansha Urban Redevelopment project in Guangzhou's Liwan District, the latter of which is being developed into residential and commercial projects in phases. ■



Both images © CapitaLand

LEFT: An artist's impression of the new residential development to be built by CapitaLand in District 2 of Ho Chi Minh City, Vietnam.

ABOVE: CapitaLand has also acquired two residential sites (demarcated by the red boxes) totalling 150,000 sq m in Guangzhou, China, where the company plans to build up to 1,300 homes by 2021.

John Deere signs strategic supplier agreement for Asia Pacific market

As demand for John Deere construction equipment increases around the world, the US-based manufacturer has entered into a strategic supplier agreement with Wacker Neuson to initially provide compact excavators in China, Southeast Asia and Oceania. The models will range from 1,700 to 7,500 kg and are specifically designed and manufactured for customers in the growing Asia Pacific market. According to the companies, the objective of this partnership is long-term collaboration in key growth markets.

"In partnering with Wacker Neuson, John Deere is leveraging the experience and success of their innovative and strongly customer-focused products to help us further develop our position in the Asia Pacific region," said David Thorne, senior vice president

for sales & marketing at John Deere Construction & Forestry. "These excavators are purpose-built to meet the demands of customers, and will be John Deere branded and sold through John Deere dealers."

Both companies further highlighted that while they are committed to long-term collaboration, the current agreement will run for five years and can be extended in five-year increments. The initial rollout of four compact excavator models is expected to begin in early 2019, and will predominantly be sourced from the new Wacker Neuson factory in Pinghu, China. Service and support of these machines will be offered through the John Deere dealer network. ■

Leighton Asia to work on North Luzon Expressway project in the Philippines

Leighton Asia has been selected by NLEX Corporation to construct the North Luzon Expressway (NLEX) Harbour Link Segment 10-R10 Exit Ramp project in the Philippines.

Advanced works have commenced and the project is scheduled to be completed in late 2019. Construction works include a 2.6-km dual elevated tollway to link the existing NLEX Segment 10 Road

to the R10 Road and provide a continuation of Harbour Link, as well as various ramps, roadworks, electrical and mechanical works and landscaping.

Leighton Asia's Philippines business is also working with MPTC subsidiary MPCALA Holdings Inc to build the 28-km four-lane Cavite Laguna Expressway. ■

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NTU Singapore to build 'largest wooden building in Asia'

Singapore's Nanyang Technological University (NTU) Academic Building South is expected to be Asia's largest wooden building at 40,000 sq m and features six storeys. Scheduled for completion in 2021, this new development will house NTU's Nanyang Business School, featuring smart classrooms equipped with the latest technologies to support NTU's collaborative learning pedagogy, where students devote more time and interaction with professors, classmates and industry partners.

RSP is the project architect, in association with Toyo Ito & Associates, Architects, for the NTU Academic Building South. It will be a magnificent timber structure, said RSP, creating a warm environment for learning surrounded by nature. The design aspiration is to create a world-class large-scale timber building, which inspires the human senses and stimulates learning.

Approximately 220 m in length, the flagship infrastructure development of NTU will have a clean-cut spatial configuration and architecture, due to the use of an efficient modular timber frame system.

Sustainable construction with MET
Constructed using the mass engineered timber (MET) technology, material for the new academic building will be procured from renewable forests and prefabricated off-site for installation on site, requiring less



ALL IMAGES: Upon completion, the new NTU Academic Building South is expected to be Asia's largest wooden building at 40,000 sq m. It will be constructed using the mass engineered timber (MET) technology.



All images © Toyo Ito & Associates, Architects.

manpower than traditional construction methods, explained RSP.

As timber is a highly renewable material, the use of MET contributes positively to environmental sustainability. MET also comprises engineered wood products with improved structural integrity, RSP pointed out, and its high strength-to-weight ratio makes it easier to handle than steel and concrete.

RSP further highlighted that the use of MET as a construction material is relatively new in Singapore. Being at the forefront of new building technologies and to encourage the adoption of MET, RSP worked with its partners to specify the suitable type of timber, and ensure fire protection, moisture protection, termite protection and acoustic treatment requirements are met. ■

Aurecon to play role in NTU Academic Building South project

Aurecon recently announced that it has been engaged to deliver civil and structural engineering services for the NTU Academic Building South. These include consultancy services for the demolition of the existing Innovation Centre, conceptualisation and detailed design of all structural elements, preparation of tender documents, and construction supervision.

According to Aurecon, MET will be used to build the development by adopting a combination of cross-laminated timber (CLT) for slabs and glued laminated timber (glulam) for beams and columns. The company emphasised that early collaboration between architectural and engineering design teams was necessary to ensure slabs and beams are cut to specification in factories, including the openings and slots for MEP services.

Furthermore, the early collaboration among the design teams produced an innovative layout of alternating long and short span grids, which worked best for lecture theatres/

seminar rooms and the corridors leading to them, said Aurecon. Karthik Ganesan, the company's senior structural engineer explained that the idea was to direct all services along the corridors of short spans, forming what would be recognised as the 'services highway' and then branch into the long span lecture halls. The short spans meant that the beam depths could be shallower, allowing greater clear space below the beams for the services. This allowed the building to stay within the height restrictions for the site.

The exposed MET aesthetic also meant that all steel connections between the load-bearing beams and columns had to be hidden, added Aurecon. The company worked out a detail that could easily be built by the contractor and would ensure the steel connections were embedded within the timber. Embedding the steel connections within the timber also helps fire design by keeping the critical load-bearing members protected by a 'sacrificial' layer. ■



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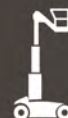
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One Excellence in full swing

The One Excellence development in Shenzhen, China, is progressing well and nearing completion. Developed by Excellence Group, it comprises six towers on a gross floor area of 757,340 sq m. Located in Qianhai, a new business district in the southern Shenzhen, the project was designed by architecture and urban design company Farrells. The first phase, featuring two 178-m twin towers at the eastern end of the site, was substantially completed in 2016. The four remaining towers are expected to be completed by the end of this year.

According to Farrells, Tower 2 and Tower 4, both residential and linked by a sculptural clubhouse at the 27th storey, are the farthest advanced. Tower 4 received an occupancy permit on schedule in June 2018, while Tower 2 was expected to receive its own permit in September.

The 284-m Tower 1, which will house offices and is One Excellence's tallest skyscraper, topped out in April 2018. The tower's unorthodox double-curved form has been realised through the use of adaptable facade modules, also designed by Farrells, which have allowed for quick installation. The facade was scheduled for completion by the end of August 2018. Also fully dedicated to office use, the 200-m Tower 3 is fully topped out and clad, and roof installation is now underway. Interior work on both Tower 1 and Tower 3 is in progress, said Farrells. ■

Keppel Land launches new projects in India and China

Keppel Puravankara Development Pte Ltd (KPD), a joint venture between Keppel Land Limited and Indian property developer Puravankara Limited, has entered into agreements to acquire a 3.09-ha site in Yeshwantpur, Bangalore, India. The company plans to develop a Grade A office tower with a gross floor area of 1.02 mil sq ft, along with another retail-office facility as part of a mixed-use development.

The Grade A office development will be managed by KPD upon completion. The total development cost, inclusive of the land cost, for the entire mixed-use development is said to be INR 10.4 billion.

In China, Keppel Land has also established a joint venture with Gemdale Corporation to develop an 8.8-ha residential site in Nanjing. It is located at the core of the Nanjing Jiangbei New Area in Jiangsu province, with a gross floor area of 193,139 sq m. The development will comprise 1,728 units of high-rise apartments and 50 units of street-front shops. Phase 1, comprising 787 units, is expected to be launched in the fourth quarter of 2018 and the entire project is slated for completion in the second quarter of 2022. The estimated total development cost for the project is expected to exceed RMB 5,200 million. ■

Jacobs joint venture wins Australia's Inland Rail contract

Jacobs Engineering Group, in a joint venture with GHD, has been appointed by the Australian Rail Track Corporation (ARTC) to deliver a feasibility study and environmental impact assessment for a 300-km-long greenfield section of the Inland Rail programme in New South Wales (NSW), Australia.

The scope of the Narromine to Narrabri (N2N) project involves the delivery of further engineering design and environmental investigations to determine the preferred route for the 40- to 60-m-wide rail corridor. "Inland Rail will connect farms, mines, cities and ports to global markets, providing significant supply chain benefits," said Patrick Hill, senior vice president and general manager at Jacobs Buildings, Infrastructure and Advanced Facilities. "In addition, it will reduce transit times and complete one of the missing freight rail links between Melbourne, Adelaide, Perth and

Brisbane, and we will leverage our extensive background in rail and transportation to help make it happen."

N2N is one of 13 projects that completes the Inland Rail Programme, and the 300 km of new track makes it the longest distance project within Inland Rail. It will involve seven passing loops, four road-over-rail graded separations and three rail-over-rail graded separations, 17 rail underbridges, 4 km of viaduct, a number of level crossings and more than 320 utility crossings.

"This important feasibility design work will give us critical information in terms of engineering, environmental, traffic flows, socio-economic impacts and benefits and other areas of interest," said Richard Wankmuller, CEO of Inland Rail. "It will lay the groundwork for the detailed design for this section and help identify how we can adjust to address community concerns." ■

K11 Artus development

New World Development is building new luxury hotel residences in Hong Kong, which are scheduled to open in mid 2019. With waterfront views of Victoria Harbour and Hong Kong Island, the upcoming K11 Artus development will be located at Victoria Dockside, the new 3 mil-sq-ft art and design district in Tsim Sha Tsui.

The K11 Artus will have 287 residences and spanning across 14 storeys. It is designed by Kohn Pedersen Fox, while Bangkok-based P Landscape (PLA) is responsible for the surrounding greenery. Hong Kong-based architect Andre Fu and his studio AFSO have been engaged to create the interiors. ■

RIGHT: An artist's impression of the new K11 Artus development, which will feature 287 residences and spanning across 14 storeys.



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Singapore enhances green building programme

Singapore's Building and Construction Authority (BCA) has launched the Super Low Energy (SLE) programme to push the envelope of environmental sustainability in the country. It includes a suite of initiatives, such as the SLE Buildings Technology Roadmap - which aims to develop cost-effective solutions to push the limits of energy-efficiency - and the SLE Challenge, which encourages progressive developers to take the lead in developing SLE buildings through good designs and cost-effective technologies.

According to BCA, since the beginning of Singapore's green building journey in 2005 with the introduction of BCA Green Mark and the three Green Building Masterplans, the country has 'greened' more than 3,400 buildings, covering more than 100 mil sq m of gross floor area. There has been growing acceptance that green buildings make economic sense from the building life cycle perspective.

The strong business case for green buildings is demonstrated in BCA's latest Building Energy Benchmarking Report 2018. Commercial buildings continued to show commendable improvement at 14% in energy performance since 2008. This improvement from over 1,000 commercial buildings translates to about 1,000 GWh in energy savings per annum, said BCA, which is equivalent to about S\$200 million savings in a year.

SLE Challenge

With this programme, BCA is inviting industry and government agencies to take on the SLE Challenge voluntarily. So far, BCA revealed that more than 10 developers and building owners have pledged their commitment to achieve at least one SLE project in the next five years.

To recognise exemplary building owners and developers, BCA introduced the new BCA Green Mark for SLE (GM SLE). This voluntary certification framework for SLE buildings adds on to the BCA Green Mark (GM) scheme, to support the net zero energy aspiration in the tropical and sub-tropical region. GM for SLE will provide recognition for best-in-class energy efficient buildings in addition to their Green Mark ratings. For example, a building that achieves GM Platinum and GM SLE would be awarded Green Mark Platinum (Super Low Energy). It encourages building owners to push the boundaries in terms of passive and active strategies, smart energy management, and use of renewable energy to achieve best-in-class building energy performance.

SLE Buildings Technology Roadmap

BCA is also launching the SLE Buildings Technology Roadmap to help achieve the ambitious target of up to 80% energy efficiency improvement over 2005 levels. Jointly developed in partnership with industry and academia, the Roadmap outlines the broad strategies to help the industry design and develop cost-effective SLE buildings.

BCA stressed that an SLE building with 60% energy efficiency improvement is technically feasible with best-in-class technologies today, but more research, development and demonstration (RD&D) is needed to push the boundaries to 80% energy efficiency improvement, and to do so in a cost effective way. Keppel Land is said to be one such developer that has committed to pilot various emerging technologies at its BCA Green Mark Platinum certified development, Keppel Bay Tower, with a view to replicate the implementation of these technologies to rejuvenate its other commercial buildings. ■

Air-Marine adds new Demag CC 3800-1 crawler crane

Malaysian logistic provider Air-Marine Group recently took delivery of a new Demag CC3800-1 lattice boom crawler crane. This new unit will join a fleet of more than 36 other Demag cranes and enhance Air-Marine's lifting capabilities. The CC 3800-1 is scheduled to perform several challenging lifts over the next months.

According to William Chiew, group managing director of Air-Marine Group, the company selected this model due to its strong performance and ability to be further upgraded with a boom booster kit. "The CC 3800-1 has an impeccable reputation. It is easy to transport, can be rigged quickly, has a superb load chart, working range and low operational cost."

The Demag CC 3800-1 crawler crane can lift up to 650 t at a 12 m radius, has a maximum load moment of 8,484 mt and a 195 m maximum tip/sheave height. "This lattice boom crawler crane model gives us the right combination of a compact footprint and heavy lift capacity required to perform challenging jobs in Malaysia, Singapore, Indonesia and the Philippines," added Mr Chiew. "We're looking forward to keeping this machine busy for many years to come."

Incorporated in 1980, Air-Marine Group is based in Sarawak, Malaysia. The company provides a wide range of services including intermodal containers, heavy and over-dimensional cargo haulage, as well as specialised engineered mover services and mobile cranes rental services. ■



Malaysia-based company Air-Marine Group has taken delivery of a new Demag CC 3800-1 lattice boom crawler crane. The unit can lift up to 650 t at a 12 m radius and has a maximum load moment of 8,484 mt.

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Ascott Reit to build coliving development in Singapore

Ascott Residence Trust (Ascott Reit) has acquired a prime greenfield site in Singapore for its maiden development project. The company will build the first coliving property in the country's research and innovation business hub, one-north. Located at Nepal Hill amidst 400 companies, 800 startups and 50,000 professionals, the development will be named lyf one-north Singapore and is slated to open in 2021. It will offer 324 units spanning a gross floor area of over 6,823.5 sq m, with a mix of studio and loft units.

Designed as a dynamic 'lightning bolt', the lyf one-north Singapore is believed to be the first standalone serviced residence for hip and chic coliving in Singapore. It is shaped around a variety of public plazas, green terraces and communal facilities where residents will live, work and play. WOHA is the architecture firm behind the design concept of the building.

The development is made up of two L-shaped blocks connected by a bridge building on levels 6 and 7 that will provide shade over the ground-level activity terrace, and an expansive view of the lush greenery of Nepal Hill. The coliving apartments on the 3rd to 7th floors also overlook the communal courtyards, garden spaces, and public plazas.

"Ascott Reit is acquiring a prime site in Singapore to build a property on our own for the first time," said Bob Tan, chairman of Ascott Residence Trust Management Limited's (ARTML). "Singapore is a safe environment for construction, and by designing and building the property ourselves with customised specifications and having it managed by our sponsor, Ascott, we can be assured of building quality and strong operating performance."

Beh Siew Kim, CEO of ARTML, added that the lyf one-north Singapore "will cater to the ready pool of young entrepreneurs, millennials and professionals in the vibrant cluster that hosts prominent research and knowledge-based organisations, startups as well as business schools."



ABOVE AND LEFT: To be named lyf one-north Singapore, the new coliving development by Ascott Reit will offer 324 units and is slated to open in 2021.

The 200-ha one-north estate has attracted over S\$7 billion worth of investments in critical growth sectors such as the biomedical, info-communications and media industries. The location is also a talent development hub, home to world-renowned business schools and corporate universities. ■

Four more Grove GMK4100L cranes for Indonesian dealer

PT SH Machinery Indonesia, the dealer for Grove all-terrain cranes in Indonesia, has ordered four GMK4100L cranes to add to its stock. The units are scheduled to arrive in the first quarter of 2019.

"Grove cranes are easier to manoeuvre and set up thanks to features such as their Megatrak suspension and Megaform boom, with its Twin-Lock pinning system," said Tan Cheng Guan, executive director of PT SH's Singapore-based parent company Sin Heng Heavy Machinery. "This makes them particularly well-suited to Indonesia's fast-growing economy with its increasingly congested cities."

As the dealer for Grove all-terrain cranes in Indonesia, PT SH Machinery Indonesia maintains a team of technicians who are trained and certified by Manitowoc under its Crane Care support programme. The intensive training and certification

process that technicians undergo ensures they have the expertise and experience to handle repair and maintenance issues. In addition, PT SH Machinery Indonesia has invested heavily in its stock of spare parts, reducing wait times for customers and ensuring service levels meet customer expectations.

"PT SH is an important partner for us," said Brian Wang, senior vice president for Asia Pacific at Manitowoc. "We are pleased the company is developing its fleet of long-boom cranes for trading in Indonesia and Singapore. The company's commitment to Grove cranes is a testament to the quality of our machines and the trust our customers have in them."

The Grove GMK4100L has a 100 t maximum capacity and 60 m Twin-Lock boom on a compact four-axle carrier. Its maximum tip height can extend to 85 m



Tan Cheng Guan of Sin Heng Heavy Machinery (third from right) met with Manitowoc Cranes representatives (from left to right): Leonard Siow, Marco Zucchet, Brian Wang, Aaron Ravenscroft and Terrance Collins.

through the addition of jib attachments and the crane also features the latest ergonomic GMK chassis cab. ■



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Surbana Jurong and Mitsubishi Corporation form JV

Surbana Jurong Capital - a newly established financial services arm of Surbana Jurong - and Mitsubishi Corporation have signed an agreement to set up a fund management company (FMC). The FMC will be a 50:50 joint venture between the two companies and will be jointly managed by both partners.

The FMC will set up an Investment Fund (Fund) to invest in urban development projects in emerging Asia, primarily in Myanmar, Vietnam, Philippines, Indonesia, India and Sri Lanka. These projects may include transit-oriented developments (TOD) such as aviation or rail-related developments, affordable housing, as well as other urban-related infrastructure.

The partners will each contribute up to US\$250 million to seed the Fund, and the FMC will also raise and manage funds from other accredited or institutional third-party investors.

According to Asian Development Bank's (ADB) estimates, developing Asia will need to invest at least US\$1.7 trillion per year in infrastructure until 2030 to maintain its growth momentum. However, there remains a huge gap between the demand

for such infrastructure and the region's access to financing.

The FMC aims to seek out commercially-viable urban infrastructure projects that are in an advanced feasibility stage or in the early phases of construction, and provide equity investment to support such projects. Qualifying projects will need to meet sustainable environmental, social and corporate governance metrics. Institutional investors seeking to participate in the sustainable growth of the region can therefore do so through the Fund.

The FMC will leverage both partners' strengths to deliver optimum long-term risk-adjusted returns for the Fund. Surbana Jurong, as one of the largest Asia-based urban and infrastructure consultancies, has direct exposure to project opportunities in the region. The company has over 70 years of successful project deliveries and technical teams in over 40 countries to provide insights on the risks of such projects. Mitsubishi Corporation, a global integrated business enterprise with diverse business operations, has experience in investments and financial products, and has been investing in real estate projects



Surbana Jurong and Mitsubishi Corporation recently signed an agreement to set up a fund management company, which will invest in urban development projects in emerging Asia.

in ASEAN countries since 2013 totalling JPY250 billion.

Wong Heang Fine, group CEO of Surbana Jurong said, "Emerging countries in Asia continue to see rapid economic and population growth, which drives the demand for urban infrastructure projects including transit-oriented developments and affordable housing. For project owners looking for funding, and investors looking for long-term sustainable returns, Surbana Jurong and Mitsubishi Corporation's new FMC will provide that capital bridge." ■

Surbana Jurong and Ping An to build new township projects in China

Surbana Jurong has also signed Memorandums of Understanding (MOUs) with Ping An Trust Co Ltd, a subsidiary of Ping An Insurance (Group) Co Ltd, to collaborate on the development of Industrial New Township projects in China, starting with the Shenzhen International Bio-Valley Industrial Park. An Industrial New Township is a people-centric development model that integrates industrial developments and urban living to create sustainable cities for industrial and residential uses.

Under the agreements, the Shenzhen International Bio-Valley Industrial Park will be the partners' pilot project. Located in Shenzhen's Dapeng New District and covering 31.9 sq km, the Park is set to be a leading global bio-tech innovation centre and industry cluster. It is a key development project for Shenzhen, and Ping An Group has also signed an agreement with Dapeng New District Management Committee to play a leading role in the development of the Park.

Ping An Trust, a major integrated finance conglomerate in China, is known for its technology-powered financial



The MOUs were signed at the ninth Singapore-Guangdong Collaboration Council meeting held in Singapore.

services and investments capabilities; while Surbana Jurong, with established expertise in design and engineering consultancy, has decades of experience in master planning, architecture design, engineering and project management in urban and industrial projects globally. The partnership brings together complementary strengths and the partners aim to collaborate in areas including master planning, infrastructure construction and business investments.

According to Ping An Trust, Shenzhen International Bio-Valley is one of the top 10 innovation platforms of the Guangzhou-Shenzhen Science and Technology Innovation Corridor, identified by the Guangdong Provincial Party Committee and the Provincial Government. The company, together with Shenzhen City and Dapeng New District Management Committee, said that it "places great importance on the strategic positioning of the Bio-Valley project. Being able to leverage Surbana Jurong's globally best-in-class planning vision and architectural design capabilities, Ping An Group could make an effort in the development of Shenzhen's global competency in bio-technology industries." ■

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Indonesia's equipment sector keeps growing

Construction equipment sales in Indonesia are expected to exceed 17,000 units this year, following a third successive year of growth, which will take demand to more than twice what it was in the recent low point of 2015, according to Off-Highway Research in its new report, 'The Construction Equipment Industry in Indonesia'. This volume of equipment sales makes Indonesia by far the largest equipment market of the Association of Southeast Asian Nations (ASEAN) bloc.

Although demand is expected to be somewhat volatile over the next few years, Off-Highway Research forecasts that it will remain between around 12,500 and 17,500 units up to 2022. Investment in the mining sector has been a key driver of the recent growth in equipment sales – but construction has also played a part and is expected to continue to do so. However, the 2019 Presidential election could cause a hiatus in spending.

As well as being a large market, Indonesia is considered an important manufacturing base, particularly for crawler excavators. In addition, compaction equipment, crawler dozers, dump trucks and motor graders are manufactured in Indonesia, making it an important country for component suppliers. The high population of equipment – Off-Highway Research puts this at more than 115,000 construction machines plus a further 20,000 agricultural tractors – also makes it a significant country for companies active in the equipment aftermarket. ■

Chinese crane sales make a comeback

Off-Highway Research also reported that sales of mobile cranes in China more than doubled last year to almost 20,000 units. A further 43% growth is expected in 2018 and demand is expected to peak in 2019 when some 31,000 mobile cranes are expected to be sold. Although some decline is expected following that, the market should stay above 20,000 units per year – greater demand than was seen from 2013-2017.

"Investment in infrastructure has slowed in the first half of this year, but ongoing projects will continue to drive mobile crane demand. Increased investment in industrial sectors will also spur on demand for mobile cranes. The government now plans to increase investment into infrastructure as a means of protecting the domestic economy from external impacts, and as a result buying confidence will be supported by sustainable demand," stated Off-Highway Research in its report.

Demand in China is dominated by truck-mounted cranes, which accounted for 94% of demand last year, and lattice boom crawler cranes are the next most popular type. In addition to benefitting from strong domestic demand, China's crane manufacturers also saw a 12% rise in exports last year, with some 2,600 cranes being sold overseas. These sales were predominantly to other emerging markets, with very few machines being sold to developed economies. ■

Haulotte delivers 400 machines to Coates Hire

Haulotte has completed the delivery of over 400 aerial platforms to Australian company Coates Hire. The machines, including 350 Optimum 8AC and 36 Compact DX scissor lifts, as well as 20 HA16 RTJ Pro articulating booms will be used across Australia to fulfill Coates Hire's rental requirements for the near term.

"2017 was a great year for us, but 2018 has exceeded all expectations following this large order of some of our best and most popular models," said Keith Clarke, general manager of Haulotte Australia. "The Optimum 8AC is class leading and fast becoming one of Australia's most popular scissor lifts, thanks to its fast operation speeds and compact design. The HA 16 is a versatile boom with industry leading working envelope and outreach of 8.3 m."

For Coates Hire, the order is part of a growth strategy to meet strong rental demands seen across the east coast and to refresh the access fleet. "Haulotte was able to offer products that meet our strategic and commercial needs. We were impressed with the level of service and support that they offered as well as the innovative features like Activ'Screen which will make technical support even easier," said Dan Goodfellow, category manager for Coates Hire.

"The onboard diagnostics tool Activ'Screen will offer Coates Hire 3x faster fault-finding capabilities thanks to the machine sensors and digital readouts, which can result in less call outs for personnel and downtime of a machine," added Mr Clarke.

Activ'Screen is just one of several recent technology developments and features of Haulotte's latest machines. Other innovations include safety improvements for users with Activ'Shield bar, which protects operators from potential crushing situations and Activ'Lighting system that lights up the machine and the area around it for safe loading and unloading from trucks at night.

"Australia is one of our fastest growing markets, and the local team is expanding to meet this new growth as well as the parts and services support expected by our customers," said Damien Gautier, managing director of Asia, Pacific and the Middle East at Haulotte. "In addition to our major service and repairs facility in Dandenong, we have developed our spare parts capabilities and placed more focus on training programmes and technical support offered." ■



Coates Hire has put an order for more than 400 Haulotte aerial platforms to use across Australia, fulfilling its rental requirements for the near term.

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Rubble Master establishes new subsidiary in China

Austrian manufacturer of mobile compact crushing equipment Rubble Master is expanding in China with a new sales subsidiary, Tianjin Rubble Master Technology Co Ltd. The local team of five will now be able to serve the Chinese RM customers on site together with the 10 local sales partners. According to Rubble Master, some of its machines have already been sold and put into operation.

Rubble Master said that local customers have been positive about RM crushers due to the machines' excellent capacity and their rapid start-up that enables efficient and flexible work. RM machines also offer a quiet operation with low exhaust emissions, which fulfill the high legal requirements without any difficulty. Plus, the extreme long-life span of RM machines has been approved well in this market.

Rubble Master further highlighted that its dealers provide an extensive stock of original RM spare and wear parts, in order to ensure fast delivery times for its customers in all regions as part of RM Lifetime Support. Thus, a dedicated Tianjin Rubble Master Technology Co Ltd wear parts warehouse is being planned for the future. The RM team of technicians trained



Rubble Master is expanding in China and has formed a new sales subsidiary in Tianjin.

in Austria is also available 24/7 to assist customers.

Meanwhile, Hebei Cangzhou Municipality, the first customer of Rubble Master in China, is an owner of RM80 and RM100 compact crusher, which were bought in 2005 and 2006. "We are still working with the two machines every day. One day when we build up our company museum, we will present these two machines to show that about 20 years ago, with them, we started our recycling business," said Mr Liu, general manager of Hebei Cangzhou Municipality.

To signify its expansion in China, Rubble Master will be represented at this year's bauma China in Shanghai for the first time with its Chinese subsidiary. The RM 100GO! mobile compact crusher equipped with a new generation of mesh deck screens and

hydraulic swivelling refeeding belts will be displayed at the show.

The RM 100GO! features a quiet operation and is suitable for a wide range of applications. The fast and simple start-up of the machine enables quick and efficient on-site recycling. With a capacity of up to 250 t/hr – depending on input material – the RM 100GO! can produce a high-quality end product. All mineral materials such as construction and demolition waste, concrete, asphalt, glass, coal, natural stone or steel-reinforced concrete with an edge length of maximum 750 mm can be processed to make high-quality building materials. The RM 100GO! weighs only 29 t and has a high throughput on a par with that of larger crushers, said Rubble Master. ■

YK Construction Equipment invests in Snorkel scissor lifts

South Korean equipment sales company, YK Construction Equipment, has invested in 142 Snorkel electric scissor lifts. The initial order for a total of 42 units, which includes 21 Snorkel S3215E and 21 Snorkel S3219E electric slab scissor lifts, was delivered in February 2018 and a further order for 100 electric scissor lifts was placed in early August. The second order includes 35 units each of the Snorkel S3220E and S4726E models, and 30 Snorkel S4732E.

Founded in 1999, YK Construction Equipment is a distribution partner for a number of leading equipment brands, including Yanmar, Sakai, Manitou and Gehl, and also offers equipment rental. Operating from 14 locations across South Korea, the company's service branches are strategically located to ensure easy accessibility to customers across the country. Each service centre stocks spare parts, and offers equipment rentals and product support capabilities.



FROM LEFT: Ken Goh, Snorkel's sales director for East Asia; Kilsu Song, managing director of YK Construction; Hosun Chae, CEO of YK Construction; and Matthew Elvin, CEO of Snorkel.

YK Construction Equipment's CEO, Hosun Chae, and managing director, Kilsu Song, also recently visited Snorkel's Vigo Centre manufacturing facility in northeast

England, the UK, where they were given the opportunity to demonstrate a large selection of Snorkel lifts, as well as tour the assembly process and powder coat paint facility.

"We were very impressed by the Snorkel facility in the UK during our visit. The production areas are clean and well organised and they have a very professional team," said Mr Chae. "We enjoyed being able to demonstrate a wide range of products, and we have confidence that the Snorkel products will be well-accepted by our customers in South Korea."

"It was a pleasure to host Mr Chae and Mr Song at our UK facility, and to introduce them to our team, facility and product line," said Matthew Elvin, CEO of Snorkel. "We are grateful for their continued business and we look forward to a strong, long-term relationship with YK Construction Equipment." ■

Mott MacDonald joins major projects in Asia

Mott MacDonald has been appointed by Macau International Airport Co Ltd to provide airfield and apron design consultancy services at Macau International Airport (MIA). The company will be responsible for optimising the apron adjacent to the airport's south terminal, which is being expanded to cater for continued passenger growth.

Mott MacDonald will deliver civil, structural, electrical and mechanical engineering, apron planning, airport systems and technical advisory services on the project. Once complete, the apron will cater for all required aircraft types, while its multi-centrelines configuration will be a first for the airport.

In another project, Mott MacDonald has been tasked to review the design of the anchor bolt system on the second phase of the 128 MW Formosa I offshore wind farm, located 3 km off the coast of Miaoli County in north west Taiwan. The scheme is said to be the country's first commercial-scale offshore wind project.

The Taiwanese government is investing up to US\$23 billion on onshore and offshore wind projects as it aims to increase its offshore wind market to 5.5 GW by 2025. Formosa I is believed to be the most advanced offshore wind project in Taiwan and has been developed in two phases. Phase one, consisting of two turbines with a total generating power of 8 MW, began commercial operation in April 2017. The second phase, which is due to become operational in 2020, will see the addition of 20 further turbines, bringing the total capacity up to 120 MW.

Mott MacDonald will review the design of the project's tower anchor bolt system, which will hold down the turbine frames and provide construction supervision services. The company was also involved in the first phase of Formosa I, providing technical, environmental and commercial due diligence.

Furthermore, a joint venture of Mott MacDonald, DHI and the International Centre for Environmental Management has also been appointed by the World Bank to shape the development of Myanmar's Ayeyarwady River Basin up to 2040. It is the country's most important commercial waterway, and home to 70% of its population. ■



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New MD for Tremco and tremco illbruck Asia Pacific



Tremco Group has appointed Saptak Roy (left) as its managing director of Tremco and tremco illbruck Asia Pacific. Based in Singapore, Mr Roy will focus on the growing Asia Pacific region, which presently consists of Southeast Asia (with offices in Singapore and Malaysia), Far East/Greater China (with an office in Hong Kong), North Asia (with an office and a production plant in South

Korea) and Pacific (with offices and a production plant in Australia).

He will report directly to Reiner Eisenhut, CEO and managing director of tremco illbruck Group GmbH and Chuck Houk, president of Tremco Inc, Commercial Sealants & Waterproofing. Both companies offer a wide range of products for use in many applications including waterproofing, facades, roofing, glazing, fire protection and adhesives, among others.

Mr Roy joins Tremco and tremco illbruck Asia Pacific from Elkem, where he worked for 13 years and was instrumental in leading the company's operations in the Southeast Asia and Pacific regions. Most recently he served as managing director of Elkem Singapore Materials Pte Ltd, in which he was responsible for the construction, refractory and polymers business segments in the Southeast Asia and Pacific regions. Prior to this, Mr Roy spent a number of years in various roles at Sika Malaysia and Sika India,

including sales, marketing, technical service and specifications. He also worked for Fosroc in India and construction chemical companies in the Middle East.

In his new role, Mr Roy will be responsible for the development of Tremco Commercial Sealants & Waterproofing and tremco illbruck business in Asia Pacific. Tremco Commercial Sealants & Waterproofing specialises in weatherproofing solutions for high-performance, sustainable buildings that meet performance requirements for air, water and fire resistance; while tremco illbruck is an expert in high-performance sealing, bonding and coating technologies for the construction industry.

This new appointment is part of Tremco's growth strategy in Asia Pacific and signifies its optimism for the region. The Group has also recently invested in sales and technical resources in Singapore, Malaysia and Hong Kong to support its growth; expanding its distributor network in Southeast Asia; and adding new manufacturing capabilities in Australia to ensure local supply of key waterproofing technologies.

Tremco Group is a subsidiary of RPM International and part of RPM's Construction Products Group, one of the leading global producers of sealants, coatings and specialty chemicals. RPM employs more than 14,000 people worldwide and operates 145 manufacturing facilities in 26 countries. Its products are sold in approximately 170 countries and territories. ■

JOIN invests in Ho Chi Minh City urban development project

Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN) is investing 1.9 billion yen in a new urban development project in Ho Chi Minh City, Vietnam. The company is working together with Nishi-Nippon Railroad Co Ltd.

Located in Ben Luc, Long An, a strategic economic area of Ho Chi Minh City and is also said to be the gateway to the Mekong Delta, the project will feature a large-scale residential complex with townhouses, villas, land plots and public facilities on a site of approximately 165 ha. It will also provide easy transportation through various services, such as a shuttle bus.

According to JOIN, the project will apply Japan's expertise in the development of a large-scale housing complex and bus-operation business, in order to promote a transit-oriented development (TOD) outside of Japan. ■



The project will feature a large-scale residential complex.

Pöyry secures Shuqaiq Phase 3 Water Transmission System in Saudi Arabia

Pöyry has been awarded a contract for the Shuqaiq Phase 3 Water Transmission System in Saudi Arabia by Saline Water Conversion Company (SWCC). Pöyry's scope of work includes review of contractor's engineering services and supervision of construction, erection and commissioning.

The Shuqaiq Phase 3 Water Transmission System (WTS) comprises three packages: Package B1 (pipeline for Shuqaiq - Majardah WTS (SMWTS)); Package B2 (pipeline for Shuqaiq - Abha WTS (SAWTS-3), Shuqaiq - Samta WTS (SSWTS-3), and Baysh Dam - Shuqaiq WTS (BSWTS)); and Package C: construction of pumping stations PS1, PS2, PS3, PS4, PSQ, PSJ, PS-TI and PSU.

The Shuqaiq WTS is said to be one of the most complex water transmission systems in Saudi Arabia, which involves a number of EPC contractors working on the three packages. On its route from the Shuqaiq 3 desalination plant on the Red Sea coast, the pumped water has to overcome a positive gradient of more than 2,000 m as well as cut through several mountains by means of tunnels. As a result, converting this project is considered an exceptionally challenging hydraulic and tunnelling engineering feat. The total water transmission capacity of Shuqaiq Phase 3 WTS, once integrated with Shuqaiq Phase 4 WTS, will be 650,000 cu m per day. ■

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New generations to lead Bauer

From 1 November 2018, Michael Stromberg will take up the role of chairman of the management board of Bauer AG. He will be taking over from Prof. Thomas Bauer, who will be leaving the management board at the same time.

Mr Stromberg began his professional career at the global consulting firm Booz Allen Hamilton in Munich, Germany, where he was responsible for strategic and operational projects in various sectors worldwide. In 2006, Mr Stromberg decided to switch to the industry and pursued his further career at EagleBurgmann, an international provider of industrial sealing technology. Most recently, he was chief operating officer in corporate management and responsible for production, product development and project business.

“Whilst choosing a successor, we met Michael Stromberg and got to know him as a very dynamic manager who is interested in many topics and who has ideally qualified himself to manage an entire company for many years now,” said Prof. Bauer. “With his knowledge and many years of experience, he will be able to bring in a completely new perspective as chairman of the management board of Bauer AG.”

Bauer Maschinen

In addition, Dr Ruediger Kaub will replace Dieter Stetter as chairman of the management board of Bauer Maschinen GmbH, as of 1 December 2018. Bauer Maschinen is a global manufacturer of specialist foundation engineering equipment, which is part of the Bauer Group. Mr Stetter will be taking over the leadership of the Bauer Technologies Far East Group starting from 1 January 2019.

Mr Stetter has been working for Bauer since the early 1980s and played an important role in the sales of Bauer machinery in Asia. In the late 1980s, his name has been linked to Bauer's story of success in the Far East. Between 1992 and 1998, 28 cutters were sold to Korea and in 1990, a subsidiary was founded in



ABOVE: **Michael Stromberg** will take over from **Thomas Bauer** at the Bauer Group.

LEFT: **Dr Ruediger Kaub** (on the left) will take over from **Dieter Stetter** (on the right) at Bauer Maschinen.

Taiwan. Two years later, a representative office in Beijing was opened. Companies in Singapore, Malaysia and Hong Kong followed. As a result, Bauer's largest overseas production facility for drilling rigs was built in China. In 2008, Mr Stetter became chairman of the management board of Bauer Maschinen after 26 years abroad.

Mr Stetter's successor, Dr Kaub, has become a member of the board of directors of Bauer Maschinen since 1 October 2018. He has years of international experience in product management, sales and management. Dr Kaub joined the O&K Group in the mid-1990s, where he initially worked in product management in the mining equipment sector. In the further course of his career, Dr Kaub focused on sales and management tasks in Germany, South Africa, Canada, Singapore and most recently, Indonesia. After returning to Germany in early 2016, Dr Kaub became managing director of Kleeman GmbH, a company of Wirtgen Group that produces mobile crushing and screening equipment. ■

Alimak rebrands products and service offerings

Following the merger of Alimak and Hek in 2001, the Swedish manufacturer of vertical access equipment for the industrial and construction sectors has operated under the Alimak Hek brand. To streamline the communication towards its customers, all the product lines within Construction, General Industry and Oil & Gas will now be named and labelled 'Alimak'.

Consequently, the Hek products, representing transport platforms and mast climbing work platforms, and the Heis-Tek products, including traction elevators for offshore operations, will all be rebranded to 'Alimak'. The aim is to continue building a strong Alimak brand, with its inherent DNA, and include the core values and DNA of the Hek and Heis-Tek products, said Alimak Group, Alimak's parent company.

Further additions to the Group also affect the branding. The acquisitions of CoxGomyL, Manntech and Avanti at the end of 2016 meant that Alimak Group doubled in size and extended the product portfolio, offering end-to-end facade access solutions and service lift systems for wind turbine towers. The acquisition of all of the aforementioned entities has led to a global rebranding. All entity sales offices will be rebranded as Alimak Group, while factories will retain the name of brands that they produce.



Alimak Group's new structure.

The Alimak Group brands - Alimak, Avanti, CoxGomyL and Manntech - are launching a joint global organisation under the name Alimak Service to provide product and customer support services to the owners and users of Alimak Group products and vertical access equipment across the globe.

With service support centres in 100 countries and 700 employees, Alimak Service will provide a full range of service, parts and training solutions to ensure the highest levels of product uptime and operator safety over the total lifecycle of the equipment. The change will apply across the full range of Alimak products and come into effect gradually starting 1 October 2018. ■

Volvo CE's new global HQ

Volvo Construction Equipment (Volvo CE) has recently inaugurated its new global headquarters at Campus Lundby in Gothenburg, Sweden. The company is now sharing a building with Volvo Buses – which moved in on the same day – and Volvo Penta. The building is situated close to the Volvo Group headquarters and other Volvo business areas at Campus Lundby. The move will help to facilitate the sharing of resources, best practice and competence, as well as creating even more opportunities for collaboration.

“At Volvo CE we have always collaborated with other parts of the Volvo Group, but our new shared headquarters will facilitate closer collaboration and cooperation,” said Melker Jernberg, president of Volvo CE. Campus Lundby is a large site, covering an area of 375,000 sq m, and is home to a diverse, international workforce with employees from 60 countries based at the site. ■



Volvo CE's new global headquarters at Campus Lundby in Gothenburg, Sweden. ■

Heissler steps down from Liebherr



With effect from 1 September 2018, Stefan Heissler (left) has stepped down as member of the board of directors of Liebherr-International AG for personal reasons. He has also left the Liebherr Group.

The board of directors of Liebherr-International AG currently continues with three members, comprising Andreas Böhm, Stephan Raemy and

Uwe Rechtsteiner.

The company thanked Mr Heissler for the trusting cooperation and his many years of commitment and dedication to the Liebherr Group. Mr Heissler accomplished a great deal as member of the board of directors, and previously also served as managing director of Liebherr-Great Britain Ltd.

The board of directors of Liebherr-International AG manages the corporate functions of the Liebherr Group. These include several departments: Finance, Human Resources, Corporate Communication, Organisation and IT, Logistics, Legal and Insurance, as well as Compliance Management. Liebherr-International AG in Bulle, Switzerland, is the holding company of the Liebherr Group. ■

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19 to 21 Nov 2018	World of Concrete Asia 2018 Shanghai New International Expo Centre Shanghai China	Informa Exhibitions Tel: +86 21 2326 3669 Email: info@wocasias.com Website: www.wocasias.com
27 to 30 Nov 2018	Bauma China 2018 Shanghai New International Expo Centre Shanghai China	Messe München Tel: +49 89 949 20251, Fax: +49 89 949 20259 Email: info@bauma-china.com Website: www.bauma-china.com
11 to 14 Dec 2018	Bauma Conexpo India 2018 Huda Ground Gurgaon, Delhi India	Messe München Tel: +49 89 949 20251, Fax: +49 89 949 20259 Email: info@bcindia.com Website: www.bcindia.com
13 to 17 Mar 2019	Worldbex 2019 World Trade Center Metro Manila Manila The Philippines	Worldbex Services International Tel: +632 656 9239, Fax: +632 477 1899 Email: info.worldbex@gmail.com Website: www.worldbex.com
14 to 17 Mar 2019	Megabuild 2019 Jakarta Convention Centre Jakarta Indonesia	PT. Reed Panorama Exhibitions Tel: +62 2556 5000 Email: steven.chwee@reedpanorama.com Website: www.megabuild.co.id
19 to 21 Mar 2019	Ecobuild Southeast Asia 2019 Malaysia International Trade and Exhibition Centre Kuala Lumpur Malaysia	United Business Media (M) Sdn Bhd Tel: +603 2176 8788, Fax: +603 2164 8786 Email: ecobuild-sea@ubm.com Website: www.ecobuildsea.com
16 to 18 May 2019	Concrete Show India 2019 Bombay Convention and Exhibition Centre Goregaon, Mumbai India	UBM India Pvt Ltd Tel: +91 22 61727000 Email: shannon.andrade@ubm.com Website: www.concreteshowindia.com
17 to 18 Jul 2019	Trenchless Asia 2019 Jakarta International Expo Jakarta Indonesia	Westrade Group Ltd Tel: +44 845 094 8066, Fax: +44 870 429 9275 Email: pharwood@westrade.co.uk Website: www.trenchlessasia.com
4 to 7 Sept 2019	BICES 2019 New Beijing International Exhibition Center Beijing China	CCMA, CNCMC & CCPIT-MSC Tel: +86 10 52220946, Fax: +86 10 51183612 Email: info@e-bices.org Website: www.e-bices.org
Date	Events outside Asia	Organiser & Contact
22 to 25 Jan 2019	World of Concrete 2019 Las Vegas Convention Centre Las Vegas, Nevada USA	Informa Exhibitions Tel: +1 972 536 6379 Email: info@worldofconcrete.com Website: www.worldofconcrete.com
8 to 14 Apr 2019	Bauma 2019 Munich Trade Fair Centre Munich Germany	Messe München Tel: +49 89 949 11348, Fax: +49 89 949 11349 Email: info@bauma.de Website: www.bauma.de
10 to 14 Mar 2020	Conexpo-Con/Agg 2020 Las Vegas Convention Centre Las Vegas, Nevada USA	Association of Equipment Manufacturers Tel: +1 414 298 4167, Fax: +1 414 272 2672 Email: international@conexpoconagg.com Website: www.conexpoconagg.com

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IPAF hosts inaugural Thailand Seminar

The International Powered Access Federation (IPAF) has hosted the inaugural IPAF Thailand Seminar, which took place on 6 September 2018 in Bangkok, in conjunction with InterMat ASEAN at the Impact Exhibition and Convention Centre.

The seminar attracted more than 60 attendees and various speakers gave their insights into the powered access rental market in Thailand and wider Southeast Asia. These speakers included Michael Tong of JLG, Shawn Ong of Galmon Ltd, Kang Han Fei of Aerial Lift & Equipment, Sharon Foong of Terex Genie, Santi Poolsawad of 3M, and Kwankamol Duangjun of Asia5 Co, with contributions from both Raymond Wat, IPAF regional general manager for Southeast Asia, and Amanda Tan, IPAF's regional executive.

"This was a very encouraging first Thailand Seminar, and builds on growing interest and engagement across the whole Southeast Asia region and China in IPAF and its activities," said Mr Wat. "Our key sponsors for the showcase were Aver Asia (Thai) Ltd, TVH Parts, Galmon Pte Ltd and the Shandong Chufeng Heavy Industry Machinery Group. We're also very grateful for all



The inaugural IPAF Thailand Seminar recently took place in Bangkok.

the delegates who took time to join us and to make this seminar a success; we hope this will become a regular engagement in IPAF's events calendar." ■

IPAF Summit & IAPAs 2019 to be held in Dubai

The next IPAF Summit and International Awards for Powered Access (IAPAs) will be held at the Radisson Blu Dubai Deira Creek Hotel in Dubai, UAE, on 6 March 2019 – the first time this global event to take place in the Middle East.

The IPAF Summit conference brings together senior representatives from across the access community to discuss and debate the latest developments in the industry. Attendance is free and delegates should register in advance.

The IAPAs celebrate best practice and excellence in the access industry, featuring 13 award categories that range from new products and innovations to safety and training. An independent judging panel of access industry leaders will vote to determine the winners.

The IPAF Summit and IAPAs offers an excellent combined educational and networking event for the access industry. There will be informal drinks reception in the evening before the event, and a site visit close to the event venue will be held on 7 March. ■

Website: www.iapa-summit.info



Winners of IAPAs 2018.

Construction projects driving PAL Card boom

Major construction projects are believed to have driven accelerated uptake of mobile elevating work platform (MEWP) operator training in countries such as Denmark, where international contractors are insisting that all powered access users hold certification from an accredited IPAF training centre.

IPAF member company Riwal opened its first training centre near Odense, Denmark, at the end of 2017 in response to demand for IPAF-trained operators to work on a major data centre project, for which lead contractor Mace Group requires all powered access workers to hold a PAL Card or PAL+ qualification.

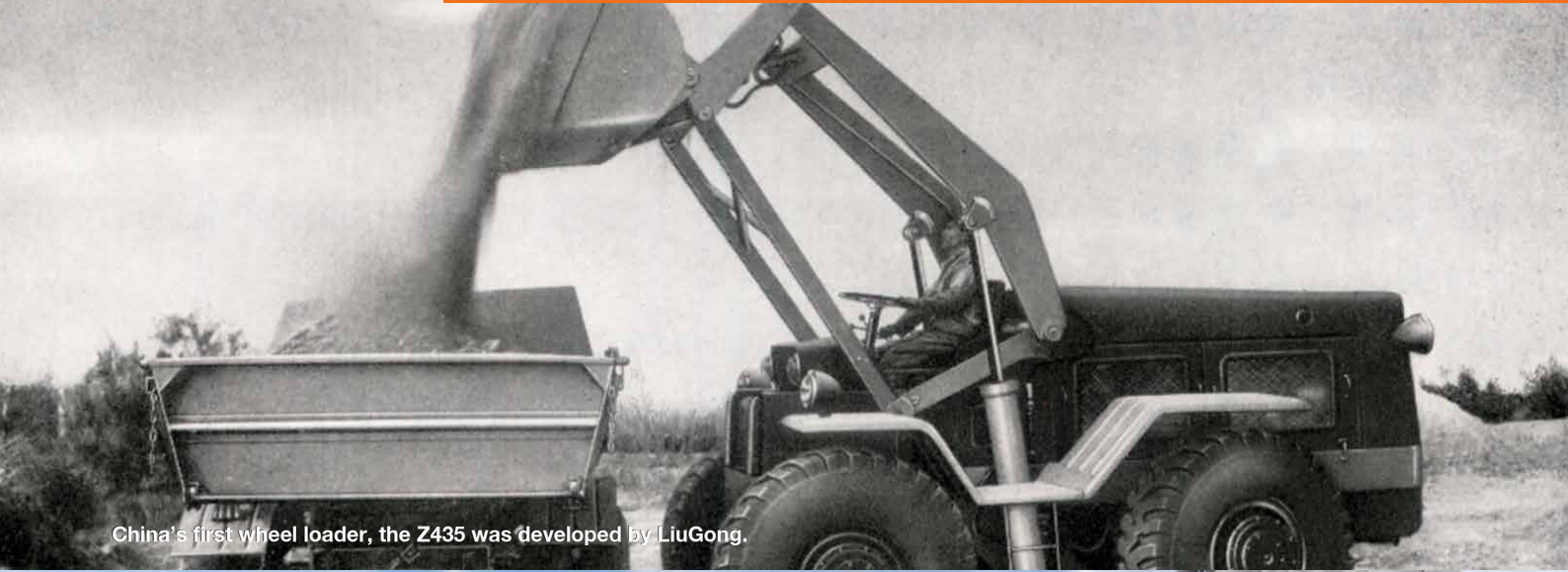
"Mace Group standards stipulate that all operators of MEWPs on its sites must hold a PAL Card, so in response to this IPAF member firm Riwal opened the first approved IPAF training centre in Denmark at the end of 2017, and has trained a total of 588 operators, with 467 of those PAL cards being issued since the turn of the year," explained Kent Boström, IPAF's representative in the Nordic and Baltic region.

"On the back of this burgeoning demand for IPAF's PAL Card across the Nordic region, further IPAF training centres are set to open in Denmark and Finland during autumn 2018," added Mr Boström.

Iain Gardner, senior health, safety & wellbeing manager and campus HS&W lead at Mace Group commented, "At Mace Group it is very important that we can share the high health and safety standards that we have set over the years with other companies and partners in different countries. The IPAF PAL Card and MEWPs for Managers training standard has been developed from lessons learned on other projects.

"Our collaboration with IPAF and Riwal has been very successful and it is very pleasing to see the successful adoption of the standard. 'Safety First. No Compromise' is one of Mace's core values and along with the 'Four Steps to Safety' Mace group strives to ensure every person on our projects goes home safe and well every day." ■

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Indonesia - PT. Berca Mandiri Perkasa
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Laos - VK Trading
85.6.021265058

Malaysia - CIH (Malaysia) Sdn. Bhd.
603.8068.4888

Myanmar - Aung Gyi Trading Ltd
951.613629

Philippines - Qishu Heavy Equipment
63.2.7491215

Singapore - Ten League
65.68620769

Taiwan - Feng Yue Li Enterprise Co. Ltd
886.4.737.6868

Thailand - Yontrakarn Machinery
66.35.361495

Vietnam - Seabird Trading Company
84.4.35372815
Oceania Region

Australia - AWD Group
61.2.87954555

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61.8.945751600

Australia - All Lifts Pty Ltd
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689.504.106

New Zealand - Lincom NZ Pty Ltd.
64.9.2362008

Papua New Guinea - Karridale Limited
675.323.7004

bauma Conexpo India 2018 getting ready

With less than three months to go, bauma Conexpo India is set for its fifth edition. The show will take place from 11 to 14 December 2018 at the Huda Grounds in Gurgaon/Delhi, covering an exhibition area of 150,000 sq m.

“Demand is high and we are pleased with the high level of interest. We already have 30% more space registered than for the previous event,” said Bhupinder Singh, CEO of bC Expo India, the show organiser. Major players such as ACE, Case, Caterpillar, JCB, Kobelco, L&T, LiuGong, Peri, Putzmeister, Sany, Schwing Stetter, Volvo, Wirtgen and Zoomlion have reportedly not only registered to take part again but have also increased the floor space for their stands.

Terex is also coming back, after its last participation in 2014, and others that have signed up for the event include Deutz Engines, Doka, Doosan Bobcat, eTrack Crushers (a Keestrack Group company), Hyundai and Manitou Equipment. Among new exhibitors at the show will be German company Kaeser Kompressoren SE, a global manufacturer and supplier of compressed air products and services, and India’s Tata Hitachi, a global manufacturer of mining, construction and agricultural machinery.

In addition, various countries like China, Germany, Spain and North America, will be represented on site with joint stands. bC Expo India said more country pavilions are being planned.

Following an Off-Highway Research analysis in April 2018, India’s construction and mining industries in particular are



A view of bauma Conexpo India 2016.

expected to experience sustained growth through to 2022. iCEMA, the Indian Construction Equipment Manufacturers’ Association, also predicts a 10% growth rate for India’s gross domestic product by 2024.

The last bauma Conexpo India in December 2016 attracted 647 exhibitors from 30 countries and 32,644 participants from India and neighbouring states. The event is held every two years ■

Website: www.bcindia.com

Second APEX Asia to return to Shanghai next year

The second edition of APEX Asia will be held from 23 to 26 October 2019 in Shanghai, China, at the Shanghai New International Exhibition Centre (SNIEC). The show will be co-located with CeMAT Asia – the region’s trade fair for intralogistics and supply chain management – which attracts more than 98,000 visitors.

China and wider Asia are said to be the fastest growing markets worldwide for access equipment. In view of this, APEX Asia will showcase the latest access solutions and brings together equipment suppliers, buyers and users. There will be a variety of access equipment at the show, including scissor lifts, self-propelled booms, smaller vertical-mast platforms and vehicle mounted platforms. Other equipment and services on display will include fall-protection equipment, access towers, rental software suppliers, and used equipment specialists.

A new feature of APEX Asia will be an outside exhibition area. This will allow suppliers to display and demonstrate their largest machines and widen the selection of equipment on show. Aerial platforms can operate at heights of more than 100 m. APEX Asia will be located in Hall N1 at CeMAT Asia 2019 with free movement of visitors between the two shows.

APEX Asia is organised by KHL Group and BV Industrial Promotions International (IPI), in cooperation with Deutsche Messe AG, the organiser of CeMAT Asia. Access International, the KHL Group magazine, and the International Powered Access Federation (IPAF), are APEX Asia supporters.

“The first APEX Asia in 2017 was a great success, attracting more than 5,000 visitors, with more than 90,000 visitors to CeMAT



The first APEX Asia exhibition was held in 2017 in Shanghai, also co-located with CeMAT Asia.

Asia also able to visit the show,” said Tony Kenter, managing director of IPI. “Co-locating with CeMAT remains a tremendous benefit for APEX Asia. There are established links between the material handling/factory & industrial maintenance and aerial platform sectors in China. APEX Asia will again expose aerial platforms to an enormous audience of current and potential industrial, rental and construction buyers.” ■

Website: www.apexasia.com

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OS+H Asia highlights safer and healthier workplace

OS+H Asia 2018, the region's exhibition for workplace safety and health, closed on 31 August at Suntec Singapore attracting more than 5,000 trade visitors from 36 countries over three days – the organiser said it is a 15% increase over the 2016 edition. The event was attended by 200 exhibitors from 20 countries, and also welcomed more than 40 visiting delegations and groups representing various sectors including building and construction, offshore marine, electrical and electronics, engineering services, and warehousing and logistics.

The increase in the internationality of visitors at this year's edition with participants from countries such as Malaysia, Indonesia and Thailand, underlined the relevance of OS+H Asia as the leading regional networking and procurement platform for the latest workplace safety and health products and solutions.

"We took away many developments and updates in personal protection equipment (PPE) specifically in the realm of gas detection and chemical protection," said Mr Buktirantai from Dinasker Kepri to the Riau Islands Provincial Government Office for Manpower, Tanjung Pinang District, Indonesia. "The range of products on show was impressive and beneficial, and we look forward to sharing what we learnt here with companies at home."

First-time exhibitor Japanese company Kamakura Seisakusho Co Ltd, which showcased its industrial ventilation fans and adjustment equipment, mentioned that it has met many high quality leads at OS+H Asia particularly from Malaysia and Australia. "We met with close to 60 visiting companies and are hopeful to open a distribution channel in this part of Asia," said Masashi Ishii, manager at Coolex Division of the company.

Taiwan-based protective gear manufacturer Polison Corporation was also pleased and it was "overwhelmed by the interest and knowledge of work safety specialists from the region and had many fruitful meetings with visiting companies from China, India, Indonesia, Philippines and Singapore," said Julie Cheng, the company's marketing manager.

This year OS+H Asia showcased seven focus areas including the debut of the OSH Technology zone, which presented smart technology and innovative solutions from Avetics Global, Fujitsu



ABOVE LEFT AND ABOVE: OS+H Asia 2018 was attended by 200 exhibitors from 20 countries and more than 5,000 trade visitors from 36 countries.

LEFT AND BELOW LEFT: The show featured safety demonstrations as well as technical presentations and seminars.

BELOW: The show also welcomed the Batam delegations from Provincial Government Office for Manpower, Riau Islands Province, Indonesia.



and Magicsoft Asia Systems. The other focus areas were: Work at Height, Fire Protection, Environmental Control, Crisis and Emergency Management, Workplace Ergonomics, and Health at Work.

"In addition to a strong showcase of innovations in workplace safety and health, OS+H Asia 2018 has offered a highly relevant and current line-up of presentation topics from workplace ergonomics to depression at work," said Gernot Ringling, managing director of Messe Düsseldorf Asia, the show organiser. "In many workplaces, the focus has traditionally been on physical safety; but with the growth in occupational illnesses there is a need to broaden that scope and include the area of work-related illnesses."

The technical presentation series was reportedly well attended throughout the three days, with particular interest in talks by companies from Russia and Brazil. Among them was SafeStart International, a Canadian company headquartered in Brazil that pioneered the advanced safety awareness and skill development

programmes in 1998. "We've seen steady visitor traffic at the exhibition and met some very important people and collected some good leads; so all in all it has been a very good experience for us. Our seminar on the Human Side of Safety was very well-received," said Larry Wilson, CEO of SafeStart International.

Complementing the exhibition and contributing to raising awareness on safety and health matters, the co-located one-day Workplace Safety and Health Forum drew about 100 safety representatives from a range of industry sectors. With participation from specialists across various industry sectors, speakers covered a variety of topics such as SGSecure, competency requirements for WSH professionals, and managing an ageing workforce. The forum was jointly organised by Singapore Institution of Safety Officers (SISO) and Messe Düsseldorf Asia.

The next edition of OS+H Asia is scheduled to take place from 26 to 28 August 2020 at Suntec Singapore. ■

Website: www.osha-singapore.com



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Terex unveils new CTL 272-18 luffing jib tower crane

Terex Cranes has developed the new CTL 272-18 luffing jib tower crane that boasts a 10% increase in jib length over the previous class model. This new crane features a 61 m maximum jib length, 270 ton-meter load moment and maximum full-length load of 2.6 t. The Terex Power Plus system can temporarily increase the maximum load moment under specific and controlled conditions (e.g. reduced dynamics) by 10%, providing the operator extra lifting capacity.

Seven different jib configurations from 30 to 61 m on the CTL 272-18 give contractors the flexibility to meet a range of jobsite reach needs. Equipped with an independent safety line, all jib sections of the crane deliver safe work at height, plus galvanised jib walkways provide long-lasting and dependable service life. The crane's 5.8-m counter jib boasts multiple job angles to meet demanding in-service and out-of-service conditions.

The new control system on the CTL 272-18 delivers efficient set-up of expanded crane configurations needed to meet a variety of jobsite demands. The large, 18-cm colour display with antiglare screen displays operating and troubleshooting data to the operator. In addition to Terex Power Plus, Terex Power Match enables the operator to choose between operating performance or energy efficiency to adapt to lifting needs. The new crane offers the choice of hoisting with 1-4 pull lines, affording the flexibility to choose between lifting speed with lighter loads or power and precision when placing heavier objects. Its auto-levelling feature automatically maintains the same hoist block height while luffing the jib.

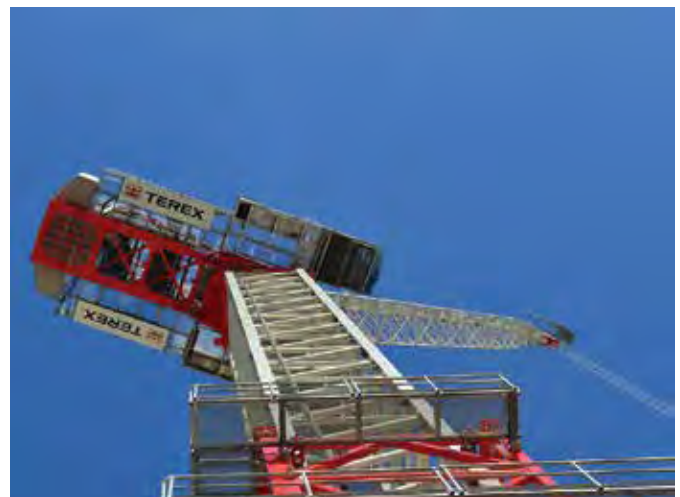
The new CTL 272-18 has an 84.4 m maximum freestanding height. The flexible tower design can be configured using a combination of the 1.9-m H20, 2.3-m HD23 and 2.37-m TS212 tower masts, allowing customers to efficiently manage tower section inventory and cost-effectively meet tower needs at multiple sites. Tower masts are equipped with durable aluminium ladders and optimised for transportation to the jobsite.

The new Terex cabin on the CTL 272-18 incorporates a comfortable workspace for the operator, including a fully adjustable comfort seat. The joystick controls feature a short stroke length to reduce arm movements and operator fatigue. Standard heating and air conditioning keep the cabin at convenient temperature, even when operating during cold winter months or the heat of summer. Large windows give the operator a panoramic view of the jobsite for excellent visibility. In the event of a broken glass pane during operation, it can be replaced from the inside.

The crane's counter jib with winches and electrical panel powering all crane movements are located at cabin level for convenient access. A service derrick located at the counter jib with 1.25 t lifting capacity conveniently hoists parts to jib-level for maintenance activities.



ABOVE, LEFT AND BELOW: The new Terex CTL 272-18 luffing jib tower crane boasts a 10% increase in jib length over the previous class model. This new crane features a 61 m maximum jib length, 270 ton-meter load moment and maximum full-length load of 2.6 t.



The new CTL 272-18 luffing jib tower crane can be equipped with several advanced options to give more flexibility to the owner for crane configuration. It is ready-equipped for the installation and set-up of zoning and anti-collision system and cameras. The crane is compatible for the next generation of Terex tower telematics, which reports machine operation and service data back to the office. ■

Website: www.terex.com/cranes

Vermeer Mud Hub slurry solidification system

The Mud Hub slurry solidification system from Vermeer helps control the costs, time and complexity of drilling fluid management, suitable for contractors performing utility work. Using the new Vermeer ST2000 slat tank and the Surface to Surface (STS) FL-243 solidification mixer, the Mud Hub helps create stackable material for convenient transfer and disposal. The FL-243 is designed and produced by Surface to Surface Inc, and is exclusively available from Vermeer dealers.

With the Mud Hub, vacuum excavator operators drive over the swing-open hatch above the 7,570.8-l Vermeer ST2000 slat tank, designed for vacuum excavator dumping, to empty their tanks - no backing up to a pit required. The slurry mixture is then routed up the 213.4 cm variable speed conveyor, where it is then loaded into the 2,839.1-l infeed hopper of the STS FL-243 solidification mixer.

The STS FL-243 solidification mixer combines slurry from drilling fluid or hydro-excavation with a superabsorbent polymer before being discharged onto the ground or into a roll-off dumpster. In as little as 15 minutes, the slurry will begin to set up as a stackable material that is convenient to transport and may now be disposed of at a landfill, used as ground cover or added to composting mixes, depending on what additives were used in the drilling fluid.

According to Vermeer, the Mud Hub can be operated by one person from multiple control station locations for jobsite



Vermeer's new Mud Hub slurry solidification system is ideal for contractors performing utility work.

flexibility, and feed and dosage rates are made from the STS FL-243 solidification mixer's control centre. The Vermeer ST2000 slat tank has a self-cleaning tank design, as well as slip-resistant floors. ■

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New 21LC1050 flat-top tower crane from Comansa

Comansa has officially introduced to the global market its new 21LC1050 flat-top tower crane, offering maximum capacities of 25 t, 37.5 t and 50 t. The crane can be erected with a reach of between 30 m and 80 m, with configurations every 5 m. An optional jib configuration is available to enable an extended reach of 85 m.

With its maximum capacity of 50 t, the 21LC1050 is the largest capacity crane in the Comansa 2100-series, which is formed entirely by flat-top models of large tonnage. Fitted with the new Cube cab (XL version), the crane is designed for applications that require heavy loads, such as those in large industrial or mining projects as well as for construction of buildings with heavy prefabricated steel structures.

The design of the slewing (horizontal) part of the 21LC1050 is similar to that of the 21LC750 and 21LC660. Instead of having a cusp element, the jib and counterjib join directly on the slewing part, resulting in a much faster and safer assembly. The 21LC1050 also shares a large part of the jib and counterjib sections with the 21LC750 and 21LC660.

Among the highlights of the 21LC1050 is the design of its counterjib. It consists of five modular elements that allow up to six different configurations, in order to adapt to the needs of each job. Plus, a short counterjib radius avoids possible interference with buildings or other cranes present in the same project, thus increasing safety. For example, when the crane is assembled with a maximum range of 80 m, the counterjib radius is 31 m, which can be reduced to 27 m when the jib is 50 m, or to 21 m when the reach is 30 m. In addition, the counterjib radius in all its configurations can be reduced by one additional metre with steel counterweights, which are offered as an optional element.

The 21LC1050 is erected on the new D36B tower section featuring 2.5 m in width. In its version with fixing angles, the crane reaches a freestanding height of 73.3 m, exceeding 98 m when combined with other sections of the larger width from Comansa.

The hoist cable of the 21LC1050 is only 20 mm in diameter. The standard hoist mechanism, 65 kW, has a capacity of 720 m of wire rope and reaches speeds of up to 166 m/min in the 25 t and 37.5 t versions, and 83 m/m in the 50 t version. When it is necessary to reach higher speeds (up to



ALL IMAGES: The new Comansa 21LC1050 flat-top tower crane comes in 25 t, 37.5 t and 50 t maximum capacities. Fitted with the company's Cube cab, the crane has a maximum reach of 80 m and a new counterjib design with six different configurations. It also features the PowerLift system, which allows to improve the load diagram by 10% without exceeding the nominal capacity.

300 m/min), two optional mechanisms are available, 110 kW and 132 kW respectively, as well as the possibility of using Lebus drums with a capacity of 1,570 m of rope.

Thanks to Comansa's single-double trolley system with automatic reeving change, the 21LC1050 always delivers an optimised load diagram. Working with the simple (or front) trolley, the crane improves its tip loading capacity and reaches higher hoist speeds. With the double trolley (front plus rear), the crane can work with the heaviest loads. For those projects where heavy loads are constantly being lifted and the crane does not require reeving change, the 50-t version has a simple trolley as an optional element.

The 21LC1050 comes with the PowerLift system, which allows the crane to improve the load diagram by 10%, without exceeding the nominal capacity. Also new is its climbing cage, the J3-20. This hydraulic cage is compatible with other models from Comansa, like the LCL700 luffing-jib crane, and offers a pushing force of 200 t, greater than any other jacking cage for 2.5-m-wide mast sections from Comansa. ■

Website: www.comansa.com

The Comansa 21LC1050 flat-top tower crane was introduced to Singapore market in early 2018. Read the SEAC May/June 2018 issue for more details.

Carmix Bagger helps speed up cement loading process

Metagalante has unveiled its new Carmix Bagger, a mini silo that helps to speed up the cement loading process and ensure high accuracy of the mix design. It is compatible with all Carmix machines, said Metagalante.

With a capacity of 3 cu m, the Carmix Bagger incorporates a load-cell container that weighs the quantity of materials loaded. Thanks to this special construction, both normal-sized cement bags and big bags may be used. After loading, a feed screw transfers the content into a Carmix batching plant. The whole process is fully autonomous, according to Metagalante. Each operation is controlled by a hydraulic motor/actuator, fed by an engine. As a result, the Carmix Bagger can be used on jobsites where no electric power is available.

Some features of the Carmix Bagger are designed to simplify the operators' work, leading to greater productivity and less costs. Metagalante added that the silo can be easily carried by a forklift, and thanks to its compact size, it only takes up half a 20-box container, minimising shipping costs.

In addition, the use of cement big bags makes the work more environment-friendly reducing dust to a minimum, and it cuts the operating costs for bag disposal. Loading the big bags directly also contributes to reducing raw material costs and it raises productivity, as Carmix Bagger can contain up to three 1-cu-m big bags on each cycle. ■

Website: www.carmix.com



ABOVE AND LEFT:
The new Carmix Bagger from Metagalante helps to speed up the cement loading process and ensure high accuracy of the mix design. This mini silo offers a capacity of 3 cu m.

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Ammann ART 280 hydrostatic tyred roller

The new Ammann ART 280 hydrostatic tyred roller can be used on both asphalt and soil. It is suitable for a wide range of applications such as motorways, railways, airfields, industrial zones and residential areas.

The roller is powered by the latest US EPA Tier 4f/EU Stage 4 engine from Deutz with EGR, DOC and SCR technology; while in less regulated countries, it features a US EPA Tier 3/EU Stage 3A Deutz engine with EGR and muffler.

Ammann's modular, easy-load ballasting system enables the machine weight to be adjusted from 9 t to 28 t in a single hour with the help of only a forklift. This translates into a load-per-tyre adjustment from 1.125 kg to 3.500 kg.

The ease and weight of the ballast adjustment are unique to the market, said Ammann. The system enables use of varied ballasting materials including water, steel, concrete and sand. The air-on-the-run system allows easy control of tyre pressure from the cab. The ballast adjustment and air-on-the-run system make it

easy for the operator to control machine weight and tyre pressure, the two main tyred roller compaction factors.

Front isostatic axles with oscillation deliver higher stability and increased surface coverage and quality. Front tyres are connected with an isostatic system that enables movement of +/- 50 mm. The front-axle configuration combines with +/- 3° oscillation for optimal tyre contact in difficult terrain.

The new cabin is spacious with low sound levels and a 170° rotating seat for all-day operator comfort. A multifunctional display provides intuitive control, ensuring even less experienced operators are successful. The cab offers optimal sight lines and visibility.

Moreover, the Ammann ART 280 provides simple access during maintenance and service of components. Access is gained from the ground, making maintenance fast and easy and thus reducing downtime. A variety of options also help the machine closely match the needs of individual contractors. ■

Website: www.ammann-group.com



ALL IMAGES: Ammann ART 280 hydrostatic tyred roller is fitted with a new cab and an innovative ballasting system that can be quickly and significantly adjusted. The roller is suitable for various applications such as motorways, railways, airfields, industrial zones and residential areas.






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Aqua Spine brings hydrodemolition to small spaces

Aqua Spine from Aquajet Systems is a multi-modular system that uses high-pressure water jets to precisely remove concrete from surfaces that may be inaccessible for Aqua Cutter hydrodemolition robots. Used for onshore and offshore construction as well as in conventional and nuclear power plants, the Aqua Spine brings the power of hydrodemolition to tight, small places.

Hydrodemolition uses high-pressure water jets to precisely remove sound, deteriorated or damaged concrete. The sustainable method leaves rebar undamaged while protecting and preserving existing concrete. The Aqua Spine eliminates vibrations that cause microfracturing as well as reduces exposure to harmful silica dust. The method leaves a sound surface ready to accept new material.

Aquajet designed the Aqua Spine as a multi-modular system with a single feed beam to ensure adaptability to different applications. The system adjusts from 1 to 6 m and works well in applications such as roads and bridges, hydro and nuclear power plants, and underwater demolition. The modular design allows the Aqua Spine to enter hard-to-reach corners, where the floor and wall meet, to remove concrete without the use of hand lances.

An Aqua Cutter robot or standard power control unit controls the Aqua Spine. A separate power pack contains everything else needed for the job. It provides easy handling for equipment, accessories and tools and houses a powerful diesel motor and high-pressure pump.

When working on flat surfaces, the modular system bolts onto walls, floors or ceilings. For increased versatility, hydraulic

platforms, cranes and scaffolding can support the Aqua Spine. The system works well underwater on bridge pillars using the circular power head. The 360-degree ring wraps around pillars of any diameter, allowing the Aqua Spine to operate without having to be moved. No matter the support or location, the Aqua Spine moves accordingly to remove concrete without damaging the rebar. The Aqua Spine can be assembled and modified for a variety of tasks based on specifications. Contractors can change the length and width of the Aqua Spine seamlessly by adding or removing spine beam sections.

The system comes with two interchangeable rail systems: Dual and Triple. The smaller Dual system works best in confined areas when connected to a scaffolding's multiple attachment points. The Triple system is used when the Aqua Spine is placed horizontally or free standing. It works well for a longer span, which can be up to 6 m long and does not need additional support.

The Aqua Spine takes roughly a few hours to set up. The standard setup, with triple spine in maximum configuration, allows the Aqua Spine to remove about 18 sq m of concrete before needing to be moved. The Aqua Spine handles the same pressure and flows as the Aqua Cutter robots, roughly 15,000 to 40,000 psi.

All Aquajet products use ceramic nozzles to ensure a long lifespan and minimal downtime. The ceramic nozzles last as long as 300 to 350 hours, depending on the water quality. In comparison, standard steel nozzles used on competitive equipment last 20 to 40 hours, said Aquajet.

The Aqua Spine also comes with the adjustable oscillation system. This allows the stroke of water to be changed within a minute to adapt the nozzles for varying depths of cuts. The system can be used with the Aquajet EcoClear water treatment system, ensuring the wastewater generated by the hydrodemolition process can be safely released back into the environment after neutralising the water's pH and reducing its turbidity.

The Aqua Spine works with an array of Aquajet hydrodemolition equipment, including the Aqua Cutter 410A and 410V; Aqua Cutter 710H, 710V and 710V XL; and the Power Control Module. ■

Website: www.aquajet.se



FAR LEFT: The Aqua Spine from Aquajet Systems is an innovative multi-modular hydrodemolition system for all surfaces.

LEFT: The Aqua Spine system works well underwater on bridge pillars using the circular power head. The 360-degree ring wraps around pillars of any diameter, allowing the Aqua Spine to operate without having to be moved.

Gomaco GP3 and GP4 available in two-track versions

The Gomaco GP3 and GP4 slipform pavers are now available in two-track versions. The machines have been used on projects around the world since their introduction. The GP3 has the ability to slipform widths up to 9.1 m and the GP4 is for wider widths, up to 12.2 m.

The dual-telescoping GP3 and GP4 are part of Gomaco's new family of pavers with next generation technology. Both the two-track and four-track versions of the machines feature the smart frame widening system to accommodate multiple width changes. The telescoping frame has dual telescoping capabilities of up to 2.13 m on each side of the paver, for a total of 4.26 m of automatic frame widening on the GP3 and GP4. Smart cylinders in the frame enable smart telescoping with accurate frame widening and automatic width reference for steering setup. The T-beam mounting rail is incorporated into the telescoping frame.

The pavers have been designed to be easy to operate with the G+ control system, as well as comfortable for the operator while offering a complete view of the paving operation. Vibrator modules

are positioned across the front of the operator's platform for easy accessibility and operation visibility. G+ delivers quiet running technology and also load-sensed hydraulics for maximum paving performance and optimised fuel efficiency.

In addition, the pavers are equipped with an isolated operator's platform for operator comfort during a long day of slipform paving. This platform is easy to access with multi-positioning, pivoting ladders that allow variable degrees of angle for safety and ease in climbing. The ladders can also be vertically positioned tight against the paver for minimum-clearance paving conditions.

G+ Connect allows all the smart accessories and guidance system for the Gomaco paver to be easily interfaced. Simply 'connect' a 3D stringless guidance system, IDBI, tie bar inserter (TBI), power transition adjuster (PTA), Gomaco Smoothness Indicator (GSI) and more to a GP3 or GP4 slipform paver. They can also feature the latest in telematics and remote diagnostics. ■

Website: www.gomaco.com



The two-track version of GP3 (left) and GP4 slipform pavers from Gomaco.



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LiuGong introduces various machines in Thailand

LiuGong's product offerings for Thai market include the 856H wheel loader, 915E excavator and 6611E roller. The company recently presented the machines at the Intermat ASEAN exhibition that took place in Bangkok in September 2018. LiuGong's dealer in Thailand is Yontrakarn Machinery.

The 856H wheel loader features an operating weight of 17,800 kg. The machine's gearbox and wet axles are ideally matched to ensure optimised performance. LiuGong's Intelligent load-sensing hydraulics supply power to the machine's working functions based on demand.

The 856H's ride control system provides fast and stable travel, whilst also achieving better material retention. The machine is equipped with a FOPS/ROPS cab, which also has a review camera, heated mirrors, large storage area and large glass-curved front that offers great visibility. For quick and easy service, the 856H is fitted with an electrical actuated, wide-opening engine hood and all-round passage.

The LiuGong 915E excavator delivers an operating weight of 16,500 kg. It has six selectable working modes - Power, Economy, Fine, Lifting, Breaker and Attachment - to optimise performance and fuel consumption in every situation. The machine's boom and arm support structures are designed with large cross-sectional areas and one-piece steel castings to guarantee their long-term durability and high resistance to bending and torsional stress.

The 915E's advanced IPC (Intelligent Power Control) system makes full use of engine oil consumption characteristics, matching the engine-hydraulic pump to achieve high efficiency and economical fuel consumption. Negative flow hydraulics optimise the main control valve, improving the speed of the cylinders' front end, whilst also decreasing the hydraulic system's damper loss, leading to enhanced working efficiency.

The LiuGong 6611E roller offers a working width of 2,130 mm and operating mass of 11,350 kg. It has a centrifugal force range of 300/190 kN, nominal amplitude range of 2.0/1.1 mm and vibration frequency range of 30/33 Hz.

The 6611E's vibrating drums offer high durability. These drums are also designed for less maintenance, requiring only 5 l lubricating oil, said LiuGong. The flexible and non-impact vibration technology ensures that the vibratory bearing can be used for more than 10,000 hours. Furthermore, there are parallel fans located inside the vibrating drum for heat dissipation, maintaining the thermal balance temperature of around 90°C, which can benefit the internal components and result in longer service life.

60th anniversary celebration

LiuGong also celebrated its 60th anniversary at the Intermat ASEAN. The company said this is part of its Anniversary Global Tour activities. "I am truly honoured to be here representing LiuGong to celebrate our 60 years of excellence with our Thailand customers and partners," said Robin Li, deputy general manager of overseas sales and marketing division at Guangxi LiuGong Machinery Co Ltd. "Participating at the Intermat ASEAN also gives us the opportunity to showcase our rich history and also introduce our new series of construction equipment with new technology for Thailand."

"We are very proud to present our latest innovative technologies - the H series wheel loader and the E series excavator and roller that are specially built for the tough demands of construction equipment industry," continued Mr Li. "The new high-performing equipment features new engines, more efficient systems and ergonomic



TOP: The 856H wheel loader.

MIDDLE: The 6611E roller.

ABOVE: The 915E excavator.

LEFT: LiuGong celebrates its 60th anniversary at the Intermat ASEAN.

improvements enhance the operator experience. They are more productive, responsive and easier to operate as a result."

Apart from its anniversary celebration, LiuGong said it has also achieved another milestone as the top wheel loader provider in Thailand for seven consecutive years since it entered the market in 2011. ■

Website: www.liugong.com



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Trimble TSC7 Controller for land and construction surveying

The Trimble TSC7 Controller is a field solution for land and civil construction surveyors. Combined with specialised software, it defines the next generation of data collection and computing for mobile workers. The TSC7 provides a tablet experience with a physical keyboard and a sunlight readable 7-in touchscreen that supports pinch, tap and slide gestures. Users can interact with the controller intuitively, easily zooming, panning and selecting items on the large touchscreen. Front- and rear-facing cameras allow users to video conference their office from the field for on-the-job support, and capture high definition videos and images that provide valuable context to their data and clients.

The TSC7 also leverages the power of Windows 10 Professional, driven by an Intel Pentium 64-bit quad-core processor. The processor and operating system make it easy to process data in spreadsheets and run office software programmes. An ergonomic form factor, IP68-certified rugged design and optional, user-interchangeable modules make the TSC7 a flexible solution for all surveying applications.

Trimble has also released two new rover systems for civil engineering and construction applications: the Trimble Siteworks Positioning System for construction surveyors, and the Trimble Siteworks Positioning System for supervisors. Both systems feature the new Trimble Siteworks Software, a next generation survey software tailored for construction workflows. Completely redesigned from the ground up, the Siteworks Software has a new interface that is optimised for ease-of-use and productivity. Configurable views, colourful graphics and natural interactions and gestures make the Siteworks Software intuitive and easy to learn.

The Trimble Siteworks Positioning System for construction surveyors consists of the Trimble SPS986 GNSS Smart Antenna, TSC7 Controller and Siteworks Software. It enables construction surveyors to work with complex 3D models, collect large data sets faster, visualise complex 3D models more easily and work day or night efficiently.

The Trimble Siteworks Positioning System for supervisors incorporates the SPS986 GNSS Smart Antenna, Trimble T10 Tablet and Siteworks Software. It enables construction supervisors to run full office software packages, including Business Centre - HCE and Microsoft Office, and to work easily with data and 3D models in the field without carrying a laptop.

In addition, Trimble offers a new version of its field software, Trimble Access 2018. It is fitted with a new UI and powerful graphics capabilities to deliver enhanced workflows for field surveyors. The Access 2018 has been redesigned with more intuitive menus and screen navigation to take advantage of the TSC7's 7-in touchscreen and computing power, while leveraging software workflows, which include applications for general survey, roading, tunnels and pipelines.

The Access 2018 also integrates with the Trimble Sync Manager application to enable cloud-based data management between the office and the field. Surveyors can quickly start working by downloading preconfigured jobs in the field with DXF maps and CSV files linked ready to start surveying. The Sync Manager also integrates seamlessly with Trimble Business Centre software and is compatible with other industry office software platforms.

The Trimble TSC7 Controller, Trimble Siteworks Software and both Trimble Siteworks Positioning Systems are available worldwide through the SITECH distribution channel. The

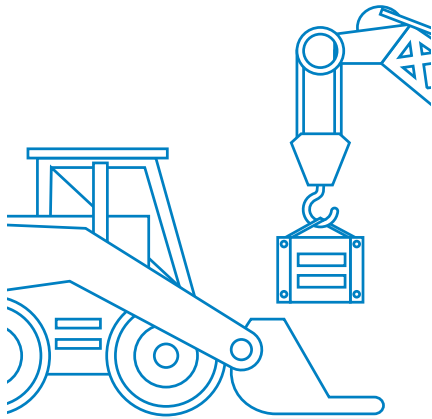


ABOVE, LEFT AND BELOW: **Trimble TSC7 Controller** is a field solution for land and civil construction surveyors. Combined with specialised software, it defines the next generation of data collection and computing for mobile workers.



Trimble TSC7 Controller running the current version of Trimble Access field software is available through Trimble's Geospatial distribution partners. ■

Website: construction.trimble.com/siteworks



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Mapei systems chosen for Malaysia Klang Valley MRT

The Klang Valley Mass Rapid Transit (KVMRT) is a rail network in Malaysia which, together with other existing services, will form the backbone of the Greater Kuala Lumpur/Klang Valley public transport system centred in Kuala Lumpur. Work on the 51-km Line 1 from Sungai Buloh to Kajang officially started in July 2011 and the line was operational by July 2017, serving as a corridor for approximately 1.2 million commuters.

Construction of Line 1 was carried out under eight contracts (V1 to V8), which were awarded to eight separate contractors by MRT Corporation Sdn Bhd. The major part of the aboveground line is elevated on viaducts (guideways) to avoid built-up areas. The specifications for the project required that the piers and girder segments be provided with a protective coating system, with a durability in excess of 10 years.

Following several tests, Mapei systems were selected for two of the contracts, V1 and V4, which needed approximately 500,000 sq m of repairs and coatings. The systems, consisting of Planitop 130 (for the repair mortar), Colorite Performance S-MY (for the coating) and Antipluviol S-MY, were used by contractors Syarikat Muhibah Perniagaan & Pembinaan Sdn Bhd (V1) and Sunway Construction Sdn Bhd (V4).

Planitop 130 is a normal-setting, fine, grey mortar for surface repairs and finishing of concrete and render. It is suitable for repairing and finishing of porous or chipped cement-based surfaces for both internal and external applications. Due to its high synthetic resin content, Planitop 130 has excellent adhesion to all cement-based surfaces and forms a compact and mechanically strong layer after hardening. This fiber-reinforced system also provides improved tensile strength and crack-resistance.

Once Planitop 130 has been applied, the surface was protected by Colorite Performance S-MY, a high-performance, solvent-based methacrylate coating designed for protection and decoration of concrete and masonry structures. The system is normally used for new structures and also for concrete repair works as the final protective and decorative finish. It offers excellent weathering and ageing properties, and is highly durable even in tropical conditions.

The Colorite Performance S-MY was



TOP, ABOVE AND ABOVE RIGHT: The KVMRT rail network in Malaysia will form the backbone of the Greater Kuala Lumpur/Klang Valley public transport system centred in Kuala Lumpur. Work on the Line 1 started in 2011 and it was operational by July 2017. The major part of the aboveground line is elevated on viaducts in order to avoid built-up areas.



ABOVE AND ABOVE RIGHT: Mapei provided its repair and coating solutions to protect the piers and girder segments of the viaducts. The company's Planitop 130 system is seen here being applied to repair bugholes. With its high synthetic resin content, the system offers excellent adhesion to all cement-based surfaces and forms a compact and mechanically strong layer after hardening.

used in conjunction with Antipluviol S-MY, a solvented, hydrophobic, silane-siloxane primer that penetrates the substrate and repels water. As a result, it can

resist the penetration of water-borne aggressive agents such as chlorides in marine environments. ■

Website: www.mapei.com.sg

Potain tower cranes go above and beyond

A fleet of 12 Potain tower cranes is currently working on a public housing project in Singapore, the Punggol Northshore Residences. The development is said to be the country's first 'smart' housing block, which incorporates a number of eco-friendly design features such as energy-efficient elevators and waste chutes for recyclable materials.

For the project, contractor Ken-Pal has rented 10 MCT 385 topless tower cranes and two MC 310 tower cranes (one each of the K12 and K16 varieties) from Potain dealer Manta Equipment. With excellent load charts, the Potain cranes are ideal for tackling the demands of the jobsite.

The Potain MCT 385 cranes are at the centre of the work. With a maximum capacity of 20 t and maximum radius of 75 m, they can comfortably lift the heavy precast components and steel reinforcement used in the project. Loads weigh between 1 t and 10 t, and the precast concrete blocks come in a range of shapes and sizes, forming the walls, facades, shelters, ledges and more in the housing blocks' design.

Some smart technologies in the new development have been reported to include a parking area that monitors demand; a pneumatic waste conveyance system that tracks disposal and recycling; sensor-controlled lighting with predictive data analytics to understand human traffic patterns; and fans that automatically adjust to changes in wind speed, temperature or numbers of

people. When completed in 2020 the project will have 12 blocks: five of 25 stories, two of 24 stories and five of 20 stories.

In addition, the first Potain MCH 125 in Thailand is providing swift and efficient lifting duties for Thai Obayashi on the Samyan Mitrtown mixed-use development in Bangkok. The crane, leased from local dealer SB Siam, is lifting a range of materials including 3 t concrete blocks and will also install a 5 t transformer. It started work at a height of 51.4 m, with a jib configuration of 40 m. Final working height for the crane will be 144.4 m when construction completes in May 2019.

The MCH 125 is Potain's first hydraulic topless luffing jib crane. One of its highlights is its VVH hydraulic luffing technology for raising and lowering the jib. This innovative feature moves the jib from horizontal to 87° in less than two minutes. The design also eliminates the need for luffing ropes, which saves on assembly time. To further reduce on-site assembly time, the crane's hydraulics are pre-connected at the factory, allowing contractors to get to work faster. Maximum capacity for the crane is 8 t and it lifts 2 t at its maximum jib length of 50 m.

Samyan Mitrtown is being built by Golden Land Property Development and will cover a total of 222,000 sq m. The development includes six floors of retail space, 31 floors of office space and 33 floors of residential space. ■

Website: www.manitowoc.com



ABOVE: Potain MCH 125 is providing lifting duties for Thai Obayashi on the Samyan Mitrtown mixed-use development in Bangkok, Thailand.

LEFT: Potain MCT 385 and MC 310 tower cranes being used on the Punggol Northshore Residences, a public housing project in Singapore.

CSCEC Road & Bridge relies on Ammann asphalt plants

China-based company CSCEC Road & Bridge is planning to add recycling capabilities to its existing asphalt mixing plants in order to meet new environmental guidelines and substantially reduce costs.

The company has completed more than 1,000 key projects globally. It utilises Ammann Uniglobe asphalt mixing plants, and the results reportedly have been impressive. For one key road expansion, a Uniglobe plant produced 7,000 t in a single day, and averaged 5,000 t per day during the project. Both numbers are thought to be all-time production highs for China.

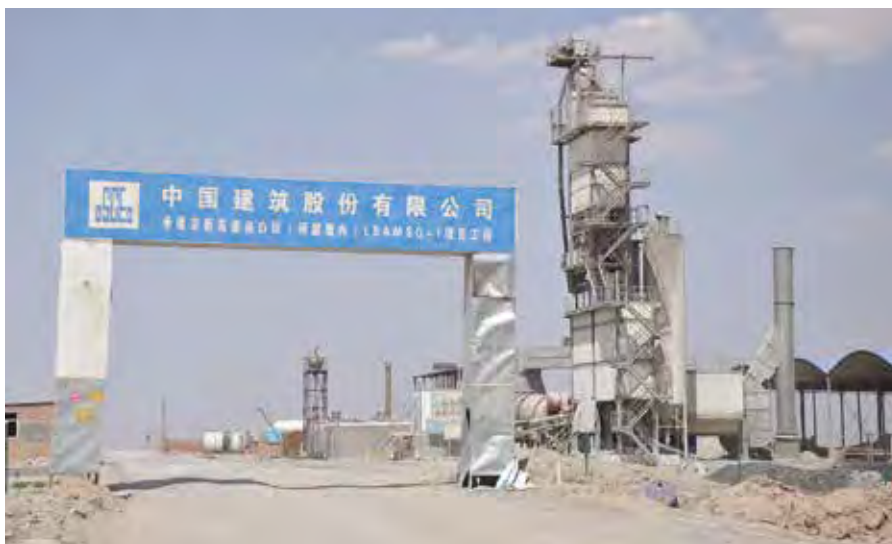
CSCEC Road & Bridge owns four productive Ammann Uniglobe plants that have a great deal of life left in them. This is the reason why the company decided to add recycling capabilities to the plants. According to CSCEC Road & Bridge, it is now paying more attention to recycling technology as more and more public-private partnerships are coming out. The company further highlighted that adding the RAP capability is considerably less expensive than purchasing a new plant with recycling ability, and there are also environmental benefits and other cost savings.

Ammann has been upgrading its asphalt mixing plants regularly. One of the improvements includes the addition of an RAH drum that heats the RAP before depositing it in the mixer. RAP needs a separate RAH drum because it must be gently preheated, in order to prevent its bitumen from being damaged due to overheating. The bitumen is valuable and preserving it is a cost saver, said Ammann. After preheating, the RAP is deposited in the mixer, where it is blended with the hot virgin aggregate. The result is a quality mix with a high percentage of recyclables. ■

Website: www.ammann-group.com

TOP AND MIDDLE: CSCEC Road & Bridge has been using Ammann Uniglobe asphalt mixing plants (top image) to carry out its projects globally, and the company is now planning to add recycling capabilities to the plants in order to meet new environmental guidelines and substantially reduce costs.

RIGHT: Ammann asphalt mixing plants feature an RAH drum that heats the RAP before depositing it in the mixer. Once deposited, it is then blended in the mixer with the hot virgin aggregate, creating a quality mix with a high percentage of recyclables.



Liebherr cranes build foundation for HK housing project

Three duty-cycle crawler cranes from Liebherr recently carried out foundation work on a residential development in Kowloon, Hong Kong. This involved the installation of 14 piles, which serve as the foundation of the building. The cranes included two units of HS 885 HD and one of HS 8130 HD, each fitted with a mechanical grab and an oscillator.

In order to achieve the necessary depth of 50 m, the contractor required 10 working days per pile. According to Liebherr, the long production time was due to the difficult ground conditions, including groundwater followed by rock with a high strength of 150 MPa. To penetrate this hard layer, the RCD method was used. With a diameter of 3 m, up to 300 cu m of concrete was required for the completion of each pile.

Another challenge on the project was the restricted space. The jobsite is located in the middle of a residential area and borders directly on existing buildings. Kowloon, together with Hong Kong Island and New Territories, is one of the urban areas of Hong Kong, which has a total population of seven million. In order to keep the noise level for the residents as low as possible, work may only be carried out between 07.00 and 19.00 hours, six days a week.

Liebherr provides optional assistance systems, especially for such applications. Using the eco-silent mode, the engine speed can be reduced to a predefined level. Therefore, both a significant reduction in diesel consumption and lower noise emission can be achieved. Additionally, the Automatic Engine Stop Control system from Liebherr offers an efficient and environment-friendly solution. After checking certain system functions, the engine is switched off during longer work interruptions.

The deep foundation work lasted for six months and was recently completed. The contractor on the project was Vibro (HK) Ltd, which specialises in foundation work in difficult ground conditions. Founded in 1929, the company is among the oldest foundation contractors in Hong Kong. ■

Website: www.liebherr.com



TOP AND ABOVE: Three Liebherr duty-cycle crawler cranes recently carried out foundation work on a housing project in Hong Kong. They included two models of HS 885 HD and one of HS 8130 HD.

LEFT: Restricted space was one of the challenges on the project. The jobsite is located in the middle of a residential area and borders directly on existing buildings. To keep the noise level for the residents as low as possible, work may only be carried out between 07.00 and 19.00 hours, six days a week.

Flowcrete Asia protects KL Pinnacle development

The new Pinnacle high-rise apartment complex is under construction in Kuala Lumpur, Malaysia. The project has been supplied with Vandex Super system from Flowcrete Asia to protect the building's concrete against moisture damage. Located in the Sri Petaling area, the Pinnacle consists of a 42-storey apartment building complete with retail and office space on the lower floors. It is being developed by Pinnacle Homes SP Sdn Bhd.

The project's consultant specified Vandex Super for a dry sprinkle application on lean concrete. The technique sees the dry Vandex Super product scattered over lean concrete before a second casting of concrete is poured on top. This application creates a thin layer of crystalline waterproofing sandwiched between the two levels of concrete, which will react with the water to form an impervious barrier, preventing water from passing through.

Over 10,000 sq m of Vandex Super was supplied for the concrete casting phase, while the Vandex Super slurry application will be specified for the swimming pool, water tanks and any areas of repair that follow.

Flowcrete Asia worked with approved applicators, CWE Technology Sdn Bhd, during the initial design and tender stage right through to project execution, highlighting the benefits of using Vandex's crystalline waterproofing technology while the structural slab was being installed.

Crystalline waterproofing technology protects structural concrete against the ingress of water by reacting with moisture to form crystals. These crystals then block the capillary network of the concrete providing a breathable, watertight concrete.



Vandex Super system from Flowcrete Asia has been applied at the new Pinnacle high-rise apartment complex in Kuala Lumpur, Malaysia, in order to protect the building's concrete against moisture damage.

The Vandex Super system then becomes an integral part of the concrete structure, forming a strong and durable homogeneous body of concrete. As Vandex is inextricable from the concrete it will last for the lifetime of the structure, reducing the need to replace the waterproofing solution, as can occur with traditional methods. ■

Website: www.flowcreteasia.com

SDLG LG936L joins major road project in Indonesia

An SDLG LG936L wheel loader from Shandong Lingong Construction Machinery is proving vital to operations at a quarry in Palembang, Indonesia, where it performs a dual role. Primarily, the machine fills dump trucks with stockpiled sand and raw aggregates for transportation to an asphalt plant onsite. Then, occasionally, it fills in for a second, older SDLG wheel loader that is tasked with transferring the material from the trucks into a hopper for processing.

The LG936L is working for PT Hutama Karya, the owner of the quarry – which leased the machine from CV Grand Global Sumatera, the equipment rental company that owns the LG936L. The machine was purchased by CV Grand Global Sumatera from local SDLG dealer PT Indotruck Utama.

PT Hutama Karya uses the asphalt produced at the quarry to pave the 2,700 km Trans-Sumatra Toll Road, which will connect Lampung in South Sumatra to Aceh in the north. On site since 2017, the LG936L operates up to 10 hours every day handling up to 5,000 cu m of sand and raw aggregates to meet asphalt demand. The machine is expected to support operations at the quarry until 2020, and its comfort is a welcome feature for the operator in a typically harsh working environment. CV Grand Global Sumatera also provides the operator as part of the rental package.

Featuring an air-conditioned steel cab with wide visibility and a large operating space, the operator is protected against the elements and enjoys optimum comfort. With the option to



A picture of the LG936L wheel loader in action.

install rollover protective structures and falling object protective structures, contractors have flexibility to adapt the lightweight wheel loader to meet changing jobsite needs.

Powered by a 92 kW Weichai Deutz engine, the 3 t-rated LG936L is highly manoeuvrable. The 1.8 cu m bucket on the unit can be raised to a dumping height of 3.3 m, and the maximum breakout force is 96 kN. ■

Website: www.sdlg.com

Hauling rock at NZ quarry with Terex Trucks TA400s

Bryce O'Sullivan Contracting Ltd (BOSCO) is working on two major construction projects in New Zealand, including the Kapiti Expressway and the 27 km, four-lane Transmission Gully motorway. With the help of two Terex Trucks TA400 articulated haulers, the company is shifting blue rock at Horokiwi Quarry, which is being used as base course and asphalt.

BOSCO currently has 45 employees, six of whom are based at the Horokiwi Quarry. The company purchased the TA400 haulers from Porter Equipment, the official Terex Trucks dealer in Australia and New Zealand since 2017.

Since August 2017, the TA400 trucks have removed 200,000 cu m of aggregate and have clocked up around 700 hours. According to BOSCO, the machines are currently working in tough conditions – but they are robust, reliable and simple to operate.

With a maximum payload of 38 t, the TA400 allows BOSCO to haul serious amounts of rock at the quarry. It has a heaped capacity of 23.3 cu m, 331 kW of gross power and a maximum torque of 2,255 Nm. Together, these performance features make the TA400 the biggest and most powerful articulated hauler on offer from Terex Trucks.

Manufactured in Motherwell, Scotland, this heavyweight hauler has been designed to work in heavy-duty applications under extreme conditions. The planetary gear transmission provides smooth, efficient gear shifting for optimised fuel consumption and reduced cost of operation. Ground level test points and a fully tilting cab, combined with an electronically raised hood, ensure ease of service and reduced downtime. ■

Website: www.terextrucks.com



One of Terex Trucks TA400 articulated haulers that help shift aggregate at the Horokiwi Quarry in Wellington, New Zealand.



The rocky terrain at the Horokiwi Quarry is putting the pair of Terex Trucks machines through their paces.

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Paving the way for Turkey's new airport

After just three years of construction, the İstanbul Yeni Havalimanı – known as New Istanbul Airport – is set to go into operation in 2018, initially with two runways, expanding to three by 2019 and to six by the end of the project in 2028. It is believed to be the world's biggest airport (measured by passenger numbers) and also the biggest infrastructure project in the history of Turkey.

The developer, İGA, is a consortium of five Turkish contractors including Cengiz, MAPA, Limak, Kolin and Kalyon. To help complete the job, they opted for a Wirtgen Group fleet comprising more than 50 machines and plants. Benninghoven asphalt mixing plants, Vögele road pavers and Hamm compactors and tandem rollers for soil and asphalt compaction will be responsible for getting the jobsite set for take-off; while Wirtgen slipform pavers will be used to produce a number of concrete taxiways.

The earthworks for the new airport were said to be a major part of the project. On this 9,000-ha site, the challenge was to create a base with a high load-bearing capacity. The job was carried out by three Wirtgen soil stabilisers (WR 240, WR 200 and WR 2500) and 10 Hamm 3516 compactors with an operating weight of 16 t. Once the WR machines had stabilised the ground, the non-cohesive soils of gravel and crushed stone were compacted by the 3000-series machines.

The asphalt mix for the runway construction is being produced by six Benninghoven mixing plants, one each of the TBA 3000 and TBA 4000 models and two each of the Eco 3000 and Eco 4000 models, with mixing capacities of 240 t/h and 320 t/h. This corresponds to up to 1,680 t per hour, depending on the type of asphalt to be produced. The mix for the surface course consists of stone mastic asphalt with polymer-modified bitumen.

A total of 12 Vögele pavers are in operation, laying down asphalt for the runways and a number of taxiways. In addition to the latest Dash 3 generation of Super pavers (three Super 2100-3 pavers), some of the paving teams are also working with predecessor models (three Super 2100-2 and six Super 1900-2 pavers). The machines are constructing the first three of six runways – comprising a 29 cm base course, a 12 cm binder course and a 4 cm surface course.

Around 20 Hamm HD+ and HD tandem rollers are being used to compact the vast asphalt surfaces. The kneading effect of the GRW 280-10 and GRW 15 rubber wheeled rollers guarantees good surface sealing. Hamm rollers also have excellent all-round visibility, thanks to their spacious operator platform and all-round glazed panoramic cabin.

Wirtgen slipform pavers are deployed for paving concrete taxiways. Initially, two SP 500 models with dowel-bar inserters, one SP 25 and one TCM 95 texture-curing machine were used for the concrete paving work. They are paving taxiways with a depth of 40 cm and a width of 2-6 m. Later, the customer ordered a further 'machine set' comprising an SP 500 and a TCM 95. The three SP 500 models insert dowels at intervals of 38-50 cm, thus ensuring the correct height of adjacent slabs.

The Wirtgen TCM 95 texture-curing machine is equipped with an automatic spraying and brooming system. Once the surface has been broomed to the desired texture, the spraying system applies dispersion to the fresh concrete surfacing to retard the evaporation of curing moisture, preventing stresses and the cracks this can cause. ■

Website: www.wirtgen.com



Wirtgen slipform pavers are used for paving concrete taxiways.



Vögele road pavers and Hamm compactors and tandem rollers are deployed for the asphalt paving job.



The asphalt mix for the runway construction is produced by Benninghoven mixing plants.



Wirtgen soil stabilisers were involved in the earthworks.

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Demag crane faces challenges at Turkey power plant

Crane service provider Sarilar was recently commissioned to erect a new building at the Adana Sugözü coal-fired power plant in Turkey, on behalf of Termokimik - the company that operates the facility. Here, Sarilar used a Demag CC6800-1 lattice boom crawler crane to help complete the job.

Sarilar faced two main challenges on the project. First, the steel structures to be lifted had a length of over 50 m and weighed 265 t, making them not only extremely unwieldy but also heavy. Therefore, the only possible solution was to employ a powerful crane. The other issue was that the space on site was extremely tight, meaning the crane also had to be compact and manoeuvrable. The Demag CC 6800-1 was selected as it met these requirements.

The crane was transported from the Sarilar location in Gebze, near Istanbul, to the jobsite in Adana, south of Turkey. Upon arrival, it was assembled while the power plant was running, which was another difficulty. Two telescopic cranes were deployed to set up the boom, sometimes working at heights of up to 15 m; and Sarilar also used an aerial platform for all work-at-height rigging operations. The CC 6800-1 crane was scheduled to be on the jobsite for 10 months.

For the lifts, the team chose an SWSL boom configuration with a 72-m main boom and a 42-m luffing jib. With this setup, the CC 6800-1 was well equipped to lift the 52-m-long, 5-m-high, 0.5-m-wide, 255-t steel structures at a radius of 44 m to heights of up to 100 m. ■

Website: www.terex.com/cranes



TOP: A Demag CC 6800-1 lattice boom crawler crane has helped Sarilar to erect a new building at the Adana Sugözü coal-fired power plant.

ABOVE: The CC 6800-1 was working within a tight jobsite to lift the 52-m-long, 5-m-high, 0.5-m-wide, 255-t steel structures at a radius of 44 m to heights of up to 100 m.

LEFT: The CC 6800-1 was fitted with an SWSL boom configuration featuring a 72-m main boom and a 42-m luffing jib. Sarilar also used an aerial platform for all work-at-height rigging operations.



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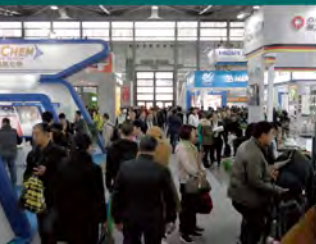
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THE NEW LEOPARD



Sandvik Mining and Rock Technology has expanded its high-pressure DTH drill rig with a new model, Leopard DI650i, designed for larger hole sizes. This new rig offers better fuel efficiency, improved safety and higher productivity in challenging rock conditions.

The Leopard DI650i down-the-hole (DTH) drill rig is suitable for demanding high-capacity production drilling applications in surface mining, as well as large-scale quarry applications. Besides having a powerful engine and compressor, Leopard DI650i incorporates a highly ergonomic iCAB cabin, excellent serviceability, mobility and fuel economy, along with scalable automation packages to deliver superior overall productivity.

The Leopard DI650i also comes with a range of new or redesigned components to boost its productivity. The standard rotary head option, HTRH6, has performed successfully on existing Sandvik DTH rigs, whereas the new heavy-duty option, MRH6, is a good fit with Sandvik's new RH560-series DTH hammers and well-matched to the demands of the upper range of the capacity area.

Pipe sizes range from 89 to 140 mm, depending on the size of the hammer. The maximum hole depth is 53.6 m when utilising the carousel option with pipe sizes from 89 to 114 mm. The capacity range of 403-kW Tier 3 Cat C15 diesel engine and reliable compressor is adequate for high-pressure drilling with 4-to 6.5-in DTH hammer sizes.

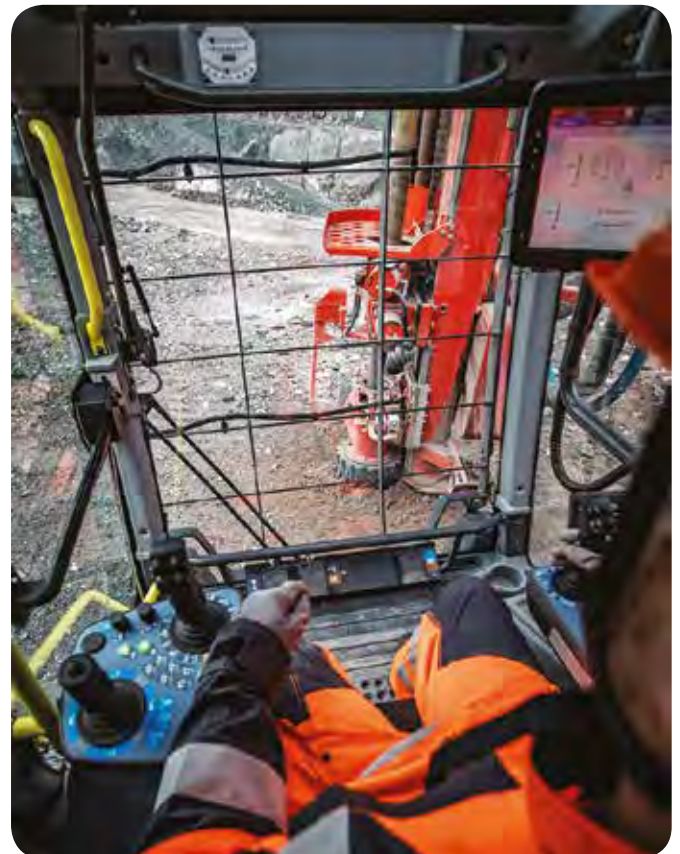


Thanks to the excellent visibility of drilling area and a single integrated touch screen for all monitoring, diagnostics and mining automation displays, Leopard DI650i's silent, ergonomic iCAB cabin provides the rig operator with a safer, productive working environment for the rig operator. The maintenance crew can carry out all daily servicing tasks at ground level on both sides of the machine. The advanced serviceability and reliability features can increase Leopard DI650i's availability by up to 20% compared with conventional DTH rigs at a similar technology level, said Sandvik.

The company added that intelligent control technology applied in both the compressor and the hydraulic system's cooler fan can reduce fuel consumption by up to 15% compared with conventional DTH rigs. The Leopard DI650i's fuel efficiency is further boosted by the flow-controlled drilling control system that eliminates fluctuations in airflow, instead of allowing the pressure level to fluctuate in response to more difficult ground conditions and increased back pressure (for example, due to groundwater or collapsing holes). This makes maximum flushing pressure and penetration rates available in the most challenging of rock conditions, while still retaining the low fuel consumption of the traditional pressure control approach in easy ground conditions.

The new Leopard DI650i joins Sandvik's other i-series drilling rigs in its compatibility with the newest scalable automation solutions. The latest onboard options include TIM3D drill navigation with wireless data transfer, My Sandvik fleet monitoring system and full-cycle drilling automatics, which merge functionalities such as uncoupling, feed auto-aligning and feed auto-positioning into a single efficient sequence. These capabilities can be further upgraded with more advanced modules such as single-rig or fleet remote control systems by Automine Surface Drilling. ■

Website: www.rocktechnology.sandvik



ALL IMAGES: The new Leopard DI650i DTH drill rig is designed for demanding high-capacity production drilling applications in surface mining, as well as large-scale quarry applications.



The new 100RT rough terrain crane features a five-section 12.3 – 47.2 m full-power formed boom. The crane is ideal for rental fleets, refineries and plant work in general.

STANDING TALL

100RT rough terrain crane

Link-Belt is bringing its new 90-t (100-US t) 100RT rough terrain crane to the market with one of the longest full-power booms available. Shipments of this new model are scheduled to begin in the first quarter of 2019. “There’s not a full power boom out there that carries this capacity chart at radius,” said Brian Smoot, product manager for telescopic rough terrain cranes at Link-Belt. “This will be a dominant player for rental fleets, refineries, and plant work in general, handling longer radius with ease.”

The 100RT has a five-section 12.3 – 47.2 m full-power formed boom. An available two-piece 10.7 – 17.7 m on-board offsettable fly provides greater flexibility and range, and manually offsets at 2, 15, 30 and 45 degrees. The 4.9 m lattice insert extension offers a maximum tip height of 72.2 m.

Link-Belt said the 100RT will be its first rough terrain crane to utilise the new fly erection technology from the company’s latest telescopic truck and telescopic crawler cranes. A fly assist cylinder makes erecting and stowing the fly a one-person operation and minimises work at height. Boom head speed screws and numbered spring loaded latches provide intuitive assembly. Given the natural elevation of a rough terrain crane boom, Link-Belt has simplified fly assembly with new ground level carrier controls. One control raises and lowers boom angle from 0 to -3 degrees, and another control is used for the fly assist cylinder.

The 100RT’s six-speed transmission is powered by a 173 kW Cummins Stage V QSB diesel engine, which is dual compliant for both Tier IV and Stage V standards. LinkBelt also provides a Tier III engine for other global markets. Four 29.5x25 tyres mounted on axles affixed to the carrier via greaseless four-link suspension, eliminating 10 previous grease points.

A 24-V electrical system makes running diagnostics quicker and easier, and the wiring is a Controller Area Network (CAN bus) system. The 24-V system yields the ability to multiplex with modules placed near dedicated functions like outrigger beams and winches. In total, there are five modules located throughout the machine that allow crane functions to continue working in instances where other modules are being diagnosed or serviced.

Six points of access to the carrier deck are maintained with new ergonomic ladders, and regardless of slew angle, the operator has easy egress to the flat deck from the cab. The 100RT exterior features all new durable ‘tough skin’ paint, along with a new slip-resistant paint on the carrier deck to provide better footing for access and egress.

High strength steel used in the upper frame accommodates a new winch design with ultra-wide drums for increased line pull at higher working layers. Maximum winch line pull of 105.1 kN provides a wider range of applications and contractor needs. Hydraulic outboard routings and wiring harness improvements offer form-fitted design,



The 100RT will be the first Link-Belt rough terrain crane to utilise the new fly erection technology from the company’s latest telescopic truck and telescopic crawler cranes. A fly assist cylinder makes erecting and stowing the fly a one-person operation and minimises work at height.



providing greater serviceability over the life of the crane. Three slabs of removable upper counterweight totalling 13.2-mt is standard equipment.

Link-Belt's V-CALC (Variable Confined Area Lifting Capacities) system features 12 different outrigger configurations with real time 360-degree charts. Outrigger beams (either fully retracted, intermediate or fully extended) are setup in pairs from side-to-side or front-to-rear. Once outriggers are set, the user-friendly Pulse 2.0 system indicates the crane's available capacity. The system then previews the operator's real time capacities given the crane's current configuration at the next five radiuses for a set boom angle.

Upon selection, the Pulse 2.0 system provides a live view of the working area with colour-coded quadrants. If the chart exceeds capacity at a given slew angle, swing arrest will initiate five degrees prior, allowing the crane to come to a smooth stop.

Link-Belt's new cab design for its rough terrain cranes - it was introduced on the 75RT in 2017 - offers excellent visibility, operator comfort and intuitive design. All electrical components coming into the cab are bulk headed for 'plug and play' assembly. Specific cab specifications include: 20 degree tilt; ergonomic seat with electronic joystick/single axis controllers; automotive-type, high capacity HVAC system; increased storage and interior lighting; time delayed wipers; USB and 12-V power supply connections; and van-style pop out door.

The Link-Belt Pulse 2.0 provides a simple interface for crane operators with a larger touchscreen display, along with customisable programmable features. This system can be updated and serviced remotely. Wi-Fi enabled, the system uses

the serial number of the unit to determine if any updates are available, and download/installs to the appropriate controls.

Link-Belt has also carefully considered the location of swing out engine access doors and centralised electrical locations – keeping them accessible from the ground or near a grab handle or ladder. Transmission oil, engine oil, primary and secondary fuel filters, as well as the engine oil filter are mounted for easy reach.

In addition, the 100RT has been fitted with all the necessary tools to get the job done, any time of day. These comprise dual amber strobe lights, LED working lights, outrigger lights, work platforms on the upper with guardrails, and operator programmable function kick outs. Link-Belt's camera vision package on the 100RT enhances on-board site monitoring and includes a back-up camera, as well as cameras for viewing winches and the right side of the upper.

The 100RT will transport with base unit fully equipped minus modular counterweights at 42,120.1 kg. With an overall height of 3.91 m, this rough terrain crane can be driven right off a conventional lowboy trailer, assemble counterweight and be ready to go to work.

TCC-1200 telescopic crawler crane

In another development, Link-Belt Cranes has upgraded the base rating of its 100 t (110-US t) telescopic crawler crane to 110 t (120-US t). Shipments of this new TCC-1200 are expected to begin in the fourth quarter of 2018. A common lower carbody to the TCC-1400 has also improved efficiency of production and provided an upgrade in base rating from the previous TCC-1100 telescopic crawler crane.

According to Link-Belt, the TCC-1200 offers an excellent capacity chart at radius



ABOVE: Link-Belt's V-CALC (Variable Confined Area Lifting Capacities) system features 12 different outrigger configurations with real time 360-degree charts.

FAR LEFT: Link-Belt's new cab design for its rough terrain cranes offers excellent visibility, operator comfort and intuitive design. It was first introduced on the 75RT in 2017.

LEFT: The 100RT has an overall height of 3.91 m, and will transport with base unit fully equipped minus modular counterweights at 42,120.1 kg.

that rivals lattice crawler cranes with a similar base rating. The TCC-1200 has a full power boom, fabricated from ultra-high-strength steel and formed in Link-Belt's own formed boom facility.

The main boom height for the TCC-1200 is 12.2 - 45.7 m and it incorporates Teflon wear pucks to eliminate boom grease. It comes with three track widths - extended (5.5 m), intermediate (4.8 m) and retracted (3.6 m) - which offers varying footprint capability in popular sectors such as energy, industrial and infrastructure.

An optional wireless remote control system is now available for the new TCC-1200 and TCC-1400. The wireless remote provides a solution for industries and other operations where required, and allows the operator to be out of the cab and still have control of the crane. ■

Website: www.linkbelt.com



The new Link-Belt TCC-1200 telescopic crawler crane has a main boom height of 12.2 - 45.7 m and it comes with three track widths - extended (5.5 m), intermediate (4.8 m) and retracted (3.6 m) - which offers varying footprint capability in popular sectors such as energy, industrial and infrastructure.



The 290-m, 64-storey Tanjong Pagar Centre is currently the tallest building in Singapore.

TANJONG PAGAR CENTRE

Nestled in the heart of downtown Singapore, the 290-m, 64-storey Tanjong Pagar Centre is currently the tallest building in the country. Developed by GuocoLand Limited, the project is essentially a 'vertical city' with a carefully curated mix of office space, retail shops, a luxury hotel, upscale residences and an urban park. Its successful integration of five elements to provide a holistic work-live-play experience won the 2014 World Architecture News Award for Mixed-Use Future Projects.

GuocoLand held the topping out ceremony for Tanjong Pagar Centre in January 2016. In October of that year, the company announced that it has received the temporary occupation permit (TOP) for the office component, Guoco Tower, and the basement retail component of the building. The other components of the project commenced their operations not long after that, in phases.

Skidmore, Owings & Merrill (SOM), a US-based architecture firm, designed the skyscraper, which was built using the top-down construction method - allowing the basement and aboveground levels to be built simultaneously. Contractor on the project was Samsung C&T.

To ensure the 1.7 mil sq ft skyscraper project could meet tight deadlines and stringent material requirements, the project's developer partnered with concrete experts Pan-United (PanU) and GCP Applied Technologies. "Constructing Singapore's tallest building was no easy feat," said Chan Wai Mun, PanU's director of operations. "The challenge was expediting the construction time and limiting disruption in the congested financial district."

Top-down construction method

"Given the access constraint of the top-down method, the project required concrete that possessed high flow, long slump retention and good rheology properties, so that kingposts could be inserted later for bore piles before the concrete could set," explained Shu-Qiang Zhang, GCP's Asia Pacific technical director.

PanU and GCP assembled a team of scientists, engineers, materials and logistics specialists for the Tanjong Pagar Centre project. The team of product and admixture experts focused on gaining a deep understanding of site conditions, material requirements, delivery timelines, regulatory specifications and



Skidmore, Owings & Merrill, a US-based architecture firm, designed the skyscraper, which was built using the top-down construction method - allowing the basement and aboveground levels to be built simultaneously. Contractor on the project was Samsung C&T.



ABOVE: Concrete experts Pan-United (PanU) and GCP Applied Technologies were also involved in the project. Both companies assembled an interdisciplinary team to help determine the right concrete product type with the required control flow for the raft foundation. The team found the ideal mix using the Concera range of admixtures from GCP along with PanU's self-compacting concrete and retention concrete.

BELOW: More than 13,500 cu m of concrete was poured to create the building's gigantic raft foundation. It is said that the 3,814-sq-m foundation required one of the largest concrete foundation pours in Southeast Asia.



safety guidelines, to determine the right concrete product type with the required control flow for the raft foundation.

The interdisciplinary team found the ideal mix using the Concera range of admixtures from GCP along with PanU's self-compacting concrete and retention concrete. These specialised concrete mixes met the stringent specifications for high flow and extended slump retention.

"Concrete is a complex material and can be very tricky to get right. For the award-winning Tanjong Pagar Centre we had a team working closely to ensure the customised Concera admixture for PanU's mix had the perfect chemistry," said Mr Zhang. "Concera admixtures - formulated to deliver consistent, segregation-resistant control flow concrete - did not disappoint."

The top-down construction method also made the site conditions particularly challenging because it restricted the local concrete discharge point and limited the opening access to the basement mass foundation slab. The six pump trucks housed on-site further exacerbated the space limitation. Plus, the nature of the concrete allowed the team only a workability period of three hours.

"Working closely with GCP, we easily overcame these obstacles," said Mr Chan. "We also devised a seamless concrete production workstream to ensure that the appropriate quantities of pre-approved materials were on standby throughout the duration of the entire project."

Concreting gigantic raft foundation

Another project challenge was pouring more than 13,500 cu m of concrete - enough to fill five Olympic-sized swimming pools - to create the building's gigantic raft foundation. This 3,814-sq-m foundation reportedly required one of the largest concrete foundation pours in Southeast Asia. For such a massive amount of concrete, it was vital to ensure that the concrete met stringent material and workmanship specifications - from temperature, durability, mix design and performance to pour preparation, delivery timeline, safety and access.

"To ensure quality and consistency throughout the entire casting process, daily plant trial of actual batching were carried out to determine the ease of repeatability," said Mr Chan. "All concrete batches were closely inspected at the batching plants for flow and temperature before dispatch. Any batch that did not meet the high standards were corrected or rejected."



During the record-breaking 44-hour continuous pour on site, the concrete mix flowed easily in a controlled manner under the force of gravity. The segregation-resistant concrete mix also offered substantial environmental benefits — noise pollution reduction.

On 3 May 2014, the team began concreting the mega raft foundation, which lasted for two days. During the record-breaking 44-hour continuous pour on site, the concrete mix flowed easily in a controlled manner under the force of gravity. The segregation-resistant concrete mix also offered substantial environmental benefits — noise pollution reduction. Since the concrete fills irregular voids quickly, it eliminates the use of loud mechanical compactors, which are typically used to smoothly spread and compact the concrete for a stable foundation.

A large team from PanU and GCP worked seamlessly in 12-hour shifts on site to inspect the concrete for consistent

quality and flow. The project required intricate logistics involving 120 mixer trucks, six concrete pumps and one direct discharge chute to deliver 13,500 cu m of concrete from 10 concrete batching plants across the island. The concrete was poured at a steady speed of one concrete truck delivery every 90 seconds and peaked at 531 cu m/hr.

"Customising concrete for the tallest building in Singapore was no small feat," said Mr Chan. "Thanks to great teamwork between PanU and GCP, we created an accurate mix that not only achieved high flowability but also high quality slump retention." ■

Website: www.gcpat.com



For more pictures and detailed information on the building, check out: www.tanjongpagarcetre.com.sg

The Direct Pipe tunnelling method has been used in New Zealand for the first time to build a 2.9-km-long sea outfall for the Army Bay Wastewater Treatment Plant.



MISSION UNDERGROUND

Watercare's Army Bay Wastewater Treatment Plant project on the Hibiscus Coast near Auckland, New Zealand, aims to create an additional 2.9-km-long sea outfall. The pipeline connects the pump station with the discharge point, about 1 km off the coast. This is expected to significantly increase the capacity of the wastewater treatment plant.

Construction of the project began in August 2017 and is scheduled for completion in early 2019. A lot of attention is being paid to environmental care so as not to impact the surrounding recreational and fishing area. Under no circumstances must the local flora and fauna be affected, such as kiwis (New Zealand's national symbol), which are under special protection.

Direct Pipe tunnelling method

Given the environmental sensitivity of the area, the contractor on the project - McConnell Dowell - decided to employ the Direct Pipe method with a tunnel boring machine (TBM) from Herrenknecht. The pipeline installation uses an AVN machine; the pipe string is attached to it and simultaneously inserted during the tunnelling process. This is done with the help of 'pipe thruster' - with pushing power of up to 750 t, it thrusts the pipeline under the ground. Herrenknecht said that because the pipeline installation takes place in one step, the environmental impact is kept low and the landscape remains intact. The tunnel covers a total length of 1,930 m.

According to McConnell Dowell, the Direct Pipe method combines the best of microtunnelling and horizontal direct drilling (HDD) into one machine. In one step, the borehole can be excavated and a prefabricated pipeline installed. McConnell Dowell

added that the project team has also developed the system so it can achieve drive speeds of up to 30 m a day, which leads to an extremely efficient tunnelling option.

Just under four months after its launch, the TBM - named 'Blanche' - achieved a successful breakthrough. McConnell Dowell has also set a new world record when it reached 1,496.48 m, making it the longest pipe string ever laid with the Direct Pipe technology so far. The company revealed that the previous record was set in Texas last year at 1,495 m.

Brent Whiting, a project manager at McConnell Dowell said, "The world-record breaking Direct Pipe drive at Watercare's Army Bay project would not have been possible without the expert assistance and timely backup that Herrenknecht provided McConnell Dowell right from tender preparation, through establishment of the plant to successful breakthrough."

Chris Powell, another project manager at McConnell Dowell further highlighted that the record was attained "by achieving the right balance between pipe strength, thrust and the operation of the 34-t TBM to maximise its capabilities."

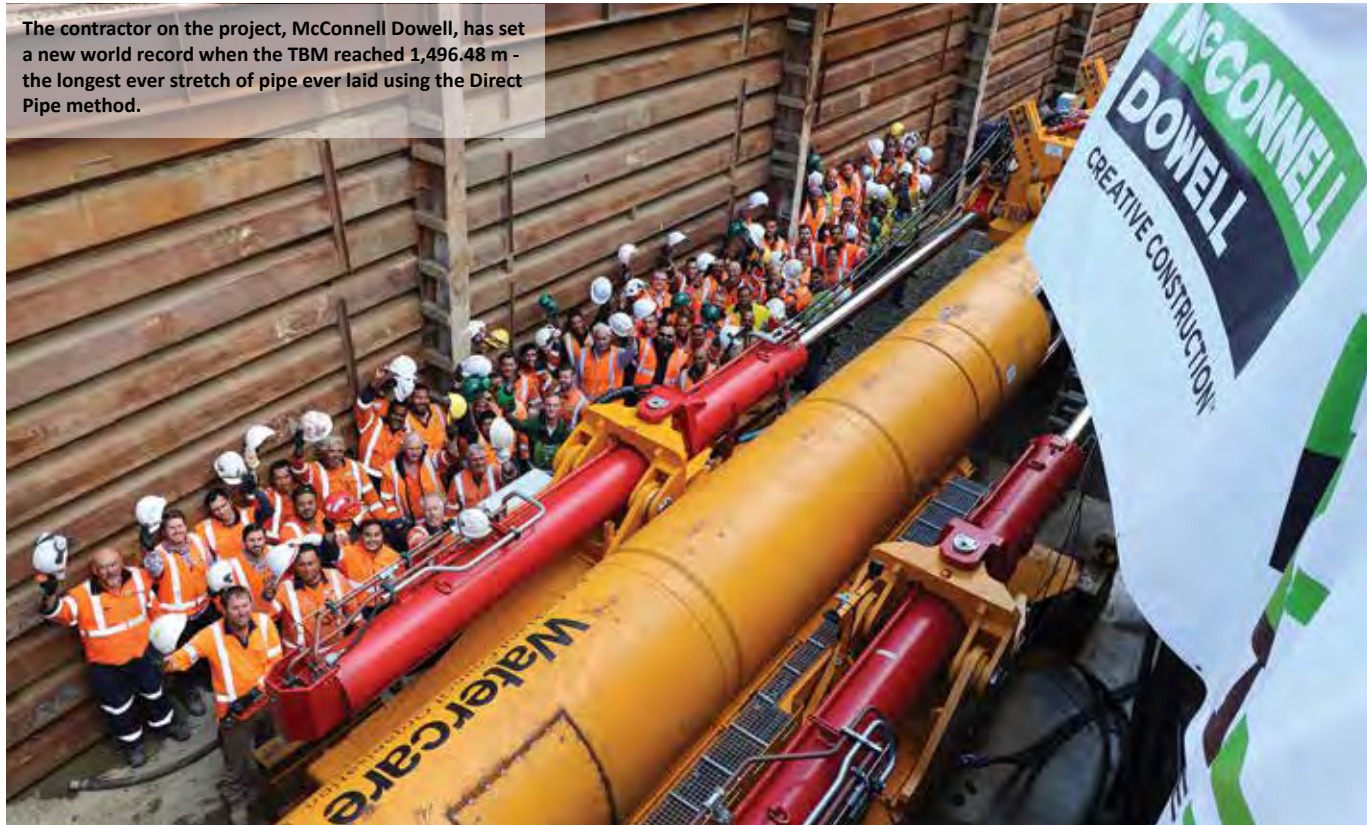
Direct Pipe is said to be commonly used in Europe to install pipelines under rivers and other large bodies of water. This is the first time the system has been used in New Zealand, revealed Mr Powell. "As a consequence we weren't constrained by traditional applications and were able to use the Direct Pipe system in ways not explored before. We set some pretty high expectations, we learnt much and achieved a real global step-change in how this new tunnelling technology can be used." ■

Website: www.herrenknecht.com



The Direct Pipe method installs the pipeline in one step, significantly reducing environmental impact.

The contractor on the project, McConnell Dowell, has set a new world record when the TBM reached 1,496.48 m - the longest ever stretch of pipe ever laid using the Direct Pipe method.





ROAD TO MAHARASHTRA

India is currently building roads at an unprecedented rate. Since 2014, the country has reportedly laid 28,000 km of highways at a cost of nearly Rs 3 lakh crore. In the next four years, it is expected to add 83,000 km more roads as part of a national highway construction programme.

One of the latest projects is the redevelopment of a 130 km road from Aurangabad to Dhule in Maharashtra, in which local contractor Deshmukh & Co was involved.

Speedy paving

To help speed up the work, Deshmukh & Co opted for a Volvo P4370B paver. "Believe it or not, we completed this project in four months. Sounds impossible, doesn't it? But we did it thanks to the Volvo P4370B paver," said Balasaheb Deshmukh, chairman and managing director of Deshmukh & Co. The company was established in 1986.

The P4370B wheeled sensor paver is manufactured at Volvo's Indian plant in Bangalore. The machine offers a basic width of 2.5 m, a rated power of 88 kW and a paving output of 600 t/hr. Its intelligent operating technology helps to meet three requirements



TOP AND ABOVE: India is building roads at an unprecedented rate and since 2014, the country has reportedly laid 28,000 km of highways. Among the latest projects is the redevelopment of a 130 km road from Aurangabad to Dhule in Maharashtra.



in line with highway design: mat thickness, mat level and grade requirement.

“We average 5 km a day with the Volvo P4370B paver,” explained Mr Deshmukh. “While the P4370B delivers quick work, it doesn’t compromise on quality either. Every road is finished smoothly, consistently and flawlessly.”

The P4370B is one of multiple Volvo machines in Deshmukh & Co’s fleet, which includes excavators, soil compactors and tandem rollers. The company purchased the Volvo construction equipment from local Volvo dealer Svenska Technologies. “Volvo machines have high uptime and rarely give us any trouble at all. But when we do need spare parts or service, Svenska Technologies is just a phone call away,” said Mr Deshmukh. ■

Website: www.volvoce.com



TOP, MIDDLE AND ABOVE: Local contractor Deshmukh & Co was commissioned to undertake the Aurangabad-Dhule road project. With the help of a Volvo P4370B paver, the company managed to complete the job within four months.

BUILDING INDIA WITH PRECAST TECHNOLOGY

India's construction market is expected to be the world's third largest by 2025. Jindal Realty based in New Delhi operates in the real estate and construction businesses and believes in precast technology to help make its job more efficient.

"Precast construction is in high demand right now. We have to build more and more houses, more and more infrastructure. Precast is the only solution," said Arun Kumar Nijhawan, executive vice president at Jindal Realty.

One of Jindal's most notable projects with precast technology is the construction of student housing blocks at the O.P. Jindal Global University campus in Sonipat, near New Delhi. The campus area is around 0.32 sq km and currently houses around 3,500 students. The university is expected to have up to 10,000 students in the future.

Jindal started building the student housing in 2012 and has completed a number of blocks. Recently, the company delivered the SH8 block, with a total built up area (phase 1 and 2) of 53,138 sq m. Construction work on the SH8 student housing began in March 2018 and the building was handed over in mid-August.

"With student housing, we have very short construction times. We have to complete buildings within seven or eight months from start to finish," explained Vikesh Sharma, assistant general manager for projects at Jindal Realty.

"Precast technology saves a lot of time. In the conventional system, we would have to go for shuttering, building and welding the reinforcement, then casting the slab and then deshuttering. In precast, we simply cast the slab and ship it to the construction site," said Mr Nijhawan.

Machinery and service

Elematic's design services team has been supporting Jindal Realty for the student housing project. The services include consulting on architectural details, finalising the drawings, carrying out 3D finite single precast element modelling, analysis of the building structure for its entire service time and a complete set of execution drawings.

"We have provided information on all structural aspects of building with precast, as well as details of how the building should be built," said Prakash Shah, head of technical support at Elematic.

One of the major challenges has been the lack of detailed standards for precast construction in India, highlighted Mr Shah. "Our team has good knowledge of international structural design standards. We adapted Indian standards for all loading conditions, including seismic conditions, and international standards for engineering with precast systems."

The seismic activity in the area makes the project all the more demanding, added Mr Shah. The modelling of the single precast elements must be made with gravitational and lateral loads due to wind and earthquakes.

To anyone considering working with precast, Mr Shah stressed that knowledge and communication are at the heart of the work



Arun Kumar Nijhawan (left), executive vice president at Jindal Realty and Vikesh Sharma, assistant general manager for projects at Jindal Realty, believe that precast technology is the only solution to boost their work productivity.



ABOVE AND LEFT: One of Jindal Realty's most notable projects with precast technology is the construction of student housing blocks at the O.P. Jindal Global University campus in Sonipat, near New Delhi. These images show a completed block.

process. "It is my advice to involve a structural consultant with sound knowledge of advanced precast technology, the production system and international building standards. The structural engineer plays a critical role in design."

Jindal Realty came to know about precast through Elematic India's managing director Chander Dutta. A delegation from

Jindal Realty then witnessed the possibilities first-hand on a trip to Finland, where Elematic is based. Eventually, Elematic supplied Jindal battery moulds, along with concept design and structural design services.

“We have been using this machinery for four years, and we have had hardly any breakdowns,” said Mr Nijhawan. “It is fulfilling all our requirements. Whenever we have any problems, we get full support. The design services have been a great help with the student housing project.”

Making safety a priority

In North India, it is said that there has been apprehension towards precast technology, particularly because of the seismic activity in the area. Jindal is tackling this by sharing information.

“North India falls into seismic zone 4. During the last five years, we have built several precast buildings. They have already faced earthquakes, and there has been no effect on the buildings,” said Mr Sharma. “There are several types of precast elements in the buildings: columns, beams, stairs, and wall elements.”

Compared to conventional construction, working with precast is believed to improve the quality of the buildings and brings safety to the forefront. Mr Nijhawan has been working in the construction industry in India for 29 years, and precast is one of the most efficient new technologies he has seen. “Slowly, precast is being recognised and accepted. I am hopeful that this will be the future of construction in India.” ■

Website: www.elematic.com



ABOVE: Jindal has been using Elematic precast production technology to construct various building projects in India.

FAR LEFT: Prakash Shah, head of technical support at Elematic.

LEFT: Chander Dutta, managing director of Elematic India.

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TOWERING OVER INDIA

The new Statue of Unity in Gujarat, India, serves as a monument dedicated to Sardar Vallabhbhai Patel, the country's first deputy prime minister and a prominent leader during the independence movement. Once complete, the 182 m structure is set to be one of the tallest in the world.

For work on this prestigious project, contractor Larsen & Toubro (L&T) needed cranes with the capacity and reach to meet the stringent project specifications, while also being compact enough to work in the limited space available. The company selected four Potain tower cranes, including three Potain MR 295 H20 units - a mid-size luffing jib crane with a compact counterjib that had the



Four Potain cranes have been working on site to lift rebar, concrete and steel, as well as to assemble the bronze fixtures that will form the outer cladding of the statue.



The Statue of Unity under construction. This monument is dedicated to Sardar Vallabhbhai Patel, India's first deputy prime minister and a prominent leader during the independence movement.

required freestanding height, as well as the right capacity and working envelope – and a Potain MC 205 B top-slewing crane to work alongside the MR 295 H20 models, supporting material handling duties.

These Potain cranes were purchased specifically by L&T for the Statue of Unity project. The company is handling construction work under the supervision of Sardar Sarovar Narmada Nigam. The cranes have been on site since September 2015, lifting rebar, concrete and steel, and also assembling the bronze fixtures that will form the outer cladding of the statue. This heavy and distinctive cladding is intentionally symbolic given Sardar Patel was known as the 'Ironman of India'.

Designed to work in confined spaces, the MR 295 H20 has a maximum capacity of 20 t and can lift up to 2.7 t at its 60 m jib end. The MC 205 B has a maximum capacity of 10 t and can lift up to 2.4 t at its 60 m jib end. On the Statue of Unity project, the MR 295 H20 units have been fitted with 50 m of jib, while the MC 205 B is working with 60 m of jib.

The foundation, main structure and bridge connecting the statue to the main road are already complete. Some 5,600 t of structural steel, 66,000 t of concrete and 1,900 t bronze will be used in the project. Work was expected to complete by October 2018. ■

Website: www.manitowoc.com



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TURNING WASTE INTO PROFIT

The Ammann ABA UniBatch asphalt mixing plant has been helping Indian company RKC Infrabuilt Pvt Ltd to make its business more profitable, by utilising recycled asphalt (RAP) in place of fresh aggregate. The plant is also able to maintain high mix quality while repurposing the RAP.

“It’s very economical compared to all other plants, and we have been saving great amounts,” said Siddharth Shah, director at RKC Infrabuilt Pvt Ltd based in Ahmedabad. “The plant provides excellent asphalt mix. The baghouse is amazing. The drum is good for recycled asphalt as well. These are the things that attracted us to buying this plant.”

A specific and significant factor in RKC choosing the ABA UniBatch was believed to be the plant’s ability to add hot and cold recycling material. There is a growing demand for the use of RAP in India, so the plant is a good fit for the Indian market. It is an example of a plant that is built in India, for that particular market, but also utilises European technology, said Ammann.

The plant can also access a foam generator that produces asphalt at a reduced temperature. This low-temperature asphalt - called ‘warm asphalt’ in India - has the same quality as a traditional mix but requires less fuel to produce, explained Ammann. Emissions are lower as well, and the paving crew is more comfortable working with the lower temperature mix.

Mr Shah added that the intuitive nature of Ammann’s as1 control system makes production of all the mixes possible. “The as1 is amazing software. I’ve never seen such a software before. It gives you a total description of the entire plant.”

He was also pleased that the ABA UniBatch meets the expected production levels, as RKC has needed high production on some recent large-scale roadbuilding projects. “The plant has produced 130,000 t in fewer than 100 days,” revealed Mr Shah.

Martinho Fernandes, commercial manager for Ammann and Apollo plants in India, further highlighted the efficiencies and cost savings that the ABA UniBatch plant delivers. It can develop



The Ammann ABA UniBatch asphalt plant has been helping Indian company RKC Infrabuilt Pvt Ltd to make its business more profitable, by utilising recycled asphalt (RAP) in place of fresh aggregate.

mix that utilises up to 40% hot RAP and 25% cold RAP, and also offers a foam mix option and solid additives. Uptime of the RKC plant is close to 100%, and parts life is extended by 25% because of the ABA UniBatch's advanced metallurgy.

Another advantage of the plant is that the direct-drive system of gear motors reduces power consumption by 10% and maintenance by 20%. Moreover, research and development has led to green technology efforts, including an efficient burner and baghouse that ensure less than 20 mg/cu Nm. This also provides customers with additional carbon credits.

Last but not least, Mr Fernandes said the plant is always ready for the next round of challenges. "The ABA UniBatch is 'future ready,' meaning customers can easily incorporate new technology as it becomes available." ■

Website: www.ammann-group.com

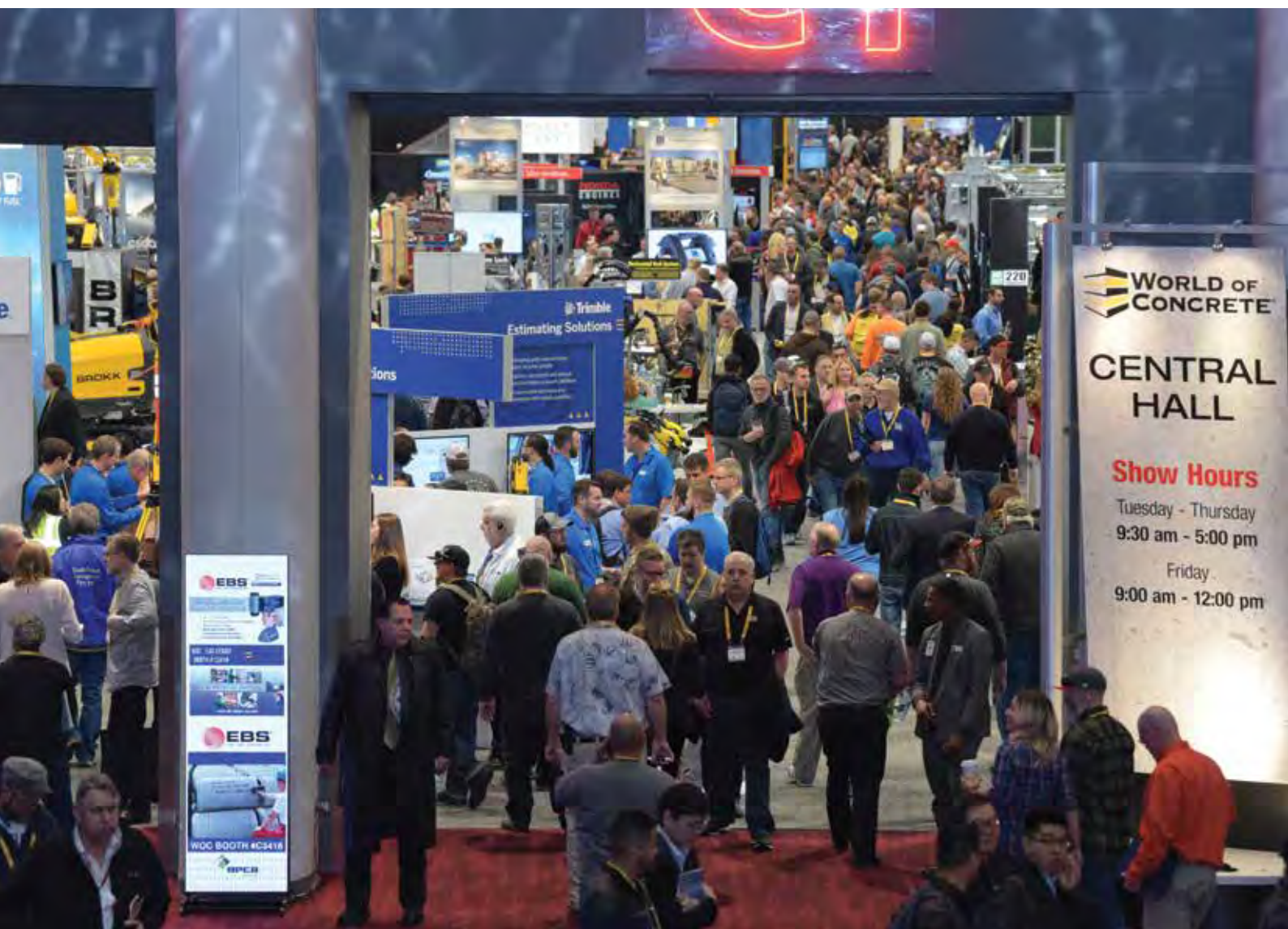


Siddharth Shah, director at RKC Infrabuilt, said that the ABA UniBatch asphalt plant has produced 130,000 t in fewer than 100 days.



ABOVE AND BELOW: The Ammann ABA UniBatch has an ability to add hot and cold recycling material. The plant can also access a foam generator that produces asphalt at a reduced temperature ('warm asphalt'), which is said to provide the same quality as a traditional mix but requires less fuel to produce.





CONCRETE SOLUTION

The concrete and masonry industries are set to converge in Las Vegas, USA, in January 2019 for highly-anticipated World of Concrete (WOC) event. It will be held from 22 to 25 January (seminars between 21 and 25 January) at the Las Vegas Convention Centre.

The 2019 edition is expected to be the largest WOC event in over a decade, featuring new and innovative products, cutting-edge technologies, exciting spectator events and competitions, and more than 150 educational sessions including luncheons, interactive workshops, as well as industry and hands-on training.

WOC is regarded as the industry's only annual international event dedicated to the commercial concrete and masonry construction industries. Its previous edition - which took place in January 2018 - was the largest event in nine years attracting 58,000 registered professionals, along with 1,564 major suppliers exhibiting across more than 746,000 net sq ft of space (about 69,306 sq m).

"We are anticipating another exciting event for 2019," said Jackie James, group director of World of Concrete. "This space draw has surpassed expectations in square footage, and we are confident the 2019 event will be a strong event for both exhibitors



and attendees. We look forward to serving the concrete and masonry industries with this annual international platform to network, source and receive valuable education to start the year off strong.”

“There are some very positive changes to the show floor for 2019,” added Kevin Archibald, show manager of World of Concrete. “We have moved the Masonry area to Central Hall, and Technology to the North Hall, to accommodate both of these growing sectors of our industry. We look forward to filling what is left in available booth space throughout the fall, culminating in another action-packed event for our attendees. We also have several new events in the works, and a multi-day expansion of the Masonry Madness

events happening in the Bronze Lot.”

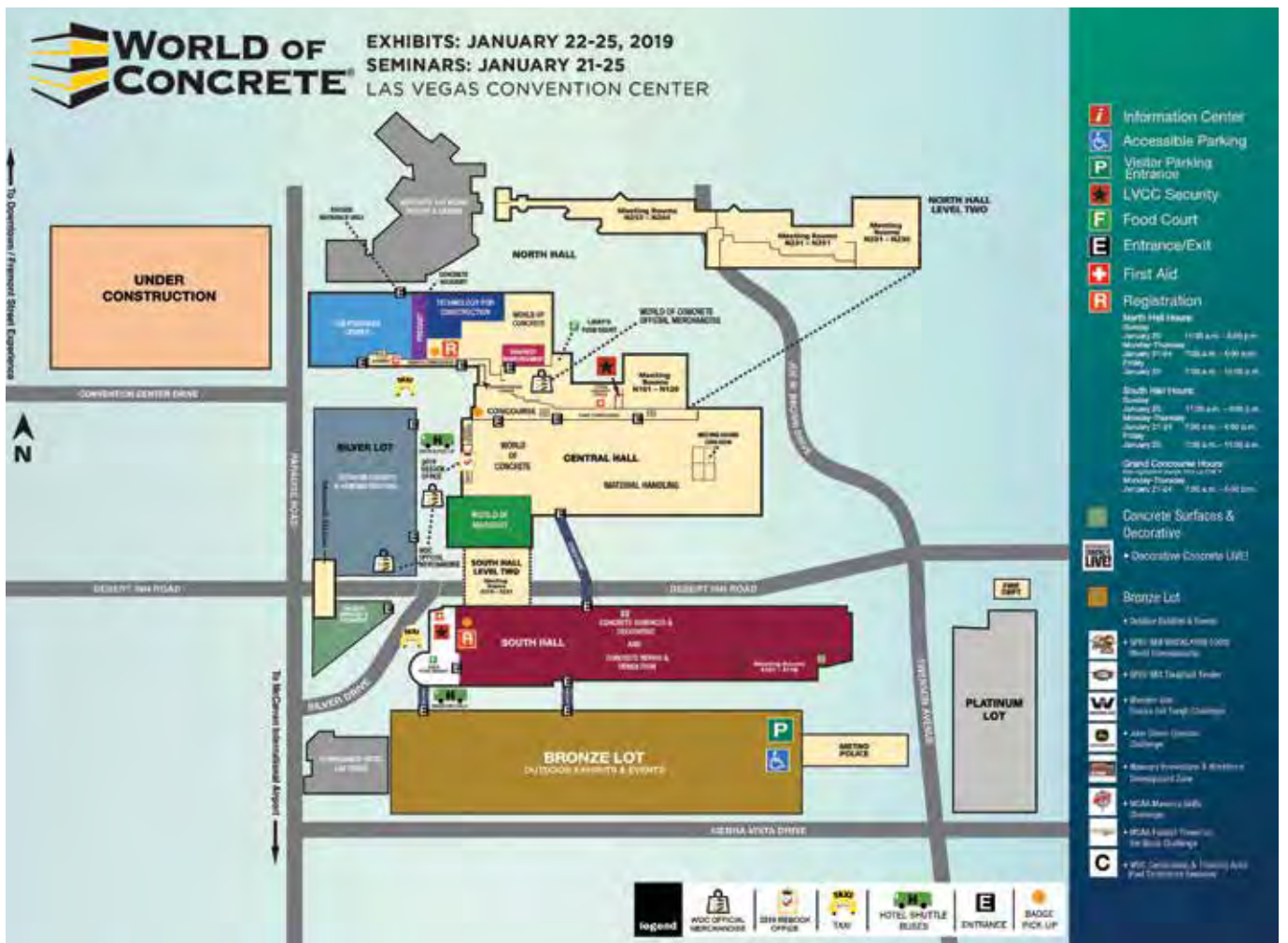
Recently updated on the WOC website are all of the events happening in the Bronze Lot, Breakfasts, Luncheons and Special Events & Tours to WOC, an updated 2019 Floor Plan (including exhibitors and products listings) and pricing/registration information.

The world-class education programme will include 180+ sessions comprising 90-minute seminars, three-hour seminars, 40+ industry trainings and skill-building events, along with more hands-on training opportunities and interactive workshops than ever before. ■

Website: www.worldofconcrete.com



ALL PHOTOS: Scenes from World of Concrete 2018.
BELOW: World of Concrete 2019 floor map.



The following pages introduce some of the exhibitors and their products that will be showcased at the World of Concrete 2019.

CURB FOX

BOOTH: C4119

The CF 5000-T slipform paver from Curb Fox Equipment is a multi-purpose machine that can handle the full range of curb, curb and gutter, channel, sidewalk (up to 3 m wide), and median barrier (up to 1.1 m high). The company has added optional heavy-duty tracks, a larger engine and more weight to the 5000-T in order to pave larger sidewalk and barrier sections.

The standard engine is now 56 hp, with a 74 hp option, and optional added weight up to 6,820 kg is available. At the same time, the Curb Fox 5000-T still paves curb and gutter on tight radii down to 75 cm and on tight street renovation jobs. The paver can also transport quickly at legal width in most configurations.

Curb Fox Equipment manufactures a complete line of slipform pavers for curbs, curb and gutter, sidewalk and small barrier. The product line starts with the rubber-tyre CF 2000 for small curb, and curb and gutter up to 60 cm wide in the centre position. The basic CF 2000 is equipped with an 18 hp gas engine for manual operation on pavement. For work on subgrade, the CF 2000 utilises a 22 hp diesel engine and full automatic controls for steering, elevation and slope.

Next is the Curb Fox 3000, which slipforms curbs up to 45 cm high and 60 cm wide in the offset position. The CF 3000 paves wider sections up to 1.2 m wide in the centre; the machine is fitted with a belt conveyor for offset operation, and comes with a 40 hp diesel engine. The CF 5000 is the largest tyre machine made by Curb Fox, and has all-wheel drive. It slipforms curb and gutter up to 90 cm wide in the offset and sidewalk up to 1.82 m wide in the centre. The CF 5000 is powered by a 50 hp turbo-charged diesel engine. ■

Website: www.curbfox.com



Curb Fox CF 5000-T slipform paver can handle the full range of curb, curb and gutter, channel, sidewalk (up to 3 m wide), and median barrier (up to 1.1 m high).

POLARMATIC

BOOTH: N156

Polarmatic will showcase its Polarmoist water content monitor, an optical moisture sensor designed for detecting moisture content in concrete aggregates. The sensor embeds a microprocessor and uses LED light sources. According to Polarmatic, the sensor is most optimal when used above conveyors, feeders or at clam gates to detect moisture content in moving material. This method of non-contact measurement guarantees stable performance and durability of the sensor.

Polarmoist has been extensively tested in concrete plants with different grades of stone material, said Polarmatic. By proper calibration, the accuracy of measuring water content can outperform hand made reference measurements in the case of a limited number of samples and a large variation of moisture in a given batch.

Polarmoist has a serial and current loop output and a wide power supply voltage range, thus enabling easy integration into existing control systems. Other highlights of the product, apart from remote optical measurement of moisture content, include a solid-state design as well as easy installation and calibration. It is also temperature compensated, has neither moving nor wearing parts, and features high accuracy and resolution. Plus, Polarmoist offers fast response and low noise in addition to stable LED light sources.

Polarmatic further highlighted that non-contact measurement, long lifetime due to solid-state design, simple calibration, high accuracy and minimal maintenance are huge advantages over microwave probes to measure moisture in fine and coarse aggregates. ■

Website: www.polarmatic.com



ABOVE IMAGES: Polarmoist optical moisture sensor is designed for detecting moisture content in concrete aggregates. It performs based on absorption peaks by water molecules at near infrared wavelengths.

LIGCHINE INTERNATIONAL

BOOTH: 032126

Ligchine International Corporation will exhibit four models of wireless remote controlled, boom operated, concrete screeding machines. All of them provide 3D paving capabilities, alternate screedhead options, lightweight footprint with the largest model weighing less than 3,628 kg.

One of the models is the ScreedSaver II, a compact, zero-turn capable, laser-guided screed that produces up to 12 sq m per screed pass. Another model is the ScreedSaver Max 200, which features front wheel drive, rear wheel steering and 90° parallel to the pour driving. This model delivers up to 18.6 sq m per screed pass.

The ScreedSaver Pro 220 combines all the features of the ScreedSaver Max 200, with the customer requested functions from the ScreedSaver Boss 240. The Pro 220 is equipped with a 360° hydraulic turntable and undercarriage, LED lighting, touchscreen diagnostic display, and fuel-efficient Kubota diesel. The model produces up to 20.5 sq m per screed pass.

The ScreedSaver Boss 240 is Ligchine's largest screed that produces 22.3 sq m per pass. It features hydraulic parallel side shifting for stickup avoidance, 360° hydraulic turntable and undercarriage allowing for zero-turn drive capability, on-board pressure washer, LED lighting system, a choice of gas, diesel or LP fuel Kubota engines, and touchscreen diagnostic display.



Ligchine will showcase its wireless remote controlled, boom operated, concrete screeding machines, which offer 3D paving capabilities.

Ligchine International offers 2D laser and 3D GPS/LPS guided boom extension concrete screeding machines, all of which are designed and manufactured in the US. ■

Website: www.ligchine.com

KINGSPAN INSULATION

BOOTH: S14019

Kingspan Insulation is a global manufacturer of innovative ultra-thin flexible insulation products and super high-performance rigid insulation products for building fabric and building services applications. Among the company's highlights is the Kooltherm K10 FM Soffit Board, a super high-performance, fibre-free rigid thermoset phenolic insulation core, sandwiched between an upper tissue-based facing and a lower facing of highly reflective aluminium foil autohesively bonded to the insulation core during manufacture. According to Kingspan, this product is manufactured without the use of CFCs/HCFCs and has zero ozone depletion potential (ODP) and low global warming potential (GWP).

Kingspan's flexible insulation option, Air-Cell Insulbreak FR, is an all-in-one insulation, vapour barrier and radiant barrier solution reflecting up to 97% of radiant heat. The 8-mm-thick Air-Cell Insulbreak 80FR also acts as a thermal break, which significantly reduces conductive heat transfer, or thermal bridging, across steel building elements. The product is manufactured with a patented cross-linked, closed-cell foam structure sandwiched by highly reflective foil surfaces.

Kingspan's product offering also covers the HVAC market with its KoolDuct System, an advanced and innovative pre-insulated rectangular HVAC ductwork system, which is installed in a single fix. Kingspan said that this system eliminates virtually all of the problems associated with galvanised sheet steel, mineral fibre duct board and pre-insulated rigid polyisocyanurate (PIR) ductwork systems whilst, at the same time, offering additional advantages to the specifying engineer, architect, M&E contractor, fabricator, facilities manager, property developer and building owner. ■

Website: www.kingspan.com

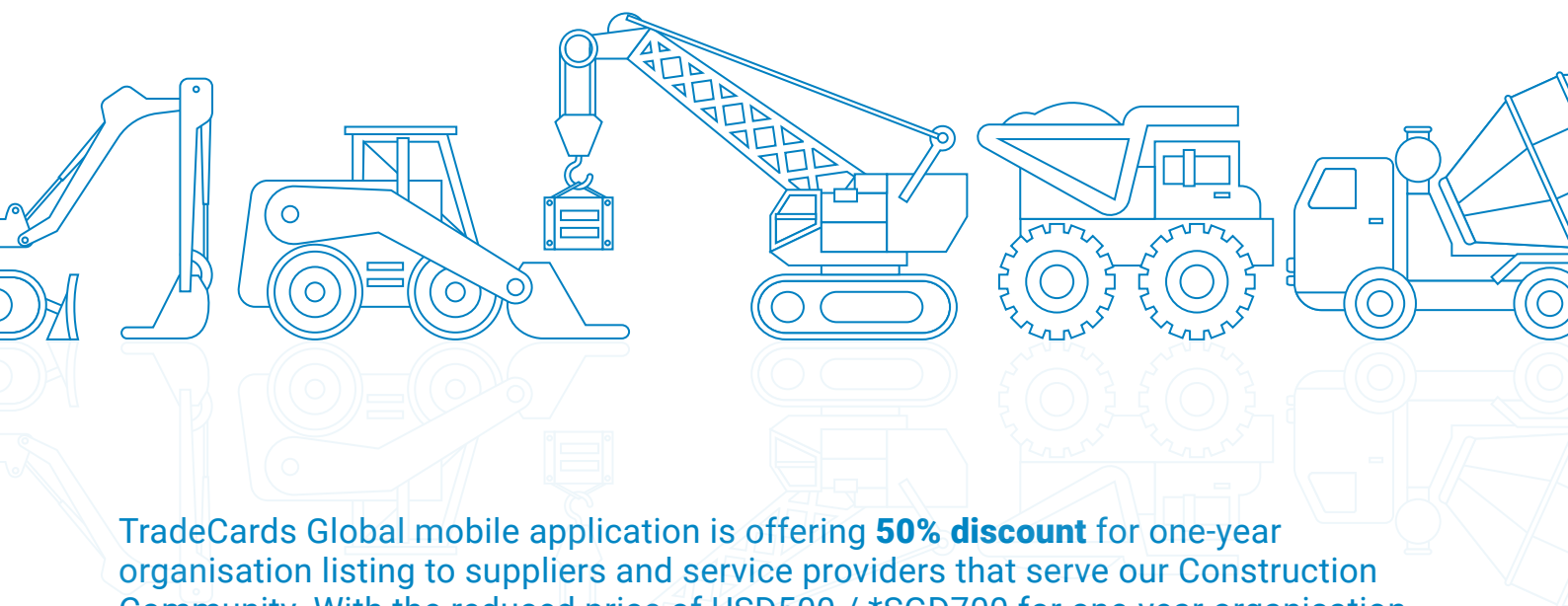


ABOVE: Kingspan Kooltherm K10 FM Soffit Board is a super high-performance, fibre-free rigid thermoset phenolic insulation core.



LEFT: Kingspan Air-Cell Insulbreak FR is an all-in-one insulation, vapour barrier and radiant barrier solution reflecting up to 97% of radiant heat.

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EXACTAL

BOOTH: N2176

The CostX platform from Exactal combines a range of features to support highly complex estimating projects. With more than 13,000 licences sold worldwide in over 80 countries, CostX offers a takeoff and estimating solution for organisations of all sizes.

A highlight of the platform is its advanced 2D measurement and auto-revisioning tools. CostX offers an easy-to-use measurement tool that allows users to complete accurate takeoff with minimum fuss. Areas, lengths and counts can be measured with a single click in CostX, streamlining the entire takeoff process. Many file types are supported including scanned images, PDF, CAD and other 2D drawings, with a number of functions built-in to ensure accuracy across revisions and eliminate scope creep.

CostX's advanced auto-revisioning tool highlights new changes in drawing versions, with quantities able to be automatically updated when a new revision is added. This can be a significant time-saver across the life of a project, especially if numerous drawing updates are required.

In addition, the CostX platform supports users looking to implement the Building Information Modelling (BIM) technology across their project lifecycle. According to Exactal, CostX is renowned worldwide as a leading solution for BIM estimating, allowing users to view and perform takeoff through a variety of supported file types. 5D BIM is supported within CostX, with large repositories of information live-linked to user-defined rate libraries and workbooks. Greater collaboration is a key selling point of the BIM concept, and the network capabilities of CostX allows multiple users to work simultaneously on a single BIM file.

There is significantly more to advanced estimating software



Exactal's flagship CostX platform combines a range of features to support highly complex estimating projects.

than just the takeoff component, said Exactal. CostX also streamlines the document production process by offering powerful spreadsheet-based workbooks. Data stored in these workbooks is live-linked to the drawings in question and the user's own cost database, saving time on data entry and eliminating copy-paste errors. Budgeting processes are also supported by a Subcontractor Comparison/Bid Day tool, which enables users to analyse comparable quotes to make the best financial decision. As for reporting, CostX features a customisation tool that supports the creation of professional, personalised reports for clients, including Cost Plans and Bills of Quantities. ■

Website: www.exactal.com

RATEC

BOOTH: N976

Ratec is one of the leading suppliers and service providers for the precast concrete industry worldwide. The company said it has set standards in the industry, especially with its magnetic formwork technology and in the development of complex 2D and 3D formwork solutions.

At WOC, Ratec will display its latest magnetic and non-magnetic siderail and shuttering systems, and also offer its forming solutions for precast and prestressed elements as well as structural elements like beams, median barriers, staircases, columns and others.

Ratec has installed its various systems across the US and starting from 1 August 2018, the company has appointed IWI Group as its sole and exclusive sales representative for the US and Canada.

Among Ratec's notable projects in the US is the installation of its battery system at Intrepid Precast Technologies in Florida, aimed for the manufacture of noise barriers and explosion protection walls using upcrete production technology. The plant, which was put into operation in 2016, is said to be the first upcrete plant in North America, following successful projects in Europe, Asia and South America. The battery moulds at Intrepid are designed as a double system and can thus be extended by additional pockets to increase the production capacity in the future. The production capacity of the plant is around 300 sq m or 150 linear meters of wall per day in single-shift operation. ■

Website: www.ratec.org



ABOVE AND LEFT: Ratec will showcase its latest magnetic and non-magnetic siderail and shuttering systems, and also offer its forming solutions for precast and prestressed elements as well as structural elements, like beams, median barriers, staircases, columns and others.



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SNORKEL

BOOTH: 030099

Snorkel will display 12 models from its extensive product range, including the SR626 compact rough terrain telehandler. Introduced in 2018, this unit can lift a load capacity of up to 2,600 kg and reach heights of up to 5.79 m, with a maximum forward reach of 3.2 m. The SR626 is ideal for contractors, as it can be easily transported and delivers high levels of operator comfort. Powered by a 70.3-hp Tier 4 Final Yanmar diesel engine, the unit weighs just 4,700 kg unloaded.

The Snorkel TM16E telescopic mast lift will also be on display. It is the third model in the line of Snorkel self-propelled telescopic mast lifts, providing a working height of up to 6.87 m. The TM16E can lift up to 227 kg and weighs in at just 1,070 kg.

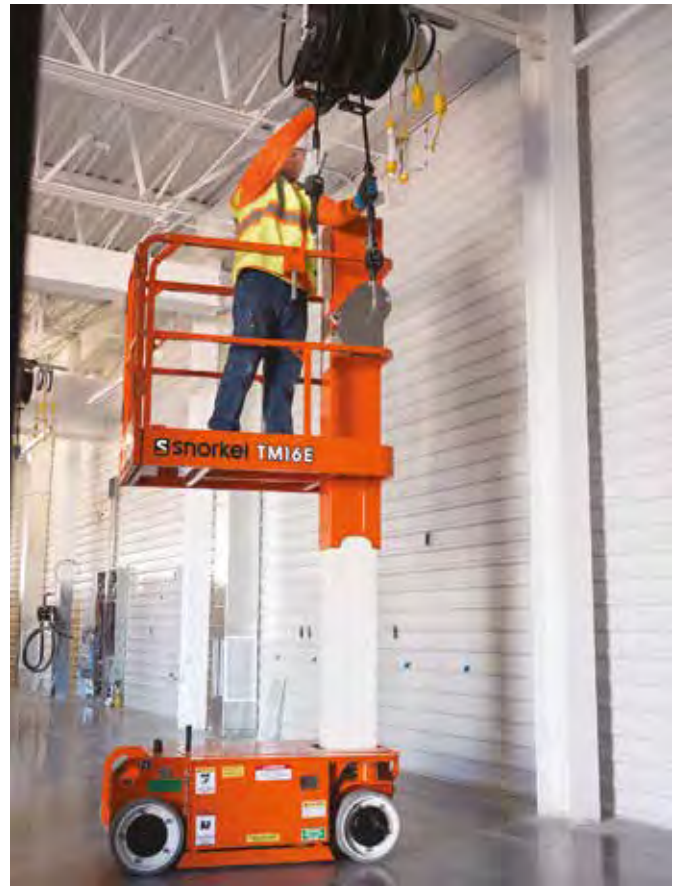
Designed for harsh conditions, the new Snorkel 660SJ telescopic boom lift offers excellent rough terrain performance thanks to two-speed motors and a traction manifold that delivers oil to all four wheels at all times, providing constant four-wheel drive. With a 20.1 m maximum platform height and an outreach of up to 18.4 m, the 660SJ has a lift capacity of up to 272 kg.

Snorkel will also be highlighting its A46JRT and AB60JRT articulating boom lifts, and a variety of electric and rough terrain scissor lifts.

Furthermore, Snorkel's sister company Xtreme Manufacturing will be on hand showcasing 12 models from its 17 model product range, up to the heavy 31,751 kg capacity Xtreme XR7038 telehandler. Built to handle the toughest of jobs, with a focus on safety, productivity and serviceability, Xtreme offers a large selection of high capacity telehandlers in North America.

The two-storey Xtreme booth structure will be constructed entirely from 'Xtreme Cubes' built in Nevada, USA, highlighting the versatility of these modular steel-frame building structures across a wide range of applications, including within construction and industrial environments. ■

Website: www.snorkellifts.com



TOP RIGHT: Snorkel TM16E telescopic mast lift.

RIGHT: Snorkel SR626 compact rough terrain telehandler.

ABOVE: Snorkel 660 SJ telescopic boom lift.

POWER CURBERS & POWER PAVERS

BOOTH: C5611

The Power Curber 5700-C slipform paver is ideal for a variety of applications, including curb & gutter and rehab; barrier/parapet applications; sidewalk, no-mow strips and wide paving; and special applications such as tunnels, canals, ditch liners, stadium risers, slotted drain, and agricultural applications.

The 5700-C features a compact design, allowing operators to work on tight spaces like parking lot corners, islands and cul-de-sacs. The machine has a low centre of gravity, making it stable on rough subgrade and when loading and unloading. The operator can have an excellent view of concrete as it exits the mould, and also good visibility of all activity around the machine. For simple operation, the 5700-C turns tight radii by steering the front track only, eliminating the complication of coordinating all three tracks together. However, all crawler steering is available as an option.

The 5700-C is fitted with an auger conveyor. The high-drive, high torque auger moves volume concrete faster; keeps the machine cleaner; continues the mixing process of the concrete; holds a 3/4 cu m of concrete, which is beneficial in radius and cul-de-sac work; and conveys concrete regardless of the incline angle of the conveyor. The charge hopper can be positioned in front of the machine, allowing a concrete truck to run lined up in front of the machine and thus enabling the operator to pour in a single lane of traffic.

The mould mount on the 5700-C moves hydraulically, giving the operator the ability to raise, lower and side-shift the mould quickly and easily. With 610 mm of horizontal movement and 406 mm vertical, the mould can be lowered into a trench for rehab curb or for pouring adjacent to existing pavement.

The stout 1.07-m-wide carbide-tooth trimmer handles the toughest of subgrade, minimising the dependence on the grading contractor. Ideally the trimmer cuts 25-50 mm of subgrade, but is capable of trimming up to 150 mm in extreme situations.

The standard setup of the 5700-C is for left side pouring but there is a dual side pouring option. Changeover from side to side is said to take three to four hours.

The Smart Amp control system on the 5700-C combines the simplicity of analogue with the added benefits of a digital controller. The system offers the operator more accuracy and greater feel when setting sensitivity, without complexity. It performs self-diagnostics, automatically shuts off sensors if they leave the stringline, and has an easy-to-read digital display.

In addition, the Power Paver 2400-series of slipform pavers is designed for conventional paving, offset paving and custom applications. It can be used for residential and intermediate paving projects up to 7.5 m wide. A two-track model, the SF-2402, is also available.

The SF-2404 features a telescoping frame that allows simple width adjustments. One-touch track positioning and simple steering controls make the 2400-series machines easy to operate. Boasting a 138:1 track drive gear ratio, the SF-2404 can produce smooth paving even at extremely low speeds. Vibrators can be controlled individually or globally from the operator's console, with the ability to monitor and record vibrator speeds using the optional Smart Vibe system.

The 2400-series machines are stringless-ready from the factory and are validated for use with Leica, Topcon and Trimble 3D/GPS control systems. ■

Website: www.powercurbers.com



TOP AND ABOVE: **Power Curber 5700-C slipform paver.**
BELOW: **Power Paver SF-2404 slipform paver.**



TRADECC

BOOTH: S13555

Founded in the 1990s as part of the ECC Group, Tradecc nv is responsible for the worldwide sales of in-house developed and custom-made construction chemicals based on PU, acrylic and epoxy for water sealing, tunnelling, concrete repair and coatings. As a first-time exhibitor at WOC, Tradecc aims to strengthen its presence in the American market and look for new distributors and applicators.

Among the company's products to be introduced is the PC Elastoswell, a hydrophilic swell strip for waterproofing construction joints. It consists of a polymer swelling substance and will swell more than 10 times its volume. According to Tradecc, even at a peak load of 10 bar, PC Elastoswell does not leak and keeps its shape, without splitting or cracking.

The company will also showcase several injection techniques such as the PC 509 Rubber Acryl, an elastic five-component acrylate injection liquid with CE marking and excellent toughness, elasticity and physical properties. In addition, the PC Leakinject Hydrogel 6880, a CE certified, low viscous, waterproof, single component, hydrophilic, MDI-based injection resin does not need a catalyst. The resin can be injected pure, directly into a leaking crack, fracture

or joint, or it can be injected mixed with water (for example in a ratio 1/1). For the permanent sealing and consolidation in water-bearing levels, especially in case of high water pressure, Tradecc has developed the PC Tunnelinject 2K 6822 range consisting of two-component injection resins. It can be applied in mining, tunnelling and civil engineering projects.

Another highlight is the PC Carbocomp Laminates for structural repair. These laminates increase the bending strength and capacity of structural elements, and decrease the deformation of a construction or internal steel tension. They are said to be at least five times stronger than steel, have high acid and alkali resistance and are easy to install.

Finally, the PC 4840 Porea is a two-component solvent-free polyurea spraycoating with a fast curing time, often used as a seamless coating by which the product can be applied in thickness varying from one millimeter to several millimeters. This pure polyurea hot spray protects steel and concrete constructions against corrosion, chemical products and weather influences. ■

Website: www.tradecc.com



ABOVE LEFT: Bridge repair with the PC Carbocomp Laminates.

ABOVE: Repair of water tank using the PC Carbocomp Laminates and PC 4840 Porea.

FAR LEFT: The PC Elastoswell, a hydrophilic swell strip for waterproofing construction joints.

LEFT: The PC Tunnelinject 2K 6822 range consists of two-component injection resins.

MMFX TECHNOLOGIES

BOOTH: N3101

MMFX Technologies, a Commercial Metals Company, is a leader in high-strength steels, offering a line of high-strength concrete reinforcing steels with varying levels of corrosion resistance under its ChrômX brand name. Designers can utilise the high strength efficiencies and best match the corrosion protection requirements of the structure to meet the targeted service life. MMFX products are sold throughout the US and Canada.

Utilising the high-strength of ChrômX rebar, including both Grades 100 and 120, designers can reduce construction costs (such as steel, fabrication, placement, concrete, excavation and other associated expenses), shorten build times, resolve rebar congestion issues, enhance site safety and improve sustainability. According to MMFX, building codes and design guides supporting high-strength designs are available through the American Concrete Institute (ACI), International Code Council (ICC), and American Association of State Highway and Transportation Officials (AASHTO).

ChrômX rebar's uncoated, corrosion-resistance is derived from the steel's chemistry and microstructure rather than relying on fragile coatings, explained MMFX. This innovative microstructure and resulting mechanical properties provide a bar that can be handled and fabricated just like conventional rebar, without the risk of damage, repair or inspection problems, as well as safety issues associated with coated bars.

ChrômX 9000 series (9100 and 9120) (ASTM A1035 CS) offers corrosion-resistance five times better than black steel, revealed MMFX. It is designed to exceed the 100-year service life requirement for concrete structures, and is ideal for high-corrosion environments and high-profile structures.

ChrômX 4000 series (4100 and 4120) (ASTM A1035 CM) provides mid-level corrosion protection of over 50-year service life, depending on the specific application and design for the concrete structure. MMFX said this steel is an economical choice for difficult rebar related construction challenges in areas with moderate corrosion concerns, as a direct substitute for epoxy or galvanised rebar.

ChrômX 2000 (2100 and 2120) (ASTM A1035 CL) is designed to be competitive in both pure high-strength applications and low-corrosion environments. It provides designers/owners all



TOP, MIDDLE AND ABOVE: **MMFX Technologies** offers a line of high-strength concrete reinforcing steels with varying levels of corrosion resistance under its ChrômX brand name.



Utilising the high-strength of ChrômX rebar, including both Grades 100 and 120, designers can reduce construction costs, shorten build times, resolve rebar congestion issues, enhance site safety and improve sustainability.

the high-strength steel benefits with about twice the service life of black bar at an economic price, said MMFX.

Commercial Metals Company and its subsidiaries manufacture, recycle and market steel and metal products, related materials and services through a network including four electric arc furnace (EAF) mini mills, an EAF Micro mill, a rerolling mill, steel fabrication and processing plants, construction-related product warehouses, metal recycling facilities and marketing and distribution offices in the US and in strategic international markets. ■

Website: www.mmfx.com

B2W SOFTWARE

BOOTH: N2164

B2W Software has been focusing exclusively on software solutions for heavy civil construction sectors since 1993. Among the company's products is the One Platform, which unifies heavy civil construction software elements for estimating, scheduling, dispatching, field tracking and equipment maintenance as well as enterprise data capture and analysis.

One of the elements is B2W Estimate, which provides centralised, up-to-date cost data and structures along with specialised functionality for heavy civil construction estimating and bidding. The intuitive, easy-to-use solution allows contractors to maximise accuracy and speed, focus more attention on strategy and win more bids at better margins.

B2W Schedule is a centralised, online solution for coordinated scheduling and dispatching of employees, crews, equipment and materials across job locations and over time. Role-specific visibility and access allow employees throughout the enterprise to communicate and collaborate in real time to get the right resources to the right location at the right time.

Through customised electronic field logs, B2W Track streamlines the collection and reporting of field progress, including productivity, labour, materials and equipment utilisation. Daily analysis then empowers contractors to adjust operations more accurately and immediately. Employees in the field also use B2W Track to communicate repair and resource requests directly to the B2W elements for maintenance and scheduling.

In addition, B2W Maintain gives contractors a comprehensive system to cut equipment costs and downtime by streamlining maintenance processes and taking a more automated, proactive and preventive approach. The software links shop, field and management teams, and its ability to track key performance indicators (KPIs) helps companies make informed decisions about process improvement, staffing and asset investments.

Another element is B2W Inform, which generates reports, dashboards and alerts from electronic forms and other source,



ABOVE: B2W Software offers software solutions for heavy civil construction sectors.

LEFT: The B2W One Platform unifies heavy civil construction software elements for estimating, scheduling, dispatching, field tracking and equipment maintenance as well as enterprise data capture and analysis.

delivering timely, accurate data to improve operational performance, safety, quality and financial outcomes. Fast, easy creation and management of customised forms enable contractors to replace inefficient paper-based processes and capture richer data in real time anytime, anywhere and on any device. ■

Website: www.b2wsoftware.com

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