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Heavy rains focus more attention on floodlines



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- > Health and safety
- > Maintenance concept

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ON THE COVER

CASE Construction Equipment celebrates 180 years of serving construction businesses across the world with effective solutions that meet their requirements.

The history of CASE dates back to 1842, when inventor and entrepreneur Jerome Increase Case founded the Racine Threshing Machine Works in Illinois, USA. It was the beginning of an exciting journey of entrepreneurship, ingenuity and continuous development of practical solutions to the challenges of construction jobsites.

For the past 180 years, CASE has been pioneering technologies and innovations that have changed the industry and earned the trust of construction businesses across the world. It introduced the first factory-integrated backhoe loader in 1957.

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According to the Federated Employers Mutual Assurance Company (FEM) there are an alarming number of injuries in the construction industry.

FEM maintains that 36 people are injured on construction sites daily. In the period between 2015 to 2021 it reported 54 964 injuries that required medical attention. These are primarily made up of two kinds of injuries: 'falling to different levels' and 'struck by.' The former describes an incident in which a person falls while working in an elevated position, such as from a ladder or a scaffold and the latter may refer to a person struck by a motor vehicle while working next to a public road or by a brick or the like falling on someone. Respectively, these accounted for 44 and 35% of all fatal accidents.

Despite the slowdown in construction activities caused by COVID-19, 12 317 accidents were recorded in the 24 months to December

2021. According to FEM's statistics each accident on average costs R51 494 of workmen compensation benefits.

FEM CEO, Ndivhuwo Manyonga believes that accidents are preventable. It has now launched 'ZERO is no accident', a campaign with the aim of reducing the high levels of incidents. This campaign aims to educate, influence and create advocacy around health and safety (H&S) in the industry. It will run for 12 months and will highlight the risk of poor H&S compliance.

21st Best Projects Awards

In this issue we publish the first call for entries for the 21st Best Projects Awards. The deadline for entries is 7 September.

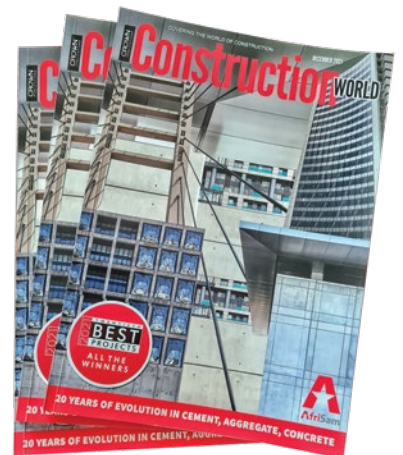
Despite the difficulties brought on by the limitations of the COVID-19 pandemic, Best Projects Awards have been held for 21 consecutive years. It is *Construction World's* attempt to recognise the excellence and commitment of the industry.

The competition has seven categories: Civil Engineering Contractors, Building Contractors, a category that recognises Civil and Building Contractors outside the

country, Specialist Contractors or Suppliers, Consulting Engineers, Architects, and the AfriSam Innovation Award for Sustainable Construction.

As this is an award by submission only, it is imperative that submissions address all the criteria set out in the call for entries (page 20 and 21).

Good luck with getting your entry ready.



2021's special Best Projects issue – 92 pages of construction excellence.

Stay safe

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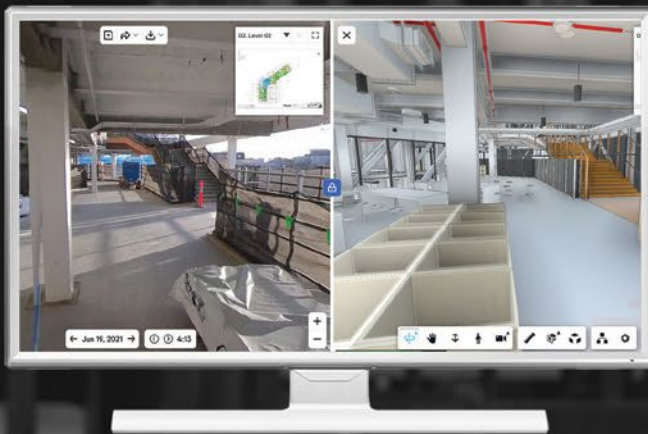


TOTAL CIRCULATION:
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13 825



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Fred MacKay
Senior Project Engineer
and Quality Control Manager, R&S

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SA PLASTICS INDUSTRY RESPONDS TO THE SIGNING OF THE PLASTICS TREATY

A historic resolution was reached at the resumed fifth session of the United Nations Environment Assembly (UNEA-5.2) when Heads of State, Ministers of environment and other representatives from 175 nations met in Kenya, Nairobi from 28 February to 2 March 2022 to forge an international legally binding agreement to end plastic pollution by 2024.

The historic resolution, titled *End Plastic Pollution: Towards an internationally legally binding instrument* was described as “a landmark agreement that is the most important international multilateral environmental deal since the Paris climate accord” by Inger Andersen, Executive Director of the UN Environment Programme (UNEP). It aims to dramatically reduce the impact of plastic pollution on the marine environment by looking at the full lifecycle of plastic from source to sea – including how plastic is produced, recycled, processed, used and collected.

Commenting on the outcome of the meeting, Plastics SA Executive Director Anton Hanekom said the resolution made it clear that business plays an important role in ending plastic waste. “Governments are interested in learning about what business is doing to end plastic waste. The resolution appeals to the business community to develop new commitments that will increase the ambition of the global agreement. It also highlights the need for enhanced international collaboration to facilitate access to technology, capacity building and scientific and technical cooperation in order to improve the collection and recycling of plastic waste,” he said.

The assembly concluded with 14 resolutions aimed at strengthening collective actions for nature in order to achieve the UN’s Sustainable Development Goals (SDGs). Prior to the start of the conference, Plastics SA highlighted the importance of recognizing the special needs and circumstances of Africa and analysing the respective capabilities of each country in light of national circumstances.

Explains Hanekom: “You cannot blindly enforce a First World solution on Third World problems. Each country’s local and regional context is different, as is the availability of resources to develop and implement effective waste management solutions. It is important to recognise that nations have unique and different socio-political climates that need to be taken into consideration. Plastics continue to be the cheapest, most practical and fit-for-purpose solution for many applications and uses in our country and on our continent. Whether used to save lives in hospitals, incorporated into technology and cars, or extending the shelf life of food by preventing breakage and spoilage, it is almost impossible to imagine any area of our lives that is not enhanced by plastics. When used and disposed of responsibly, plastics even play a major role in ensuring a more sustainable world. We therefore welcome the draft resolution which



encourages the public and private sectors to manage a just transition towards a circular economy,” Hanekom says. Looking ahead, the local plastics industry will continue to collaborate with local Government, industry, civil society, academia and other interested parties to develop creative, but workable solutions to our nation’s waste crisis.

Explains Hanekom: “Over the past few decades, we have been pro-active in our efforts to prevent plastic from ending in the environment. We have also been addressing the issues of plastics leakage, overpackaging and developing an effective mechanism for the recovery and recycling of plastics. All of these topics will continue to top our agenda in the years to come. However, the signing of the treaty now potentially grants us access to some of the best minds in the world, greater resources and collective, global action. We look forward to participating in the Intergovernmental Negotiating Committee (INC) as we work together on identifying, developing and implementing solutions that will effect lasting change for generations to come,” Hanekom concludes. ☺

“Over the past few decades, we have been pro-active in our efforts to prevent plastic from ending in the environment. We have also been addressing the issues of plastics leakage, overpackaging and developing an effective mechanism for the recovery and recycling of plastics.”

Excavation in the blood.

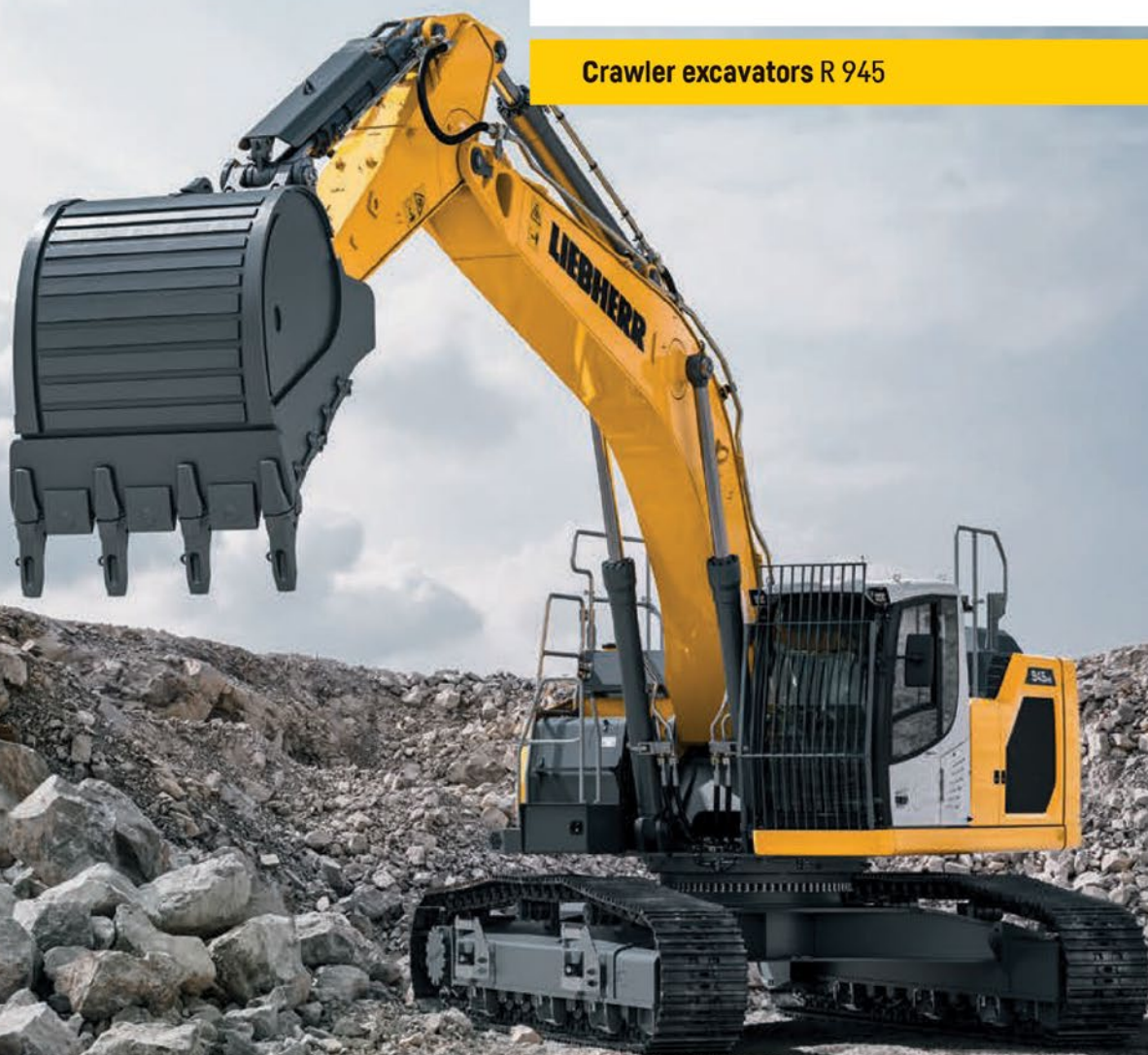
G8 goes in hard

The R 945 is the replacement for the R 950 SME. As such, it has different types of chassis (X or variable track), equipment and protections to meet the most demanding applications in mining and quarrying.

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Crawler excavators R 945



MBAWC UNLOCKS ENTREPRENEURSHIP TRAINING PROGRAMME FOR CONSTRUCTION GO-GETTERS

The Master Builders' Association Western Cape (MBAWC) has been rolling out the Entrepreneurship for Contractors Development Programme in partnership with the University of the Western Cape Centre for Entrepreneurship and Innovation (CEI) since 2018. Its main aim is to equip business owners in the built environment with the necessary tools and skills to manage and grow their enterprises.

The built environment sector has rapidly evolved in recent years. One noticeable change in the sector is the shift from large contracting firms to smaller sub-contractors. Another significant change is that employees, who were previously employed by well-known contractors, have started opening their own subcontracting businesses. Additionally, there has been a rise in the number of people who have started small scale building businesses.

These changes highlight the need to provide new entrants with a programme that will enhance and improve their entrepreneurial skills and business acumen. This will assist in developing their ability to run efficient businesses as well as give them insight into how to contract accordingly.

"As the industry has changed, so too have the needs of our members and the community at large. For this reason, we created a solutions-driven programme to assist emerging contractors who are already trying their best to generate an income and ultimately contribute to the economy," says Letitia van Rensburg, Training Officer for MBAWC.

The entrepreneurship programme is fully funded by the MBA Development Trust and is offered free of charge to participants. The programme equips entrepreneurs with the expertise they need to manage their business's profitability as well as to ensure that they conduct their businesses in a compliant and ethical manner. This includes compliance with the Building Industry Bargaining Council (BIBC), which is one of the requirements for operating in the built environment in the Western Cape.

This year marks three successful years since the inception of the programme,

with more than 30 graduates who are in businesses such as formwork, brick laying, plumbing and general contracting fully completing the course each year.

The CEI invites emerging contractors who are eager to develop and refine their enterprises in the following areas to consider the programme:

- Human Resources and Legalities, which assists with managing human capital inside the enterprise
- Occupational Health and Safety
- Contractual and Legal requirements, which outlines the compliance requirements of the BIBC
- Pricing and claims, which aids with competitive advantage
- Project management techniques

This year's programme kicks off on 21 May 2022 and runs for six months.

"Although there are a number of tasks to be completed throughout the six-month period, we are very confident that all the participants will successfully complete the course and graduate," says Wesley Clarence, Programme Manager at the University of the Western Cape.

"As the MBAWC, we are committed to empowering those within the built environment. We are also excited to



Letitia van Rensburg,
Training Officer for MBAWC.



Wesley Clarence, Programme Manager at the
University of the Western Cape.

share the necessary entrepreneurial skills to ensure that graduates are equipped with even greater knowledge and understanding of the industry they operate in and to grow their own entities," concludes van Rensburg. ☺

"As the industry has changed, so too have the needs of our members and the community at large."



INFOR 2022 PREDICTIONS



*In 2022, robotic process automation (RPA) is poised for a breakthrough into the mainstream consciousness. RPA refers to the automation of business processes via software platforms that script and operate pre-defined tasks across a variety of applications. Many repetitive business application tasks can be automated in this manner. RPA can be combined with Artificial Intelligence (AI) to create more advanced automations, with the AI providing the requisite context and self-correction to the automated process. **By Phil Lewis (pictured), Infor's VP of Solution Consulting EMEA***

The RPA software industry has been experiencing explosive growth. The reasons for this growth are well-known in IT circles. RPA can significantly boost employee productivity, freeing workers from time-consuming and repetitive operations. We are now seeing the awareness and utilisation of RPA expand into traditionally non-IT domains, promoting exponential growth of RPA across the organisation.

Non-IT applications of RPA

Examples of RPA applications are appearing across the enterprise. This includes smart bots that speed up the processing of external vendors' invoice approvals; RPA workflows that incorporate AI to automate monthly data collection and metric calculations; and RPA bots automating back-office operations involving compliance, orders processing and customer requests.

As automated workflows become more common in business applications, RPA functionality will increasingly be built into commercial software. Recent trends such as Industry 4.0 demonstrate the utility of these tools.

RPA as an accelerator of Industry 4.0

Industry 4.0 focuses on the synchronisation of Information Technology (IT) and Operational Technology (OT), forming a cyber-physical continuum, or computer system monitored by computer-based algorithms, incorporating IoT-enabled intelligent devices. As RPA becomes more integrated with Artificial Intelligence (AI) and Machine Learning, the adaption of RPA tools utilising AI will accelerate the effectiveness of Industry 4.0 across the entire value chain. For example,

shop-floor processes are still often driven by paper-based tracking. Custom-defined workflows enable users to automate and streamline tracking as new functionality is needed. The results can be used for advanced dashboards and reporting. As Industry 4.0 adoption gains traction, we will see increased RPA adoption in manufacturing operations.

RPA as an enabler of business resilience

COVID-19 has caused a series of disruptions, significantly in global supply chain and human resources. In response, firms are increasingly turning to RPA projects to deal with these disruptions and increase resilience in their business process operations. Such large-scale adoption implies growing recognition of the value of RPA among non-IT stakeholders.

As we have seen in other areas of digital transformation, widespread adoption of RPA across the enterprise will drive yet another technology-driven shift in the modern workforce. Thomas Friedman, the New York Times bestselling author, and three-time Pulitzer Prize winner, assures us not to be alarmed. "The robots are not destined to take all the jobs", he writes in his 2016 book, *Thank You for Being Late*. He predicts a future workforce freed from repetitive and mind-numbing tasks, allowing employees to maximise their creativity.

As RPA becomes the norm for firms across the globe, there will be a growing awareness of its potential among non-IT stakeholders. RPA's resilience and scalability were demonstrated during the onset of COVID-19 disruptions. Industry 4.0 will keep RPA and associated AI functionality at the forefront of organisational change well into the future. ☺

EMERGENCY LIGHTING: ONE-SIZE DOES NOT FIT ALL

Emergency lighting is perhaps one of the most complex topics that building owners and facility managers deal with. A wrong decision at any point in the design process can mean putting the lives of building occupants at risk in emergencies. By Dean Gopal (right), Product Manager of Eaton's Life and Safety Division for Africa.



According to Eaton's new emergency lighting fundamentals guide, there are several factors that need to be taken into consideration with regards to specification, placement, maintenance and regulation. An effective emergency lighting solution plays a critical role in crises but so many in the industry continue to ignore the basics.

User profile of the building

There are various decisions that need to be made around the occupants of the building. While some buildings have a broadly homogenous user profile, for example student residences, others may be more mixed. Age, health, well-being, lifestyle and familiarity with the environment are all design considerations that play a key role in dictating the best emergency lighting solution.

The lighting placement as well as higher illumination are key for various demographics. For instance, older occupants whose eyesight may not be as strong require higher and more uniform illumination with extra-thought to hazards like stairs. Buildings with higher levels of occupants experiencing physical and cognitive impairment should also implement high illuminations to support with more complex evacuations, for instance students in halls.

For hospitals, theatres or other public buildings that people don't visit regularly, panic or herd mentality can set in and cause crush scenarios during an emergency. The lack of familiarity with the environment could result in longer evacuation times and this may require maintained (always on) emergency lighting to ensure that escape routes and exits are clearly lit at all times, not only when a crisis breaks out. This is also critical to aid safe evacuations in the case of a power failure.

Type and purpose of the building

A key influence on emergency lighting system design is how safely tasks can be stopped by the occupants of a building hit by reduced visibility. There are three risk levels which define how easily a task can be safely stopped and how this influences the most appropriate emergency lighting approach:

- **Low-risk tasks:** These are typically conducted in offices, retail and the services sector and can be safely stopped under reduction of illuminance to very low levels (typically 0.5 Lux from 300-500 depending on the task). They usually require escape and anti-panic illumination.
- **High-risk tasks:** Activities in warehouses, cafés, and swimming pools, can be safely stopped at practically any time by interacting with a control panel. Illumination is typically required on both the control panel and task to safely stop and evacuate.
- **High risk (+) environments:** Theatres and airport control

towers where tasks cannot be immediately stopped or take a long time to do so. They need full illumination over a whole area.

Building scale and complexity

The scale and complexity of a building can make evacuation difficult. In high rise buildings, despite no inherently dangerous tasks, longer durations may be necessary to provide ample time for a safe evacuation. Fully enclosed staircases in most applications could be a reason to consider higher illumination levels, as could the fatigue of people leaving the building.

In older buildings, there may not be enough escape routes or the routes may be too narrow (according to newer building regulations). It's also possible that flammable construction materials could have been used. To mitigate these risks, higher illumination levels for a longer duration may be needed to reduce panic and ensure the safe exit of all occupants. Adaptive evacuation signage and techniques could be used to direct people to safety as well as control the flow of people using escape routes.

Lifecycle costs

Lifecycle total cost of ownership (TCO) can make a real difference to any building owner or operator installing an emergency lighting system. Just like any other commercial investments, there is a balancing act between how much the system will initially cost to design and build (CAPEX) and the operating costs (OPEX) involved over its lifetime. Nevertheless, safety should always be at the forefront of any emergency lighting design.

Maintenance and servicing

While testing an emergency lighting system is extremely important it does not encompass a maintenance programme sufficient to ensure people can evacuate safely, as well as meet regulatory standards. Robust processes must be in place so that faulty equipment can be quickly repaired or replaced, and that any new products or components needed deliver the required performance and satisfy all regulations.

While some building owners may choose to take on testing, maintenance responsibilities and arranging a simple repair or replacement themselves; most however most – especially when it comes to larger systems – will choose an annual service contract with their emergency lighting supplier company. This ensures that fully trained engineers manage all aspects of testing and maintenance and arrange any repairs using OEM components to high compliance standards.

Facilities managers must consider all these factors and be confident in their efficacy to class their emergency lighting system as suitable for the building they manage, and also its occupants, at any given time. ☺

EATON'S ADAPTIVE EVACUATION CONTROL UNIT



When it comes to protecting your people and assets, there's no room for compromise. By working with our team of experts, we can help you maximise safety during an emergency.

Today, safe evacuation has become a business-critical issue due to technologically complex buildings and a workforce that is often hard to track. So if you haven't updated your evacuation procedures, isn't it time you should?

DETECT. ALERT. EVACUATE.

Planning for the safe evacuation of commercial and industrial buildings is a challenge for building owners and managers due to the complicated risk and regulatory environment.

An increasingly urbanised and complex environment, combined with a rising diversity of safety threats, means the owners and managers of buildings need to re-evaluate the way they protect people and property as well as ensure business continuity that may be at risk in an emergency. Failure to take reasonable steps leaves businesses vulnerable not only to the catastrophic loss of people and property but financial, legal, operational and reputational implications.

Building upon decades of expertise in the delivery of life safety systems, and particularly emergency lighting technologies, Eaton's Adaptive Evacuation System enables faster, safer and more agile evacuations, particularly when deployed alongside a public address/voice alarm solution that provides additional guidance.

FEATURES OF EATON'S ADAPTIVE EVACUATION CONTROL UNIT

- Escape routing adapt continuously to the risk- AE-CU for the adaptive control of up to 240 GuideLed DXC luminaires
- Four short circuit and open circuit resistant loop lines each with 60 GuideLED DXC luminaires
- Two scenarios freely programmable for building evacuation, factory provided integrated
- More than two scenarios on request
- A maximum of six ZB-S/US-S systems can be connected per AE-CU. More than six ZB-S systems on request
- Automatic software address-setting of all GuideLed DXC luminaires for scenario control.



MENTORSHIP PROGRAMME SET TO GIVE THE VALUATION PROFESSION A BOOST

The South African Institute of Valuers (SAIV) has announced that applications are open for its 2022 Mentorship Programme. The mentorship programme, now in its third year, aims to match young valuers with accredited professionals and open new personal and professional development pathways.

The property valuation profession is vital to ensuring open market value and helping consumers and businesses alike to navigate increasingly complex property trends. However, in recent years, the SAIV has been concerned by the aging profession which seems to retain few young people. “The profession needs proactive development initiatives which appeal to our young South Africans,” comments Lerato Pooe, SAIV General Manager.

The SAIV looks after the interests of property valuers and the local property valuation profession and, as such, has identified that mentorship of young professionals is vital. “Mentorship has shown to boost confidence, performance and engagement with the wider profession. With this in mind, we are excited to open enrolment for the intake of new mentees in this year’s mentorship programme. As with any new programme in its infancy, the mentorship programme has been met with obstacles however, it has also yielded some incredible results which will strengthen the programme.”

The mentorship programme was designed to overcome challenges in the valuation profession, specifically the difficulty in finding mentors for valuation graduates who for example, would need to fulfil the pre-requisite of having a mentor in order to apply as a Candidate Valuer with the South African Council for the Property Valuers Profession (SACPVP) – a huge stepping stone into establishing your career in the valuation profession. Applications for the programme often exceeds capacity. Applicants need to be members of the SAIV and fall either within the categories of “student member” or “student member unemployed”. The latter category includes persons who do not earn any form of income – who can be students or graduates alike.

The programme is run by SAIV Branch Executives who provide mentorship on a voluntary basis and are registered with the SACPVP. The programme comprises regular workshops which are held with a focus on theoretical and practical content. Mentees produce reports that are assessed and signed off by the mentors once a required standard of proficiency has been met. “We believe this can be a career changing-benefit for the mentees that can significantly improve their skills and knowledge base. Mentees gain proven experience that will assist them in their preparations to write the SACPVP Board Exam to qualify as professionals, while also providing them with networking opportunities



“The profession needs proactive development initiatives which appeal to our young South Africans.”

Lerato Pooe,
SAIV General Manager.

for their careers” explains Pooe. Over and above that, the valuation industry and its clients will benefit from the input of an enlarged, trained body of professionals. “The success of this programme is largely due to the selfless people who are acting as mentors, who are committed to seeing advancement in the valuation profession. We must also commend the commitment of the mentees who desire a career in property valuation. A concerted effort needs to be made by all industry bodies to ensure that mentees are retained in the profession by having sufficient employment for them,” Pooe concludes.

Commenting on her experience in the Mentorship Programme, Slindile Mpontshane says she signed up because she believes the programme provides a structured opportunity to be adequately trained in preparation for the Board Exams, and thus to be registered as a Professional Associated Valuer and ultimately a Professional Valuer. “Through the mentorship programme, I have been able to expand my professional network with my peers, and with other Property Valuers in different sectors. It has also broadened my understanding of the field; through the attendance of SAIV annual seminars,” she stated. ©

40 YEARS OF EMBEDDING TECHNOLOGICAL BEST PRACTICE IN CONSTRUCTION INDUSTRY

RIB CCS has been at the forefront of technological evolution in the engineering and construction industry for 40 years. Celebrating this milestone, newly appointed Vice President, Peter Damhuis (pictured), reflects on the business's evolution to meet its customers' ever-changing needs.

Damhuis says when Peter Reynolds started RIB CCS (formerly CCS) four decades ago, he had already spent four years developing what would become Candy, an estimating, planning and project control solution, while working at Murray & Roberts. "When the construction company decided that systems development was not part of its core business, Reynolds bought himself out and started CCS in 1982.

At about the same time, IT and civil engineer, Peter Cheney, had begun developing fit-for-purpose cost and enterprise management software for the construction industry, culminating in the launch of BuildSmart in 2000. The two men would come to epitomise the company's forward-thinking approach and its ability to leverage technology in support of the RIB CCS customers.

Damhuis says Reynolds and Cheney were pioneers at a time when the world was transitioning from paper to computers. "In those early days, estimating was conducted manually or on 'back of page', an inefficient process that both Reynolds and Cheney wanted to change."

Back then, operating platforms were not what they are today. From DOS through to Windows 95, 98, 2000 and XP, operating platforms were evolving rapidly and CCS had to keep up with the changes.

"In addition, computers were slow, with tiny screens, small hard drives and cumbersome keyboards. With almost no internal memory, Reynolds was compelled to even build hardware – computer boards that could be inserted into a computer – that Candy could run on.

"With no internet or networks at the time, Candy also had to be installed on computers via a set of stiffy discs, with an IT expert going from one computer to the next to complete the process," notes Damhuis.

As computers and operating platforms evolved, and RAM and storage became more efficient, the way Candy was installed and updated on computers changed. "As tech platforms evolved, so CCS embraced this change to keep Candy relevant. The focus was (and remains) on developing tool sets for contractors to make their jobs easier by supporting them with a seamless computer environment. Today, Candy updates are a mere click away and take very little time to complete," adds Damhuis.

Forty years ago, CCS did not have a sales department. "Peter Reynolds would visit potential clients to get his products into their businesses. These weren't IT people



trying to computerise the construction industry. Rather, they were people with deep industry insight focused on creating efficiency in the construction, estimating and project management spaces," says Damhuis.

And that's where he believes RIB CCS' business success lies. "It started when Peter and his team left Murray & Roberts to become independent operators with the intention of harnessing ideas from various players in the market and collaboratively developing Candy year after year."

What started as an estimating module has scaled into so much more and Candy now offers estimating, planning and project control. RIB CCS continues to employ construction professionals who understand the industry's needs and are able to capture these needs in its software.

Damhuis points out that some of RIB CCS employees have been around since the company's inception. "We also employ a growing generation of young, talented professionals, who are helping to grow the business in South Africa and globally."

The merge between CCS and BuildSmart happened in 2008, resulting in the creation of a unique integrated cost management solution. Once again, the business had listened to its customers by providing them with an integrated, purpose-built solution that better met their needs.

Damhuis says much of RIB CCS' sales growth has been organic, coming from users moving from one company or country to the next and introducing its products in their new situations. "Whether our users change companies or emigrate to Dubai or Australia, we have several examples of our products being introduced in this way.

"Notably a major part of this journey has been users who have established themselves as business development partners of RIB CCS, in the UK, Portugal, India, Australia and New Zealand, each one of these carrying the product, support and service culture of the business to these new markets. Today, our products are used by more than 40 000 users in over 80 countries," he adds.

In September 2020, CCS was acquired by software multinational RIB Software – also an innovator in the building and construction industry – changing its name to RIB CCS. The partnership provided opportunities for greater investment in R&D, access to new technology and innovative solutions such as the first construction industry cloud platform, new channels to market, and partnerships with other RIB companies.

"Over the past 40 years, we have come to understand what works. Looking ahead, we will continue to employ industry professionals and partner with our clients for the long-term. We will remain their trusted advisors and support them in their digital transformation journeys. We remain committed to digitising the industry, staying abreast of the latest technological developments and embedding best practice into the industry," concludes Damhuis. ☺



HEAVY RAINS FOCUS MORE ATTENTION ON FLOODLINES

SRK Consulting's Xanthe Adams, Principal Engineer, discusses the importance of floodline measures and why they should be enforced by municipalities.

The question of floodlines is in the spotlight after the serious flooding in parts of South Africa earlier this year were declared a national disaster by the National Disaster Management Centre (NDMC).

The heavy summer rains – mainly in the Eastern Cape and KwaZulu-Natal but also in the Free State and North West provinces – destroyed property and infrastructure, and led to many lives being lost. While the declaration allowed more direct intervention in recovery efforts by national government and organs of state, the NDMC noted that “these threatening conditions call for an all-of-society and government approach to promote risk reduction”.

Among the standard measures in place to protect communities, businesses and infrastructure from flooding is the regulated floodline alongside rivers in urban areas – below which any building or development is not permitted.

What's a floodline?

“A floodline is an imaginary line on the ground that denotes the edge of the water during a flood,” said Xanthe Adams, principal engineer at SRK Consulting. “The floodplain is the area alongside a river that will be expected to be under water during a flood, with the upper edge of this floodplain being designated as the floodline.”

The National Water Act requires these floodlines to be shown on plans for housing and other developments, which show the highest level that a flood could reach every 100 years – the most commonly stipulated timeframe. All buildings then need to be above this floodline, to avoid the danger of flooding.

Who needs one?

Adams highlighted that municipalities are responsible for enforcing compliance with floodlines as part of reducing flood risk to communities and infrastructure. Their planning must mitigate and manage the effect of urbanisation, which generally means more rainfall run-off and greater risk of flooding.

“Urbanisation is certainly a significant factor increasing the size of floodplains and the velocity of floods,” she said. “We see its effect frequently as we determine floodlines, especially in older urban areas, where we often find that some of the infrastructure is actually already within the floodline.”

Among the efforts by local government to address rising run-off levels is to ensure that developments design water attenuation facilities into new projects. These dams, ponds and wetlands will act to slow

down the flow of water and allow more of it to percolate into the ground.

Emergency plans

At the most basic level, however, municipalities must ensure that any new developments are outside the floodline and must also upgrade culverts and drainage infrastructure whenever necessary, as part of their emergency planning.

“Other situations where a floodline is required include mining operations which might encroach on rivers or streams,” said Adams. “Holders of water use licences might also need to determine floodlines, as their work may potentially disturb the area within the floodline.”

It is likely that a floodline will be required by law if a developer or other entity are planning to build on a property that have a river or stream running across it, she said. It might also be a legal requirement if a river is within a few hundred meters of the property being developed.

EIAS and water use licences

“Companies that require a full environmental impact assessment (EIA) or even a basic environmental assessment may be required to furnish a floodline as part of the permitting process,” she said. “In fact, planning any activity in or near a river – such as building a bridge or installing a pump – may require a water use licence that includes a floodline.”

She noted that while the recent flooding seemed out of the ordinary, this would still have to be confirmed by detailed studies. It was also difficult to know the extent to which climate change contributed to the magnitude of these rainfall events, as there were many different global climate models – each with a range of predictions.

Protection measures

“More important will be the country's ability to develop flood protection measures alongside floodline studies, as it is likely to be impractical to move houses and infrastructure which today lie within floodplains,” she said. “Flood management on the catchment scale is another relevant field of enquiry which can significantly reduce flooding so I wouldn't be surprised to see more regulations focusing on catchment scale management of floods.”

Floodline studies remain a highly specialised task, and they need to be properly signed off before a local authority will accept the floodline determination. This sign off must be done by a professional engineer registered with the Engineering Council of South Africa. ©

COENG CELEBRATES 14 YEARS OF ENGINEERING EXCELLENCE



COENG COO Takalani Mbedzi and Chairman Rain Mudadi.

COENG Consulting and Construction Engineers recently celebrated its 14th birthday celebration at a company event where the firm's growing team of professionals came together. COENG has done extremely well in terms of market growth in recent years, having significantly increased its market share while fostering on-going business relationships with big businesses in South Africa.

Takalani Mbedzi, COO of COENG spoke at the event in Krugersdorp on 25 March: "I believe that we are experiencing ongoing success because each and every one of us operates in a way that stays true to our company values. Fourteen years is not nothing – our internal processes and ethics are seeing us through a very interesting and constantly changing business environment." He thanked top management for their continued guidance and support through all levels of the organisation.

One of the founding members of COENG and current chairman, Rain Mudadi, spoke at the event and said: "They say time flies when you are having fun – and I can't believe it has been 14 years. But time must have moved because when I look at our company today, we look very different to 14 years ago. Our team has grown extensively over the years, and we have opened new branches in other areas of South Africa where we see opportunities. I look forward to seeing our COENG village grow more in the coming years."

Mudadi explained how the company first started all those years ago, where the founders shared a desk in another firm's offices until finally winning a big contract for a smelter in Rustenburg. "We completed that first contract to the best of our abilities back then, and our business grew from there. The industry came to trust us, and it laid the foundations for the quality and integrity we are known for today."

Mudadi reported that the company resources have in fact doubled in the past year, with new faces joining the team every month. "I believe the future is bright, and we will see continued growth in the coming years. I love thinking back on where we came from, but it doesn't actually matter. What matters is where we are going, and I believe where we are going is very good," he concluded. ☉

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ARE SEMIGRANTS TO CAPE TOWN DRIVING A PROPERTY SECTOR RECOVERY?

Earlier this year Lighthouse Properties reported that 43% of homeowners who sell their properties in Gauteng, buy another property in a different province, and of this percentile, 36% are buying in Cape Town and the Western Cape. This semigration is believed to be underpinning Cape Town's resilient property market as skilled workers, entrepreneurs and big corporates migrate in favour of the metropole to find work, set up businesses and relocate their offices.

“With the outlook for tourism on the up and positive data released by Western Cape promotion and investment agency, WESGRO, Cape Town will lead the recovery of the property sector across all assets.” That's according to Quintin Rossi, CEO of JSE listed property group Spear REIT. Rossi attributes this recovery largely to semigration, as an increase in buyer activity has been noted by the residential property sector as people move from Gauteng and KwaZulu-Natal to the Western Cape.

Rossi says that although the national and more recently, the Russia-Ukraine war, global economic outlook remains difficult to navigate, the city's property sector is fast-tracking its recovery. During Spear's pre-close investor presentation, Rossi pointed out that Cape Town's office, retail and industrial occupation rates are showing a healthy bounce-back as the return-to-work trend continues and companies begin to focus on growth and recovery.

Spear who has 32 properties within its regionally specialised R4,6bn portfolio, showed a close on 94% occupation rate during the time of March 2021 to end February 2022, with a portfolio comprised 100% in the Western Cape. Apart from the obvious lure of the Mother City, semigrants are said to be in search of safety and security, lower pollution and a better quality of life, and South Africa has some unique factors that support the trend.

Unrest

Recent comment from First National Bank property strategist, John Loos attributed the unrest and looting in KwaZulu-Natal and other regions of South Africa in July last year as another important factor for businesses to relocate. Many people who were sitting on the fence, have now accelerated their plans.

Municipal management

The Western Cape and Cape Town's municipal districts have earned a reputation of being well-run and effectively administrated. Maintaining current infrastructure and rolling out future projects, such as current efforts of reducing reliance on Eskom, make a great investment case for the region. The Western Cape government's policy is to ensure that the city and province have the necessary infrastructure and technology to support business and investment to the region.

International Investment

Top international companies such as

Johnson & Johnson, Microsoft and Reuters have set up facilities in Cape Town. Following suit, US retail giant, Amazon will be the anchor tenant at the Cape Town-based R4,5bn residential and commercial property development expected to create 5 239 jobs in the construction phase alone. Western Cape-based South African tech companies have continued to attract international investment with Fintech firm Clickatell announcing an additional R1,3bn capital raise via the international investor market to further boost its growth ambitions on the African Continent.

The Western Cape has established itself not only as a top international tourism destination but as an economically viable investment case for tech firms, green energy companies as well as South African and foreign families seeking to re-establish themselves.

The result brings benefits across the residential, retail, commercial and industrial real estate sectors of the Province. ☺

The Western Cape and Cape Town's municipal districts have earned a reputation of being well-run and effectively administrated.

SAVE MONEY, TIME AND HEADACHES WITH OPENSOURCE



360° photo documentation – free builders to build

Construction is hard. It's a challenging industry with slim margins, tight deadlines, and a shortage of labour. Using photos to document progression of a project is critical to minimising challenges. But if you ask an entry-level field engineer or intern in the construction industry, they'll tell you how tedious and time-consuming it is to walk around a site, take hundreds of pictures on their phone, and then manually organise them to match the floorplan of the building. And later, trying to sift through those images to find information or solve problems can be beyond cumbersome.

What if you could take laborious planning of manual photo documentation off a project manager's plate? Instead, what if 360° photo documentation, machine learning, and AI could free builders to focus on actually building? This is OpenSpace's vision. It provides next-generation 360° construction photo documentation software that delivers results quickly and is simple to learn. Since all construction workers are required to wear a hard hat on site, it builds a magnetic mount that holds a 360° camera on top of the hat. Tap 'go' on the app and the camera passively captures the entire site as workers do their normal site walks. Then, its backend software ingests the data and maps the photos to your project plan, producing a Google Street View-style walkthrough of your job site. Now you can log in and virtually visit the site – anytime from anywhere and collaborate remotely.

The ability to work virtually became more important than ever during the pandemic, and from the trends we're seeing it's apparent that it will continue to be a priority throughout the industry.

Remote collaboration increases efficiency and helps project teams finish on time and on budget.

With a complete, up-to-date single source of truth, project stakeholders can:

- Avoid unneeded travel to a site, saving time and money.
- Ensure that building progress matches the design.

- Manage risk with an objective and indisputable record.
- Reduce rework costs with the ability to go back in time – see beneath concrete and behind walls instead of tearing work down.
- See completed work without delay and send invoices on time.
- Finish projects on schedule and under budget.

OpenSpace is beneficial throughout the lifecycle of your buildings. Rather than in-person viewings, you can easily share your OpenSpace images with prospective tenants. For owners, as you transition to (or hand off) operation, your OpenSpace visual record will be invaluable for managing maintenance and renovations.

Automated progress tracking

What if it was simple to document progression of a project? Adding analytics to the mix takes your OpenSpace captures to the next level – our ClearSight™ Progress Tracking taps into your images and uses trained computer algorithms to identify materials, delivering insight into progress across the project.

Use your ClearSight dashboard to view and validate

- Percent complete
- Quantity installed
- Work that is yet to be completed
- Rate of work

Advanced data analytics gives decision makers powerful insights into how resources are allocated on the jobsite and enables superintendents to focus on maximizing schedule and budget performance – all resulting in cost savings.

Get in on the action – see what OpenSpace can do for your business

OpenSpace is deployed in 76 countries on a wide range of projects, from one-month renovations to multi-year mega-projects. Its customers, including owners, general contractors, and the trades, love the simplicity of its tools. ☺

SHRA WELCOMES NEW ENTRANTS INTO SOCIAL HOUSING INDUSTRY

The Social Housing Regulatory Authority (SHRA) works towards a future South Africa where citizens live a good quality of life in well-located and affordable rental homes. “However, we cannot achieve this vision without social housing institutions (SHIs) which are ready to undertake and oversee the development of social housing projects,” says John Mofokeng, SD&T Specialist for the SHRA. “To this end, we have been investing our efforts into making the SHI accreditation process more accessible and inclusive,” reports Mofokeng.

The SHRA does not directly develop social housing projects. Rather, it coordinates and regulates the industry to ensure social housing projects are functional, efficient and integrated, delivered to a high quality by a value chain of transformed entities. SHIs are non-profit companies which develop, own and manage social housing projects, which is affordable rental accommodation. They are accredited by the SHRA, to which they report on a regular basis.

“To be able to partner with the SHRA, which undertakes development and management functions, SHIs must be accredited by the SHRA. Once accreditation is received, SHIs should have housing stock under management and they are required to report to the SHRA regularly.

“SHIs and other delivery agents (ODAs) are crucial to meeting our mandate. We cannot work in isolation, and have been engaging these and other stakeholders to hear their ideas, and pivot our operations to ensure that we remain helpful, relevant and approachable,” adds Mofokeng.

Demystifying the accreditation process

“The accreditation process can seem daunting and difficult to aspiring SHIs, but there are two sides of the coin. On one side, the SHRA cannot relax our expectations of accredited SHIs – we must trust that accredited entities are capable and proficient, fully equipped to manage the complexities inherent in social housing projects. On the other side, the road does not end if your accreditation is unsuccessful on the first try. We stand ready to help you along the way, guiding you until you get it right,” explains Lesego Diale, Marketing and Communications Manager of the SHRA. “We will not close the door on you. Rather, we will partner with you to see you to success.”

Diale encourages aspiring SHIs to engage with the SHRA over their various channels. “We have been investing in social media, webinars, information sessions and training programmes which are all geared towards preparing entities for the accreditation process. The year has seen excellent engagement over these channels, and we hope this grows into 2022,” Diale says. Furthermore, in-person engagement sessions are planned around the country for



“To be able to partner with the SHRA, which undertakes development and management functions, SHIs must be accredited by the SHRA.”

John Mofokeng,
SD&T Specialist for the SHRA.

the next quarter. In the past financial year, there were eight fully accredited and 18 conditionally accredited institutions which had projects under management, meaning there were 26 entities reporting to the SHRA. “We are committed to not only growing the social housing sector, but to transforming it. We are focussing our attention on women, youth, and persons living with disabilities – these individuals must be empowered to see their SHIs through to success. We look forward to undertaking on-the-ground initiatives next year which will aid in this regard,” says Mofokeng. Diale adds that this extends to ODAs too, who stand to benefit from the many business opportunities presented by the social housing value chain.

“We are here for you. The SHRA exists for the benefit of the entire social housing sector – and ultimately for social housing beneficiaries – as we work together to house South Africa’s people. We look forward to further stakeholder engagements into the new year as we continue to foster transparency, quality and accountability in the sector,” concludes Diale. ☺

BUILDINGS OF THE FUTURE – THE FIVE ESSENTIAL PILLARS

In an era of digitisation and electrification, commercial and industrial facilities need to rethink its focus. Forty percent of the world's CO₂ emissions come from buildings, whilst 30% of the energy consumed (in buildings) is wasted. By Okkie Momberg, Prescription Manager at Schneider Electric.

Moreover, there are 10 times more connected devices, and data generated has taken a giant leap in the last five years; edging towards 500 billion Gigabytes, driven in part by the rapid adoption of technologies such as Artificial Intelligence (AI).

The reality is when planning a new facility or retrofitting an older building, five essential pillars that need to be factored in to keep trend with a world that is consuming energy and data at a monstrous pace.

Pillar one – availability

In a country impacted by a severely strained grid and resultant unstable power supply, building owners and facility managers are faced with a very real challenge, how do they keep the lights on and the data flowing, so to speak.

It is estimated that load shedding costs the economy up to R500m per stage, daily. An enormous amount that begs the question: what are building owners doing to mitigate the impact, ensuring their tenants continue to stay productive and, most importantly, profitable?

Power availability is a non-negotiable pillar that demands top priority for owners and facility managers to keep buildings running optimally. And there are several workable, attainable renewable and alternative energy solutions that provide redundancy and mitigate the instability and losses that come with an unreliable grid.

Pillars two and three – sustainability and efficiency

Sustainability and efficiency in buildings go hand in hand. From a sustainability point of view, achieving carbon-neutral, green building certification is certainly a big driving force.

However, certification is not the end of the line; the building industry needs to look at sustainable practices within its supply chain, ensuring that each cog in the wheel moves towards greener practices.

Efficiency feeds into sustainability, as already mentioned South Africa's power provision is unstable, which is why building owners and managers need to look at energy demand within their facilities and optimise it accordingly. This means granular correlation analysis determining how the energy is being used and whether it is utilised efficiently – ultimately impacting the wellbeing of the building?

Also, improved efficiency allows for flexibility – a space can with relative ease be customised to fit a tenant's specific needs. With the necessary building management systems in place, heating, electrical and connectivity requirements can be adapted to meet pertinent needs.

Pillar four - cybersecurity

The pandemic saw a considerable portion of the local

workforce working from home. However, more and more businesses and their employees are returning to the office which means cybersecurity and connectivity must be fortified and readily available.

The IT infrastructure needs to be fortified and offer bandwidth and resultant speeds to meet technology demands. Whichever way you look at it, tenants now have the upper hand, there are many buildings ready for occupancy, they have access to the cream of the crop which is why owners and managers must stay one step ahead of the competition.

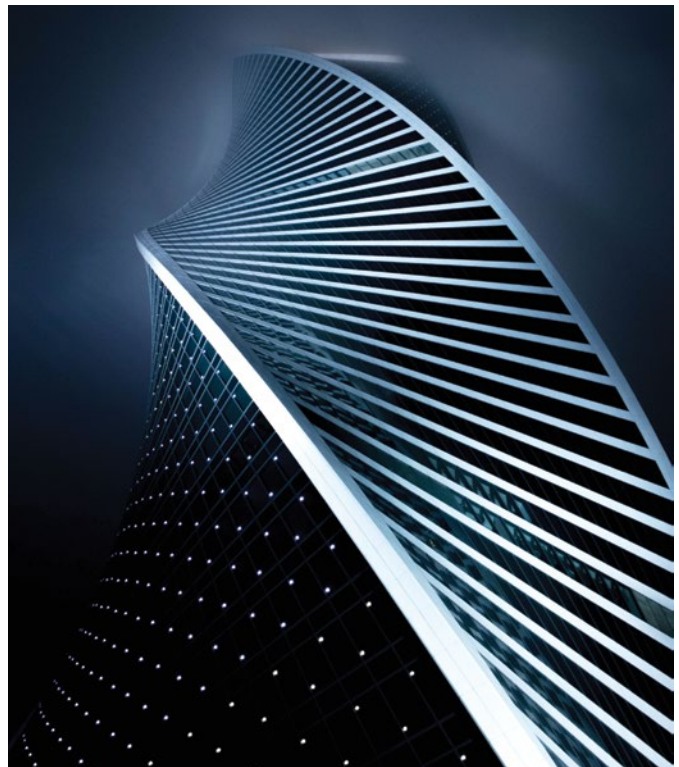
Pillar five – safety

As mentioned, IT services need to be fortified, conversely the same urgency applies to physical building safety.

Safety is a basic human right which is why buildings today must have access control, CCTV cameras and other physical security measures.

Additionally, the physical electrical infrastructure must be safeguarded against potential surges and worst fires that can be detrimental to both those working with the infrastructure and in the vicinity.

At Schneider Electric we offer a complete solution throughout the building value chain; managing safety, energy, optimising sustainability, and accessibility whilst ensuring that the building run as efficiently now and in the future. ☺





RENEWABLE ENERGY INDUSTRIALISATION WILL UNLOCK ECONOMIC POTENTIAL

The South African Wind Energy Association (SAWEA) and its sector stakeholders are advocating for the industrialisation of the renewable energy sector to extrapolate the enormous potential across the value chain, thereby unlocking both the economic power of the renewable energy industry and delivering broader benefits to the people of South Africa.

The Association has stressed the importance of managing the industrialisation of its sector responsibly, by ensuring that components are localised on the basis of their competitiveness and value-add.

To this end, SAWEA reiterates that predictable and continued procurement underpins any industrialisation policy and incentives to build more and better local capabilities, in order for the wind industry to compete with international markets, whilst supporting local manufacturers to become competitive for export markets.

“Transformation goes hand-in-hand with the industrialisation of the wind power sector. And market certainty is the most important aspect to building a local manufacturing industry. Hence, we require the Department of Mineral Resources and Energy to provide consistency, in line with the IRP2019, to kick-start industrialisation by upfront certainty on a number of REIPPPP rounds and their primary local content framework,” explained Niveshen Govender, CEO of SAWEA.

The country’s power sector procurement model started evolving over a decade ago, with major policy shifts. This has accelerated over the last 18 months, with the lifting of the cap on the new generation capacity requirement for a generation licence to 100 MW and governments continued commitment to rolling procurement. This is in-line with the global uptake of renewable energy to increase energy security and achieve climate goals.

South Africa’s energy roadmap, IRP2019, requires 3 600 wind turbines, underpinning the industrialisation plan and demonstrating a noteworthy opportunity for local employment and GDP contribution through annual production across the value chain. By maximising the use

of the current industrial capacity to supply materials and components into the sector’s demand areas, additional investments in capacity and capability will be stimulated.

“We continue to support the various stakeholders, including Government, labour, civil society, researchers, industry contributors and other advisory groups, which are currently drafting the South African Renewable Energy Masterplan that addresses exactly how we can industrialise the renewable energy value chain in our electricity sector to enable inclusive participation in the energy transition, serving the needs of society and contributing to economic revival,” said Govender.

South Africa has been relatively successful in establishing local manufacturing to serve the utility scale wind market in the past, through the diverse representation of OEMs. However, whilst the renewable energy market is no longer nascent, the renewable energy manufacturing component, can still be considered as emerging.

This was exacerbated by the hiatus in procurement in REIPPPP around the signing of Bid Window 4, which resulted in the loss of local civil engineering capacity, which now requires some level of ramp-up to fully capacitate the sector again, in line with government’s resumption of the renewable procurement programme.

“Our industry needs to understand, harness, accelerate and maximise localisation to move toward industrialising renewable energy in South Africa.

To do this we will work alongside, and within the framework and mechanisms, to ensure that this transition is managed responsibly and can deliver true value and benefit for our industry, South Africa and its people,” concluded Govender. ☉

CONCOR BUILDS TO TOP-LEVEL GREEN RATING AT IKUSASA

Its commitment to Zero Harm and sustainability ideally positioned Concor to complete the Ikusasa office block in Rosebank's Oxford Parks precinct to 6-Star SA Office V1.1 green standards.



the Green Star certification focuses on nine categories of sustainability achievement, from management and materials to the reduction of energy use, water and emissions.

“In terms of the materials category, for instance, the Green Star rating rewards developers and contractors for reducing the amount of natural resources used, and for reusing materials wherever possible,” she says. “At the Ikusasa project, Concor reduced the portion of ordinary Portland cement used in their concrete mixes by 30% as an average across all concrete mixes used in the project, and achieved a

According to Concor contract manager Martin Muller, the company has constructed a number of buildings in this development and elsewhere to 5-Star Green Star SA level in terms of the Green Buildings Council South Africa (GBCSA) certification. Ikusasa will be the first one of its projects to achieve a 6-Star Green Star SA Office V1.1 design certification. Green Star certification is an internationally recognised mark of quality for the design, construction and operation of buildings, interior fitouts and precincts.

“Concor’s strict performance strategies to manage water use, energy consumption, process waste and pollution all contribute to upholding critical environmental standards,” says Muller. “In addition to carefully applying our client’s sustainable designs, our quality systems all contribute to the points requirement in the GBCSA rating.”

These included Concor’s application of a comprehensive Environmental Management Plan on site, in line with its ISO14001 accreditation. It also applied a rigorous Waste Management Plan, which saw 70% of demolition and construction waste being re-used or recycled rather than going to landfill.

“We also conducted a hazardous materials survey on the project site before demolishing existing buildings, in accordance with the Occupational Health and Safety Act and other legislation,” he says. “Wherever we found asbestos, lead or polychlorinated biphenyls, these substances were responsibly removed as the law required.”

Annelide Sherratt, head of department for green building certifications at Solid Green Consulting, notes that four key members of Concor’s site team completed the Green Star online course – which helps the team understand and apply sustainable ratings on the project. Sherratt highlights that

level of 60% recycled content in the steel requirement.”

Local sourcing of materials also played a role in this category, where Concor sourced 20% of the contract value from suppliers within a 400 km radius of the site, and 10% within 50 km.

In terms of energy efficiency, Ikusasa aims to achieve a Green Star SA Net Zero Carbon Level 1 – by generating as much energy on site as the base building would require. This includes the use of a photovoltaic solar generation system on the roof of the building, producing renewable power. The building’s design and operation enhances energy efficiency by applying sub-metering to track and control the main areas of consumption.

“Any energy uses of 100 kVA or more are metered separately so users can benchmark usage targets and implement opportunities to reduce consumption,” she says. “This impacts on the production of greenhouse gasses and other emissions associated with electricity generated by fossil fuels.”

The data generated by the metering system is captured and analysed by a digital monitoring system for building management, but is also shared with the building’s tenants and visitors on a public display screen – aimed at raising awareness and driving energy-efficient behaviour.

Conserving water is another important element of the building’s environmental performance. This is optimised using options like low-flow tap fittings and dual flush toilets, as well as water sub-metering for uses such as irrigation and bathrooms. Plant irrigation was reduced by 50% using water-wise irrigation methods and smart sensors. Also, the heating, ventilation and cooling system is cooled by air rather than by water. ☺

2022 T W E N T Y - F I R S T BEST PROJECTS CALL FOR ENTRIES



Construction World's Best Projects showcases excellence in the South African building, civil engineering, supply and project management sectors. In its 21st year, the aim of *Construction World's* Best Projects is to recognise projects across the entire construction industry: from civil and building projects to professional services to specialist suppliers and contractors.

There are **SEVEN** categories in which to enter. Projects may be entered in several categories, provided they meet the prerequisites for entering each one, and meet the criteria.

This competition is by submission only – it is judged solely by what you submit – so it is essential to take careful note of the entry requirements.

JUDGING

A panel of independent judges from the construction industry has been appointed. These judges represent ECSA, SAICE, MBA, CIOB and Architecture.

Each criterion set out for the various categories, will be scored out of 10 – with 10 being the highest score and one being the lowest. It is therefore **VERY IMPORTANT** that the entry address the criteria for the particular category it is entering.

If a criterion is not answered, it will be awarded a medium of five points.

In each category a 'Winner' is announced as well as a 'Highly Commended Award'. A 'Special Mention Award' may be given.

SPECIAL ISSUE

The December issue of *Construction World* is dedicated to the various winners and entries and is an overview of activity in the entire built industry during the past year.

Contact Erna Oosthuizen, the advertising manager, if you wish to advertise in this issue. Advertising here will associate your brand with excellence.



How to submit entries

- Each entry must be accompanied by the **completed entry form**, available from www.constructionworldmagazine.co.za or by requesting it from constr@crown.co.za.
- The maximum length for submissions is **2 000 words**.
- Each submission must clearly state which **category** is entered.
- **IMPORTANT** It is to the entrant's own advantage to address **ALL THE CRITERIA** as set out in the category being entered. If the criterion falls outside the scope of the contract, please state this. It is advantageous to use the criterion as subheader and then to address this directly.
- The written submission must be accompanied by up to **six high resolution** photographs with applicable captions.
- The photographs and copy must be submitted separately. The photographs must be .jpgs and the copy in Word (not PDF format).
- The submission must also contain a **summary of important project information** such as the client, main contract etc. – i.e. the professional team involved in the project.
- **Electronic submissions only.**

Prerequisites for entry

All the categories have the same prerequisites (unless otherwise stated). These are:

- Only South African civil and building projects that are executed by locally based companies.
- Projects are eligible during the execution of the project and up to 18 months thereafter (within reason).
- Projects must be at least 50% complete at the time of entry.

Awards evening

Information about the format/venue and date of the awards evening will be available in July when there is more clarity with the situation around COVID-19.

Entry form available on

www.constructionworldmagazine.co.za
or by requesting it from constr@crown.co.za

Contact

For more information contact the editor,
Wilhelm du Plessis, on 011 622 4770 or constr@crown.co.za

Entry Deadline

Monday, 5 September
at 17:00

1 *Category* **Civil Engineering Contractors**

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

3 *Category* **Civil Engineering and Building Contractors (outside South Africa)**

- In addition to the common prerequisites, projects outside South Africa must be executed by a **South African** contractor.

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

5 *Category* **Consulting Engineers**

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

7 *Category* **The AfriSam Innovation Award for Sustainable Construction**

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

2 *Category* **Building Contractors**

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

4 *Category* **Specialist Contractors or Suppliers**

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

6 *Category* **Architects**

Please address the following criteria:

- Construction innovation technology
- Corporate Social Investment
- Design innovation
- Environmental Impact Consideration
- Health & Safety
- Quantifiable time, cost and quality
- Risk management
- Motivation facts about the project

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Graham Forte, Divisional Managing Director – Case Construction SA.



Jerome Increase, Case founder of the Racine Threshing Machine Works in 1842.



In 2021 CASE Construction launched the brand new CX 220C LC Heavy Duty excavator in South Africa.

CASE CONSTRUCTION EQUIPMENT CELEBRATES 180TH ANNIVERSARY

CASE Construction Equipment celebrates 180 years of serving construction businesses across the world with effective solutions that meet their requirements.

The history of CASE dates back to 1842, when inventor and entrepreneur Jerome Increase Case founded the Racine Threshing Machine Works in Illinois, USA. It was the beginning of an exciting journey of entrepreneurship, ingenuity and continuous development of practical solutions to the challenges of construction jobsites.

For the past 180 years, CASE has been pioneering technologies and innovations that have changed the industry and earned the trust of construction businesses across the world. It introduced the first factory-integrated backhoe loader in 1957. The more than 50 years of skid steer loader and wheel loader excellence, and numerous awards –

testify to its expertise and its ability for practical innovation.

The long history of important milestones and this year's anniversary are testament to CASE's capacity to evolve with the times, always remaining close to the customers with effective and innovative products and services – including an expanding offer of digital services – that deliver performance, productivity and low Total Cost of Ownership.

Sustainability is in CASE's DNA and a key strategic driver and extends to all aspects of its business, focusing on 4 key priorities: reducing the carbon footprint of its operations and products; ensuring occupational safety on the workplace; a circular product life cycle approach to design; and

actively involving the CASE people and local communities.

In product development, CASE is helping customers to reduce their carbon footprint. It broke new ground in sustainable technologies with the introduction of the first Selective Catalytic Reduction (SCR) solution in the industry in 2011 and has remained at the forefront of low-emissions diesel solutions. It is also pioneering alternative propulsions with award-winning solutions. Project Zeus, the first electric backhoe loader in the Construction Equipment industry; Project Minotaur, which leverages the footprint of a compact track loader and the blade of a dozer to create a powerful two-in-one machine for grading and loading



In 1957 CASE introduces the first factory integrated backhoe loader.

applications – these are the latest examples of CASE’s breakthroughs in sustainable construction.

Today, CASE serves its customers with products manufactured at its factories based in: the USA, Brazil, Italy, India and Mexico. Its plants operate to World-Class Manufacturing (WCM) standards, which set a road map to continuous improvement through the elimination of waste, leading to efficient management of the facility and reduced environmental impact. All of the CASE facilities have achieved WCM Bronze or Silver level delivering consistent high-quality products. The widespread dealer network means that CASE dealers are always close to the customers, serving them with the world-class equipment produced at these plants and professional after-sales support with industry-leading warranties and flexible financing.

CASE will build on this rich legacy, sustainably supporting construction businesses across the world with products and services that deliver practical solutions to their challenges.

According to Graham Forte, Divisional Managing Director – Case Construction SA, “All CASE CE

Team members in South Africa are extremely proud to be a part of this great company. CASE has shown that through its great products and valued customer service, we are able to stand the test of time. We can’t wait for the years to come and look forward to continuing our upward growth with the brand within South Africa through our continued Customer Support.”

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CASE Construction Equipment is a brand of CNH Industrial N.V., a World leader in Capital Goods listed on the New York Stock Exchange (NYSE: CNHI) and on the Mercato Telematico Azionario of the Borsa Italiana (MI: CNHI).

More information about CNH Industrial can be found online at www.cnhindustrial.com. ©



SIKA PRODUCTS FOR SEDIBELO PLATINUM MINES

Fully integrated Sedibelo Platinum Mines Limited (SPM) is involved in the exploration, development, operation, and processing of Platinum Group Metals (PGM) mineral deposits in the Bushveld Complex (BC), South Africa – one of the richest ore deposits in the world.

SPM are the owners of the Pilanesberg Platinum Mine (PPM) in the North-West Province, some 200 km west of Johannesburg. Due to major water losses, the 60 m diameter tailings thickener at PPM required resealing, after which it had to be deemed watertight. Sika were contacted by LEOKA Project Management, the main contractors, for a solution. In turn, Con-Solve were asked by Sika to assist LEOKA as sub-contractors.

Sedibelo Platinum had urged a very quick turnaround time on this project as the thickener is the 'heartbeat' of the mine and production losses were substantial. While conscious of the production constraints facing the client, Sika's approved contractor, Con-Solve Civils, assessed the repair requirements and proposed a workable solution to the client by recommending that the old bandages and joint sealant be removed and totally replaced. The LEOKA engineering team supported the proposed solution and Sedibelo instructed Con-Solve Civils to proceed with the necessary repairs. Under normal circumstances this would have been an approximate six-to-eight-week project, but by working twelve-hour day and night shifts, Con-Solve Civils completed it in just 2,5 weeks.

In terms of product diversity, and volume, a wide range of Sika products were specified and used. Sikaflex®-11 FC, a multipurpose elastic adhesive and joint sealant, was applied to all construction joints as the secondary seal, before installing the Sikadur-Combiflex® SG, as the primary joint seal. forty-seven 6.6lt Sikadur®-31 DW kits were used as the bedding mortar for the bandage system. Sikadur®-31 DW is a 2-part epoxy structural adhesive that has been specially formulated to meet the requirements for use in contact with drinking water. It was best suited to this time sensitive project as it is easy to mix and apply, has high mechanical strengths and good abrasion and chemical resistance qualities.

As part of the Sikadur Combiflex® SG System, 188 m of Sikadur-Combiflex® SG-20 P - 2 mm x 250 mm was used to waterproof the wall to floor joint, while 848 m of Sikadur-Combiflex® SG

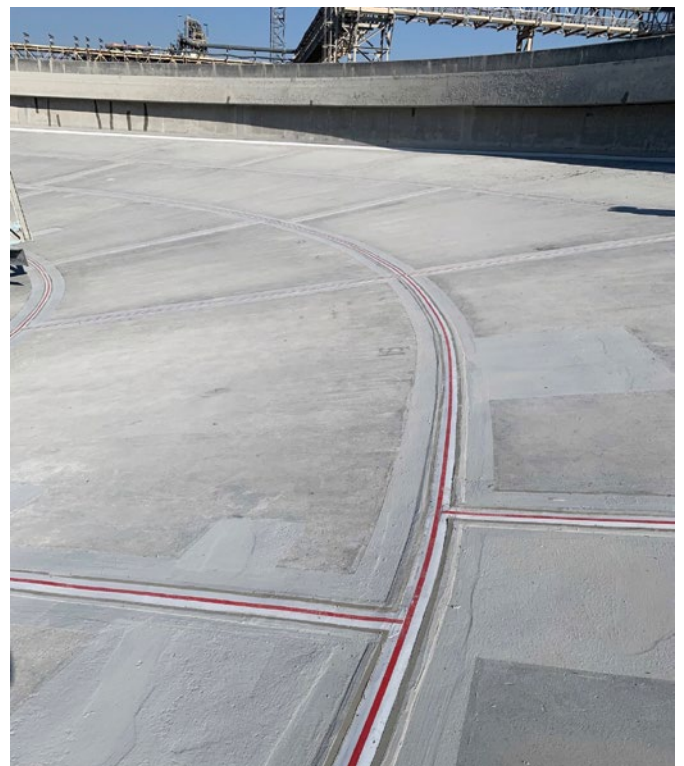
20P - 2 mm x 200 mm was used to waterproof floor joints. Sikadur-Combiflex® SG-20 P is a flexible waterproofing tape based on modified flexible / thermoplastic polyolefin (TPO), with advanced adhesion properties. Other advantages in the use of this product include not requiring site activation, high flexibility – a useful property for crack & joint bridging – good resistance to chemicals and UV exposure, and it performs in a broad range of temperatures.

Twenty-five kits of Sikalastic®-152, a highly elastic cement-based coating, was applied on the wall joints incorporating a 5 x 5 mm plastic lined glass fibre mesh, as well as next to the Sikadur-Combiflex® SG on the floor joints for additional waterproofing due to small surface cracks that formed on the concrete. Its purpose, an additional

waterproofing and concrete protection due to hairline cracks. It was also applied over wall construction joints with applicable plastic lined glass fibre matt for additional reinforcement. Sika SA are proud to have had their products recognised, by the engineers and contractors, as part of the solution to this project. Sika SA assisted Con-Solve with dedicated technical back-up service and on constant stand-by for stock requirements, meetings, and general client queries.

Con-Solve Civils are to be applauded for their inputs. Despite being 250 kms from Midrand, Con-Solve staff were on site to inspect the thickener, only 4,5 hours after receiving the call from Sika and LEOKA. The subsequent quotation and proposal were submitted to LEOKA five hours after the inspection; and the Con-Solve production team were on site within 24 hours of receiving an order.

As with any project, this one was not without its challenges. The supply, organising and transport of materials was a constant stress for all parties; though through a collective understanding of the products and the nature of the project, success prevailed. One month after the thickener was filled, the structure was certified watertight. To do a job correctly, first time around, requires the teamwork and support of a multitude of other divisions and external parties. Sedibelo are positive towards future projects involving Sika and Con-Solve Civils. ☺



SANRAL INTENSIFIES INVESTMENTS ON N2 WILD COAST ROAD PROJECT

The South African National Roads Agency SOC Limited (SANRAL) will invest over R76m in seven new contracts to benefit local communities that live around the N2 Wild Coast Road Project in the Eastern Cape Province.

Updating local stakeholders on progress undertaken on the project – which included officials from municipalities, traditional leadership, business associations, SMMEs and community members – Craig McLachlan, SANRAL's Project Manager on the N2 Wild Coast Road Project, said a total amount of R278m has been paid to over 100 local SMMEs including 28 suppliers, 52 service providers and 27 subcontractors, that are currently undertaking work on the Msikaba Bridge project alone.

"In addition, R45,9m has so far been paid on wages to over 300 skilled and unskilled labour drawn from the surrounding local communities, as well as the surrounding local municipalities of Port St Johns, Ingquza Hill and Winnie Madikizela Mandela," he said.

He was addressing small, medium and micro enterprises (SMMEs) of Port St Johns Local Municipality, Winnie Madikizela Mandela Local Municipality and Ingquza Hill Local Municipality at an Information Session held in Lusikisiki yesterday.

The Msikaba Bridge project is expected to be completed in May 2024 and targeted goals on employing youth has already been exceeded while the remaining labour targets are also on track to be met or exceeded.

"We are proud to say that we have already exceeded one of our targets on the Msikaba bridge project. The targeted labour for youth is 30% of the total projected wage bill and we have already met having achieved 102,6% of this target. So far, we have also achieved 45,4% of the target for women employment," said McLachlan.

Seven subcontracting tenders that will be awarded shortly include a bush clearing project in the east and west of Mzimvubu River, repairs to the R61 between Ndwalane and Ntafufu road, repairs to the main roads through Lusikisiki, repairs to the R61 between Lusikisiki and Zalu road, repairs to the R61 between Bukazi and Flagstaff, as well as the repairs to the Flagstaff town bypass and road to Holy Cross. A total of R76m will be invested on these projects.

An additional four first tier tenders have also already been advertised by SANRAL in the region and are currently in adjudication. These include the rehabilitation of the Ingquza Hill Memorial Road, upgrading of roads in Ntlavukazi Village, upgrading of the DR8004 road from the R61 national road to Bambisana Hospital Road, as well as the design of the upgrading of the road from Bizana to Mbongweni Village. These four tenders are

planned to be awarded by September 2022.

SANRAL has also completed five community development projects in the region. "We always ensure that our community development projects leave our communities with a rich legacy of road safety improvements, as well as economic opportunities that will benefit local communities from their inception," added McLachlan.

New community development projects that are in design phase are an access road leading to the Goso Forest Clinic, access road and pedestrian facilities in Mbotyi and the Ntafufu Service Road. These projects are also planned to be put out to tender by September 2022.

Transport Minister Fikile Mbalula has also agreed to a request from Eastern Cape Province Premier Oscar Mabuyane for some of the province's roads to be transferred to SANRAL. These roads include the R61 from Tombo outside of Port St Johns to Mzamba at the Umtamvuna River, the DR0838 road from the R61 to Cala, the DR08012 road from Maluti to Qachas Nek at the Lesotho border, the DR08031 and DR18031 roads from Viedgesville to Coffee Bay, as well as the MR00710 road from the R61 to the R56 (Satan's Nek).

For these roads to be transferred to SANRAL, there are processes that first need to be followed for them to be gazetted. SANRAL will also survey and proclaim these new roads as well as prepare, advertise, and award tenders for maintenance contractors to take over responsibility.

The tender for the anticipated Mtentu Bridge project is currently awaiting announcement by the SANRAL Board.

Nwabisa Gxumisa, SANRAL's Wild Coast District Manager appealed to stakeholders to continue to work with SANRAL to contribute towards projects that SANRAL has invested in the community. "Principally, what is important is that the local communities benefit from our projects.

The success of these projects is not only SANRAL's endeavour but a collective one together with our stakeholders. We will continue to work with the various key stakeholders our road projects traverse," she said. ☺

"We always ensure that our community development projects leave our communities with a rich legacy of road safety improvements, as well as economic opportunities that will benefit local communities from their inception."

The Msikaba Bridge Project on the new N2 toll road between Port Edward and Umtata achieved an engineering milestone this month, as the legs of the bridge's south pylon were hydraulically jacked apart.



The total movement of the pylon after jacking totalled 23 mm at a force of 1 750 kN – which was within the design parameters.

MILESTONE AT MSIKABA PROJECT WITH JACKING OF SOUTH PYLON LEGS

The Msikaba Bridge Project on the new N2 toll road between Port Edward and Umtata achieved an engineering milestone this month, as the legs of the bridge's south pylon were hydraulically jacked apart.

The 580 metre long, stay cable bridge – which will span the 198 metre deep Msikaba Gorge – forms part of the N2 Wild Coast project being undertaken by the South African National Roads Agency Limited (SANRAL) and is under construction by the CME JV joint venture, a partnership between Concor Construction and MECSA Construction.

These two legs make up the first 20 metres of the inverted Y shaped pylon, says CMEJV project director Laurence Savage, and are built without any lateral support as free cantilevers. Once completed four lanes of vehicles and a pedestrian walkway on either side will pass beneath these legs at the start and end of the bridge deck.

“The jacking apart of the legs countered the bending moment at the bases of the cantilever legs,” says Savage. “In layman’s terms, the jacking eradicated the effect of the legs bending towards each other; as engineers would see this, the legs are effectively vertical due to the jacking process.”

The bridge includes two pylons that will stand 128 metres high on each side of the gorge; the pylons support the bridge deck using a network of 34 cable tendons strung through their upper reaches.

“These cables then run from the top of the pylons back into anchor blocks located 100 metres to the rear of the respective pylons,” he says. “Each of the four anchor blocks is made up of over 1,600 tons of structural reinforced and mass concrete and extend 17 metres – the equivalent of six storeys of a building – into the ground.”

He explains that the lateral support was installed on the sixth lift of the pylon structure, after 520 cubic metres of concrete had been poured to reach a height of 20 metres.

“Two sets of hydraulic jacks were installed in parallel

to each other and a jacking force of 1 750 kilonewtons (kN) applied to the two pylon legs to counter the bending moment for the freestanding cantilever legs,” says Savage.

“To achieve the required force, the two 150 ton hydraulic jacks were loaded to 90 tons, developing a pressure of 41 megapascals (MPa). The jacking was done on 5 MPa intervals, and deflections of the structure were monitored using dial gauges and surveying.”

He notes that a key consideration was the punching force on the flat face of the pylon legs due to the jack load. This also dictated the size of the bearing plates affixed to the inside of the legs, enabling a dissipation of the force across the appropriate surface area. This avoided any damage to the structure due to loading of the concrete surface.

“The jacks only have a 50 mm stroke, which required the installations to be exact – as the 41 MPa pressure had to be achieved before the jack ran out of stroke length,” he explains. “The base plates were installed on the pylon leg structure with 29 mm non-shrink grout minimising the use of the stroke length.”

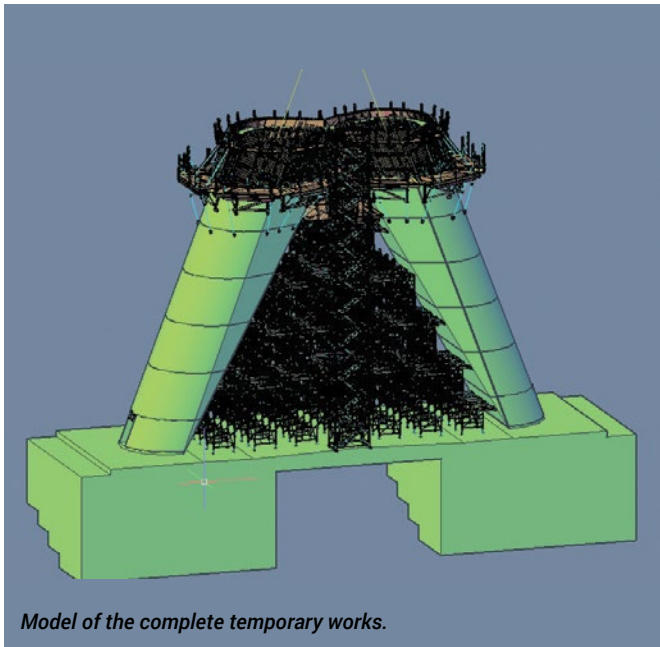
After the lateral support was aligned and seated, a grout biscuit was cast which served two key functions. Firstly, it absorbed any tolerances in the installation after the initial base plate installation and secondly, it assisted with the removal of the lateral support. Breaking out the grout biscuit released the pressure in the lateral support, once the seventh lift was cast and the legs permanently locked together.

“The temperature of the pylon structure and lateral support was measured to ensure an average of 22°C, to limit any unforeseen changes in force due to changes in the temperature during the construction cycle casting lift seven,”

he says. "The lateral support was wrapped in a 25 mm thick thermal blanket to limit temperature change movements and any resulting changes in prop forces." The lateral support was locked into place using a two-part system: the locking ring on the hydraulic jack, and the locking ring on the super-shore jack housing. The preparation for the jacking took three months of planning and analysis, while the setup

was conducted over nine days. The actual jacking process was complete in less than eight hours from commencement.

Savage concludes that the total movement of the pylon after jacking totalled 23 mm at a force of 1,750 kN – which was within the design parameters. The casting of lift seven to lock in the release of the moment will be complete by mid-April. ☺



Model of the complete temporary works.



These two legs make up the first 20 metres of the inverted Y shaped pylon and are built without any lateral support as free cantilevers.



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BUILDING TRUST



CHRYSO GROWS ITS LABS TO PUSH CEMENT TECHNOLOGY

In its quest to help customers generate more sustainable construction materials, CHRYSO Southern Africa has continued to enhance its laboratory facilities – even during the disrupted years following the onset of the COVID-19 pandemic.

The latest expansion within its Centre of Excellence in Jet Park near Johannesburg has been a cement laboratory, in which the company has invested extensively. According to Research and Development (R&D) Manager Mpume Mlalazi, these investments will continue into 2022 to ensure the latest tools are available.

“Much of our work in the cement laboratory is focused on the growing global concern to reduce carbon dioxide emissions from cement manufacturing,” says Mlalazi. “We are also now fully equipped to align with international standards in cement testing.”

CHRYSO Southern Africa’s other facilities include a research and development laboratory for new product formulation and evaluation, a concrete laboratory conducting physical tests to evaluate concrete properties, a quality control laboratory and a colour laboratory.

There are also satellite laboratories at the company’s Cape Town, Port Elizabeth and Kwa-Zulu Natal branches to support customers. Amongst the equipment recently acquired is an isothermal calorimetry and permeability tool; in addition to basic tools for cement setting time, specific surface Blaine, pycnometry and cement compressive strength determination auxiliary equipment.

“Our cement laboratory works closely with cement industry players, and supports our customers with product development to find solutions for their ever-changing applications,” she says. “Of course, cement is the main contributor to concrete performance, so it is vital that we understand exactly what impacts are achieved by the changes we can make.”

This is why CHRYSO Southern Africa’s wide breadth of facilities – combined with its depth of expertise – is so effective, with its cement and concrete laboratories under one roof, she explains. Whatever is achieved in the cement



“Much of our work in the cement laboratory is focused on the growing global concern to reduce carbon dioxide emissions from cement manufacturing.”

Mpume Mlalazi,
Research and Development (R&D) Manager.

laboratory can be closely assessed and tested in the concrete laboratory. “As experts in the field of admixtures, we have the necessary chemistry knowledge and products to help customers drive their sustainability agendas and meet their carbon reduction targets,” says Mlalazi.

She highlights that CHRYSO Southern Africa re-invests at least 4% of its sales revenues into R&D each year, emphasising that the laboratory capacity has a strategic role in supporting customers’ key concerns into the future. These include carbon emissions, clinker factors, cement performance and energy saving. The exciting projects underway in its cement laboratory include research into the potential for limestone calcined clay cement (LC3) to drastically reduce carbon dioxide emissions during the manufacturing process. ☺



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ROAD SAFETY IS NO ACCIDENT

While road markings may be overlooked from time to time when it comes to the top features that contribute towards road safety, Patrick Smith from World Highways reports that they are “as important as signs, with longitudinal markings informing and warning road users of approaching situations that will require them to take some form of action.”

The importance of road markings within the South African context may be even more critical than in other countries, for two reasons: we lack a safe and reliable rail-transport system for passengers; and we have an alarmingly high road accident rate. In fact, a World Health Organisation report revealed that the country has at least one million road accidents per year, with an average of 40 people being fatally injured and at least 20 being left permanently disabled each day.

For local road-safety authorities and their allied industries, a technical report issued on 17 February 2022 by City Markings is likely to prove of great interest. The report covers water-based white and yellow road markings in a portion of road in the North West Province.

Over the four years since this road marking paint was applied – that is, Plascon Aqualine Hysheen Ultra High Performance Road Marking Paint (UTP000001-0200 and UTP000002-0200), which is now Plascon Roadtect 4500 WB – the road in question has been subjected to an extremely high level of wear and tear. This has been due, in most part, to quarry truck movement, says the technical report, via heavy vehicles carrying fill for the N4 bypass, and an intersection at the western end of the Hartbeespoort dam.

Because access to the quarry was on this same section of road, the yellow shoulders of the road were subject to particularly heavy traffic. In addition, a large quantity of muddy material was deposited onto the lines of the road. This was later washed away by seasonal rains.

After such traffic wear and weather exposure, were there lower retro-reflective readings of the lines? How about daylight visibility relating to line clarity? The technical report's conclusion, shown both via retro-reflective readings (measured in millicandela) and photographic visuals, speaks volumes about the performance of this high-calibre paint product on high-trafficked road surfaces.

Deon Honiball of City Markings concludes: “We believe the performance of the Plascon Roadtect 4500 White and Yellow is very good and speaks for itself, even after four and a half years on a road surface subjected to heavy quarry traffic. The surface on which this product was applied, after all, is a well-worn 15 mm Chip&Spray – which normally wears rapidly due to its roughness.” Honiball's conclusion?



“This product has performed as well as any high-quality product and possibly even better than that of thermo-plastics. There's no severe cracking – even after all this time and high-volume exposure.”

According to Plascon's Marketing Manager, Bavita Valab: “Plascon engineered this product to be exceptionally hard-wearing and long-lasting. We are pleased to see that technical reports conducted on its performance are testament to this. We are proud to be able to provide this valuable product as an aid to service delivery on public roads.”

The technical report observes that Plascon Roadtect 4500 is set to secure users a 30 to 40% saving in application rate, in comparison to the use of thermo-plastics on an over-used road surface. In short, this long-wearing paint makes roads inherently safer as well as easier and cheaper to maintain. Here's to a paint surface that offers the highest visibility and lowest maintenance costs for our local road infrastructure – thereby proving a significant asset for all concerned. ☺

“We believe the performance of the Plascon Roadtect 4500 White and Yellow is very good and speaks for itself, even after four and a half years on a road surface subjected to heavy quarry traffic.”

LOCAL GOVERNMENTS NEED CONCRETE TRAINING AT ALL LEVELS TO IMPLEMENT SA GROWTH

*Concrete will play an essential role in the government's plans to implement long-awaited infrastructural projects this year, says **John Roxburgh**, Senior Lecturer at Cement & Concrete South Africa's School of Concrete Technology.*



Roxburgh says concrete is the most vital building material to create the infrastructure to sustain South African urban and rural settlements as well as the road networks that link these areas. “Apart from being the essential material to erect the Presidentially-proposed new ‘smart cities’, concrete is also essential for housing, dams, bridges, warehouses, roads, airports, water and sewerage treatment plants, to name just a few important civic facilities. Therefore, it is essential that local government’s staff are trained in all facets of concrete construction and design,” Roxburgh states.

Such training has been provided by the School of Concrete Technology for well over 60 years and its consulting division is constantly involved in the writing of standards, publications and assessment of latest technologies.

The SCT 2022 Training Programme, now available, includes courses on a wide range of topics starting from a basic introduction to concrete, and continuing to cover the role of concrete in housing, concrete practice, training for ready mixed concrete and batching plant personnel, concrete industrial floors on the ground, concrete road design and construction, as well as high-technology training that includes the globally-respected Advanced Concrete Technology diploma course with examinations set by the Institute of Concrete Technology in London.

Successful students for all SCTs courses receive certificates of attendance/competence and Continuing Professional Development (CPD) points are awarded on certain courses.

Roxburgh says two courses to be offered by SCT in 2022 should strongly be considered by South African municipalities: ‘SCT20 Concrete Practice’ and ‘SCT30 Concrete Technology’. Both regularly attract strong enrolment, calling for several presentations every year.

“The four-day ‘SCT20 Concrete Practice’ course is excellent for those applying concrete technology on site such as foremen, supervisors, and for staff responsible for quality assurance. Successful completion of this course earns four Continuing Professional Development (CPD) points.

The more advanced ‘SCT30 Concrete Technology’ five-day course – which earns five CPD points – is aimed at civil and structural engineers, experienced

technicians and technologists, and is ideal for gaining detailed knowledge of how cement and concrete works.”

The School of Concrete Technology will continue to run its successful online e-learning courses in 2022 but will also offer select classroom-based lecture courses in Midrand, Durban and Cape Town while COVID-19 lockdown restrictions permit. “The live classes will be kept small and high demand for specific courses will be met by scheduling more presentations. However, the online platform and self-study courses are here to stay as they align themselves with modern trends in remote learning and increased access to both data and smart delivery devices.

E-learning and its associated benefits will form an integral part of the School’s training in future which means local government in even the most remote parts of the country can now enrol staff for training,” he adds. ☺

“The four-day ‘SCT20 Concrete Practice’ course is excellent for those applying concrete technology on site such as foremen, supervisors, and for staff responsible for quality assurance.”

INTRODUCING STATE-OF-THE-ART COMPACTORS TO SOUTH AFRICA

ICON Group has introduced a series of new exclusive machinery to the South African construction industry, including state of the art new impact compactors, which not only provide superior compaction capability, but also assists in cutting compaction costs and contract programme time.

“Our new three- and five-sided impact compactors have impressive capabilities, all being developed to the highest specifications and quality, ensuring reliability and maximum availability on site,” says Wayne Neary, MD at ICON Group.

He explains that the three-sided impact compactor is generally used for the compaction of in-situ material on sites where deep compaction is required. Because the depth of influence of an impact compactor is significantly greater than that of conventional equipment, use of this compactor usually makes it possible to satisfactorily compact soil from the surface instead of having to remove the soil and replace it in layers as would be the case with vibro rollers.

Depending on the material type, in-situ material can be improved to an impressive depth of 3 m and more. On many construction sites globally, the three-sided impact compactor has been the only technology of its kind that



could achieve the required densities by compacting the site surface without having to remove and replace the material in layers, which has assisted in ensuring considerable cost savings. The three-sided compactor is also used on fill where there is an advantage in placing very thick layers.

According to Neary, the five-sided impact compactor is a more general-purpose compactor and is mainly used on earthworks where use of this technology makes it possible to place material in thick layers.

Depending on the material type, fill can be placed in layers 500 mm to 700 mm thick and more. This gives the 5-sided compactor an output of about 2 000 m³ per hour compared to the output of a vibro roller of about 300 m³ per hour. The 5-sided compactor is also used on in situ material on sites where only moderately deep compaction is required.

Icon Group is a trusted provider of bulk earthworks, demolitions and civil engineering construction services that are needed to get a commercial, industrial or mining site into an ideal state of build readiness. Subject to requirements, we can provide a complete, end-to-end solution, or render each of our services independently. ©

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The oversized parts of the aggregate get sent back to a 36 inch Osborn crusher. The G5 is deposited onto a stockpile while G2 material goes through a vertical shaft impact crusher and then to the stockpile.



UPGRADES INCREASE QUARRY'S CAPACITY, EFFICIENCY AND AVAILABILITY

AfriSam's Pietermaritzburg Quarry (PMB Quarry) provides a diverse portfolio of aggregate products that are suitable for readymix, asphalt, civils, road building and concrete product manufacturing in the construction sector. The operation's material output is currently vital to key infrastructural improvements in the area which include the upgrades to the N3, municipal roads, and various building projects. Construction World visited the facility to learn about upgrades that will lead to optimised operations and the ability to step up production when the construction industry fully recovers.

AfriSam in KwaZulu-Natal

AfriSam is a supplier of superior quality construction materials and technical solutions optimising the use of cement, aggregate and readymix concrete. For AfriSam, the aggregate and readymix markets in KwaZulu-Natal have done well from a volume perspective considering the volatility over the last three years. In addition to the infrastructural national and municipal road projects that the PMB Quarry supplies with base and sub-base material, it has supplied readymix and other products to the Midlands Mall upgrade, the Brookside Mall and Southgate complex developments, housing in surrounding rural areas, the Durban University of Technology with its related student housing and various bridge projects.

Benefitting the community

"It is important for us as AfriSam to invest in the development of communities surrounding our operations,"

says Ernest Sebeelo, Works Manager at AfriSam's PMB quarry. As such the PMB Quarry has contributed to education by establishing a school, provided the community with a computer and science laboratory, and is in the municipal approval stage to develop a library in partnership with the municipality and its external funders. The quarry also provides opportunities to people from the informal settlement to its southwest. This includes the removal of alien plants, site cleaning and some security," says Sebeelo.

Quarrying in a fast developing area

The AfriSam supply channel in KwaZulu-Natal is divided into two areas: coastal around Durban, and the Midlands (where the PMB Quarry is located).

The PMB Quarry is in the Msunduzi local municipality, located to the northeast of the city. Established in 1946, the quarry has a Life of Mine of 100 years and provides employment to 27 direct

employees and up to 60 indirect contractors.

“The urban area surrounding the facility is growing rapidly with various developments already completed or in the pipeline. The greater Pietermaritzburg area also has a lot of work in the pipeline,” says Sebeelo.

“Our facility aims to provide projects within a radius of 60 km. However, our road stone is of such a good quality that this has, at times, increased to 100 km. We have, for instance, supplied road stone for the construction of the King Shaka International Airport,” says Sebeelo.

Built for efficiency

Sampie Kruth, AfriSam's Engineering Manager for KwaZulu-Natal explains that AfriSam's PMB facility has a plant A and B. “The A plant produces aggregate and sand and is split in two sections, namely primary and secondary. The primary plant produces crushed material for the intermediate stockpile (ISP), which is where the secondary plant receives its first crush material. It further produces products that only go through the jaw crusher (first crush) and also hand stone (rock that is used for gabion baskets).

“AfriSam's latest upgrade to the plant is a Metso C120 jaw crusher at the primary feeder,” Kruth says. This crusher feeds the secondary 57H Osborn cone crusher from where the material goes to the ISP. “We have three Metso HP200 crushers, and a vertical shaft impact crusher which was upgraded 18 months ago.”

The secondary plant that feeds from the ISP produces coarse aggregates (28, 20, 14 and 10 mm), road stone washed aggregates and crusher dust that is used for asphaltting, concrete and various other applications in the civil engineering and building industries.

The B plant is much smaller and is a conventional base material plant. It currently produces G2, G5 and sub-base material. “It has a 30x42 Telsmith jaw crusher from where material moves through a 48 inch Telsmith cone crusher. The oversized material gets sent back to a 36 inch Telsmith cone crusher for recrushing. The G5 is deposited onto a stockpile while G2 material goes through a vertical shaft impact crusher and then to the stockpile,” Kruth explains.

Increasing production

In general, the quarry has had significant capex investment to ensure we are ready when the market fully recovers. After AfriSam's Coedmore quarry, this quarry produces the second largest volumes in KwaZulu-Natal,” Kruth explains.

At the start of 2021, PMB Quarry installed a VSI crusher in its tertiary plant. “This Techroq T8R VSI crusher is an impact crusher and makes use of velocity and inter-particle

impact to shape the material, thereby reducing the flakiness index of the material. The reason behind this is to improve the quality of the aggregate required for road stone and asphalt,” Kruth explains. This crusher was installed mainly to increase sand production at the plant to keep up with market demand. This project increased the sand output by approximately 15% of overall production.

An upgrade for consistency

The second and most recent upgrade was done during the industry builder's break at the end of 2021.

“The purpose of this upgrade was to replace the existing crusher with a Metso C120 jaw crusher,” says Kruth.

“We had numerous issues with the steel and concrete support base of the previous crusher due to the dynamic forces of the crusher during operation. This resulted in fatigue cracks on the crusher main frame which had



The facility aims to provide product to projects within a radius of 60 km, but because its road stone is of such a good quality, this often increases to 100 km it has supplied road stone for the King Shaka International Airport.



The PMB Quarry is located in the Msundizi Local Municipality which lies to the northeast of the city. It has settlements on three sides.



The property is wholly owned by AfriSam and has a bench height of roughly 12 m and can go deeper by a further six levels before it reaches the water table.



Operations and quarry development must be optimised to ensure that fuel consumption to bring the quarry's dolerite to the processing plant does not increase.



The new C120 Metso crusher that replaced the previous crusher is now mounted on dampers. The dampers reduce the dynamic forces from the crusher onto the support steel – almost like shock absorbers.



Left: The new C120 Metso crusher that replaced the previous crusher is now mounted on dampers. The dampers reduce the dynamic forces from the crusher onto the support steel – almost like shock absorbers. Right: As Pietermaritzburg Quarry is a key plant for AfriSam, it has been prioritised for capex investments to ensure the quarry is able to meet demand when the market fully recovers

to be welded every few months,” says Kruth.

The new Metso C120 crusher is mounted on rubber dampers. “The dampers reduce the dynamic forces from the crusher onto the support steelwork – almost like shock absorbers,” says Kruth. The crusher is not bolted to the frame and keeper plates are used to keep it in position.

The benefits of the upgrades

The crusher has been in operation for three months and benefits such as reduced downtime and increased safety are already evident. “The new jaw crusher has hydraulic gap adjustment which negates the need to physically adjust gaps. In addition, it is more maintenance friendly.”

From a safety perspective, it is safer to lift the crusher liners with an overhead crane as it has casted lifting holes instead of lugs, and special OEM supplied lifting tools.

“Operationally we are now optimised for success,” says Kruth. “We have reduced the dynamics on the civils, minimised downtime and improved safety and sustainability,” concludes Kruth. ☺



From left: Lindo Msomi – Engineer in Training; Dirk Maritz - Engineer; Sampie Kruth – AfriSam’s Engineering Manager for KwaZulu-Natal; Ernest Sebeelo – AfriSam’s Works Manager at the plant and Christopher Myeza – Maintenance Supervisor.

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A HEALTH AND SAFETY TRAINING PROVIDER CAN HELP COMPANIES COMPLY WITH LEGISLATION

*When it comes to occupational health and safety practices, South African companies fall at either end of the spectrum – those that take it very seriously and fully comply with legislation, and those with nothing in place and no understanding of their liabilities in terms of non-compliance with the Occupational Health and Safety (OHS) Act. **By Louise Woodburn (right), General Manager, and Natalie Pitout, Innovation Manager, at KBC Health and Safety.***



There are currently more than 200 pieces of subordinate legislation that support the OHS Act, which regulates and control health and safety in all organisations, from office environments to more hazardous ones like industrial plants and construction sites.

Workplace safety is mainly the responsibility of the employer, who must ensure the health, safety and welfare of their staff. Some worksites come with greater risks than others, but even the safest workplaces need all staff to help manage risks. Non-compliant organisations expose themselves to three key risks.

Spot fines

Firstly, they face financial implications resulting from insurance claims for injuries sustained at work, as well as from non-compliance-related penalties. The amended OHS Bill, expected to come into force in 18 months' time, will see spot fines of R50 000 being issued for non-compliance. This can have a significant financial impact on companies.

Secondly, organisations have a legal obligation to comply with health and safety regulations, with liability resting with the business owner. Ignorance of the law is not an accepted defence in a court of law, so it is up to the company to ensure it has the right information and can demonstrate its compliance with legislation.

Thirdly, employers have a moral obligation to protect the wellbeing of their workers, by making sure that the workplace is safe, and that employees' health and safety are not put at risk. Companies must continually reduce risk, accidents and injuries by identifying and mitigating hazards.

Employees' responsibility

On the other hand, employees must similarly take reasonable care for their own health and safety, as well as for the health and safety of others. They need to comply with any reasonable instructions, policies and procedures given by their employer, business or controller of the workplace.

This highlights the importance of continuous and refresher training for employees to constantly re-instil and reinforce awareness about workplace hazards are, to control them and how to work safely. Some companies

unfortunately view training as a once-off, tick-box exercise, but this carries the risk of complacency setting in and also fails to keep pace with continually changing risks in a workplace.

Hence, ensuring that health and safety training is an on-going process will assist with creating constant awareness, teaching employees to be constantly aware and vigilant and to do hazard identification and risk assessment on a daily basis.

Unfortunately, because South Africa's OHS Act is underpinned by so many different and non-specific pieces of legislation, many companies lack an understanding of which laws they should comply with. It is also quite common for organisations to misunderstand risk assessment, meaning that it is often done superficially and fails to identify all existing risks. This in turn affects the quality of policies, procedures and training that are put in place.

Outsourced provider

This is where the services of an outsourced provider can make a real difference. A reputable and suitably accredited company can deliver training, assist with risk solutions, provide gap analysis and make recommendations to establish a holistic check system that ensures health and safety compliance.

A reputable provider that understands the legislative framework of the OHS Act can help organisations to highlight the key risks within their business and manage their liability. While many companies do not understand the impact of the law, professional training providers can guide them and partner with them on their journey to compliance.

No matter how far along the journey a company might be, partnering with a training provider can be beneficial. Even organisations that have a mature health and safety strategy in place should consider partnering with training providers that can continuously improve policies and procedures, as well as delivering customised programmes that will ensure a holistic journey. ☺

SISI SAFETY WEAR PARTNERS WITH LOCAL NPO TO HELP KEEP GIRLS IN SCHOOL

Local female Personal Protective Equipment (PPE) manufacturer, Sisi Safety Wear, is proud to announce their partnership with a Durban-based Non-Profit Organisation (NPO) that works to keep girls and young women in school.

This CSI initiative is linked to the launch of Sisi's Basi Metaguard Boot range, and for every pair of Basi boots sold, Sisi Safety Wear will donate R10 to the NPO's education programme. The programme targets adolescent girls and women, in and out of school, in 12 sub-districts across the provinces of KwaZulu-Natal, Eastern Cape, Mpumalanga, North West, Free State, Limpopo, Gauteng and Western Cape.

This partnership is in line with Sisi Safety Wear's commitment to uplift women and young girls in local communities.

"The main objective of this programme is built around increasing retention in school, furthering economic opportunities, and decreasing incidences of HIV and teenage pregnancy," says Predahni Naidoo, Brand Manager of Sisi Safety Wear. "Our mantra is around safety first and education, so there is no better place to start than with education for young girls."

Sisi's Basi Metaguard Boot

The Basi Metaguard dual density boot offers a SRC slip resistance rating, anti-static properties and steel toe cap that is SANS/ISO 20345 certified. Sisi Safety Wear is invested in providing solutions for women entering hazardous workplaces that are not only durable and reliable, but fitting to the female foot.

Naidoo notes that women are increasingly making up a greater proportion of the workforce in sectors that have typically been male-dominated such as mining, manufacturing, and construction. However, the problem remains that there are still limited offerings in specialised female safety footwear within these sectors, with many companies still issuing safety wear to their female staff that is designed for males.

The Basi Metaguard boot, which is the first locally produced Metaguard safety boot for women, is therefore designed to address this challenge.

Naidoo adds that the Metaguard protector is primarily designed to protect the bridge of the foot from falling rocks and other hazards prominent in the mining work environment. "With the growing number of women entering the



*Predahni Naidoo,
Brand Manager
of Sisi Safety Wear.*

mining sector specifically, it is important to develop a solution for women against these types of hazards that also occur in other industries."

Women deserve both safety and comfort in the workplace. With locally manufactured, women-specific safety wear ranges readily available, there is little excuse for organisations to not cater to the needs of their female workforce. ☺



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DRUG TESTING IN THE WORKPLACE – KEEP IT AS CONSISTENT AS ALCOHOL TESTING

*As much as alcohol testing has become an expected legal requirement for road safety and workplace safety, the impact of drugs is still largely overlooked. It is important to remember that the effect of drugs in the workplace is just as dangerous as alcohol. **By Rhys Evans, Managing Director at ALCO-safe.***



The need for workplace drug testing is therefore equally critical as drugs impair an individual's ability to perform tasks by affecting depth perception and reaction time. This could result in a serious work-related injury (or even death) if the use of drugs goes unnoticed in the workplace. Simply including a random drug testing policy and procedure to ensure health and safety protocols are covered, is not enough. Businesses need to implement drug testing on a consistent and regular basis in order for it to be truly effective, and it should be treated as equally important as an organisation's alcohol testing schedule. As the country's vaccination levels rise and more people return to the workplace, health and safety measures that focus on intoxicating substance use for employees are going to become increasingly important. Drugs are just as intoxicating as alcohol and can have a massive effect on workplace performance, with the biggest noticeable impact being on the individual's reliability. Absenteeism becomes increasingly common, along with decreased performance and a lack of motivation when the individual does come to work, often due to a hangover or drug come down. In the workplace itself, there is an increased risk of accidents due to impaired concentration. Depending on the drug that

person uses, it might make them drowsy, or it might affect their depth perception and decision-making ability.


Keeping substances out of the workplace

Overall, intoxicating substances lead to a decrease in performance which in turn has a negative impact on production, along with an increased risk of accidents. An increase in accidents means more downtime, which again affects productivity and creates a vicious cycle. Failure to notice a culture of substance abuse in the workplace is not a situation for management to apply plausible deniability. If there are people in a workplace using substances, that kind of behaviour has a tendency to spread unchecked. To keep intoxicating substances out of the workplace, it is essential to have a company policy that communicates clearly that there will be zero tolerance to drugs and alcohol, while detailing the procedures and grounds on which employees will be tested for the presence of substances.

Along with this foundational policy that clearly states the consequences of being caught out by means of a breathalyser or saliva test, it is necessary to have mechanisms whereby employees can voluntarily seek assistance, for substance abuse problems without fear of punitive disciplinary measures being taken against them. Even if it's just providing sick leave and referring the individual to a treatment centre, it's important that businesses handle such situations carefully and with empathy.


Preventative, not punitive


Breath alcohol testing and saliva testing needs to happen regularly and visibly if it's to have a deterrent effect in the workplace. People are more likely to be deterred from partaking in intoxicating substances if they know there is a strong chance they will get caught out at work. In addition to a clear workplace policy, consistent and visible substance testing procedures and consequences for testing positive, alongside awareness training on the dangers of alcohol and substance abuse, is important. Educating employees on the health and occupational risks associated with alcohol and drugs in the workplace is critical to the effectiveness of any safety policy. It's essential that people understand that the rules are there to keep everyone safe, they're not there to catch people out and get them fired. ☺



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SOUTHERN AFRICA'S CONSTRUCTION INDUSTRY TO CONNECT IN-PERSON ONCE AGAIN

The Big 5 Construct Southern Africa, previously known as the African Construction Expo, is Southern Africa's flagship construction exhibition and the 2022 in-person edition will return to Gallagher Convention Centre, Johannesburg from the 7 – 9 June 2022.

Timing could not be better. A key component of South Africa's Economic Reconstruction and Recovery Plan announced by President Cyril Ramaphosa is underpinned by 'aggressive infrastructure investment', with emphasis on localisation, job creation and streamlining of the regulatory framework.

With a healthy pipeline of infrastructure projects in both Southern and South Africa, indicators point to a healthy rebound for one of the worst hit sectors by the pandemic. The City of Johannesburg's Future Infrastructure Drive event, was recently hosted by Executive Mayor, Cllr Mpho Phalatse along with The Big 5 Southern Africa. During her keynote address, Cllr Phalatse unveiled the developments, upcoming projects and opportunities for partners, investors and suppliers in the City's robust future project pipeline.

Guest speaker Aubrey Tshalata, President of NAFBI remarked 'The Big 5 Construct Southern Africa has always been one of the main events in our country to meet potential partners, customers, suppliers and contractors. This year we are very excited about the events industry coming back and we are particularly excited to be able to connect, form partnerships and strategic alliances at the event.'

With a growing emphasis on stakeholder centricity, the event will kick-off with The Stakeholders Engagement Forum, with an impressive panel of public and private sector stakeholders, the forum provides a platform for open

discussion surrounding challenges faced and measures to expedite job creation and economic stability. In partnership with NAFBI, the event aims to create an environment that is conducive to the growth and competitiveness of small to medium enterprises in the built environment.

Along with global suppliers exhibiting their products and services, a number of thought-leadership conferences, hours of networking, business matchmaking programmes and free-to-attend workshops and talks, The Big 5 Construct Southern Africa 2022 will play host to thousands of attendees from across the globe, all in a safe and secure environment.

The event has partnered with leading industry associations SAIBD and SAICE, to provide construction professionals with free CPD accreditation. The Talk series will cover key themes including architecture, concrete, contractors, green and smart construction, the programme will equip industry professionals with tools and strategies to elevate their respective roles. The interactive workshops and case studies, will be lead by industry experts, and will tackle advanced technology solutions, sustainable best practices, governance and regulation, new health and safety protocols and construction solutions.

The Big 5 Construct Southern Africa will co-locate with the African Smart Cities Summit, Deck and Flooring Expo, Totally Concrete Expo and Woodex for Africa. The event is free to attend and construction professionals are encouraged to pre-register to secure their place at www.thebig5constructsouthernafrica.com.

For companies looking to grow their business in the region, there are various options available to exhibit or sponsor the event to suit any budget. For further information, please contact KennethMasvikeni@dmgevents.com. ©

CFAO SOUTH AFRICA ACQUIRES EIE GROUP TO FORM CFAO EQUIPMENT SOUTH AFRICA

Leading material handling and warehousing equipment supplier, EIE Group in South Africa, will be known as CFAO Equipment, effective 1 April 2022. This follows the recent acquisition of the company from enX Group by CFAO South Africa, a leading provider of integrated mobility solutions across the automotive value chain.



Andrew Velleman, Chief Executive Officer of CFAO South Africa, says that the venture will be beneficial for both companies, extending CFAO South Africa's market offerings to include the supply of material handling and warehouse equipment from reputable global manufacturers including Toyota Forklift.

"The acquisition of the company by CFAO South Africa is an exciting opportunity to leverage the organization's extensive industry expertise. To be a part of CFAO South Africa will strengthen our position as the market leader in Southern Africa" says Vuyokazi Bangazi (above), National Sales Manager, EIE Group.

CFAO South Africa, established in 2018, out of operations present in the country since 1920. From the sale of new and used vehicles and trucks, to supply-chain, logistics management, and assembly for the automotive industry, CFAO South Africa delivers a range of integrated mobility solutions across the automotive value chain contributing towards the support, development and growth of the automotive industry in South Africa, and across the rest of Africa. With a revenue of more than R34bn nationwide operations with over 160 sites and more than 6 000 employees, CFAO South Africa is a key player in the South African mobility market.

CFAO Equipment in South Africa, part of a larger CFAO Equipment network of 34 Countries across Africa will add an additional pillar to the CFAO South Africa Group. Until now CFAO South Africa has been operating through:

- CFAO Motors South Africa, one of the most comprehensive automotive dealer networks of multi-brand dealerships in the country,
- Toyota Tsusho Africa, a trading and supply chain management specialist company that delivers a range of value-adding solutions for the South African automotive manufacturing industry,
- Africa Mobility Solutions, responsible for the export and import of vehicles and parts in Africa, particularly Toyota, Hino & Suzuki.

"I am proud that we are integrating the network and expertise of such a reputable industrial equipment supplier into our business. We welcome to CFAO South Africa a workforce of more than 1 200 highly skilled members who share the same priority: to provide value to our customers and their operations. The evolution of the company to form CFAO Equipment will have no operational impact on our loyal customers, and we will continue to provide world-class products and services to the material handling and warehousing industry that we have become synonymous with. CFAO South Africa remains committed to transformation and is planning a new B-BBEE transaction for CFAO Equipment to retain the current transformation rating."

"We look forward to this next step in the progression of our business and believe that this is only the beginning of a mutually rewarding relationship that will result in new levels of success," concludes Velleman. ☉

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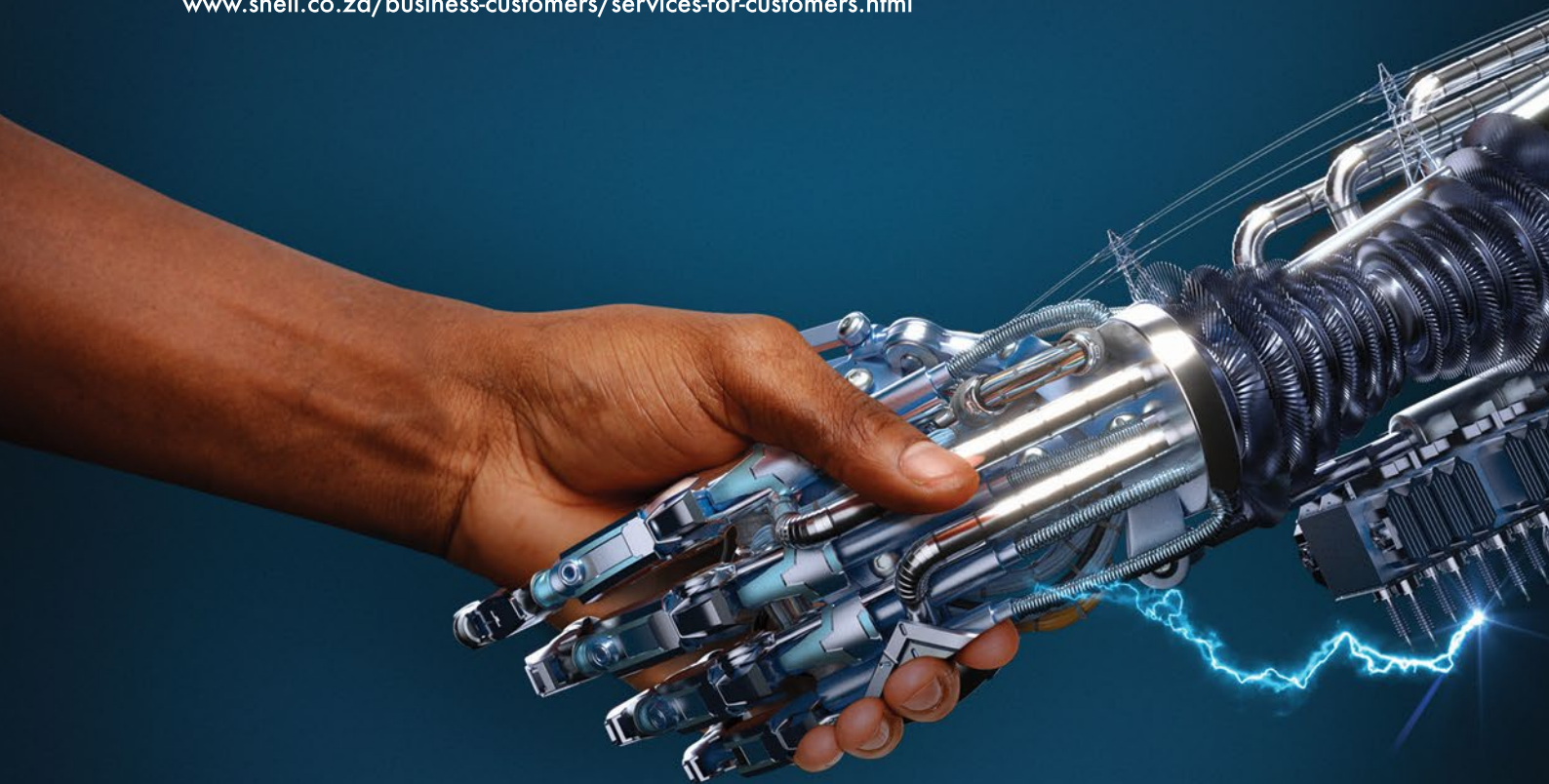




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