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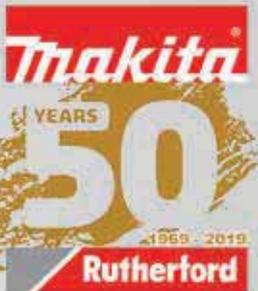
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DTS141ZJ

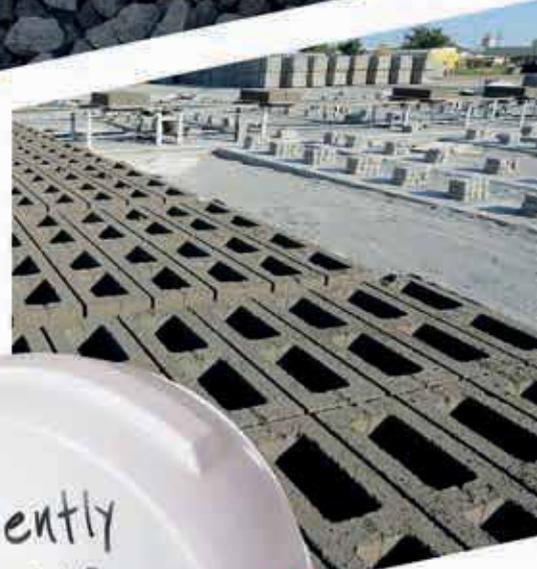
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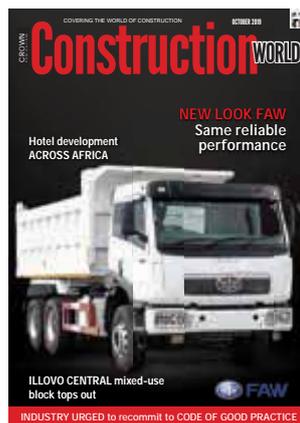
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Sandton Central is on the cutting edge of green building practices.

ON THE COVER

FAW Vehicle Manufacturers South Africa's extensive heavy vehicle range has been given a new look, in conjunction with improved ergonomics and enhanced levels of driving comfort. The new-look FAW range has been designed to maximise driver and passenger comfort, while offering spacious leg room and a more functional interior overall. To this end, the layout of components eases driveability, while an extended gear lever makes for easier shifting. All interior finishes have been enhanced in the interests of extended durability and more pleasing aesthetics.

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REGULARS

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COMMENT

According to the Afrimat Construction Index (ACI) that is compiled by economist Dr Roelof Botha on behalf of this materials and industrial minerals supplier, confidence in construction activity in South Africa will improve in the second half of 2019, and gain momentum in 2020. This is good news for an industry in despair.

The latest ACI is a composite index within the building and construction industry for the second quarter. The index shows a 3,1% improvement in this quarter compared to the first quarter of the year. This was because the values of buildings completed, labour remuneration and the volume of building materials produced were optimal. Only two indicators recorded declines. The construction sector is still experiencing pressure, but this is the first quarter in seven that shows an upward trend.

The plan

The National Treasury published its proposed plan titled 'Economic transformation, inclusive growth and competitiveness: towards and economic strategy for South Africa' in late August. This plan, simply put, aims to remove obstacles to economic growth and job creation while incentivising activity in

labour-intensive sectors. The construction sector is one of the major employers in South Africa – but such job creation can only be achieved when the industry is growing.

An aspect that has become critically important is the expansion of infrastructure as this will raise the country's economic growth rate. In light of this it is encouraging that the South African National Roads Agency Limited has indicated that road construction tenders with a value of more than R40-billion will come onto the market in the next two to three years.

The index maintains that this (and others) may lead to a modest recovery while putting the entire industry on a sustained growth path.

Of concern

The decline in the value of building plans passed and the continued downward trend

of the volume of building materials produced are of concern in an otherwise mostly positive index.

Wilhelm du Plessis
Editor

Best Projects update

There is no doubt that increased infrastructure spending is the key to a buoyant construction industry. This year's Best Projects entries reflect why the industry is under severe pressure: of the almost 50 entries very few are infrastructure projects.

Notwithstanding difficulties, excellence will always trump adversity. This year's entries reflect the depth of the South African construction industry. The judging will take place early in October and the awards evening will be held in Johannesburg on 6 November.

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The future is not female ... IT IS INTERSECTIONAL

On 15 August 2019, Women in Architecture, in partnership with the South African Institute Architects (SAIA KZN), hosted 'The Future is not Female ... It is Intersectional' workshop. The theme of 'Intersectionality' followed on the heels of last year's 'Beyond the Binary'.

Organisers defined this theme as: "The way in which people's experiences are shaped by their race, class, gender and sexuality all at the same time. It is a way of understanding how multiple forms of inequality and disadvantage can compound themselves and create obstacles often not understood within conventional ways of thinking."

The event was hosted by leading brick maker, Corobrik, at its Head Office in Avoca, Durban.

Dirk Meyer, chief executive of Corobrik, said his company was proud to have supported the KZN Women in Architecture workshop for four years. Even in a stressed construction sector, he said Corobrik would continue to empower its workforce, engage with professionals and develop new products. Introducing Corobrik's new platinum facebrick, he noted: "We will proactively develop our market and carry on developing our product range so that it remains relevant to the architectural palette."

According to Karuni Naidoo, founder of the Women in Architecture workshop, "KZN continues to lead the way with robust and relevant discussions about feminism and women's contributions to South Africa's built environment. Through efforts of the SAIA Transformation Committee, the many and varied events around the country during women's month this year indicate that the movement has taken hold around the country."

The theme of 'Intersectionality' unfolded in a very vibrant, interactive and potentially contentious way. The guest speakers were asked dig deep into their personal and professional challenges within



the field of architecture, with the collective objective of searching for the next step forward – especially when it came to breaking down the walls of entrenched mindsets which have come to establish themselves as the norm. While women in architecture have already had to work really hard while suffering gender injustice in, what still seems to be, a male dominated field, it is heartening and courageous that they are having conversations around other injustices (such as race, sexuality, class, disability and religion) and looking for ways in which the divisions already in place can be addressed meaningfully.

The day's programme unfolded with Amanda Lead and Nindya Bucktowar sharing their personal/professional architectural journeys: Amanda Lead of Lead Architects described "the spaces in between" as being the generative force for change and improvement. Fix the heart and the rest will follow, asserting that women tended to be more fluid in what they did and therefore able to heal broken spaces and discover solutions to problems within built environments such as schools and campuses and places of worship, she noted that what set women apart was their ability to engage with people.

Nindya Bucktowar, Co-director of NT Design Studio which specialises in architectural, graphic and industrial design, called for a more inclusive approach to design. She observed: "You can live in a city and visit every place but you don't know a city until you know the people." She showcased the intricacies of her mind and handwork.

DIGITISE AHEAD OF ANTICIPATED UPLIFT

South African construction companies have endured a difficult few years. Not only have they struggled as a result of a slowdown in government infrastructure spending, but they have also faced near-insurmountable difficulties because of late or slow payment by their clients in the public and private sectors. **By Andrew Skudder, CEO of Construction Computer Software**

However, there may be light at the end of the tunnel. Government recognises the need to invest in infrastructure to support growth and job creation. The news that it has set aside R100-billion for an infrastructure fund could signal a new approach. Benefits may include more efficient use of money earmarked for infrastructure investments and better management of the payment cycle.

This comes at a time when the building and construction sector has highlighted late and non-payment as one of the most significant challenges it faces. The Master Builders Association estimates that government departments and entities collectively owe its members in the region of R5-billion.

This situation is partially to blame for the string of poor results and business rescues we have seen among several South African

construction groups in recent months. The knock-on effects are also significant, since prime contractors often pay their subcontractors late as a result of delayed payments. According to the Construction Industry Development Board, 60% of subcontractors have experienced delayed payments from main contractors.

In the construction industry, a late payment to one supplier or by one customer can have a ripple effect throughout the value chain. Given how thin margins are in the industry, variances in cost and scheduling can compromise cash flow and profitability, plus have a major impact on the viability of a project.

Therefore, it is imperative for construction contractors to use technology to ensure better real-time visibility into their businesses and projects. An integrated costing, project control and enterprise



Pictured at Women in Architecture, in partnership with the South African Institute Architects (SAIA KZN,) in Durban on 15 August 2019 are (from left): Kate Otten, Karuni Naidoo, Dirk Meyer, Nina Saunders and Patrick Smith.

The seamless movement between scales and modes of creative production spoke as much to the theme as to the greater freedoms seized by the younger and more digitally empowered.

The journeys were followed by guest speakers, Kate Otten, Queen Mjwara and Pat Horn. Kate Otten, Vice President of SAIA and founder of Kate Otten Architects, declared that creating her own practice had been her survival strategy and brand of personal activism when it came to challenging inequality within the architectural profession. Two recent projects by Kate Otten Architects align beautifully with the notion of an “intersectionally responsive built environment” and dissolve the spatial and physical barriers that usually define the public/private interface – an antidote to what she refers to as “fear-based architecture”.

Queen Mjwara, Managing Director of SADC Empower, shared her experience in property and asset management and shared her own challenges as a black woman when it came to fitting into a male dominated world. Admitting to a love hate relationship with architects, she challenged them to not work in silos but instead consult more widely with other property professionals to design spaces more suited to their uses. Queen ruffled some feathers with

provocative comments about how architects do or do not serve their clients and further challenged us on the prevailing aesthetic of KZN architecture. She made a strong and relevant case for women to move towards the future they wish for themselves, refraining from self-doubt, self-hate and fear.

Socialist, feminist, trade unionist and founder of StreetNet International which advocates for street vendors globally, Pat Horn, added her voice to the call for architects to negotiate with the users of spaces from the planning stage. Noting that people had the right to representation and access to public space, she told her fellow panelists that more women leaders were needed. Pat reiterated the StreetNet slogan: “Nothing for us without us” that calls for inclusion of end users at the onset of projects.

The panel discussion which followed included inputs from audience members and amongst the issues and themes which came to the fore, was that many talented women architects were shunning the commercial space because of gender discrimination that stretched from the meeting room to the site office. They also felt that it was no longer possible to add value to public sector projects such as schools and clinics with miniscule budgets. There was an urgent need to create platforms for discussion to re-educate a client body that not only included developers and contractors, but also those holding the purse strings in both the private and public sectors. Women needed to make their voices heard and ensure that they not only engaged with a wider range of professionals on each project but also with end users who may have completely different perceptions and needs.

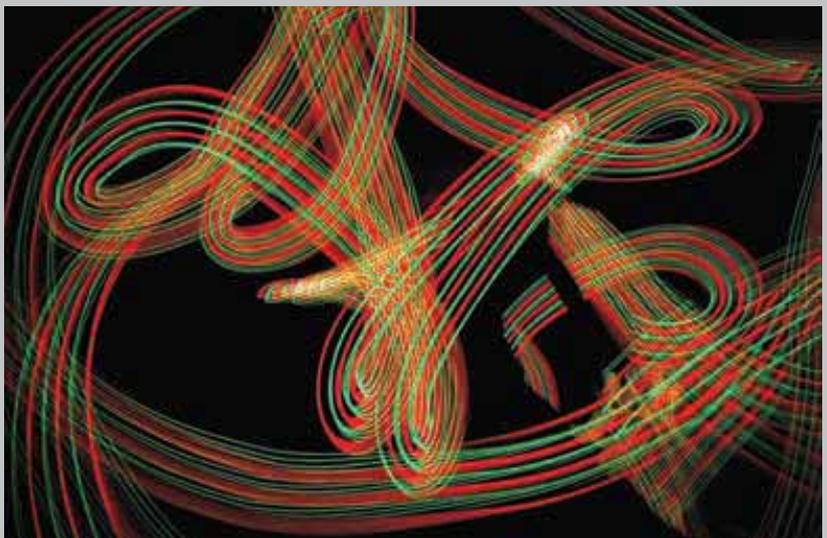
The morning session, directed by Mandisa Daki and facilitated by Pralini Naidoo, was followed by a clay workshop, co-ordinated by Karen Major and facilitated by four renowned KwaZulu-Natal ceramicists: Mary Slack, Jo-Anne Kuter, Lorraine Wilson and Trayci Tomkins. The women were divided into nine groups of approximately five to six women, each creating a facet of a larger installation, an artistic representation of an “Intersectional” city. The brief required the women to present their intuitive responses from the morning’s panel discussion to their group members. They had to unpack what each word or sketch represented and how these individual musings could be fused to become collaborative three dimensional expressions off an urban complex, landscape, a sculpture or a building. From this very abstract brief, the most incredible ceramic installations were sculpted. ■

accounting suite designed for the industry can help them manage costs and risks across the entire project lifecycle. Such solutions make it possible to accurately compare actual costs with anticipated costs, allowing for timely management interventions.

Tried and tested solutions enable construction companies to stay on top of their procurement requirements, payments to subcontractors, and more. When paired with a robust forecasting solution, such solutions give construction companies a full analytical breakdown of every project based on past performance and the potential impact of future events.

With the right level of insight, the company can understand how project financing, payment terms and late payments may affect the profitability of a project. This gives it the ability to make informed business decisions about the projects it takes on, as well as the costs it should quote on, to ensure profitability.

We are hopeful the environment for the construction industry is improving, but late payment is likely to remain a challenge for major groups and smaller sub-contractors alike. Equipped with the right technology solutions, however, construction companies can better manage the risks attached



to long payment cycles, protecting their margins. In addition, implementing the right technology today will give a construction company the competitive edge it needs to endure challenging times and thrive during prosperous times. ■



URGED TO RECOMMIT TO CODE OF GOOD PRACTICE

A group of construction industry stakeholders has urged the industry to return to basics in order to overcome its current challenges successfully. The call was made at a stakeholder meeting initiated by Master Builders Association North, as mandated by a sub-contractors' committee meeting held on 4 April 2019.

The stakeholder meeting was held on 16 July, and consisted of Master Builders South Africa, represented by Roy Mnisi, MBA North, represented by Mohau Mphomela, the South African Property Owners Association (SAPOA), represented by Neil Gopal, and the Association of South African Quantity Surveyors (ASAQS), represented by Yunus Bayat.

"It's no secret that the construction industry is in crisis, with several of the leading companies either liquidated or in business rescue – clearly there is a need for a period of self-examination," says Mohau Mphomela, MBA North Executive Director. "It's essential we overcome our challenges not only for our own sakes, but also for the sake of the country: construction remains one of the biggest potential creators of jobs. According to Statistics SA's recent Quarterly Labour Force Survey, the sector still accounted for 24 000 jobs and contributed to the modest growth in the number of employed people."

One of the key issues identified at the meeting is the established practice of making unauthorised amendments to Joint Building Contracts Committee (JBCC) and Master Builders South Africa contract documents. These standard documents are designed to simplify the administration of construction contracts, implement best practices and industry standards, and spread risk equitably across the construction value chain. They represent the consensus view of all industry stakeholders, and build on the accumulated experience and wisdom of these bodies, which are co-signatories of the contracts.

Mphomela says that the practice of amending JBCC and other Built environment contracts to, for example, insert conditions such

as "pay-when-paid" puts all players in the value chain at risk. Such practices contribute greatly to the industry's malaise.

"JBCC and Master Builders contracts are designed to create a fair and standardised business environment, and to ensure that all parties are protected. Amending them is not only bad business practice in the long run, it is illegal," he notes. "We are seeing the results around us. Unauthorised amendments to these documents, especially payment clauses, should be immediately flagged and reported to the Master Builder Regional Associations, ASAQS and SAPOA."

Adopting the "pay-when-paid" principle often means, for example, that smaller contractors get paid late or not at all. Most cannot deal with unpredictable cash flows and are forced to shed staff or even go out of business.

Tender procedures were also identified as cause for concern. Although public tenders are by law required to be transparent, this is not enforced. The meeting called for all public tenders to be open to ensure transparency. Conversely, there is no regulation regarding the transparency of private tenders, and therefore no requirement for reporting on why contracts are awarded to particular contractors. In an open market system, contractors are advised to be careful of entering into contracts that expose their companies to low or no margins.

"The various professional and industry organisations all have codes of good practice that spell out the standards expected of their members. If the industry recommits to following these codes and acting ethically, many of these challenges will be reduced," Mphomela concludes. ■

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POSITIVE MOMENTUM SUPPORTS ECONOMIC GROWTH

Despite the headwinds facing the world economy, the global construction sector entered 2019 with significant momentum, having seen growth of 5% in 2018. And, according to the latest annual International Construction Market Survey (ICMS) by independent professional services company, Turner & Townsend, prospects throughout 2019 are expected to remain buoyant.



“Increasing activity and demand, in an already hot market, presents both opportunities and challenges for the construction industry and its customers.”

Turner & Townsend team members presenting the ICMS results nationally in South Africa are from left: Cari Drysdale – Associate Director Business Generation, Daksha Govind – Associate Director Cost Management, Wendy Cerutti – Associate Director Cost Management and ICMS specialist South Africa and Tasmiyah Chothia – Quantity Surveyor.

This latest overview of the construction market across six cities in Africa, including Johannesburg in South Africa, and another 58 cities around the world, reveals that 28% of markets are hot or overheating while a further 36% continue to warm up. Only 8% are cooling, indicating widespread and continued growth in workload throughout the year.

“Our survey indicates there is considerable momentum in the

Global Construction Sector, helping to mitigate the effects of weaker, late cycle economic growth” says Wendy Cerutti, Associate Director Cost Management and South Africa ICMS specialist for Turner & Townsend. “With construction projects generally spanning multiple years, once started, they are likely to keep going. There are also many instances where large projects, such as the natural resources sector, transcend economic cycles, often continuing during a downturn

and delivering into a recovering market. "By 2020 there could be 24 markets described as hot or overheating compared with 18 today. This is based on the high number of locations where the survey indicates the market is getting warmer. "Increasing activity and demand, in an already hot market, presents both opportunities and challenges for the construction industry and its customers.

"On one hand, strong growth in construction will help support economic growth, reducing the potential of a major downturn.

"This could cushion some of the negative impacts on the sector and help maintain favourable conditions for business in many markets. "The challenge is, as hotter markets become more overstretched, escalating construction costs and tighter labour markets will increasingly frustrate attempts to deliver projects to desired standards, cost and time frames."

Cerutti says this will also put pressure on the price gap between markets, which have also widened. In 2018, the cost of constructing one building in the 10 most expensive markets was equivalent to delivering four buildings within the bottom 10 markets – and in 2019 that cost gap has grown to five.

In the ICMS report, in terms of construction costs, to identify the most expensive market to build, the average build cost in USD of six different types of construction was assessed: apartment high-rise, office block prestige, large warehouse distribution centre, general hospital, primary and secondary school, and shopping centre including mall.

This year San Francisco at USD4 482,70 ousted New York (USD3 958,30) from the top spot, having increased by five percent in the last year. Singapore has average construction costs of USD2 100,10, closest to the average cost of Perth at USD2 165,80, while the closest to the median cost of USD 2 272 is Auckland at USD2 272,20. The five highest cost cities remain San Francisco, New York, London, Zurich and Hong Kong.

Johannesburg's average construction costs

In Africa, Johannesburg's average construction costs are USD952,20, while average costs in other African cities are Dar es Salaam USD922.30; Harare USD1 683,30; Kampala USD967,30; Kigali USD1 085,40 and Nairobi USD738,40.

Adds Cerutti: "This year we have prepared a weighted average construction cost inflation, weighting each country by its GDP, which removes the impact of very high inflation in smaller countries or regions skewing the overall average excessively.

"On this basis, using this improved method, average global construction cost inflation was 4,9% in 2017, easing in 2018 to 4,2%. Using the same weighted average technique, we now expect cost escalation in 2019 to nudge down to 4,1% in 2019.

"Despite global construction growing by 5% during 2018, construction costs increased at a slower rate than in 2017.

The principal reason for this comes from China and the USA, both of which experienced slower construction cost increases.

"Nevertheless, there are 20 markets where construction costs are increasing and are likely to be higher in 2019. In most cases

the difference is quite minor. A matter of an additional 0,5 % or 1%. In some cases, however, construction costs look set to jump a little more."

The survey also highlights the huge disparity between labour costs worldwide, with China, India and Africa having the lowest costs, while North America has the highest, with Australasia a little behind. The highest labour costs recorded were in Zurich, where even a general labourer could cost as much as USD99 per hour and a skilled electrician might cost USD118 per hour.

This is compared with Africa average costs of USD6 per hour in Dar es Salaam; USD4 per hour in Harare; USD2 per hour in both Johannesburg and Kampala; USD5 per hour in Kigali and USD7,20 per hour in Nairobi.

Practical benefits of the report

With their speciality lying in quantity surveying, cost management and project management, Turner & Townsend are well placed to reveal the patterns and trends in construction expenditure. The ICMS report is considered a tool to help property developers and architects to drive more informed decisions upfront about the viability of certain construction projects in specific cities.

Explains Keith Skinner, Head of Cost Management at Turner & Townsend and deputy vice president of the Association of South African Quantity Surveyors: "We want to make a difference by helping property developers and professional teams take a more commercial approach to conceptualising projects, and with the information in the ICMS they can do that, knowing that we can provide numbers that property developers and their professional teams can trust."

The data set is critical for the accurate calculation of construction and development cost of different building types, in varying locations. Skinner says, "If your data set is small because you've only done a few projects of a specific type then it is difficult to trust your numbers. Aside from the data shared in the report, we have done hundreds of projects of all project types and across 34 African countries.

"The additional benefit, however, is that given the way we manage big data we are able to very quickly check the viability of a project at the very early ideas stage with the developer and architect. This way time isn't wasted conceptualising a development that won't work financially.

"It is a real team effort to move from an idea to a design, and make it feasible. The team wants to get a feel for these costs as early on as possible so they don't have to keep going back to the drawing board with alternative designs. Redrawing designs reduces the profitability of the architect's services and for the developer time is of the essence when they are looking to commercialise their property.

"Most publications only offer detailed construction cost data for a select few building types and few offer inputs and trade costs. Our survey provides cost data for 27 different building types, 19 construction trades, five construction labour categories and 11 materials in 64 markets.

"The survey also provides three comparison methods, enabling our clients to compare projects on a regional or global level: comparison using USD, purchasing power parity (PPP) and location factors. All the data published is sourced internally, based on real projects and the experiences of our construction professionals." ■

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The new J5N range in question comprises the following: the FAW 33.340FD 6x4 15,5 m³ Hub Reduction Tipper boasting impressive off-road capabilities, ideal for the SA construction market and mining applications; the FAW 33.340 FC 6x4 6 m³ mixer, made for construction; the FAW 28.290FL 6x4 13-ton Freight Carrier, which is perfectly suited to specialised applications, such as water bowzers, drop sides and flat decks; the FAW 28.380FT 6x4 Truck Tractor, promises to deliver exceptional value in the medium-haul sector and the reputable FAW 33.420FT 6x4 Truck Tractor, which caters for long-haul operations.

Incidentally, the FAW 33.420FT was the pioneer of the J5N range as it was the first to be introduced locally. It has already built a reputation in South Africa, where it remains the top seller in its segment.

All FAW models are powered by the latest Weichai engines which boast proven durability and high performance. The popular FAW 33.420FT model is powered by the powerful Weichai WP12 engine, while the remaining models are all powered by the renowned and reliable Weichai WP10 unit.

All models in the FAW stable now feature an improved aerodynamic design; a reinforced front bumper for heightened durability; higher cabs strategically positioned for superior driver visibility and more durable colour-coded fenders.

Furthermore, the entire J5N range boasts a new attractive grill design, upgraded cab, air suspension seat for improved driver comfort, and further complementing the new design with a full electronic dashboard. The inclusion of three steps provides for easier vehicle accessibility for both drivers and passengers. These features together aim to reduce driver fatigue and terrain discomfort.

The new-look FAW range has been designed to maximise driver and passenger comfort, while offering spacious leg room and a more functional interior overall. To this end, the layout of components



eases driveability, while an extended gear lever makes for easier shifting. All interior finishes have been enhanced in the interests of extended durability and more pleasing aesthetics.

All models have also received upgraded gearbox and engine mounting systems for improved endurance, coupled with an enhanced exhaust braking system for improved vehicle control.

A greatly improved single under-cab air filtration system that optimises engine performance for reduced cost of ownership is fitted throughout the range, while an improved radiator and intercooler system together with the addition of aluminium air tanks (with full Wabco braking systems) provide for further enhancements.

All models employ a newly-designed light-weight chassis that reduces overall vehicle mass, as well as electrical fuse boxes that have been conveniently relocated to improve accessibility.

FAW mixer trucks now feature a new ZF drum reduction unit, while the tippers sport an upgraded rear spring design for improved stability.

FAW 33.340FD tips the scales in FAW's favour

The FAW 33.340FD 6x4 15,5 m³ Hub Reduction Tipper boasts some significant improvements which all contribute to making this one of the most cost effective vehicles in its class, with a particularly low CPK (cost per kilometer). One of the most important new features is the increased horsepower which is now rated at 340 hp. This power is produced through the 6-cylinder in-line water-cooled, turbocharged and intercooled Weichai WP10 engine.

The Euro 2 vehicle produces a torque of 1 350 Nm at between 1 200 rpm and 1 600 rpm, and a power output of 250 kW at 2 200 rpm. The engine also features an air filter with pre-filter for



33.340FC



28.380FT

cleaner operation and offers 24 V electrical systems with easy access to electric relays.

The manual 9-speed FAW CA9TB160M transmission makes for easy driving and delivers direct contact with the road giving the driver total control of the vehicle.

The robust chassis is of the straight ladder-type; riveted with no bolts or chassis flanges. The chassis has been built with the highest levels of quality, keeping durability in mind.

A number of other new features include the change of the size of the fuel tank to a larger 400-l aluminium fuel tank. The braking system combined with full-air ABS, drum brake with S-cams and automatic slack adjusters, and exhaust brake all contribute to the ease of driving and safety on and off the road. All of this, contributes to better performance without compromising cost of operation.

The forward-tilting cab has been designed with driver and passenger safety, and comfort in mind, as well as easy access for maintenance. Comfort features include air-conditioning and radio with MP3 and USB connection.

A large windscreen and angled side windows, together with large proximity mirrors and curb-side mirrors, offer exceptional visibility.

The heavy-duty air-suspension driver seat with height adjustable control, movable and telescopic steering column, and inertia-type driver and passenger seat belts, make the driver's 'office' even more comfortable.

For added convenience, the tubeless radial tyres (315/80 R22.5 18PR) can be inflated via a tyre inflation pipe directly from the air-tank.

The FAW 33.340FD 6x4 15.5 m³ Hub Reduction Tipper promises to get good support from the market. With remarkable interest already received from both the construction and mining sectors for various applications.

With the raft of aesthetic, functional and comfort improvements already mentioned, the FAW J5N range promises to be a sure-fire winner. ■

RESOURCE INFRASTRUCTURE FOR PROJECTS

Worley, a leading global provider of professional project and asset services to the energy, chemicals and resources industries, has a long history of delivering infrastructure solutions for its customers.



With a global capability that spans all engineering disciplines, Worley has been helping customers for over 50 years to put the necessary infrastructure in place to support projects across the hydrocarbons, mining, mineral, metals, chemicals, power and infrastructure sectors.

Robert Hull, Vice President for Mining, Minerals & Metals for Africa at Worley, explains that parallel to public infrastructure development is the development of infrastructure for facilities such as mines, power plants or chemical plants. Much like urban development, these facilities require infrastructure including roads, water and power supply, and housing and other buildings, for example.

"The majority of the projects undertaken by Worley have infrastructure requirements, referred to as resource infrastructure, as opposed to urban or public infrastructure," says Hull. "As part of our project delivery services, we give our customers the best advice and support on how, when and where the relevant infrastructure needs to integrate with their project, as invariably these projects have unique infrastructure challenges. Typically, resource infrastructure includes front-end and delivery services

relating to transport facilities, logistics, terminals, power and water supply and management, specialist consulting, environmental considerations and non-process infrastructure," explains Hull.

He adds that Worley's front-end services aim to add value from the early phases of a project by identifying the most cost-effective, fit-for-purpose solutions, through the company's proprietary data management tools. These include StepWise and rapid prototyping, which can help customers make strategic decisions related to capital investments quickly and cost effectively. Hull elaborates that the unique, fully-integrated financial and technical StepWise process model can be used across all sectors to determine the best options for a project by considering all the relevant techno-economic factors.

Rapid prototyping can create a visually data-centric smart model of a facility, including the relevant infrastructure, early in the project development process. Hull cites a concept study for a new mine in Canada that may draw on Worley's South African-based rapid prototyping capabilities, in combination with the StepWise methodology. The concept study will aim to

define the best options for developing the mine and supporting infrastructure facilities, which will include 60 km of rail, as well as power and water supply.

Many of Worley's flagship projects have included extensive infrastructure facilities, such as the Lake Turkana Wind Power Project in Kenya. In addition to 365 wind turbines, the project scope included an electric grid collection system and a high voltage substation, upgrades to 210 km of existing road, an internal site road network, and a 160-person self-contained permanent village. In Mozambique, Worley provided project management services for the Nacala Rail Corridor project which links the Moatize coal mine with the export port of Nacala in north-east Mozambique. Worley's scope of services for the project included the detailed design of the rail facilities and maintenance complex at Nacala.

As the Global Centre of Excellence in mining and minerals processing, Worley's South African operations has over 30 years' experience in developing mining infrastructure, from materials handling and processing plants, to roads and civil engineering, rail, buildings and environmental services. The company's diverse skills and knowledge have been successfully applied to some of the resource industry's most challenging and complex projects.

"Worley has the skills, capabilities and extensive experience in supplying infrastructure requirements for the hydrocarbons, mining, mineral, metals, chemicals, power and infrastructure sectors, from front end, feasibility studies to full project development, both locally and globally," says Hull.

Globally, the organisation also provides complete infrastructure solutions for urban markets, and has an impeccable track record for developing high-quality infrastructure in regions experiencing rapid population growth and urbanisation. Hull explains that in South Africa, the public infrastructure business was incorporated with Black Jills Engineers (a Worley enterprise development programme partner company), to establish iX Engineers in 2016 as part of Worley's commitment to transformation and enterprise development. iX Engineers provide professional services for the design, development and through-life-support of public infrastructure, including roads, dams, water supply, water treatment, wastewater, power transmission and distribution infrastructure. Hull says that Worley maintains a close working relationship with iX Engineers who is Worley's partner of choice when the company requires services in the public infrastructure arena. ■

Hotel development **ACROSS AFRICA**

Hotel season is firmly underway at Profica as the project management of a number of different hotel developments is undertaken simultaneously across East, West and Southern Africa. With a string of successful projects to Profica's hospitality bow on the continent and beyond, the teams are bringing vital experience to bear in completing these projects as major players in the industry expand across Africa.



In Lagos, Nigeria, Profica's West African teams will be providing comprehensive project management for two hotel developments; the Four Seasons Hotels and Resorts, and an Accor-operated Novotel hotel, which is one of the luxury brands within the Accor group.

According to Chris Titmas, Group Director for Profica, these are considerably large undertakings which will require localisation of the international client's global standards and processes. Titmas says, "As international operators actively expand on the continent, the requirement of working locally to global standards is fast becoming the norm. Our Profica teams are well-equipped to handle the complexities of localisation without compromising the client's requirements."

The Lagos Novotel project has recently kicked off and is currently in concept stage, while The Four Seasons project is currently in design development stage, and it is anticipated that main construction works will start in early 2020. This top-notch development for the world-renowned brand will include 125 hotel rooms and 32 branded residences with conference facilities, kitchens, dining areas, swimming pools and landscaped gardens.

Sofitel is another luxury brand in the Accor stable. In Mauritius, Profica are the appointed project managers for the SO Sofitel Mauritius refurbishment. Here, Profica is managing the first phase of works, which consists of upgrades and repair work to uplift the various spaces, enhancing the guest experience. Profica will be upgrading selected rooms to showcase the potential for a full upgrade, which may progress in a later phase. Construction is scheduled to conclude in October. Profica Director, Thierry Giannone, says that it will be key to have the resort operational by then to meet the summer peak season.

In Kenya, Profica is completing The Tamarind Tree Suites for the Tamarind Group under the oversight of Profica's East Africa Regional Director, Ken Oigo. These luxury residential suites in the heart of

Nairobi's diplomatic area offer exceptional hotel-style facilities available through ownership, investment or rental pool options aimed at business professionals. Profica is tasked with achieving the client's vision of creating a home-away-from-home experience for an undersupplied market.

In Uganda, Profica is involved in overseeing the development of the 47 key Latitude Zero boutique hotel in Kampala, including workspaces, meeting rooms and restaurants. The Latitude group provides a unique African lifestyle hospitality brand based in urban environments. Oigo says, "An innovative aspect of the build has been the group's commitment to use authentic local materials and furnishings in the hotel's interiors. These have been created by local communities using recycled, upcycled and sustainable materials. While smaller than the majority of our hotel projects, it's an exciting and different one to be involved in"

Still in Uganda, Profica is also working on two early phase hospitality projects in Kampala. These include a technical due diligence for a new Radisson Blu Hotel and involvement in the development of The Hilton, which will be a 23-storey two tower development of over 260 keys, aimed at the international business traveler. Both are exciting hospitality projects for the region.

Finally, Swiss-based hotel group, Mövenpick Hotels & Resorts, also now part of the Accor Group, is expanding across Africa. Profica has been appointed as the project manager for a new hotel at the Maputo International Airport, which is currently at design stage.

Titmas concludes, "Profica has remained steadfastly committed to work in Africa, waiting out the challenges that have been apparent over the past few years.

"The fact that we're already firmly entrenched in Africa, with a combination of local teams and global expertise, makes us well prepared for the current uptick in activity. Today it's hotel season; we're looking forward to what tomorrow will bring." ■



Parking lots: AN URBAN ENDANGERED SPECIES

We all know them: those custodians of the pavement, often donned in reflective uniforms and armed with their weapon of ticketry. Everywhere you go in the world, parking inspectors tend to provoke the same irritations and avoidance responses. This kerbside dynamic is pretty universal. Yet it's becoming increasingly dated too. **By Russ Yell, Aurecon**

A new urban mobility revolution is underway, transforming our city streets at a thunderous pace, and repurposing our pavement for more connected, greener, multimodal forms of transportation. From bike shares to autonomous transit, along with more traditional options such as rail and walking, a new urban ecosystem is on the rise. It's inevitably altering the physical landscape, as well as the conventional thinking underpinning city planning, and changing the way we own our sustained future.

So, what will we do with all those car parks and kerbs, as automated vehicles (AVs) and shared vehicles increasingly dominate the road? How can we re-conceptualise these soon-to-be empty, unused spaces to foster more meaningful interactions and intelligent design, and to future-ready our cities? What opportunities will open for us when we no longer need to park?

It's more than just a matter of parking – it's an altogether different way of 'doing city'. It's about mobility, not cars. As it stands, our cities have devoted an extraordinary amount of scarce space and resources to parking. In Melbourne alone, it's estimated that "there are 40% more residential parking spaces in the city than the vehicles owned", adding to the fact that 61% of the city's street space is allocated to roads and on-street car parking, despite vehicles accounting for only 22% of the trips to, from and within the Hoddle Grid. But a century-old automotive love affair is now coming to an end, as trends like ride sharing,

electrification and Mobility-as-a-Service come onto the scene. Two strapping tonnes of steel in your driveway doesn't hold the same lustre as a smart device that can facilitate a lifestyle of connected convenience.

Suddenly, the conversation is far more about mobility than about cars. Authors of *Faster, Smarter, Greener* describe this shift to what they call a 'CHIP' mobility environment – a world that is connected, heterogeneous, intelligent and personalised. The new fulcrum of intelligent design is based on people and their lifestyles, rather than on their vehicles.

Consequently, cities will have to unlock a variety of mobility solutions, ranging from bikes to pedestrians, car sharing to heavy rail, to provide ease of movement for all.

But where will the cars go?

The truth is, the parking industry argues, while we may not require as much space or parking lots in the future as we now have, "parking, as both a function and an industry, isn't going anywhere" – but it won't stay the same either.

New modes of transportation like AVs (whether they will be owned or shared), will need to live 'somewhere' when not in use. With more than half of the population asleep at night, not all AVs will be occupying the streets at 2:00 to pick up late night revellers or shift workers. And with Uber's recent announcement that Melbourne will

be one of the test sites for flying taxi service UberAIR, the need for adaptation to these new breeds of transportation is becoming more urgent than ever.

The shift from humans parking cars to self-parking AVs will also revolutionise the infrastructure required. In fact, multinational automotive corporation Daimler has partnered with Bosch to introduce a 'fully-autonomous auto valet parking environment' at Mercedes World in Germany, where AVs can drop off passengers at the lobby and park themselves.

MIT spin-off company WiTricity is currently developing an EV charger using patented magnetic resonance technology that enables a charging panel on the ground to transfer power wirelessly into the car. It's not only about offering spaces for cars anymore; it's about what the spaces can offer.

From car parks to parks, office spaces and homes?

But what if the great 'carpocalypse' actually does descend on our cities? What do we do with this abandoned architecture, and what will we build? Kerbs will be reimagined, with the current idle space repurposed for the future as a buzzing hive of data collection thanks to AVs dropping off and picking up passengers.

Parking spaces will be narrower, allowing our streets to accommodate more public transport and active movement. Parking lots could become green spaces to enhance liveability and encourage cycling, walking and outdoor living.

Parking garages could present all kinds of conversion opportunities, ranging from office space to apartment blocks to fitness centres. Architecture firm Gensler proposes that the infrastructure could even be reworked into living and working "pods": automated vehicles drive into their portals and open up into condensed living rooms, bathrooms and kitchens – the 'ultimate micro unit' of blended living design.

Driving the shift

All these, however, are more than merely about finding solutions and ways of repurposing parking lots if and when they become obsolete. This is about driving the shift towards a new vibrant, connected and sustainable urbanism.

Jennifer Henaghan, Deputy Director of Research at the American Planning Association, believes the big question about the future of parking and kerbs is not a threat but a great opportunity for planners.

"Should it be used for housing, do we want more people to come in? Do we need more retail space? Should it be more places to encourage civic gathering spaces and public activities, parks and things of that nature?" she asks.

"That really gives cities an opportunity to examine their values and priorities and what it is that they want to do with this sudden influx of available land, which in many cities has been quite a rarity up until this point."

In addition to this, open source projects such as SharedStreets are doing what traditional maps cannot do, by building an open source infrastructure that enables public-private collaboration and empowers city stakeholders to inform better transport solutions for seamlessly connected streets.

As AVs and other technological trends continue to converge, our city streets will naturally need to adapt and change.

Governments will have to spearhead these conversations, looking at a whole suite of responsibilities including rezoning, new governance frameworks, new transport taxes, and investing in all kinds of new digital infrastructure and private partnerships to pull off true transformation. It's no small feat, but it's not really an option, is it?

The cities that move faster towards change will be those who don't put innovation 'in park', but instead drive it forward. ■

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ON TOP OF STYLISH NEW ILLOVO DEVELOPMENT

The elegant Illovo Central mixed-use block near Sandton being constructed by Concor Buildings has topped out at 15 floors and is due for completion in March next year.

In a format driven by developers FWJK and increasingly popular in South Africa's urban designs, the building will be a combination of office space and residential units. With parking taking up levels 1 to 5, there will be offices on floors 6 to 8 and apartments from floors 9 to 15. The living units are a combination of sizes including 80 studio apartments, 36 one-bedroom units, 43 two-bedroom units and 12 three-bedroom penthouse apartments.

Bulk earthworks began in May 2018, when 27 800 m³ of spoil was removed for the first three levels. According to Concor Buildings contract manager Fanie Stadler, this phase required the removal of considerable quantities of rock. In the southern corner of the property, the rock layers almost protruded at ground level.

Given the close proximity to other buildings in this well-developed

suburb, Concor Buildings conducted smaller, controlled blasts to ensure the highest levels of safety. The planning and monitoring of these blasts also considered a Gautrain servitude tunnel below, and a school across the road.

"Dust control was also a key issue, which we implemented and monitored closely in line with our stringent health and safety standards," Stadler says.

The concrete structure has been built around a lift core for four passenger lifts and a fireman's lift. Two tower cranes have been a feature of the skyline on this project, improving efficiencies on a site that is severely space-constrained. One tower crane with its 60 m jib has focused its lifting on horizontal decking, while the other with 55 m jib provided additional hoisting for column and the shaft core

formwork and concrete.

An interesting innovation that Concor Buildings has applied in constructing inner walls has been the use of Everite Hebel autoclaved aerated concrete (AAC) blocks. This lightweight building block has a number of benefits for modern buildings, Stadler says.

"The lighter load on the concrete slabs means that these slabs can be designed slightly thinner and with less reinforcing bar," he says. While a typical brick and mortar wall is about 350 kg/m², an AAC block wall load is closer to 90 kg/m².

The uniform surface of an AAC wall also allows for a thinner skim coat finish, rather than the usual 12 mm of mortar required for a normal brick wall. This has positive material and logistical implications as less water, sand and cement need to be transported to and around the site. There is also mixing of mortar on site which makes for a generally cleaner site, with less dust.

Stadler highlights that the inclusion of AAC blocks has allowed Concor Buildings to demonstrate its building expertise and precision, while also further developing the skills of its subcontractors.

"With the benefits of these lightweight blocks come the demands of accuracy and attention to detail," he says. "Added skill is required in the block laying, as well as in the plastering."

As part of Concor Buildings' development programme, the company worked with the block supplier to train and mentor



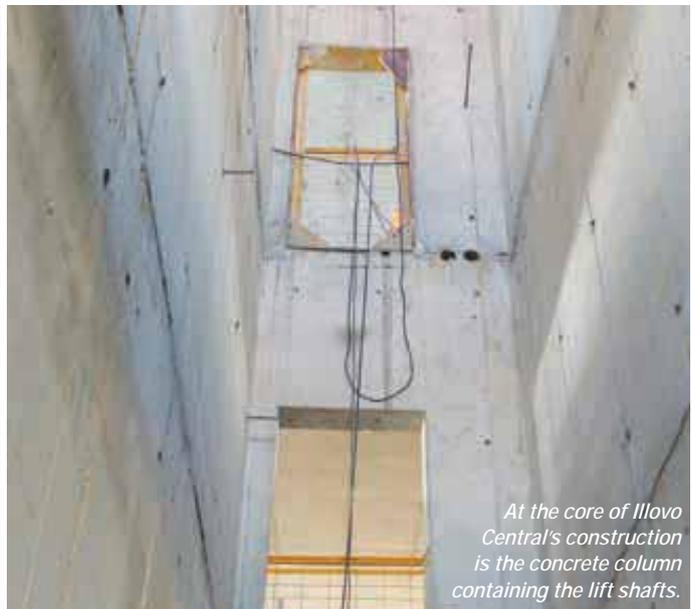
Reinforcing is prepared for the slab on the final floor of the Illovo Central mixed-use block near Sandton.



Interior walls are constructed using lightweight AAC blocks instead of bricks.



One of the benefits of using AAC blocks is that they can be easily cut to shape with a handsaw.



At the core of Illovo Central's construction is the concrete column containing the lift shafts.

subcontractors in working smarter and enhancing their skill levels with new techniques. This delivered the exact tolerances demanded to closely match the building's structure with the blockwork and the glazing.

The performance glass on the outside of the building is low-e, reflecting long-wave infrared energy to keep the inside of the building cool and reduce load on the air conditioning system. A Marmoran wall coating is applied as a protective and aesthetic layer.

As with many developments in dense suburban areas, space to work has been at a premium at Illovo Central. The site office has even had to move into the building itself.

The project's location on Rivonia Road has demanded meticulous coordination of materials delivery by Concor Buildings, while council bylaws have meant no overtime can be worked in the suburb.

The construction team has therefore had to maintain tight working efficiencies to keep the project on track. ■



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MORNING GLEN MALL REPOSITIONED

Morning Glen Mall is undergoing a refurbishment and the precinct is being designed by MDS Architecture for SA Corporate Real Estate. Depending on market demand, SA Corporate is considering the addition of a high rise residential building on top of the new parkade that will be built adjoining the mall.

Well located on the corner of Bowling and Kelvin Roads in the upmarket Johannesburg neighbourhood of Gallo Manor, the site is on primary access routes and public transport nodes.

Pierre Lahaye, MDS Architecture's Partner heading the project, says that the shopping centre has been repositioned in terms of tenant locations to increase traffic flow and provide a better energy for strategic tenants. The entrances have been reconfigured to make them more inviting to shoppers.

"From a design point of view, the centre's fresh lease of life was achieved by eliminating any crossover between service and public entrances, reconfiguring the parking and ensuring better views to develop a contemporary shopping centre with energy and vibrancy," he says.

Internally, the ablations are being revamped to be more tactile and contemporary. The existing polished floor tiles are being replaced and the lighting has been given a lot of attention. Inaccessible lights are being removed and lighting has been added in the coves and parking areas to avoid any dark patches. Not only is the lighting more energy efficient, but lux levels are dramatically higher and up-lighting is being used to create reflective light.

New escalators are being introduced, ensuring both ends of the building are vertically linked for better connectivity and circulation. The escalator opens up views down the mall. New shopfronts and bulkheads at various levels provide a much more enticing interior space, which is complemented by new mobiles and furniture for a more tactile experience.

"One of the main issues faced by the existing mall was a lack of parking and this has been addressed in the design by adding a new parkade and improving access to the site. The new entrances provide a sense of arrival and welcoming greenery, while the fresh exterior draws patrons in. External signage has been rationalised and

new restaurant areas spill out on the corner of Kelvin and Bowling Roads. Given that the site is at the top of a hill, Morning Glen boasts great views towards the North," says Lahaye.

Residential component

Another exciting aspect of the project is the possible redevelopment of the unoccupied offices that were linked to the site. If it meets market demands, the office building will be demolished and a residential component of apartments is planned to be built instead, as well as a parkade for utilisation by the shopping centre.

"Should the residential development proceed, the seven-storey apartment building will be perched on a podium of a three-level parkade. While the one level will service the apartments, the other two levels will service the retail component. A direct link between the retail and residential areas is being created via a new mall, which will also link through the shopping centre to the parkade off the Kelvin Drive entrance," he says.

The apartments include a mix of one, two and three bedroom units, as well as penthouse and studio apartments. The building has been designed around the garden located on the podium topping the parkade. The apartments are North-facing and the building enjoys 180 degree panoramic views.

"The apartment block adds another dimension to the suburb without affecting any of the neighbours' sightlines. This has been achieved by setting the building back from the podium, which also ensures privacy. There is a need for higher density accommodation close to CBD's, which means that nodes close to where people work need to feature more mixed use developments. Ultimately, this mix makes cities work better and we can expect more life on the streets of Sandton, greater integration and opportunities for young professionals to live closer to where they work," he concludes. ■

Calls for stringent FIRE-SAFETY MEASURES

Fire-safety requirements for student accommodation are by nature more onerous than other building types. This warning from ASP Fire CEO Michael van Niekerk comes in the wake of the fire that gutted the iconic Huis ten Bosch student residence at Stellenbosch University on the evening of 12 August. Although 160 students had to be evacuated and two were injured, fortunately there were no fatalities.

Fire-safety requirements for any building in which rooms are rented out as accommodation are deemed to be more stringent, as this is on par with a hotel, for example. As it is a densely-populated residential environment, the building has to be adequately equipped in order to comply with all of the necessary regulations and standards.

In terms of fire safety, fires can be dealt with through three main actions: The first is controlling the growth of a fire to prevent it from spreading, followed by suppression to cool a fire rapidly. Finally, extinguishing a fire means that there is no heated substance remaining. Evacuation should also be safe and easy, while allowing unrestricted access for emergency services. The installed fire-detection system must be able to detect the fire as soon as possible, warn occupants, and allow them to escape in time.

"Buildings that accommodate large numbers of people are often not designed with specific occupant characteristics in mind," van Niekerk stresses. The fire-engineering specialist has experienced a high demand for assistance in developing designs for new buildings, as well as bringing existing non-compliant buildings, especially older buildings, up to standard. Moreover, historic buildings that



accommodate residents, or that are converted to accommodate residents, pose a particular challenge in this regard. However, fire-safety awareness has improved significantly from 100 years ago, when historic buildings often lacked modern fire-safety elements vital for the safe evacuation of residents, or to prevent fire or smoke from spreading rapidly through the building.

"I see the industry growing, both in terms of size and depth of knowledge, as more engineers specialise in fire

engineering," Van Niekerk comments. Looking at the latest trends in the property-development market, he points to the current largescale repurposing of commercial and even industrial buildings into long-term residential units.

The second trend is an increased demand for affordable student accommodation, such as the refurbishment of the Hatfield Square mixed-use student accommodation in Pretoria, designed by the Paragon Group for owners and developers Republica and Redefine.

ASP Fire has also been tasked by the City of Johannesburg to conduct a survey of dilapidated building stock in areas such as Brixton and Newtown. Johannesburg Mayor Herman Mashaba has earmarked 500 'problem' buildings in Johannesburg that can potentially be repurposed by developers and investors to alleviate the housing and student accommodation shortage in the city.

"The owners of many of these buildings face similar challenges as office buildings, in that they do not necessarily contain adequate fire-safety features necessary in terms of the relevant regulations when people reside and sleep in them," Van Niekerk concludes. ■

NO SOUR GRAPES

Graham Beck Wine Estate, situated in the breathtaking Breede River Valley near the town of Robertson, is an easy drive along the scenic Route 62 from Cape Town. Graham Beck's world class wines, produced in harmony with nature, are testament to his passion for restoring and conserving the environment.

With the estate's constant growth, an additional bottling and storage area was required. The client specs required that the floor in this new building was to withstand low to heavy traffic; as well as have an attractive and clean finish. For this, CSV Construction specified Sika's renowned Sika PurCem® flooring system.

The building of these additional requirements started in November 2018. Shortly after completion of the construction, severe settlement cracking was observed in the concrete floors, which demanded urgent attention.

Epoxy Flooring Systems (Pty) Ltd called on Sika's expert advice to find a solution to the cracks. Anthony Webster, Technical Sales Consultant – Contractors, recommended Sikadur®-52 ZA. This is a two-part, low-viscosity, injection-liquid based on high strength epoxy resins. To start the repairs, Sikadur®-52 ZA was used to fill and seal the cracks in the concrete floors on which the PurCem® systems needed to be applied on.

Anthony then advised a 3 to 4 month wait, to ensure complete sealing of the existing cracks, and to check no further cracking occurred. After first priming the concrete floor substrate with Sikafloor®-161, a two-part, low-viscosity epoxy resin; Epoxy Flooring Systems (Pty) Ltd applied the final PurCem® floor coating. Sikafloor®-

21N PurCem® is a multi-component, medium to high strength coloured polyurethane modified, cement and aggregate screed with self-smoothing properties. It was selected for a smooth, flat and decorative wearing surface, with a medium slip resistance for light traffic areas. It was applied at a 4 mm thickness on the low to medium traffic areas.

For the medium to high loading and high traffic areas, which require a more durable floor coating, Sikafloor®-20N PurCem® was used. This product, applied at 6 mm thickness on the wet floor areas, has a textured aggregate surface providing the medium to heavy profile slip resistance.

Sikaflex Pro-3 i-Cure, an elastic joint sealant, was used to seal all the connection joints where the Sikafloor®-20N PurCem® and Sikafloor®-21N PurCem® flooring systems had been applied. As the original floor was in an extremely bad condition, the main concern was it would crack through the new flooring – so the correct and efficient repair was the primary challenge of this project.

As the Graham Beck Winery is one of the larger in South Africa and produces world class wines, Sika was thrilled to be afforded the challenge, and proud to provide the solution that met the client's needs. ■





TECHNOLOGY, WORKSPACE TRENDS CONTINUE TO IMPACT PROPERTY SECTOR

A number of property developers have adopted a cautious 'wait-and-see' approach given the current economic climate. In addition, vacancy rates remain stubbornly high, and there is a definite slump. There are, however, opportunities for those who can look at property with a fresh eye, according to Paragon Group Director Estelle Meiring, who is in charge of work acquisition and client liaison.

With a lot of speculation as to the end of Greenfield developments in these high-end precincts, Meiring is convinced that instead "they will adapt and change over time. I think there will be a lot of repurposing of buildings even here, as is happening in Johannesburg."

Here, Paragon Architects South Africa (PASA) undertook a project for client HCI Properties, part of Hosken Consolidated Investments (HCI), to convert the former ANC Shell House headquarters at 51 Plein Street into a 563-unit residential development.

"We are not as well-known for this kind of refurbishment work as some of our more iconic buildings. However, we certainly have the skill set, and I can see us becoming more prominent in this sector as the market shifts," Meiring highlights.

The shift in the property market is due to larger trends such as "the weak economic climate, political noise, and land ownership concerns." Hence, developers have become more cautious as a result. However, Meiring stresses there is reason to hope that the economic climate will start improving, especially towards year-end.

The massive vacancy rates reflected in the office-space sector are also prevalent in the retail and industrial sectors, which means that any kind of overall take-up will take time to have an effect. Due to their large operating costs, the retail sector will probably be hardest hit by the substantial upcoming electricity increases, predicted because of Eskom's ongoing financial woes.

Looking at the retail, industrial, and office space sectors, Meiring reiterates that the latter is the biggest under-performer at the moment. Industrial and warehouse space, on the other hand, is performing marginally better at the moment, not due to any uptake in manufacturing growth, but because the



Left: WeWork has taken up five floors in the Paragon-designed The Link building in Rosebank. Right: The Mbabane Hilton Garden Inn won a 2019 SAPOA Award for innovation.

drive towards online shopping has seen an increased demand for logistics and distribution infrastructure.

"It has been relatively easy to make a profit in the property sector over the last 10 to 15 years. We have experienced fantastic growth, but are not going to see that in the next few years. The factors that fuelled the boom have dissipated, and the dynamic has shifted," Meiring elaborates.

While the demand for mid-level housing has slowed down as well due to consumer affordability issues, Meiring adds that the affordable housing segment is a prize growth area. "That is why conversions make a lot of sense. If you start off with the right building and refurbish it properly, you can actually produce a quality product that is quite affordable. Shell House is a prime example."

As well as overseeing new projects such as the Paragon Group's latest Private-University Project, Meiring has also been shepherding the group's latest venture in Cape Town, where it has opened a regional office at the Pavilion on the Waterfront. "We were getting more and more enquiries from

Potential clients, and could discern a gap in the Cape Town market for our unique service offering," she reveals. After some initial discussions, it was decided to open up a small office.

Meiring adds that the Private-University Project being undertaken by the Paragon Group indicates that this sector is still showing some green shoots, despite it being not as recession-proof as believed by some pundits. "We have been involved in this sector for many years, and there certainly is still a demand."

Apart from forays into the Western Cape and KwaZulu-Natal, the Paragon Group continues to expand into selective markets in Africa. "We tend to be careful how we choose the projects and clients here, to ensure it makes business sense." A resounding success has been the Mbabane Hilton Garden Inn in Swaziland, which won the 2019 SAPOA Property Development Award for Innovative Excellence for an International Development.

Meiring points to Kenya and Ghana as potential markets. "However, we are not only just looking here. As globalisation increases,

and technology allows us to connect more easily with people in other countries, I think it will be interesting to look at places like Europe and Australia, and other parts of the world as well."

Rapidly-changing technology has also assisted the Paragon Group's clients to better visualise their projects before construction even commences.

"It is hugely helpful with the design process. While we start off with concept sketches, the 3D environment allows us to interrogate our designs and determine if they respond accordingly to the client's specific requirements."

The boom in Virtual Reality and Augmented Reality is likely to result in new market opportunities. "I think it is going to be interesting for us architects to create these digital meeting and collaborative spaces," Meiring speculates.

Another key factor impacting on the demand for office space is the trend towards flexible working hours and disruptive innovations such as shared workspaces. Technology has empowered people to work from home, or to work from a coffee shop or a shared workspace.

"However, the more we interact online, the greater our need for human interaction. In terms of the office of the future, this is

unlikely to change. People need to meet, interact, brainstorm, and collaborate. And that is what these spaces are about."

The traditional square metre rate per person, in terms of allocating a single desk and chair, will no longer be the yardstick for design. "The trend going forward will be about communal spaces. Property developers are going to have to take this into serious consideration. That is why we are seeing an increasing trend for mixed-use precincts." An excellent example, and another award-winning project for the Paragon Group, has been the Alice Lane precinct in Sandton.

Mixed-use precincts do not only apply to the higher end of the market, with communal spaces equally important in the residential market. "I think an interesting trend to watch out for, which we have not seen a lot of in South Africa yet, is the communal living market, where people have a very small living space, but then the building itself has a lot of communal spaces and facilities. This also plays into the affordability trend, as it gives people access to a whole range of additional amenities."

A similar trend is emerging in the education market, with multiple tertiary institutions combined on a single campus, such as in Dubai, which allows different

'brands' to share canteen space and related facilities. Related to this trend is the large number of leading international brands entering the South African market for the first time, such as shared workspace giant WeWork, which has taken up five floors in the Paragon-designed The Link building in Rosebank.

Paragon Interface was the Architect of Record for this fast-track fit-out project. "WeWork is coming in with quite a force. I think it is all part of this shift in how offices operate, and how people see offices, and they are picking up on that demand quite quickly," Meiring notes.

What continues to give Paragon Group the leading edge is its dual expertise and experience in architecture and interior architecture. It is for this reason that Meiring continues to remain optimistic about the future. "Yes, I am confident. But I think we are all going to have to rethink how we operate – not only us as architects, but also property developers and our other traditional clients. "I think the opportunities will simply come from different places than they have traditionally. It is all about opening up that scope, and looking around to see where we can identify growth. I think we, as both an industry and a county, are very adaptable and adjustable," Meiring concludes. ■

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CREATING SOLUTIONS FOR AN EVER-CHANGING INDUSTRY

It goes without saying that, in all industries, across all sectors, wasteful expenditure is a sure fire way to hasten a company's demise. What comes to mind is the concept of 'Just in Time' manufacturing, made popular in the 70s by the Toyota corporation which stated, a company should be geared toward making just what is needed, when it is needed, and only in the amount needed.

The mining and quarry sector is no different. By over-capitalising on Capex, one runs the risk of tying up much needed capital that could be better utilised in other areas. This is where Pilot Crushtec's modular solutions for the mining, quarrying, construction and recycling industries comes to the fore as the logical choice for companies across the spectrum. To define the concept of the modular plant, Mark Reeves, sales engineer at Pilot Crushtec, says that the idea is modular by design and implementation.

"From a design perspective, you can select the components you need, for your specific application. These units are then interlinked with conveyors and a solution is tailored to your specific needs and site specifications. Once the design is defined, all the modules and individual components are sent to site, lifted into place and bolted together – not unlike a Mechano set. Additionally, should your requirements change at any point within the design process, you are able to tweak the requirements, so you have exactly the right layout, equipment, and capacity to get the job done. You get to choose what you need, when you need it, and can add modules as and when required."

The concept would, at first, seem to be aimed at solutions for the larger companies within the market, but as we have seen over the last few years, smaller entrepreneurs and medium sized companies are on the rise. The modular solution in this case would make perfect sense for those enterprises starting off small, with an eye to growing their business and creating sustainability within a challenging global economy.

"These modular plants are extremely scalable and, as such, can cater to a wide variety of companies, irrespective of size or application. We can design and implement a solution that will process anything from 10 tons an hour to 500 tons an hour – and should your requirements change over time, additional units can be slotted in to increase production."

The concept of the modular plant, the brainchild of engineers at Pilot Crushtec, is a seamless integration of the company's industry

know-how, innovation and manufacturing capabilities with global machine manufacturer, Metso.

As with all the Metso products, the components come with the industry leading five-year/10 000-hour extended Equipment Protection Services (EPS) warranty. "We realised there was a gap in the market for a modular solution and took it upon ourselves to study the general assembly drawings from Metso and devised a way to make the concept work," says Reeves.

The mining, crushing and screening industry is, by its nature, incredibly dynamic. Unforeseen circumstances occur all the time and if you are not prepared for these events the financial implications could be dire. As with all things in the 21st century, agility and adaptability are key to survival, and being able to plug and play components, as the need arises, just makes sense.

"There is no consistency in what comes out of the ground. That's a given," says Reeves. "Case and point is a quarry in Port Elizabeth that was working on citric sandstone, a fairly competent substrate. After blasting, there was a reasonable, consistent top-size and dust which the crushers could easily handle. Unfortunately, they hit a fracture running straight through the centre of the quarry. The material was pebbles and smaller so did not need crushing, only screening. The solution to this was to continue mining and crushing the larger substrate on the original stage and then to add a second module to merely screen the smaller material. Essentially, our modular solutions cater to this particular situation perfectly - they can adapt to the environment."

The smart money, going forward, will almost certainly be on the modular concept. In a world where almost everything is a bespoke, client-centric offerings, customers expect more convenient, predictable and reliable choices and Pilot Crushtec delivers. Having the ability to custom design a plant with off the shelf components and then being able to scale it according to your needs going forward, without the hassle of major earthworks, retooling, and construction just makes sense in an ever-evolving industry. ■

HIGH-STRENGTH REINFORCEMENT GEOGRIDS

Fibertex South Africa – local distributors for the German-manufactured Naue Geosynthetics range of geogrids – supplies durable PET (polyester) and PP (polypropylene) high-strength reinforcement geogrids for all civil engineering applications, including infrastructure projects.



This is a recent project, where the Fibertex team assisted with the technical support, supply, installation and quality checks of geogrids used in retaining walls. These retaining walls required extensive earthworks, in order to execute the exact design heights and levels required.

“Fibertex South Africa partners with municipalities and building contractors, assisting with the technical support, supply, installation and quality checks of geogrids used in various infrastructure developments, including the erection of retaining walls,” says Meera Govender, Technical Sales Engineer, Fibertex South Africa. “Construction of retaining walls often requires extensive earthworks, in order to execute the exact design heights and levels required of a particular structure.

“Secugrid® – a high-performance, soil reinforcement product produced with state-of-the-art manufacturing technology – strengthens naturally unstable soil and subgrades to be able to withstand the loading conditions imposed by modern engineering demands. Secugrid is available in both biaxial form, for use in basal reinforcement applications and uniaxial form, for use in other markets. These applications include mechanically stabilised earth walls, including veneer stabilisation, the segmental retaining wall market, embankment reinforcement and pile cap platforms.”

Secugrid is available from Fibertex in biaxial grades of up to 80 kN/m (ultimate tensile strength) and in uniaxial grades of up to 400 kN/m, or 1200 kN/m with Secugrid HS®. However, realistic design conditions demand a strength transfer in the range of less than 2%, which is the critical factor.

Geogrid reinforcement decreases the dependency on base course thickness, also extending service life and reducing long-term maintenance needs.

Secugrid is manufactured from extruded monolithic PET or PP strands that are drawn to orientate the polymers into high-tenacity flat bars to achieve a high modulus i.e. high strength at low elongations. This, combined with the Naue patented welding technology, provides a structurally sound and stable geogrid. Furthermore, the surfaces of bars are embossed, offering additional frictional interaction with the soil. This enables

the Secugrid to pick up the load transfer quickly through both an interlocking and frictional effect, with little or no movement in the overlying soil materials.

Secugrid is supplied in rolls and is easy to handle; quick and efficient to install, with minimal demand on labour resources. The product is also highly resistant to biological and chemical degradation and installation damage.

Secugrid is a robust reinforcement material that can be easily and safely installed during virtually all weather conditions, without the need for heavy equipment or special construction techniques. Panels are joined and continuity is assured with simple overlaps depending on the application. Standard cutting tools can be used for on-site trimming and various geometrical shapes for steep sided slopes can be formed when necessary.

In addition to the standard Secugrid range, Fibertex South Africa also supplies Combigrid® – a combination Secugrid/ Geotextile composite product. Combigrid delivers reinforcement, filtration, separation and drainage all in one product. This product is predominantly used in conjunction with soft and low ‘California Bearing Ratio’ (CBR) soil, where reinforcing in combination with separation and filtration is needed. For example, in base and embankment reinforcement and load transfer platforms of pile caps.

Other Naue Geosynthetics products available locally from Fibertex include Bentofix Geosynthetic Clay Liners (GCLs), which are composite materials, designed for use as efficient sealing barriers in various applications, including landfill projects.

Fibertex South Africa supplies an extensive range of environmentally-friendly geosynthetic products from its KwaZulu-Natal, Gauteng and Western Cape facilities that encompasses nonwoven and woven geotextiles, gabions and mattresses, drainage pipes and fittings and erosion control and cellular confinement solutions.

The company also supplies soil reinforcing products, including geogrids and geocells, as well as geosynthetic clay liners and geomembranes as part of composite lining systems used in modern landfills and for other environmental protection applications. ■



Fibertex South Africa supplies durable PET (polyester) and PP (polypropylene) high-strength geogrid reinforcement materials for all civil engineering applications, including infrastructure projects.

ACCELERATING SERVICE DELIVERY IN JOHANNESBURG

CoreCivils' unique precast-concrete system has enabled the Johannesburg Roads Agency (JRA) and its professional team to significantly accelerate the construction of a pedestrian bridge in Kaalfontein, Gauteng.

Crossing a stream that traverses this large community, the 100 m-long and 3,5 m-wide bridge will help authorities evacuate residents during flood conditions, while also significantly improving mobility by providing a direct connection between Flashlight Fish and Trout Fish Streets.

CoreCivils' system comprises conventionally reinforced precast-concrete beams and hollow-core slabs that are supported by two in-situ concrete piers.

The company proposed the use of hollow-core slabs as opposed to rib-and-block slabs between the precast-concrete beams to provide a faster and more accurate means of constructing the superstructure.

These modifications to the original design were accepted by the design engineer, BMK Consulting Engineers, which is also overseeing the construction programme on behalf of the JRA.

Jaco de Bruin, managing director of CoreCivils, says that the company installed the precast-concrete beams and hollow-core slabs in only a day.

"The hollow-core slabs were manufactured and cut to size at our factory so that they could be placed directly on top of the precast-concrete beams. This eliminated the need to first install extensive propping before being able to cast the rib-and-block slabs. Meanwhile, our approach was also better suited to working in an extremely built-up environment and mitigating the need to coordinate construction materials to the site via a very narrow gravel road that services this large community," De Bruin says.

CoreCivils mobilised to site once Axton Matrix's team had built the two in-situ concrete piers and abutments, as well as the approach ramps and their walls. The precast-concrete elements were

dispatched from the company's factory and lifted directly from the truck trailers using a mobile crane that was positioned on the north-facing side of the bridge.

CoreSlab established its crane on site early in the morning ahead of the arrival of the various elements.

Working in very marshy terrain, Axton Matrix had to first construct a secure platform for the crane. It comprised a 700 mm-thick G5 material that was sufficiently compacted to provide the stability needed to lift and place the heavy precast-concrete elements. These included the 14 precast-concrete beams, two per span and each weighing four tons and 15 m in length.

Axton Matrix was able to commence working on the remaining portion of the superstructure immediately after CoreSlab had installed the hollow-core slabs.

The hollow-core slabs are first covered with polystyrene moulds with voids to reduce the load of the 150 mm-thick final concrete slab on the precast-concrete beams. Services are then installed on top and covered with a steel mesh to reinforce the final slab.

The in-situ works, including the sides of the structure, are extremely labour intensive and about 17 members of the community have had an opportunity to work alongside Axton Matrix's team on this project.

Meanwhile, an additional 20 people will be employed to work on the extended work scope, which includes the construction of about 70 m of asphalt roads and sidewalks. This is in addition to the installation of storm-water drainage, curbing and wing walls.

The project is, therefore, another sound example of the complementary role that precast-concrete is able to play in traditional labour-based Expanded Public Works

Programme projects.

Notably, there has also been no safety or injury-related incidences on this project, despite working at heights and within close proximity to many dwellings.

Valued at more than R13-million, the project is one of numerous pedestrian bridges that are currently being built by the JRA in the larger Midrand area as part of the City of Johannesburg's R103,4-million investment into low-income communities.

CoreCivils is also working with Axton Matrix on the construction of another similar pedestrian bridge in Diepsloot, Gauteng.

De Bruin congratulates Axton Matrix for its stellar work on both projects, noting that CoreCivils established a sound rapport with this reputable contractor in 2016 when both companies worked together on a bridge project in Ga-Ntata, Limpopo.

"Certainly, we look forward to building on this already-strong working relationship with Axton Matrix moving forward," he concludes. ■



The hollow-core slabs are first covered with polystyrene moulds with voids to reduce the load of the 150 mm-thick final concrete slab on the precast-concrete beams. Services are then installed on top of the polystyrene moulds and covered with a steel mesh to reinforce the slab.

REHABILITATION OF PARKTOWN STORMWATER SYSTEM

Concrete stormwater pipes have a long lifespan but it is not infinite. Ageing infrastructure and pipe erosion and corrosion are all factors that initiate the rehabilitation of stormwater piping systems. Rocla, known for its technical experience and product application analysis, was selected to design and manufacture skew culverts for the Parktown Emergency Stormwater Project in Johannesburg.

"An assessment of the relevant technical and practical factors is key to the successful design of any element of stormwater rehabilitation projects" said Civil Engineer, Muhammad Bodhania, based at Rocla's Roodepoort offices. "There were numerous technological challenges presenting on the Parktown project, so meetings were held between PGN Civils, the site engineer and ourselves in order to ascertain the most appropriate design and product to be used for the

successful installation of the replacement skew culverts and bases" said Bodhania.

"The existing stormwater channel at Parktown is a channel with a unique curvature. This is why Rocla had to design

and manufacture specialised skew culverts that could be installed into this channel.

We took the basic design of a standard Rocla culvert but manufactured it at an angle to create a curvature that would fit properly into the existing curved channel. We are proud to say that despite the challenges of the required angle design we met the technical specifications completely". Rocla supplied 42 straight 2 500 x 2 500 SAR Culverts, 19 skew culverts and associated bases. "We have worked with engineers at PGN Civils and WBHO previously on specialised projects and they know of our technical, design and manufacturing capabilities, hence Rocla being chosen to assess and resolve the technological challenges of a very unique project" concluded Bodhania.

The Parktown Emergency Stormwater Rehabilitation Project started in February 2019 and is due for completion in February 2020. ■



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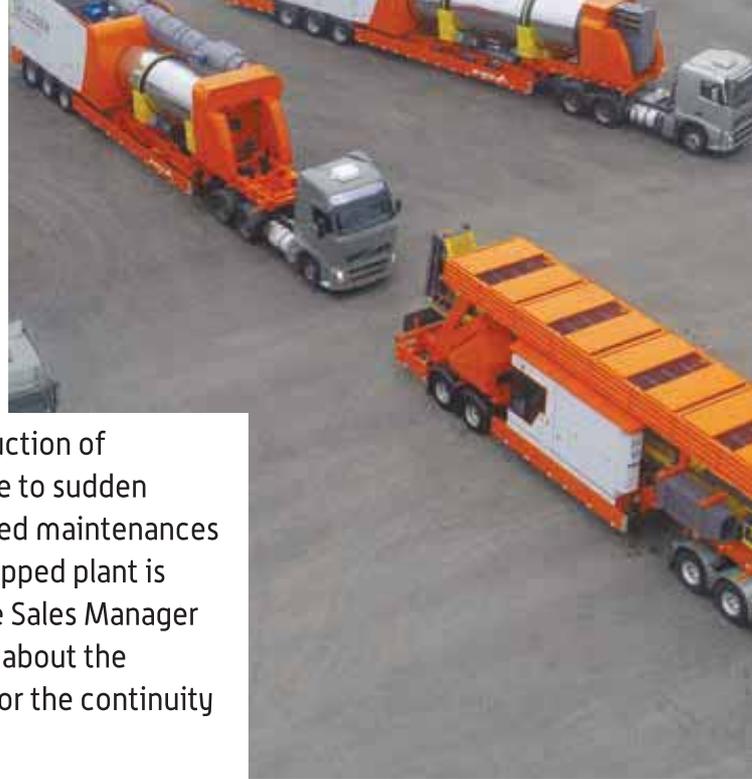
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CONTINUITY AND QUALITY IN ASPHALT MIX PRODUCTION

A variety of complex factors are involved in the production of hot asphalt mixes which makes the process vulnerable to sudden equipment stops. The consequences of such unplanned maintenances to the business are dire, since the cost of having a stopped plant is high. *Construction World* spoke to Waylon Kukard, the Sales Manager of Wirtgen South Africa who distributes CIBER locally about the technologies CIBER offers the South African market for the continuity of asphalt mix production.



What is the biggest threat to the production ability of hot asphalt mixes?

The maintenance and longevity of wear parts are critical. CIBER has unique technologies in key areas such as the bag house: CIBER plants automatically control and monitors the temperatures of the gases going to the bag house which make it extremely difficult to burn or clog the filter bags in the pug mill. CIBER has introduced its honey comb mixing paddles that use the mixed material to assist in creating a wear resistant layer on the paddles, in turn extending the service life of the paddles significantly. In fact, CIBER has designed the new iNova range with a 'longer life = less downtime for maintenance' philosophy.

The CIBER total air burner uses low pressure injection nozzles which are less susceptible to clogging.

What will be the benefit of this in the South African context?

The result is that asphalt plants have less down time, significantly lower maintenance costs and quicker return on investment. This in turn leads to increased profitability.

How does the fault diagnosis system work?

As an optional, CIBER has the ability to log into the plant remotely and diagnose any faults on the plant and provide solutions quickly in order to get the plant operational as soon as possible.

The CIBER total air burner uses low pressure injection nozzles which are less susceptible to clogging. In addition it offers easy access to all wear items. The plant also enables real time component information at the finger tips of the operator, while surfaces exposed to wear offer high resistance elements.

What hot asphalt plants are available to the South African buyer?

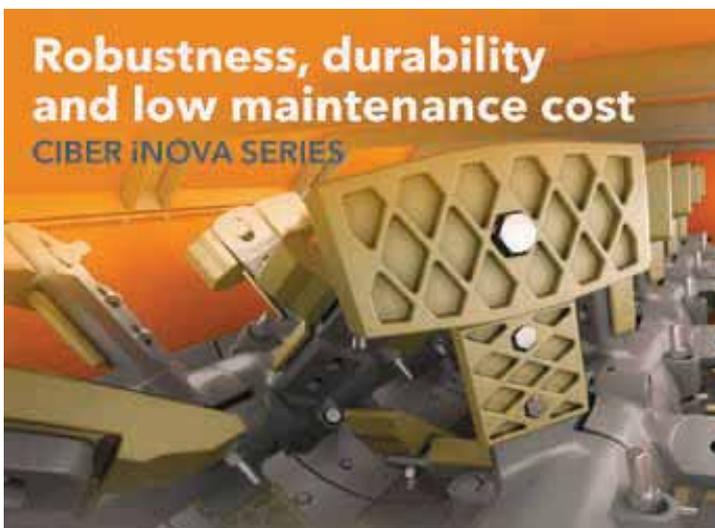
Both mobile and stationary plants are available. In terms of mobile plants customers have a choice between the iNova 1502, 150 t/h and the iNova 2000, 200t/h.

As far as stationary plants go, customers can choose from the Benninghoven – ECO, TBA & BA plants with capacities from 100t/h up to 320t/h.

What is the Unique Selling Point of CIBER plants?

It offers the highest production in only two mobilities. These plants offer production rates of up to 200 ton/hour and only consist of two trailers. What really makes CIBER unique in South African terms is that the plant is fully homologated for local roads and can be licenced and pulled.

Other selling points of CIBER plants is its low fuel consumption per ton as well as its extremely accurate bitumen dosing system. These reduce production costs significantly and adds an annual basis to ensuring the lowest cost per ton production of asphalt.





What after-sales assistance is available?

We have the full technical and spare parts support available as well as the necessary experience. We are currently supporting over 15 units in our territory.

Do you offer training to the operators of these plants?

Yes, we include full operator training in the sale of the unit as part of our handover procedure as we need to ensure that the production of asphalt is maximised and the operations have a clear understanding of the processes and benefits of the iNova plant.

Do you offer finance?

Currently we don't offer any internal financing solutions, but we work closely with all the traditional finance houses as well as companies offering leasing/rent -to-own solutions.

Is CIBER a premium brand?

As with all Wirtgen Group brands, CIBER offers market leading technologies, great build quality and the back-up and service expected from premium brands. What really sets CIBER plants apart is the focus on technology that not only allows the customer to produce high quality asphalt, but to produce high quality asphalt for *less*. In the end, it allows customers to pay off the plant sooner. ■

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THIRD FOOTBRIDGE INAUGURATED



Volunteers from WSP, a leading global multidisciplinary professional services firm, worked with the team from Bridges to Prosperity on the ground in Rwanda to build the Kazo Suspended Footbridge situated over the Sebeya River within the Rutsiro municipality – which is the third suspended footbridge teams from WSP and B2P have co-built in Rwandan communities this year.

The official opening of the Kazo Suspended Footbridge was marked with an inauguration ceremony attended by members of the Rutsiro municipality, the teams from B2P and WSP, and community members – to celebrate the greater access to social services and economic opportunities that this bridge makes possible for the residents of the Kazo-Gashihe communities.

Residents of the Kazo-Gashihe communities are engaged in agricultural commerce, growing beans, potatoes, peas and maize to provide for their families. Of the 3 375 community members who will be directly affected by the construction of a footbridge, there are 453 children and about 1 125 women of child-bearing age.

Before the Kazo Suspended Footbridge was built, the main method of pedestrian transit across the Sebeya River included the use of an unstable timber bridge, which could take people up to 2-3 hours to travel from their homes to the necessary community amenities. Additionally, crossing the Sebeya River over a timber bridge posed many potential personal risks for these communities, due to flooding 180-days of the year and that when the river floods, timber crossings are destroyed and access to critical resources is cut off. “This would mean that the residents wouldn’t be able to access Mahoko market centre to trade and sell, and students wouldn’t be able to access Kazo Secondary school.

Access to the Terimbere health centre would also be blocked off by the flooded river – and communities from both sides wouldn’t

be able to cross the river to access farms,” says Stephanie May, B2P Rwanda Program Manager. “This reality demonstrates the very real difference that the Kazo Suspended Footbridge has made and will continue to make as it provides safe, year-round access for the residents of these communities.”

Bridges to Prosperity (B2P) is a US based non-profit organisation that partners with local communities, partners and foundations, to build footbridges that connect residents to education, healthcare and economic opportunities. Since its establishment, B2P have built over 300 footbridges in 21 countries, serving over 1 million community members throughout the world. The partnership between B2P and WSP has grown over the past few years and, this year B2P and WSP embarked on a joint mission to build three footbridges within well deserving isolated communities across Rwanda. The Kazo Suspended Footbridge, which was completed in August, follows the steps of the WSP USA team who helped build the Kabere Suspended Bridge in May and the Louis Berger team who worked on the Karambi Suspended Bridge in June.

A team of 10 WSP colleagues from the United Kingdom, Sweden, Australia, New Zealand and The Philippines spent two weeks on the ground in Rwanda, collaborating with B2P and residents of the Kazo-Gashihe communities to build the 58-meter-long Kazo Suspended Footbridge.

Speaking on behalf of WSP, African director of Transport and Infrastructure, Patrick Riley, said: “We are very proud of the participation by our Global team in this project. And I am humbled by the contribution that this footbridge will make to the lives of the residents of these communities, thereby empowering the people to conduct their trade more fluidly in support of inclusive growth – that their communities may thrive well into the future.” ■

Barometer gauges logistics

INDUSTRY PERFORMANCE



Hein Jordt, Managing Director of Ctrack South Africa.

co-incident indicator of the state of the South African economy, particularly in terms of the goods economy.

The Ctrack Logistics Barometer should help logistics and supply chain players and relevant trade media to better understand the factors that impact logistics volumes.

Creating the Ctrack Logistics Barometer was a natural step for Ctrack, which provides a number of industry solutions to

government (local authorities, municipalities and public transport operators); airports; the transport and logistics industry; the mining and yellow equipment sector; the agri industry; small businesses and consumers.

Furthermore, it provides camera surveillance and mobile asset tracking and fixed plant monitoring solutions.

The company takes a focused approach to its solution offerings and provides lifecycle insights to its customers. Ctrack customers rely on data to optimise their businesses and need quality management information to make better decisions. Better decision making drives down costs and improves productivity, efficiency, utilisation and performance.

"The Ctrack Logistics Barometer is our way of providing the transport and related sectors with quality, updated information about the state of the logistics industry in South Africa," says Hein Jordt, managing director of Ctrack South Africa.

"The barometer allows the business community and media to better understand how the logistics industry in South Africa is performing. With this information, businesses involved in the sector are able to make better strategic decisions. As thought leaders, we are delighted to be able to share our vast industry knowledge with the business community," Jordt concludes. ■

Leading vehicle tracking and telematics provider, Ctrack, has joined forces with economists.co.za to create the Ctrack Logistics Barometer, an economic indicator and performance gauge of the South African logistics and supply chain industries.

An industry first, the monthly Ctrack Logistics Barometer is an accurate

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QUALITY PLEDGE EVIDENT IN SUSTAINABLE OPERATIONS

Having recently completed half-year reviews and forecasts, AfriSam's readymix business remains optimistic that an upswing in the construction industry is imminent.

Amit Dawneerangen, general manager of the readymix division, emphasises that while pressures from the subdued construction industry necessitate stringent cost control, AfriSam Readymix will never sacrifice quality or customer service.

In current trading conditions, unscrupulous readymix suppliers cut costs by delivering volumes falling short of the specified loads or mixes not meeting the strength requirements to unsuspecting clients. Whilst this may not be detected by the user on delivery, during the execution of the project it will eventually have cost implications and in more severe circumstances structures may fail.

Dawneerangen elaborated: "We always guarantee compressive strength and quality which aligns with AfriSam's values of people, planet and performance, representing our commitment and responsibility towards our customers, communities and the environment." AfriSam's pledge of quality is evident in its sustainable and environmentally friendly operations.

Water usage at all AfriSam's readymix operations is limited to recycled water and no process water is discharged into the storm water network. Annual water analyses are conducted by SANAS accredited occupational hygienists and daily density checks for undue impurities and trace metals are carried out to confirm compliance from both environmental and quality perspectives.

In the Western Cape in particular, this practice ensured consistent product delivery during the recent drought.

Dust suppression remains a critical environmental priority for all AfriSam readymix plants. Automatic dust suppression systems of fine recycled water mist have been installed around the perimeter of the plants with additional systems where readymix trucks are loaded.

There are very low barriers to entering the market which has resulted in suppliers being able to financially afford setting up a readymix plant and then sacrificing quality for the sake of profitability. AfriSam encourages a competitive operating environment, provided that the same standards (quality and ethics) and compliance with regulations are upheld.

The trend amongst many unprincipled

material suppliers of taking extreme cost-cutting measures has seen an increase, in an attempt to minimise transport costs, of overloaded readymix trucks. This results in unchecked spillages on South African roads.

Dawneerangen implores clients to look beyond a mere price comparison when ordering readymix. Compare the health, safety, quality, road transportation and environmental commitment of the supplier and most importantly, the technical commitment and after sale support available. AfriSam often has to defend the readymix market when a client has burnt his fingers by using the cheapest option.

With every truckload of AfriSam readymix a computerised printout is generated and if any batching reading is outside the specified tolerances, the system sends an automated message to the plant manager for immediate rectification. The Carbon Tax which came into effect in June 2019 has had a direct impact on the price of concrete. To minimise this impact AfriSam instituted focused R&D programmes to refine mixes, resulting in the utilisation of more reactive cement, the optimal use of supplementary cementitious materials (SCMs) and improved admixture additions without sacrificing strength



and quality. This is evident in AfriSam's environmentally-friendly Eco Readymix range which uses a blend of high performance cement and carbon neutral mineral components. It is available in Starmix, Foundation Mix and Retainer Mix.

These off-the-shelf, ultra-high performance concrete mixes offer compressive strengths of above 70 MPa and can be ordered according to the strength requirement for specific applications.

AfriSam's confidence in the South African market is clearly evident in its newly launched Donkerhoek readymix plant. "Older plants, which are not cost effective, are



AfriSam readymix guarantees compressive strengths and quality.

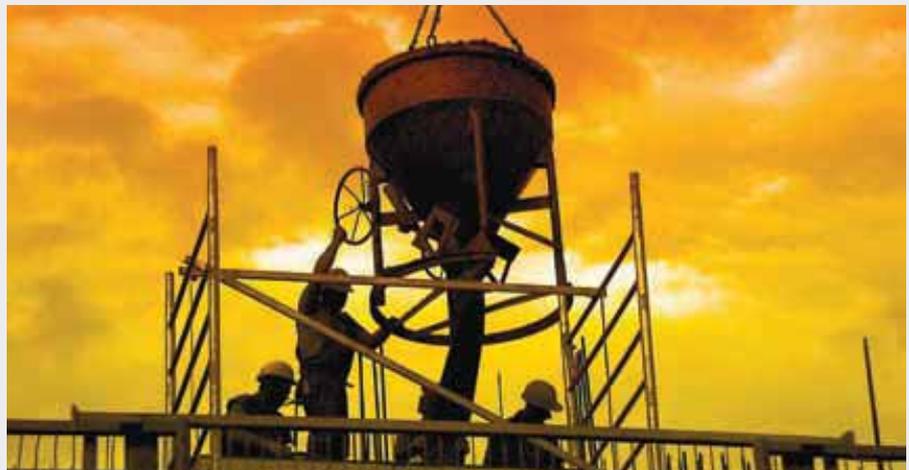




AfriSam's pledge of quality is evident in its sustainable and environmentally friendly operations.

evaluated against the construction activity of a specific region and where necessary plants are upgraded and relocated to identified growth zones," Dawneerangen says. According to Dawneerangen it is significant that of the 31 finalists for the prestigious Concrete Society of Southern Africa's 2019 Fulton Awards, 15 projects were constructed using AfriSam readymix concrete. "We are proud that the AfriSam Readymix legacy, which started with Pioneer Ready Mixed Concrete in 1965, lives on in many of South Africa's most iconic structures; one quality load after the other," Dawneerangen concludes. ■

CONCRETE TRAINING FOR EXPERIENCED CONSTRUCTION PERSONNEL



Customers should consider the health, safety, quality, road transportation and environmental commitment of the readymix supplier.

The Concrete Institute's School of Concrete Technology will present one of its most important training courses for experienced construction personnel in Midrand, Cape Town and Durban in October and November this year.

The SCT30 'Concrete Technology' five-day course, with laboratory sessions included, will be offered in Durban from 14 to 18 October, Midrand from 4 to 8 November, and in Cape Town from 18 to 22 November.

John Roxburgh, Senior Lecturer at the School of Concrete Technology, says this intensive course – which earns five Continuing Professional Development (CPD) points – is aimed at civil and structural engineers, experienced technicians and technologists, and is an excellent medium

for gaining detailed knowledge of how cement and concrete works. The course is also recommended for electrical, mechanical and mining engineers striving to meet their mining qualification requirements.

"There is an urgent need for engineers and experienced construction staff to have a greater knowledge of concrete technology but sadly there also seems to be an alarming sense of professional apathy about the qualities of the most abundantly used construction material in the world. Civil and structural engineers inevitably have to specify, design or deal with concrete building as part of their work and, as sustainability is now the watchword globally, they need to have in-depth knowledge of concrete technology," Roxburgh states. ■



“Over the past several years, new legislation has been developed to improve the disposal of waste to landfill, and more importantly, encourage our industry to seek alternative and sustainable solutions. One of the most recent significant developments has been the Department of Environment, Forestry and Fisheries (DEFF) placing a ban on all forms of liquid waste, as well as hazardous waste with a calorific value of >20 MJ/kg from landfill disposal effective as 23 August 2019,” says Kate Stubbs, Director Business Development and Marketing at Interwaste. “And, with additional waste streams shifting towards this prohibition on an annual basis, it becomes essential that our industry not only embraces these legislations, but also takes the necessary steps to comply. These prohibitions not only seek for opportunities for alternative and more sustainable waste management solutions but create a more efficient waste economy in South Africa.”

New liquid waste regulations

Previous regulations state that hazardous liquid waste with high calorific values >20MJ/kg – such as refinery waste, chemical processed paint waste, hydrocarbon contaminated liquids, sludges and chemical solvents ought to have been progressively banned from landfills as from August 2017. However, today all liquid wastes will be banned from landfill, as well as reactive wastes, recyclable waste oils, whole waste tyres, lamps, lead acid batteries, and waste with a calorific value >20MJ/kg, amongst others.

Section 5 (1) (a - u), as well as Section 5 (2) (a - c), of the National Norms and Standards for the Disposal of Waste to Landfill (GN R 636 of 23 August 2013) provides for a non-exhaustive list of waste types that are prohibited from disposal to landfill in South Africa. These prohibitions and restrictions are indicative of our Government's increasing focus to drive the diversion of waste from landfill through reasonable legislation and other means.

NEW LANDFILL PROHIBITIONS

Today local legislation bans all liquid waste from landfill – signalling a massive shift in South African waste legislation and placing significant importance on the effective management of such waste by waste producers and the waste industry alike. The question is – is South Africa ready to manage this and what is it going to take to do so?



Encouraging innovation

“To best manage these new regulations, it is central for waste producers to understand that not only is there ample room for new innovation in this space but currently, there are successful innovations already in practice that are driving legislative compliance,” continues Stubbs.

Currently solutions exist for hazardous liquid waste to be repurposed into an alternative fuel source for energy production. Furthermore, there is an opportunity to start looking at some of these liquid waste streams as valuable resources that can be used to add value into our economy – reducing our dependence of fossil fuels and be used to re-create alternative products with value.

“While many businesses may not yet have prepared for this new legislative framework, there are already available solutions targeted towards complying with this new legislation,” continues Stubbs. “Interwaste has spent much time considering and planning for the impact of pending and potential legislation, ahead of implementation, to ensure we were prepared and have developed sustainable solutions for our clients that meet the very needs of sound compliance. We have also developed significant capacity over the years for the treatment, recycling and/or recovery of qualifying wastes at our licensed waste management facilities through the recycling of qualifying liquid and hazardous

sludge wastes (with CV > 20MJ/kg) through our waste blending platform in Germiston, Gauteng which produces a waste derived fuel (WDF) for use as an industrial fuel.”

Waste management is one of the critical elements of sustainable development primarily because sound waste management practices contribute to sustainability. Legislation regulating waste management plays an important instrument in the control of environmental hazards to health as well as creating a reformatory system such as the circular economy model which supports the integration, as well as innovation within the waste industry, feeding back into cycle through long-term design and planning, maintenance, repair, reuse, remanufacturing, refurbishing, recycling, and upcycling. This sees new business streams and new industries receiving opportunity to grow.

“As government aims towards a circular economy and improving our environmental standards as a country, there will no doubt be further stringent legislation down the line and as such, it is up to us as waste companies to take a proactive approach by seeking relevant investment and technology development opportunities for alternative waste disposal solutions to not only meet legislative requirements but, very importantly, find solutions that are commercially viable and provide the producer with environmentally sound alternatives,” concludes Stubbs. ■



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A sustainable future FOR ARCHITECTURE AND BEYOND

In his role as Head of Sustainability at Bentel Associates International, Brett Chrystal strives to remain abreast of the latest sustainable design strategies and best practices.



Head of Sustainability at Bentel Associates International, Brett Chrystal.

Brett is one of the founder members of the Parkhurst Go Green Initiative pioneering green technology implementation within his neighbourhood, and he 'walks the talk' by boasting a 95% off the-grid green building solution for his own home.

These milestones have laid the ground work for his role in helping establish Bentel Sustainability as a new in-house department, offering Green Building services and consulting in new and existing

buildings, as well as precinct developments. "The strength of our offering resides in the fact that as Architects we can incorporate green building principles into all projects from the earliest stage in design of that project, through construction and delivery. Therefore our green building consultancy becomes integral to the conceptual design and project delivery and ensuring complete project knowledge and seamless integration of all aspects of the project," says

Den Braven Sealants

Hybrid sealant and adhesive technology ticks the sustainability boxes

Sustainability and the harmful effects of VOC's are top of mind in the built environment today. Through rigorous research and technological advancement in hybrid technology, by taking the best characteristics of polyurethane and silicones, Den Braven has produced a range of high performance "hybrid" sealants and adhesives.

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Chrystal. He will be ably supported by a number of other accredited professionals within the office, as well as through strategic alliances with other specialist professionals.

The future of 'green buildings'

Green star rated buildings have risen in popularity since 2006, with the launch of the Green Building Council of South Africa ('GBCSA'). In a recent online article, it was stated that South Africa is on target to be one of the world's green building leaders by 2019, with more projects registered than any other country. Furthermore, the GBCSA has become the recognised council in servicing the African continent, and making it the most widely utilised green building council when it comes to accreditation.

According to the World Green Building Trends 2016 report produced by Dodge Data and Analytics, the percentage of firms expecting to have more than 60% of their projects certified green is anticipated to more than double from 18% currently to 37% in 2018, with the greatest contributor to green building acceleration being client demand. Upon its inception as a service in the industry, engineers and building design professionals capitalised on a gap



in the market. Architects would be ideally placed to incorporate this into their service, however were intimidated by the unknown administrative requirements attached to creating reports and substantiating building performance. However, despite the reluctance by many architectural practitioners to pursue this lucrative new avenue stream, Bentel has historically been involved with numerous green building

projects, such as Illovo Edge (4*), Pick 'n Pay on Nicol (4*) and FNB Acacia House (4*), and sees the official launch of Bentel Sustainability as being complementary to its design offering. "Bentel Associates International looks forward to our sustainability arm providing a new service to a growing number of property developers' intent on creating environmentally conscious footprint," says Chrystal. ■



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BUILDING TRUST



SANDTON'S PRIVATE SECTOR CONTRIBUTES TO BETTER PUBLIC SPACES

From 2010, when Nedbank completed its headquarters on the corner of Rivonia Road and Maude Street to become the country's first Green Building Council South Africa (GBCSA) Green Star-certified building, Sandton Central has remained on the cutting edge of green building practices on the African continent.

This places Sandton Central firmly in line with the very latest international real estate developments. Globally, evidence that the number of green buildings keeps doubling every three years proves that their advantages are too valuable to ignore.

It's not surprising that property investors want more energy, resource and environmental efficiencies in the design, construction and operational phases of their projects - even in a low-growth economic environment. The MSCI and GBCSA's joint green index can verifiably show green buildings deliver a better return on investment than non-green buildings - almost double the return.

Green architecture and materials used in the structure, services and envelope of any building contribute to its resource-efficient operations. Equally, green interiors create high-performance tenant spaces, characterised as healthy, productive places to work; they are less costly to operate and maintain and have a reduced environmental footprint.

Multiple studies demonstrate that improved indoor environmental quality leads to more productive and healthy workers. The fruits of the workers' productivity, as well as a reduction in absenteeism, leads to financial benefits for business.

"Building green is not only the right thing to do - it enables environmental transformation and significant social gains - but it also accelerates property values, reduces operational costs and unlocks higher rental. Partly because a green indoor environment gives tenants the chance to provide a more comfortable, healthier and productive space for their staff," explains Grahame Cruickshanks, Managing Executive: Market Engagement at GBCSA.

"The concentration of green buildings in Sandton Central allows firms to find a space to work that is in line with their company values in the way that they provide for their staff and the environment. Offering a plethora of buildings designed and operated in line with GBCSA certifications amplify the benefits that Sandton Central already boasts as a business centre," he adds.

Sandton Central is Africa's financial, legal and business capital. It offers a brilliant variety of world-class retail, restaurant, hotel, residential and leisure amenities.

Besides their financial advantages, an important benefit for any well-managed district or city is that green building doesn't only have positive impacts within the boundaries of a specific property, but also considers its immediate surroundings. Along with more

resource efficient buildings, Cruickshanks reveals that making a neighbourhood walkable is one of the most environmentally significant contributions that property owners can make to an area.

"Key to encouraging pedestrian movement between buildings is safety, and then shade - especially with Sandton's hot summer sun. Safe, weather protected walking routes which facilitate convenient and comfortable access to work and living destinations mean that motorists are less likely to drive the two or three blocks as they may have done previously. The ongoing saving in greenhouse gases, and contribution to a person's health, can become quite significant," says Cruickshanks.

"Good, active precinct management is strongly tied to the provision of safe, walkable environments in South Africa's urban centres," Cruickshanks elaborates.

Elaine Jack, City Improvement District (CID) Manager of Sandton Central Management District (SCMD) notes that making cities inclusive, safe, resilient and sustainable in line with the United Nation's Sustainable Development Goals is a massive task. Green building, however, plays a key role in achieving this.

"Our desired urban future is sustainable, walkable, liveable spaces. The importance that green building places on the urban fabric between buildings leads to meaningful public benefits, including improved walkability. The high concentration of green office buildings in Sandton Central has a positive impact on the entire node," says Jack.

Cruickshanks concurs that green buildings, their owners and occupants are role models are encouraging and driving more respectful urban environments.

Sandton Central has some of South Africa's best transport infrastructure for trains, buses, taxis, private vehicles, pedestrians and bikes. He says, "When property owners come together and drive active precinct management, it creates more sustainable cities.

A knock-on effect of achieving a green building certification is that those involved often then become champions of the process and the impact, encouraging their teams to keep pushing the boundaries on sustainability. They assist the sustainable development sector by maintaining the demand for sustainable projects, services and products. In doing so, they set standards that then, in turn, elevate the ambition of government building codes and regulation, workforce training, and corporate strategies." ■

Africa's largest wind farm OFFICIALLY INAUGURATED

On 19 July 2019, Kenya's president Uhuru Kenyatta officially inaugurated the Lake Turkana Wind Power (LTWP) project – Africa's largest wind farm. Standing out across a desert-like, windy landscape in northern Kenya, the 365 wind turbines have been producing up to 310 MW of reliable, low-cost and clean energy to power homes and businesses across Kenya since 6 March 2019.

"We feel extremely proud to have been associated with this landmark project and would like to congratulate the Lake Turkana Wind Power team for the successful dedication of this facility to citizens of Kenya," says Krish Iyer, President of Energy & Chemicals Services for Middle East and Africa at Worley, who attended the inauguration. "This project is a fantastic example of developing successful sustainable projects with local community engagement and making them part of this legacy."

The completion of the project marks the end of a five-year journey for Worley, who has played an integral role in Africa's most prestigious renewable energy project since inception. In November 2014, Worley (then WorleyParsons RSA) was contracted by LTWP to provide overall project management, engineering review and construction management services for the LTWP project. Spanning an area of 160 km² within the Loyangalani District, Marsabit West County in northern Kenya, the project scope included 365 wind turbines of 850 kW each, an electric grid collection system and a high voltage substation, upgrades to 210 km of existing road, an internal site road network and a 160-man self-contained permanent village. Worley's project management services included overseeing the total schedule, cost and quality of work as well as supervising and coordinating the five main contractors on the project.

By June 2017, despite some logistical, climatic and community challenges, Worley had completed the installation process of the

full wind farm and delivered its scope of work within the stipulated timeframe and budget. Following the completion of the 436 km Loyangalani – Suswa transmission line by Kenya Electricity Transmission Company (KETRACO), the project reached a significant milestone on 24 September 2018 when the transmission line was completed, and hot commissioning commenced.

Bradley Duncan, Senior Electrical Engineer at Worley and head of the commissioning team for the LTWP project, explains that as part of ramping up to full operations, Worley worked in conjunction with Power Systems Dynamics (PSD) to oversee the commissioning tests, and coordinated with KETRACO and Kenya Power and Lighting Company (KPLC) to ensure that the plant was in compliance with all of the requirements as set out in the power purchase agreement, as well as the grid code. By 10 October 2018, the team had fully hot commissioned three 100MVAR STATCOMs, and by 23 November 2019 all 365 wind turbines had successfully exported power to the grid. On 6 March 2019, Lake Turkana Wind Power went into full commercial operation, having passed all its requisite PPA and grid code compliance testing, and is providing up to 17% peak demand and 30% off peak demand for electricity in Kenya.

Reflecting on Worley's involvement in this significant project, Tim Gaskell, Project Director for Worley, says that the biggest contribution from Worley to this project is the difference made to the lives of Kenyans and specifically local tribes. "We had a strong focus on localisation and social upliftment to ensure that the surrounding communities benefited from this project."

"From a business perspective, this project has further proven our successful track record in the delivery of energy and resources projects in Africa, and we are actively pursuing other renewable energy projects in the region," says Gaskell. ■



Kenya's president Uhuru Kenyatta officially inaugurated the Lake Turkana Wind Power project – Africa's largest wind farm.

DOUBLE AWARDS IN EUROPE



Dennis Swanepoel (second from left) is WearCheck's reliability solutions consultant, Mobius trainer and a CAT IV graduate. He proudly accepted WearCheck's awards at the Condition Based Maintenance (CBM) conference in Belgium.

Condition monitoring specialists, WearCheck, scooped two awards from top international training body, Mobius, at a condition based maintenance (CBM Europe) conference in Belgium recently.

The awards are for first place in the Best Training Partner EUMEA

2018/19 and the Best Student Growth Africa 2018/19.

Dennis Swanepoel, WearCheck's reliability solutions consultant and accredited Mobius trainer, was on hand to receive the trophies.

Swanepoel was invited to attend the CBM Europe conference to conduct two full-day reliability solutions workshops – Practical Vibration Analysis and Introduction to vibration, as well as a presentation on Practical High Frequency Modulation.

Mobius has earned international recognition as the training standard for reliability solutions technicians., Available in 153 countries, Mobius courses are run by WearCheck and presented either on-site or at the ABB School of Maintenance premises in Johannesburg.

Courses include CAT I, II, III and IV as well as the Asset Reliability

Practitioner ISO courses, and graduates are awarded CPD points per course completed. WearCheck was founded in Durban over 40 years ago, and today operates an established network of 16 laboratories in nine countries across Africa and beyond. ■

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INVESTMENT A STRATEGIC CONTRIBUTION TO ENGINEERING CAPACITY

In a boost to South Africa's engineering capacity and quality, Metric Automotive Engineering has added a new-generation Rottler three-axis CNC machining unit to its workshop. Featuring linear rails for greater accuracy, the machine is the first of its kind in Africa, according to Metric Automotive Equipment operations director Andrew Yorke.

"This technology represents a significant advance in our industry," says Yorke. "It enables us to conduct wireless probing for measuring and set-up, as well as using CAD drawings to machine components to high levels of precision."

The scale of the new machine allows it to work on engines up to 20 cylinders in size. The three-axis capacity facilitates the standard machining processes for engine block remanufacture, and also enables salvage repairs. The new unit joins the company's two larger three-axis machines already in operation. The machines are dedicated mainly to the rail sector.

"A locomotive engine spends considerable time on our machining centres, so our new addition provides much-needed additional capacity for other work," Yorke says. "On any given day, we can

now have up to five V18 engines being machined at our facilities side by side." Yorke highlights the value of the new Rottler unit in the continuous quality improvement of local remanufacturing capacity and expertise. As a function of process repeatability and machining accuracy, the quality of output is being constantly raised to the benefit of local customers. "Our investment in machines like these represents a strategic contribution in support of local original equipment manufacturers (OEMs) and state-owned enterprises (SOEs)," says Yorke. "This fosters the country's capacity to conduct large engine remanufacturing, which is vital to affordability, economic growth, job creation and conserving our foreign exchange."

Rottler equipment is not for general engineering purposes but is specifically designed for high-precision machining of engine blocks, he emphasises. This ensures that the quality of remanufactured engines complies in every respect with OEM's demanding specifications and standards. The focus of Metric Automotive Engineering's remanufacturing technology is on large engines used in sectors such as rail, earthmoving, mining, power generation and marine. ■

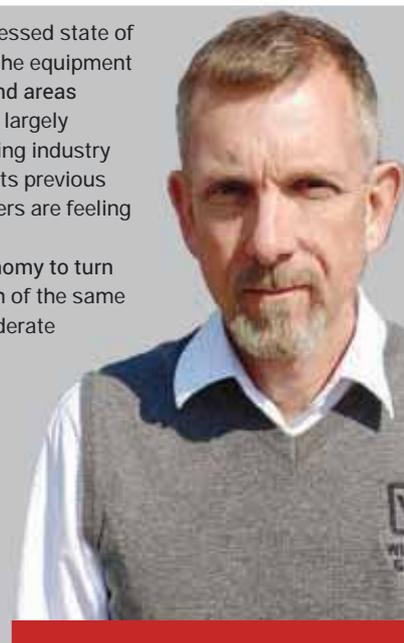
Construction and MINING EQUIPMENT sales decline

Construction and mining equipment sales continued to decline for the third quarter in a row, with sales of new equipment slumping by just over 16% this quarter. According to figures released by the Construction and Mining Equipment Suppliers' Association (CONMESA), just 1 292 machines were sold during the period, which is 1 541 units down from the same period last year. The downward movement marks an acceleration of declines beginning in the last quarter of 2018 when the downward trend began with a drop of 4,65%. This was followed by a steep drop of 14,49% in the first quarter and a further drop this quarter.

While the market has remained mostly flat for the past four years, the latest drop in sales is the largest since 2016. CONMESA

Chairman, Calvin Fennell, says the depressed state of the economy has a knock-on effect on the equipment industry. "Although there are sectors and areas of demand, the construction industry is largely depressed and stagnant. While the mining industry is fairing slightly better, it is still far off its previous levels and as a result equipment suppliers are feeling the pinch of the prolonged downturn.

"There is no silver bullet for the economy to turn around and as a result we foresee much of the same for the foreseeable future with only moderate swings towards either end of the scale," says Fennell. He maintains that until such time as large infrastructure works are awarded, the reducing market with increasing numbers of competitors is going to be tough for us and the other established brands. The same is true of the mining industry where lack of global demand continues to maintain resource prices at moderate levels. ■



RAISING OUTPUT AND QUALITY AT GYPSUM PLANT

After significant upgrades and expansions to its manufacturing facility at Potchefstroom, leading gypsum supplier OMV has boosted its supply capacity while improving its gypsum quality.

OMV produces synthetic gypsum from the phosphate waste-product of the fertiliser industry, supplying the cement, agricultural and industrial sectors. According to OMV mechanical engineer Marinus van den Berg, the company has upgraded and automated its washing plant, while also adding a kiln drier and a calcining plant.

"The redesign of the washing plant included changing to a continuous lime batching system," van den Berg says. "This improves the controllability of the process and the product quality. Standard deviations of the pH levels – a primary control parameter – are now down to 0,2 pH points."

The washing plant upgrade meant full automation and higher availability. It also included a completely new laboratory, now staffed with a chemical engineer and chemical technician to focus on quality control. He emphasises the peace of mind that comes with a product of consistent quality. For industrial customers in particular, a dependable standard means less need to adjust their process in response to variabilities in the gypsum feed.

A key enhancement of the gypsum facility has been the addition of a

rotary drying kiln. This allows reliable supply to customers even during the rainy months. "The kiln reduces the moisture content in our gypsum by an extra 10%," he says. "This has made our year-round supply more reliable, while the drier material also saves on road transport costs." An important part of the technology employed in the kiln is optimised fuel economy for lower carbon emissions. Along with the kiln installation has come the construction of an undercover gypsum warehouse with 30 000 tonne capacity. Dedicated stockpiles within the warehouse further enhance the customer experience.

"All these facilities operate within our total quality management system," he says. "We continually optimise processes so we can pass the cost savings on to customers."

Most recently completed is the calcining plant, which adds value to the gypsum product by producing a high quality Plaster of Paris. After extensive research into available technologies, OMV was able to construct and commission the plant in less than a year. It has also enhanced certain automation elements in the calciner.

"Once again, our focus has been on low process variability," says van den Berg. "Through strict controllability, we have achieved high-quality and consistent output to open new markets." ■



Bolstered RENTAL FLEET

Goscor Compressed Air Systems (GCAS) aims to provide customers with continuous air with its newly-bolstered rental fleet, according to GM Warren Schultz. The newly-launched rental offering, which will supplement new sales and also support service and maintenance, focuses on portable diesel compressors and stationary electrical units from leading brands Sullair and Ozen.

"Apart from the significant benefit of no upfront asset costs for our clients, they automatically also have access to a higher standard of equipment. The rental option is ideal for planned maintenance and outages, or seasonal peak demands and unexpected equipment failure," Schultz elaborates. Equipment can be upgraded or replaced in terms of a flexible payment plan, with added accounting and

tax advantages for clients. The newly-bolstered rental fleet caters for the large demand for these units in a range of industries, from construction to extruders and even mining. "The applications are diverse, and the demand is therefore very high, with major growth potential and opportunities," Vanessa Koszulinski comments, who heads up the portable rental division.

The main benefits for rental customers are not only that they have access to some of the best brands in the compressor industry in Ozen (stationary) and Sullair (portable) units, but that any maintenance or wear-and-tear repair costs are built into the rental contract itself. This represents a significant cost-saving for customers. "Given the current state of the market, where margins are tight and customers are increasingly price-sensitive as a result, we find that the rental option is often the most flexible, particularly with regard to aftermarket support," Koszulinski explains.

An added benefit for rental customers is that the units are available wherever Goscor Group branches are located countrywide, including Cape Town, Durban, and Johannesburg. "Due to GCAS being part of the larger Goscor Group, we are able to provide back-up no matter where our customers are located. The major advantage is that we can offer a quick and effective turnaround at all times," Koszulinski adds.

It is anticipated that the rental fleet will also boost new sales, as it gives potential customers excellent exposure to the capabilities and features of the Ozen and Sullair brands. "We do find that rental customers are so impressed by our turnkey capability that they want to purchase the units outright. On the other hand, the rental offering also means we are able to offer replacement units wherever these are needed. It is a real win-win for us and our diverse customer base," Koszulinski concludes. ■



GCAS GM Warren Schultz and Vanessa Koszulinski, Head of the portable rental division.

Designed for high performance IN TOUGH CONDITIONS

HPE Africa has recently launched two new series of Hyundai excavators – the R480LC-9S range and R330LC-9S machines – designed for high performance in tough conditions in various industries, including construction, mining and quarrying and agriculture.

“As part of our commitment to meeting exact market demand and to constantly improving our service standards, the HPE Africa team works closely with customers to gain a thorough understanding of changing conditions in different sectors,” explains Alex Ackron, managing director HPE Africa. “Through the introduction of new construction machines – delivered in required sizes, with specified capacities and necessary performance features - the company ensures customers continue to achieve the highest levels of productivity, cost effective operation and enhanced safety on site. “Through the launch of our Hyundai R480LC-9S and R330LC-9S ranges, we are now able to supply equipment that falls under the following mass categories/classes as stipulated by CONMESA - the Construction and Mining Equipment Suppliers’ Association – 30.1 - 35.0 T (R330LC-9S) and 45.1 - 50 T (R480LC-9S).

“Previously, HPE Africa participated in these tracked excavator classes – 10.1- 15T, 18,1 – 21.0T, 21.1 – 25T, 25.1 – 30 T, 35.1 - 40 T, 50.1 – 60 T and 80.1 – 9.0 T.

“Expansion of our range means customers have access to more machines, with greater capacity options and are able to select the right size excavator, with no compromise on performance.”

Newly-launched Hyundai R480LC-9S track-mounted excavators have an operating weight of 49 500 kg, with a 3,2 m³ rock-bucket capacity and a digging force of 266,4 kN. These machines, with a 621 ℓ fuel tank, have a 600 mm shoe width and are fitted with a 6,55 m boom and 2,40 m arm, with an arm crowd force of 301,7 kN. The hydraulic pump operates at 2 x 380 ℓ/min. These tracked excavators are fitted with low-emission, water-cooled Cummins QSM11-C 4-cycle diesel engines, with power ratings of 263 kW @ 1 900 rpm, offering high power, reliable performance and fuel efficiency. Hyundai R330LC-9S excavators, with an operating weight of 32 700 kg, offer a standard 1,44 m³ bucket, a digging force of 205,5 kN and arm crowd force of 194,2 kN.

These machines, with a 500 ℓ fuel tank and a 600 mm shoe width, are fitted with a 6,45 m boom and 2,50 m arm. The hydraulic pump operates at 2 x 282 ℓ/min. R330LC-9S excavators are fitted with Hyundai HCEC_HM8.3 low-emission, water-cooled 4-cycle diesel engines, with power ratings of 196 kW @ 1 900 rpm.

Other noteworthy features include hydraulic system improvements and computer aided power, which ensure enhanced performance, smoother operation and precision-control. A newly-designed pump compartment controls functions like two speed travel, power



boost, auto boom-swing priority and a safety lock.

The strengthened undercarriage improves performance in arduous operating conditions, particularly in the mining and quarrying sectors. Durable covers have been specially designed, to protect travel motors and hoses against damage from rocks.

Lubricated rollers, idlers, track adjusters with shock absorbing springs and sprockets and a track chain with double or triple grouser shoes, form part of this robust undercarriage. For added strength and durability, all buckets are welded with high-strength steel and booms and arms are welded with a low-stress, full-box section design. A newly-designed high-strength operator cab ensures exceptional visibility for greater safety on site and ground-line access to components enables easy maintenance, minimising downtime of these machines. Hyundai's 9-series machines ensure minimal operating costs and reduced machine down time.

HPE Africa's national workshop facilities are geared to assist customers with modifications of machines where necessary, enabling adaptability for specific tasks, for example stump removal, scrap metal handling, railway construction and logging operations on steep terrain. All modifications are customised through close consultation between HPE Africa experts and end-users.

HPE Africa is the sole distributor in Southern Africa for Hyundai Construction Equipment, as well as McCloskey crushing and screening units and Soosan hydraulic hammers and quick couplers. The company supports its product offering with a technical advisory, support and maintenance service throughout Southern Africa. ■

New fast-setting TILE ADHESIVE



Leading chemical and adhesives manufacturer; Mapei, has released its new locally produced multifunctional cementitious tile adhesive, Adesilex P4, a C2F class adhesive which can also be used as a levelling compound.

Adesilex P4 is first and foremost an innovative, rapid-setting, semi-fluid, full contact adhesive which has the added benefit of 100% tile coverage, eliminating

the need for back-buttering on large format tiles. This results in costs savings in both time and consumption per square metre (subject to required thickness). It is ideal for use as an adhesive on ceramic, porcelain and natural stone (non-moisture sensitive) installations in internal and external environments. The product is easily trowellable and allows for light traffic within four hours.

As a smoothing compound, it can be used on interior and exterior surfaces generally found on site up to a maximum of 20 mm thick. Providing the substrate is clean with no loose debris, it can absorb deflections on the substrate and provides easy levelling and localized smoothing which sets within four hours. This gives contractors the ability to use a single product to ensure both a cost and time savings on projects. What's more, it can even be used as a mortar for brick and concrete block walls for building, wherever

quick curing and high strengths are required

"It is important to remember that if the easy-to-use product is used as both a smoothing compound and a tile adhesive - the smoothing layer needs to be hardened and prepared correctly before proceeding with the tile application" says Zamaswazi Ntobela, ceramics product manager for Mapei South Africa.

Adesilex P4 is suitable in heavy traffic zones, such as offices, shopping malls, hospitals and schools. Its wide temperature range means it can just as easily be used over underfloor heating installations or any other application where temperature extremes may occur.

"Although our product guarantees 100% coverage of surfaces with no need to 'back-butter' large-format tiles, it also provides the benefit of one multipurpose product with the obvious cost and time saving benefits," wadds Zamaswazi. ■

Major technology investment

Rosema Bricks, a Gauteng-based alliance factory of Corobrik, will be bringing a superior-quality face brick to the South African market as a result of its R85 million newly-installed brick manufacturing technology. This substantial investment in the Olifantsfontein factory will improve the quality of Rosema Bricks' 'satin-texture bricks' which is set to have a significant impact on the brick market going forward.

"Corobrik's decades-long alliance with Rosema Bricks has continued to bring the highest possible face brick range to the construction industry," said Musa Shangase, Corobrik's Commercial Director. "Their latest investment in what is seen as state-of-the-art extrusion and setting technology globally, will elevate the quality of face brick, ensuring the South African market continues to receive the best available product."

Rosema Bricks, which produces 34 million bricks annually, has spent four months implementing a new setting machine with robotic packing onto kiln cars. This has the ability to pre-groove the bricks with rounded corners. The bricks are then cut by a push-up cutter, a first for the factory, all of which will drastically enhance the quality of the finished product. The kiln has also been upgraded so that it's able to produce 25% more bricks in the future. "Quality in the face brick market is very important which is why we upgraded the plant in 2019," explained Theo Rosema, CEO of Rosema Bricks.

"We decided that, to enhance the quality of our bricks, we needed to upgrade our production equipment and we therefore invested in the most advanced technology available."

The Rosema Bricks' Olifantsfontein factory, which has been operating for 32 years, boasts a face brick range consisting of nine products – three satin texture and six travertine texture. Proving particularly popular in the housing and warehouse development markets, the Redwood, Protea Travertine and Terracotta Satin ranges are currently emerging as top choices.

"We are a major player in the face brick market for good reason," continued Rosema. "We offer a wide range of colours and textures, and our Gauteng location,

the fastest-growing construction area nationwide, makes us perfectly positioned.

"Training plays a major role in the success of our business, thus our operators were trained as the new setting machine was installed to ensure a smooth transition," explained Rosema.

"Plans are already in place to install a new de-hacking station as well as an extra dryer. The setting machine has the capability to manufacture 50 mm paving bricks and clay maxi bricks, however production of these will only commence once the new de-hacker is installed."

These superior-quality face bricks form part of the extensive Corobrik brand, adhering to all international quality control standards.

All of Corobrik's clay face bricks boast superior thermal and noise reduction qualities, retaining structure and aesthetic quality. ■



ENSURING THAT CONTAINER HOMES COMPLY



Repurposing shipping containers for residential dwellings is a new trend in Cape Town. However, it is important to note that so-called container homes still need to comply with all building and fire-safety regulations, in addition to the architectural plans receiving council approval prior to construction.

Fire engineering specialist ASP Fire of Johannesburg was recently tasked by a Cape Town architect to vet the plans for two such container homes. "The homes essentially consist of a shipping container shell, arranged on-site to form the main structure, which is repurposed as a home," ASP Fire CEO Michael van Niekerk explains.

Several factors had to be taken into account in terms of the fire-rating approval. Firstly, van Niekerk points out that steel in and of itself does not necessarily provide the structural stability required for a residence, as it begins to deform when exposed to temperatures

over 550°C. "Thus we obviously have to ensure the building is safe for occupants in the event of a fire, and does not collapse around them. The next point is to ensure that the neighbouring buildings on the adjacent properties would not be affected in the event of a fire in any of these units," van Niekerk highlights.

The containers themselves were clad inside and outside for aesthetic purposes. Timber cladding was specified on one unit, which required ASP Fire to check that the distance from the adjacent structure complied with the fire-safety regulations.

"Here the option is either to treat the timber cladding so it is fire-resistant, or to specify a fire-rated fibre-cement board that resembles timber in its look and feel, as is common with American homes," van Niekerk elaborates. Modern cladding materials used in dry walling, ranging from gypsum to fibre board, have varying degrees of fire rating.

"Our main approach was to look at each individual structure in terms of its fire-safety compliance. For example, one was multi-level, where we had to take into account that there were people above and below. We also had to be mindful of fire safety in the braai and bar area, and the outside area where gas cylinders were stored," van Niekerk points out.

ASP Fire's recommendations to the architect were subsequently submitted along with the final plans to the Cape Town City Council for approval. "I am fully confident that all of our recommendations will be approved, as we have extensive experience in this regard," van Niekerk adds.

"The container home trend is not only environmentally important in that it repurposes existing structures, it is also quite easy to make these compliant with all of the necessary building and fire-safety regulations," he concludes. ■

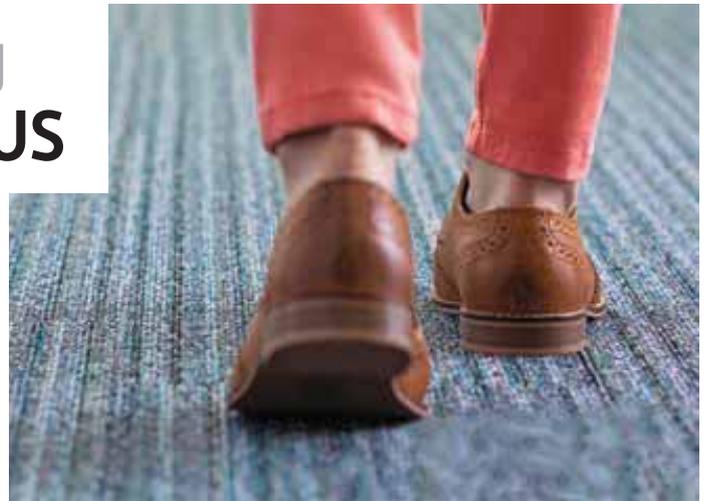
Carbon-neutral flooring TO BOOST GREEN STATUS

Interface, the world's leading modular flooring producer, has announced that all its products – including all carpet tiles and luxury vinyl tiles (LVT) – are now carbon-neutral across the entire product lifecycle. The company has also introduced a system whereby any specified Interface floor's 'environmental credentials' can be assessed.

KBAC Flooring, currently in its 50th year of operations, as the SA distributor of Interface products can now on request advise designers and customers about the extent of carbon emission reductions for each Interface sale – valuable information as demands for greener building grow. Interface offers the 'environmental credentials' service to help consumers meet sustainability goals while reducing the polluting impact of their projects.

And the statistics are convincing. For example, every 1 000m² of Interface flooring sold will offset carbon emissions equivalent to a car travelling 43 000 kilometres, or a trip around the earth, or 11 return flights between New York and Paris.

Erin Meezan, Interface's Chief Sustainability Officer, says Interface has spent the last 25 years focusing on eliminating its environmental impact and has reduced the carbon impact of its products by 60%. "We now want to involve customers to reverse global warming. Architects and designers, flooring contractors and end-users realise



that the products they specify and buy have a direct impact on global climate. When specifying Interface products, they can now provide proof of the effect this has on reducing embodied carbon – an important marketing opportunity," Meezan adds.

To mark the 25th anniversary of its 'Mission Zero' commitment to sustainability, Interface has taken a holistic approach to carbon neutrality, looking beyond carbon emissions from manufacturing to include emissions across the entire product lifecycle including transportation, maintenance and end-of-life recycling. Interface calculates all remaining greenhouse gas emissions for the entire lifecycle of its products and invests in verified emission reduction projects all over the world to offset them. ■

ASSISTING CSIR wind tunnel tests



"Although this type of hire is not a first for us, at Rand-Air, we are always pleased to be able to be of service to an esteemed organisation such as the Council for Scientific and Industrial Research (CSIR)," says Rand-Air Sales Representative Marinda Enslin. Earlier this year, over a period of five weeks, the CSIR in Pretoria hired a Rand-Air compressor to provide an auxiliary airflow for its Medium Speed Wind Tunnel (MSWT).

The MSWT is one of seven CSIR wind tunnels frequently used to provide an engineering test, measurement and evaluation foundation to the aerodynamic design efforts of mainly the South African aeronautical industry. The CSIR wind tunnels include a closed circuit sub-sonic tunnel, a transonic tunnel, a trisonic tunnel and a large test section open-circuit low-speed tunnel.

"The wind tunnels are generally used to measure airframe aerodynamic performance in a controlled 'simulated flight' environment. The object tested in this environment can be anything on which the movement of air exerts forces. This can be anything from a supermarket trolley in the Cape winds to a supersonic missile produced by the South Africa defence industry – though the latter in a different wind tunnel obviously," explains the CSIR's Works Engineer DPSS: Aeronautic Systems, Louis van Wyk.

Data collected at the facilities is used for airframe characterisation, and to populate complex modelling and simulation environments for broader mission simulation predictions, doctrine development and training.

Testing in the MSWT where the Rand-Air compressor was used is state-of-the-art. All operations are proceduralised, so as to make the projects cost-effective for the clients using the facility; which is typically used by large industries such as aeronautics and defence.

However, it is important that all aspects of these tests function optimally.

"In this respect, Rand-Air was able to contribute to the success of the testing by providing a state-of-the-art Atlas Copco PNS1250

portable 24-bar oil-free compressor which delivered air reliably as and when our customer needed it," Enslin continues.

The specific wind tunnel test required an auxiliary airflow, supplied through a 2" hose into the wind tunnel test section, with the following specifications: oil-free air, with an FAD (free air delivery) of 1200 cfm at 24 bar pressure.

"Although this is at the upper limit of the general capacity of portable compressors, it was within the capability of Rand-Air's PNS1250 portable diesel oil-free high pressure compressor," explains Enslin.

As the compressor needed to stand outside the building housing the wind tunnel, Rand-Air provided the CSIR team with extended high-pressure hoses to make the connection. "After that the CSIR team took over as they knew exactly what they were doing and were fully familiar with the workings of this compressor," Enslin adds.

A Rand-Air technician was available for immediate call-out during the rental period of the wind tunnel test. "A technician visited the test site once a week to inspect and service the rental compressor," she adds.

"Ultimately, the compressor performed exactly according to its specifications, and successfully - and reliably - delivered the flow required for the tests. At the CSIR, we were fully satisfied with its performance, and the service we received from Rand-Air," he comments.

"We appreciated the opportunity to be able to contribute in some small measure to South Africa's excellent scientific research efforts, which serve to keep South Africa at the forefront of international knowledge development," Enslin concludes.

As the market leader in portable air compressors and generator rental, Rand-Air upholds its reputation through regular training and upskilling in business related and product-specific matters.

Rand-Air is part of the Atlas Copco group and is a Level 4 B-BBEE rated company. ■

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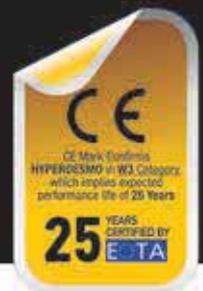
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