

Construction WORLD



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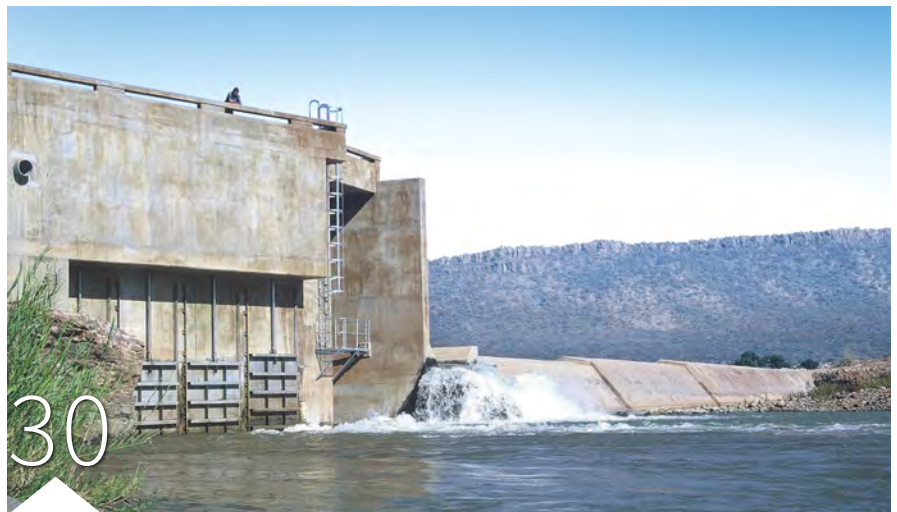
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ON THE COVER

Concrete is a central component of the Willowton Group's expansion of its Isando plant, where Johannesburg-based contractor Lemay is working with leading construction materials company AfriSam on a new sunflower seed intake facility. Underway since June 2023, the project began with the construction of a large 30 m by 90 m bunker with 11,5 m high walls, topped with a 5 m steel structure. This was after Lemay completed the necessary excavations and bulk earthworks. The bunker houses two conveyor channels for the seed husks returning to the bunker after the seeds have been pressed for oil.

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The advantage of Public-Private Partnerships is that it alleviates the cost upfront for governments that want to make significant capital investment into infrastructure projects. In a PPP the private sector invests and provides the funding for a project upfront and the government then refunds the investor/s in instalments which can be over a period of 30 years or longer.

PPPs have become less prevalent in the last decade and that is why the National Treasury asked for comments to be submitted for newly drafted amendments for PPP legislation, specifically for new municipal legislation. The closing date for these comments was on 15 April, and they are in the process of being reviewed, but the National Treasury indicated that the comments needed to receive legal approval to ensure due procedure was followed. Only hereafter will outcomes be communicated. It is a lengthy process, but there is optimism that it will still be within the current financial year.

Why amendments to PPP legislation are necessary

The amendments to current PPP legislation will have the aim of reducing the process currently required for planning and procuring a PPP and to align the project size with complexity. It is proposed that there are two kinds of PPPs: one for high project values and one for projects valued under R2b. The latter will be exempted from the requirement of obtaining National Treasury approvals.

The decline of PPPs

Since the heyday of PPPs, there has

been a decline in the procurement of projects within the PPP regime. Thus far, 34 PPP projects have been completed in South Africa and they have a combined value of almost R90b.

Perhaps the most well-known of these is the Gautrain, but there are PPPs in the energy, transport and water sectors too.

Given the fact that national government is constrained, they are naturally keen to reignite PPPs and at the same time kickstart the construction industry, one of the biggest employers in the country.

However, questions have been raised as to whether the current amendments will be enough to get the private sector interested in tendering for what is a costly and volatile process.

There have been delays in the implementation of PPPs and they are often cancelled at short notice. Naturally the private sector is reluctant to tender for a PPP as huge amounts are spent on feasibility studies upfront, something that is lost if the project is suddenly cancelled.

Despite the risky business of PPPs, in 2023/24, 15 projects are at the inception stage, 19 projects in the feasibility study phase while six projects are between inception and

feasibility. On paper and in theory it seems as though PPPs could get increased traction for much needed electricity, road infrastructure and water developments.

Wilhelm du Plessis
Editor

2024 TWENTY-THIRD
BEST
PROJECTS

This is our penultimate call for entries for 2024's Best Projects Awards. Turn to page 20 for an overview of the awards and the entry criteria.

This will be the 23rd awards that have been held consecutively since 2002. There are six categories that can be entered: civil engineers, building contractors, specialist services or contractors, architects, consulting engineers and sustainable construction.

We look forward to receiving your entry.

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WHEN BAGS

STAND

TALL



IN THE SHADOWS OF GIANTS

In the year 2014, beneath the expansive African sky, a new journey began. The world of cement was ruled by giants whose shadows stretched as far as the eye could see, touching every corner of Africa. They said we would never make it, that we were mere mortals in a land of titans. But we were not deterred.

We stood as the first modern cement plant in the new South Africa ...and we have been rewriting the story, bag by bag, ever since.

Our story springs from the fertile soil of Limpopo, in the village that gave us its name – Sephaku. This name is our totem, a constant reminder of our African roots and humble beginnings, when we had nothing but a dream and a drive

to succeed. Our vision was grander than our modest start; it was a vision for our company, our industry, and our beloved land.

We dreamed of a future brighter than a thousand suns – a vision so fierce it caught the attention of the mighty Dangote Cement: a titan that had joined the Forbes Global 2000. With their strength, our vision grew mightier, and Sephaku became fuelled by an unwavering spirit.

Every bag of our cement carried a promise: solid, strong, and built to last ...like the ancient mountains that have stood the test of time. This promise was more than words; it was the bedrock upon which our customers could always

rely on. Our cement was both affordable and of the highest quality, yet we continually strove for greater heights.

At our core, we are bound by the spirit of Ubuntu, like the intertwined roots of the baobab tree, each one supporting the other. Our strength comes from our people, and in return, we seek new ways to aid hardware retailers and bulk cement users. We are the bedrock upon which communities are built, thriving together in unity.

Just one year into our journey, we celebrated the production of our first million tonnes of cement. As a farmer patiently watches over his crops until the fertile soil produces fruit, our capacity grew, and so did our commitment to



protecting the land that nurtures us.

Today, our CO2 emissions and electricity consumption are well below industry averages. Remembering our humble beginnings, we established Torosesha, an NPO dedicated to supporting underprivileged communities in Springbokpan and Verdwaal. Like the skilled hands of a craftsman weaving a fine thatch basket, we create new dreams through skills development, education, healthcare, and housing.

Torosesha means "new dreams," and that is what we have given these communities. As we journey into the future, we will continue to be the dream weavers, carefully crafting and spreading light to those who need it.

The year is 2024, and we stand as the 3rd largest cement producer in the country. We may not be the biggest, but we have stepped onto the podium, achieving these milestones in just 10 years. The doubters have fallen silent, and the shadows of the giants no longer loom as large. In all the things that matter, we stand tall and proud like the majestic baobab, deeply rooted and reaching for the sky. But how did we achieve this? By simply trying harder to be better for all. That is our vision and that is how...

WE REWROTE THE STORY, BAG BY BAG.


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All the winners of the 37th Corobrik **STUDENT ARCHITECTURE AWARDS**

Leading brickmaker Corobrik announced the winners of its 37th annual Student Architecture Awards at a gala event on 10 May in Kramerville, Johannesburg. “We all recognise how difficult the building industry has been over the past few years, but we have been steadfast in our support of the architectural profession,” said Corobrik Chairperson Peter du Trevou. “We also pay tribute to the studio masters and universities for their effort in securing South Africa’s future in the built environment.”

He added: “Corobrik is privileged to work alongside the architectural profession, with which we have always had a good relationship. This is but one of the many initiatives we are involved with.” Du Trevou congratulated the eight finalists on making the last hurdle and expressed his gratitude to all who had supported the students on their journey.

“I would like to take this opportunity to urge the architectural profession to continue to deliver excellence and ensure we have a future built environment that adds value to the lives of all South Africans,” said Corobrik CEO Nick Booth.

Corobrik has a long legacy of assisting architects achieve their design dreams in the built environment. Part of that legacy lies in its sponsorship of the Student Architecture Awards, which it curates in conjunction with those universities that have a Master of Architecture programme.

“We are really privileged to be part of this journey. Many architects over the years have gone on from these Awards to make significant contributions to their societies. In talking to past participants, every single one has acknowledged the role that these Awards have played in their career journey,” said Booth.

“We are quite proud of the contributions that the participants have made to the profession over the years. The winners are scattered far across the world, in some ways sadly lost to South Africa, but in a lot of ways I think a great triumph for the South African architectural profession,” said Booth.

Highlighting talent, creativity, innovation and inspiration, the Corobrik Student Architecture Awards is all about jump-starting careers, building the industry, and designing tomorrow, says Corobrik Marketing Support Manager Thilo Sidambaram, who has been involved with the Awards for over three decades. The finalists were selected from the

eight major universities, based on the students’ Architectural Master’s theses from the class of 2023. This year’s judges were Carin Smuts from CS Studio, Somers Govender from Artek 4 Architects and Rudolf Roos from HDG Pretoria. The finalists each received a R12 000 prize and the winner a R70 000 grand prize.

The results of the 37th Corobrik Student Architecture Awards are as follows:

Grand Prize Winner: Arran Wood, University of the Free State, ‘Spectral Flesh – Remembrance’

Wood said that being able to add to the historic record of South Africa’s nuclear weapons programme in a small way and highlight forgotten history was his main goal. The judges commented that the thesis made an invaluable contribution to an unrecorded and forgotten, yet incredibly important part, of South Africa’s history.

Special Commendation: Gideon Williams, Nelson Mandela University, ‘The Design of an Archive at King’s Beach, Gqeberha’

The judges praised Gideon’s exploration of ideas and concepts and encouraged him to turn his vision into a built reality. “I love the attempt at representation: graphical, sketched, rendered, or simply observed. I also love physical objects, things that are interesting to be around, under, inside of, or on top of. Architecture somehow amalgamates all my diverging interests and passions,” said William.

Best Use of Brick: Taryn Glazebrook, University of Pretoria, ‘Marabastad: From Arrival to Revival’

While the use of Corobrik products is not a prerequisite for entry, the judges highlighted Glazebrook use of brick as a sustainable building material that also offers endless possibilities. Her project utilised various types of bricks for a range of elements, including seating, ventilated screen walls, chimneys, planters, and more. In addition, pavers were used for façade screening elements to assist with solar control. ©

Top concerns for engineering, construction, **AND REAL ESTATE SECTOR**

The engineering, construction, and real estate sector is facing significant challenges in the year ahead, with natural catastrophes and fire, explosion risks emerging as the primary concerns, according to the Allianz Risk Barometer. It is followed by business interruption (28%), macroeconomic developments (21%) and cyber incidents (19%). The report, based on insights from over 3 000 risk management professionals and business leaders, highlights the urgent need for proactive risk management and comprehensive disaster preparedness to ensure business continuity and safeguard against potential disruptions.

Natural catastrophes, including hurricanes, earthquakes, and floods, pose a major threat to the industry, causing damage to infrastructure, delaying construction projects, and disrupting real estate markets. With 38% of respondents identifying it as the top risk, the sector must prioritise resilience by adhering to building codes, incorporating climate resilience considerations, and collaborating with stakeholders for effective disaster response planning.

Fire and explosion risks are another significant concern, particularly during the construction phase and in occupied buildings. The report reveals that 31% of respondents consider this risk a top priority. To mitigate these risks, the industry must focus on fire prevention measures, including adherence to standards, installation of detection systems, and collaboration with experts for emergency response planning.

Business interruption, resulting from project delays, supply chain disruptions, and regulatory challenges, is also a pressing issue for the sector, with 28% of respondents highlighting it as a major risk. To mitigate these risks, contingency planning and diversification of project portfolios are recommended, alongside leveraging technology for flexibility, and conducting thorough risk assessments.

Macroeconomic developments, such as economic downturns, inflation, and changes in interest rates, pose a threat to the industry, affecting project financing, demand for construction services, and property values. The report reveals that 21% of respondents consider this risk a top concern. To address these risks, the sector must stay vigilant and adapt to changing economic conditions, while also exploring opportunities for growth and diversification.

In an increasingly digital landscape, cyber incidents are becoming a growing concern for the engineering, construction, and real estate industry. With 19% of respondents identifying this risk as a top priority, robust cybersecurity measures, such as encryption and employee training, are essential to protect sensitive data and maintain operational continuity.

"Allianz Risk Barometer 2024 highlights the critical risks faced by the engineering, construction, and real estate sector."

"By implementing effective risk management strategies and disaster preparedness measures, businesses can



"Macroeconomic developments, such as economic downturns, inflation, and changes in interest rates, pose a threat to the industry, affecting project financing, demand for construction services, and property values."

Geoff Tanton, Head of Property and MidCorp at Allianz Commercial South Africa.

enhance their resilience and ensure continuity in the face of various challenges."

The engineering, construction, and real estate sector plays a vital role in driving economic growth and development. As the industry faces an array of risks, it is crucial for businesses to prioritize risk management and adopt proactive measures to protect their assets, employees, and reputation. ©



Tandi Jacobs, General Manager, Internal Developers.

Workplaces that adapt to **AN EVOLVING WORKFORCE**

Gen Z is redefining the future of inclusive office design for multi-generational teams. Optimising office environments for multi-generational teams has been a part of workplace dynamics for decades.

Yet, the rise of Generation Z in the workplace has increased the importance of accommodating different values and work styles as this radically different generation becomes more active in the global economy. Getting this right will be the differentiator for companies looking to attract and retain top talent in future.

Tandi Jacobs, General Manager, Internal Developers (ID) powered by Cushman & Wakefield | BROLL, recently shared her insights as part of a panel discussion titled Multi-Generational Workplaces, the Rise of Gen Zs hosted by CoreNet Global Sub-Saharan Africa Networking Group.

Designing for a multi-generational workforce

There is a growing necessity for workplaces that embrace diversity in perspectives, preferences, and work styles.

As Generation Z, born between 1995 and 2009, becomes a significant portion of the workforce, with an expected 27% representation by 2025, businesses must adapt their office environments to meet the needs of various age groups.

Jacobs stresses the importance of flexible and inclusive design strategies to create productive and cohesive work environments. “We understand that designing workspaces

to accommodate a multigenerational workforce is crucial for fostering a culture of collaboration and innovation,” says Jacobs.

“In today’s dynamic work landscape, the influx of Generation Z is reshaping traditional office design and functionality. Designing inclusive workspaces is essential for attracting top-tier candidates and fostering a vibrant and productive work culture that resonates with the next generation of talent.”

Flexible and agile workspaces

Flexible design options can help cater to individual needs and preferences. Gen Z employees thrive in adaptable environments that allow for personalisation and dynamic interactions. Cutting-edge design incorporates movable furniture, modular partitions, and versatile layouts that enable employees to customise their workspaces, facilitating seamless transitions between individual tasks and collaborative projects. “Agile workspaces empower employees to express their individuality and creativity,” Jacobs notes. “Customisable workstations, personal storage solutions, and flexible décor options are essential for

attracting and retaining top Gen Z talent.”

Sustainability and biophilic design

Sustainability is a non-negotiable in today’s buildings and extends from making responsible construction choices to enhancing employee productivity and well-being. Jacobs highlights the importance of incorporating biophilic design principles, which integrate elements of the natural world into the built environment. This approach goes beyond green construction methods by creating a connection between employees and nature, enhancing their overall work experience.

“Biophilic design is about more than just adding plants to an office,” Jacobs explains. “It’s about creating spaces that incorporate natural light, moving water, and organic shapes, which can significantly improve mental well-being, creativity, and productivity. It is effectively about finding ways to bring the outside in.”

Furthermore, sustainable practices need to be visibly integrated and supported into the workplaces of Gen Zs, who tend to be more ethically conscious and expect tangible demonstrations of this commitment from employers.

Success stories in multi-generational design

Jacobs provided examples of successful design implementations, including a project with a global organisation in the life sciences field. The company is relocating its offices in South Africa and is adopting a ‘New Normal Office Concept’ (NNOC), where workspaces are shared rather than owned.

This approach offers a variety of environments to

suit different work styles and preferences, promoting collaboration and innovation.

“Our client’s older employees tend to prefer traditional, designated spaces, while younger generations gravitate towards dynamic, shared spaces,” Jacobs observes. “By offering a mix of quiet areas, hot desking, and larger meeting spaces, we create an environment that caters to all age groups and enhances overall productivity.”

Promoting inclusivity and continuous learning

Inclusivity is a core value for Gen Z, making it imperative for companies to design workplaces that celebrate diversity and cultivate a sense of belonging. Successful approaches include incorporating diverse artwork, cultural references, flexible amenities, gender-neutral facilities, mothers’ rooms, prayer spaces and other accessible features to support a diverse workforce.

Additionally, designing dedicated learning hubs, training rooms, and innovation labs supports Gen Z’s desire for continuous learning and professional growth. “Creating inclusive spaces where everyone feels valued and respected is crucial for attracting top Gen Z talent,” Jacobs states.

Balancing work and life

Work-life balance is a crucial priority for Gen Z, who value flexibility, remote work options, and comfortable environments that prioritise well-being and mental health.

“Designing workplaces that offer flexible hours, remote work opportunities, and comfortable amenities promotes employee satisfaction and retention while supporting Gen Z’s holistic approach to life and work,” Jacobs concluded. ©

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Laser-focused approach to **CUSTOMER EXPERIENCE**

*AFGRI Equipment, a distributor of John Deere Equipment, understands that success in the construction and mining industries hinges on having reliable, high-performance equipment. They have taken their deep retail knowledge and experience from the agricultural sector and expertly applied it to construction and forestry over the past three years. A commitment to excellence has made them a trusted partner for many farmers, and now they are extending that same dedication to local mining, construction, and forestry companies. By developing a stand-alone Construction & Forestry (C&F) business unit to better serve clients in these demanding industries. **Construction World** spoke with Pieter Nel, AFGRI Equipment's Operations Manager for Construction and Forestry, about their focused approach and how they meet the unique needs of customers.*

Meeting the needs of mining, construction and forestry sectors

"AFGRI Equipment has always prioritised customer satisfaction. In agriculture, we provide familiar and dependable John Deere products, supported by nearby branches stocked with parts and support. In the mining and construction sectors, where efficiency and uptime are crucial, we need to ensure machine availability exceeds 90%. This high standard is achieved through robust technical support, rapid warranty decisions, and a fleet of rental and demonstrator machines. Our goal is to keep your operations running smoothly, allowing you to meet your production targets consistently. This is achieved by offering technicians on site, strategically placed parts, operator training, training of customers' own technicians, and linking customers to the JD Link system, which is an industry-leading telematics solution."

Tailoring our machine range for construction

"Understanding market needs is key. Since AFGRI Equipment began distributing John Deere mining and construction equipment locally, the product portfolio has expanded significantly. This expansion included more dozers, wheeled loaders, TLBs, and the introduction of excavators and ADT ranges that are delivering amazing results. This gives local customers, who have been familiar with John Deere equipment since 2002, more choice and a better fit for their business."

Dedicated focus on mining and construction

"We were initially cautioned about the perception of being an agricultural equipment distributor wanting to play in the yellow metal field. From day one, we've maintained a separate, dedicated focus on C&F, bringing in salespeople, technical personnel, and administrative



Top: Pieter Nel, AFGRI Equipment's Operation Manager: Construction and Forestry. Far left: The purpose-built branch in Middelburg, a 1 400 square metre brand new facility that is a dedicated C&F branch.



staff with industry-specific expertise. Our 65 professionals across Southern Africa are committed to supporting your business with unparalleled service.”

Expert training for our staff

“We invest in consistent training to ensure our staff remain experts in their field. Whether through online courses or face-to-face sessions led by factory staff, we maintain rigorous training standards, whether it be sales, support service, or parts expert career paths, to meet John Deere’s specifications.”

Customer-centric service approach

“Our approach is unique: rather than following industry norms, we re-evaluate and prioritise customer needs and respond to them. We operate flexibly, whether that means having technicians on-site, converting fleets to John Deere and providing support training, or providing specialised training for your operators and technicians. We aim to minimise your hassles and keep your operations focused and productive.”

Expanding our footprint

“AFGRI Equipment’s hybrid model for C&F includes 26 branches across South Africa, with 70% of the territory covered. There are five hybrid locations that supply agricultural and construction equipment in Bethlehem, Brits, Bellville, Vredendal, and Polokwane. Furthermore, we have four dedicated C&F branches in Tzaneen, Pomona, Middelburg, and Springbok, with more specialised branches on the horizon. Our new

2,000-square-metre facility on the R21 in Gauteng, set to open in December, will further enhance our service capabilities, training capabilities, and market accessibility. Additionally, we have a presence in Namibia, Botswana, and Zimbabwe, ensuring broad support across the region.”

Customer experience

“Our ultimate goal is to simplify your operations. We understand the importance of keeping projects on time, within budget, and delivering quota, whether it be by ton or hour. By taking care of all the ancillary details, we allow you to focus on what you do best - delivering results.” ☺

IN A NUTSHELL

“AFGRI Equipment offers a unique proposition for customers. On one side, you have John Deere, a brand with a legacy since 1837. On the other, you have AFGRI, a company with 100 years of history, 60 of those as a John Deere dealer. Together, we offer a product line known for excellent fuel consumption, high productivity, ease of maintenance, operator comfort, and safety. Our team, specialised and laser-focused on customer service, ensures the fastest, most hassle-free experience in the market. We are constantly looking at methods to expand and better serve our customers, so far this strategy has worked well for us, and we are extremely excited about the future.” - Pieter Nel



Balwin experiences toughest **TRADING YEAR IN PAST DECADE**

JSE listed Balwin Properties, a developer that cares about environmentally responsible building practices and the delivery of high-quality apartments to its valued clients, recently released its annual financial results for the year ended 29 February 2024.

Balwin Chief Executive, Steve Brookes commented: “The past financial year was the toughest in our 28-year history as escalating interest rates, higher fuel and food prices as well as political uncertainty over the upcoming elections impacted on demand for residential housing.

Our relentless focus on innovative design efficiencies and overhead reductions was further supported by a pleasing contribution from the annuity business, which resulted in a materially consistent gross profit margin of 28%.”

Brookes noted that according to the latest Rode Report on

the South African Property Market, both FNB and Lightstone’s house-price indices recorded the lowest growth rate for the past four years in the last quarter of 2023. This is significant, as it includes the Covid lockdown periods.

“The first quarter of 2024 showed a reversal of this trend, and although several macro-economic headwinds remain – especially in an election year – it appears that the sector has at least stabilised,” he added.

Profit for the year of R217,4m was recorded (FY23: R437,4m) against revenue of R2,4b (FY23: R3,3b). Headline earning



were necessary to secure council approval for the registration of the initial phases of apartments at Greenkloof, the first development within the Mooikloof Smart City node (Tshwane East). The first four phases were completed during the financial year, with 144 apartments recognised in revenue.

These upgrades form part of Government's infrastructure commitment for the area as contained in the Strategic Integrated Project (or SIP) Gazette from 2018. In terms of the SIP, Government will provide the funding for the infrastructure to the tune of approximately R1,4b through certain mechanisms. We continue to engage with Government and its relevant stakeholders on this matter.

The Group's annuities businesses continued to report strong growth on increased scalability, with an aggregate revenue of R132,5m for the year - an increase of 70% on the prior financial year. The business segment further recorded an operating profit of R69,5m before intergroup eliminations. Half of the revenue was derived from fibre and infrastructure service, which increased its active clients to 9 109.

In line with its sustainability objectives, all new developments undertaken by Balwin Properties are aimed at achieving EDGE Advanced ratings, which recognises excellence in design for greater efficiency. A total of 23 273 apartments developed by Balwin have been registered as EDGE (Excellence in Design for Greater Efficiency) with the International Finance Corporation.

Moreover, Balwin has achieved significant milestones with 15 833 apartments registered as EDGE Advanced, demonstrating energy savings of 40% or more and water savings of 20% or more.

The company's dedication to sustainable practices extends beyond individual apartments. Nine of Balwin's lifestyle centres have achieved six-star green ratings and have been accredited with Net Zero Carbon ratings by the Green Building Council of South Africa, affirming their ability to generate and maintain a net zero carbon footprint.

In the pursuit of sustainable financing options for its clients, Balwin has secured 1 220 green bonds for home buyers during the period. These bonds not only provide financial benefits but also contribute to significant savings, amounting to a total of R80m over 20 years, in the current financial year alone.

The Group closed the year with a strong cash position of R289,6m. Its loan-to-value reduced marginally to 40,5% (FY23: 40,7%), well within covenant requirements.

Going forward, Brookes commented: "We expect that the domestic economic outlook will remain challenging in the short- to medium term, especially given the South African Reserve Bank's continued hawkish stance on interest rates and prevailing political uncertainty in light of the upcoming elections. Any reduction in interest rate should have a catalytic effect on demand.

"Our short-term focus will be to protect our existing margin levels, with the practice of using sales incentives as a strategy to drive sales expected to continue for the upcoming financial year. The target gross margin of the group remains in the low-to-mid-30%.

"From an operational perspective, we have slowed the rate of construction to match the rate of sales. In addition to ongoing cost containment, we will focus on leveraging our existing land bank and pipeline of developments, with strategic acquisitions considered on an ad-hoc basis, especially in the Western Cape.

The emphasis will however be on continued prudent cash management and responsible environmental practices." ©

per share decreased 48% to 47,94 cents per share. Operating expenses decreased 11% to R351,2m, down from R392,8m in the prior financial year.

Balwin recognised 1 892 apartments in revenue for the year, down 32% from the 2 788 apartments in FY23.

Coastal regions contributed 63% of revenue during the period under review, up from 52% reported in the 2023 financial year, mainly as a result of semigration.

"For the first time in our history, the Western Cape has emerged as the group's top revenue earner, contributing 46% of total group revenue, from 35% previously. We however remain positive on the longer term contribution of Gauteng as the main driver of sales," said Brookes said.

Developments under construction, which include the value of land and infrastructure costs, development rights and construction costs, increased by R607,8m to R6,3b.

This increase was driven predominantly by construction and development costs as opposed to additional investment in land, reflecting Balwin's focus on developing the existing pipeline of projects.

A significant component of the costs incurred in Tshwane related to investment in infrastructure costs. These costs

V&A Waterfront's first totally recycled **COMMERCIAL BUILDING**

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In a world which seems to be losing the battle against climate change, it's hard to imagine such a neighbourhood. But you don't have to, because it already exists. It is the V&A Waterfront in Cape Town, and it has achieved all this in just 16 years.

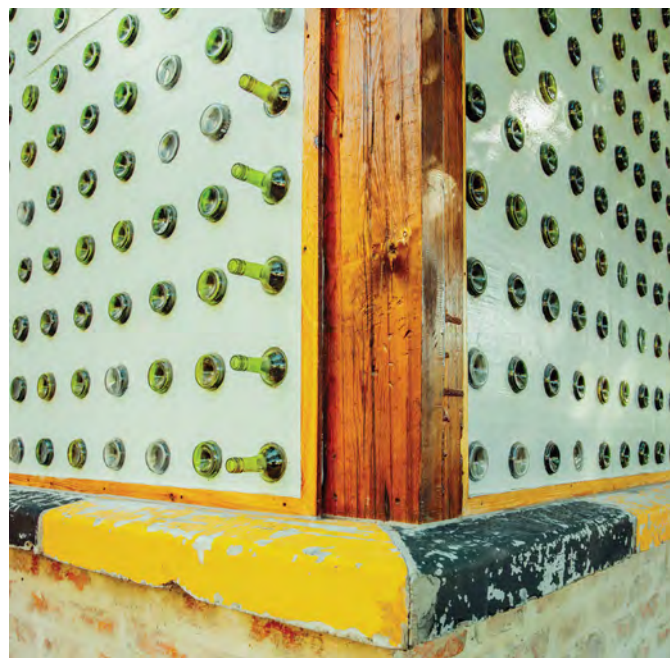
Since starting its sustainability journey in 2008, the Waterfront has blazed a trail of sustainable development initiatives to increase energy efficiency, conserve water, and promote waste recycling across its precinct.

Key milestones include:

- **Energy Efficiency:** With its investment in energy efficiency, the V&A has reduced its energy use by 40%. Its 2 MW photovoltaic solar panels generate 1 640 000 kWh of clean energy annually.
- **Waste Management:** The V&A diverts 62% of its waste from landfills. This includes more than 2 300 tons of organic waste and 2 100 tons of recycling every year.
- **Green Buildings:** The V&A is home to 22 buildings that have been Green Star rated by the Green Building Council of South Africa, making it one of the greenest neighbourhoods on the continent.
- **Water Conservation:** A blackwater treatment plant that can process 200 000 litres a day produces treated effluent that is used to flush toilets.
- **Carbon Emissions:** The V&A has achieved a 47% reduction in carbon emissions, demonstrating its commitment to a sustainable future.

In another recent development, a café was built using only waste materials harvested throughout the Waterfront precinct. The construction industry is responsible for about 19% of global carbon emissions and the Portwood Café was designed to show what can be achieved with an innovative approach.

"This is a low-tech, low energy building and certainly the first of its kind in the Waterfront. We believe that this demonstration can highlight the role of alternative



building methodologies for broader applications and sector development, demonstrating circular economy thinking in practice," says Donald Kau, Head of Communications.

With a vision to enhance its environmental credentials, the V&A Waterfront has committed itself to:

- Reducing its carbon footprint through circular design and sustainable practices.
- Eliminating single-use plastics by 2025.
- Ensuring new buildings achieve a minimum net-zero green rating.
- Establishing a waste-to-energy pyrolysis plant to divert waste from landfills and produce synthetic gas for electricity, complementing solar power.
- Implementing a desalination plant to provide fresh water to the neighbourhood, thereby reducing the strain on the city's fresh water supply.

To share the word to a wider audience on what is possible, the V&A will soon launch a public programme dedicated to showcasing its commitment to sustainability, inclusivity, and community development. The initiative encourages everyone to awaken their better nature, recognising the goodness within and inspiring actions that benefit both people and the planet.

Commenting on 'Our Better Nature' platform, which will run from end of June to September, Kau says: "We will be inviting everyone to engage with Our Better Nature and join us in our journey towards a more sustainable, inclusive, and resilient future. By acting from our better nature, we can create a better world for ourselves and future generations." ©

SolarSaver powers 150 Engen fuel stations **ACROSS SOUTHERN AFRICA**

Engen Petroleum's official solar provider SolarSaver has reached the milestone of installing photovoltaic solar systems at 150 Engen Petroleum fuel stations across South Africa, Botswana and Namibia, with more going live each month. The installations total more than 6 586 kilowatt peak.

With the largest network of service stations in the country, this project is significantly reducing Engen's reliance on grid power and significantly decreasing its CO₂ emissions. The 6 586 kilowatt peak will produce 12 220 794 kilowatt hours within the first year. In a major move to reduce its carbon footprint and save energy costs, Engen Petroleum aims to install solar photovoltaic systems at all Engen-owned fuel stations across South Africa, as well as sites in Botswana and Namibia.

"Solar can help businesses like fuel service stations to slash their electricity bills and significantly reduce their carbon footprint," says Stu Batchelor of SolarSaver. "The fuel stations are able to use solar energy during the day and revert to the national grid at night and during inclement weather conditions. This allows us the ability to save energy and to take pressure off the grid." The effective drop in grid energy consumption on a typical Engen site with the new solar PV system installed is about 80 000 kWh's per year.

According to Batchelor, service stations offer unique installation spaces for solar PV solutions on both the convenience store roofs and forecourt canopies. These installations can power multiple aspects of their services, including retail store operations. "With a solar installation in place, daylight energy requirements like LED lighting, fuel pumps and compressors can be fully met. In addition, energy for refrigeration and IT infrastructure can be provided by this sustainable energy source, leading to considerable

savings on electricity costs," Batchelor says. The benefits of switching to solar can be further maximised if a business has already implemented other energy-saving initiatives. Engen, for example, is implementing environmental initiatives including solar geysers, solar heat pumps and whole-site conversion to LED lighting.

SolarSaver currently helps over 700 major businesses to harness the power of the sun through rent-to-own grid-tied solar solutions or hybrid battery installations that provide an essential backup for when the grid is down. SolarSaver remains responsible for all ongoing monitoring, maintenance and insurance of managed systems. "We're able to build these systems economically, managing and maintaining them in widespread geographic locations," says Batchelor. According to Batchelor, this approach to making renewable energy available across a wide range of sites will help Engen reduce its electricity costs and achieve its sustainability goals, while also visibly highlighting that a shift to renewable energy is accessible. "It has been a real win for SolarSaver to be able to work closely with the Engen team, united behind the same sustainability goals. When you see the solar panels at Engen service stations around the country, it creates a greater awareness of using solar energy. This project demonstrates the potential of solar PV technology to create clean energy systems, serving as an example for other similar businesses looking to implement sustainable solutions." ☺





Contractor Lemay is working with AfriSam on a new sunflower seed intake facility.

Sunflower oil plant gets quality expansion from **LEMAY USING AFRISAM READYMIX**

Concrete is a central component of the Willowton Group's expansion of its Isando plant, where Johannesburg-based contractor Lemay is working with leading construction materials company AfriSam on a new sunflower seed intake facility.

Underway since June 2023, the project began with the construction of a large 30 m by 90 m bunker with 11,5 m high walls, topped with a 5 m steel structure. This was after Lemay completed the necessary excavations and bulk earthworks. The bunker houses two conveyor channels for the seed husks returning to the bunker after the seeds have been pressed for oil. According to Lemay Contract Manager Kobus van der Westhuizen, the company's scope includes various concrete works, the steel structure, walkways, gantry beams and access staircase.

"The bunker is connected to the cleaning tower and off-load seed pit by a lean-to canopy," explains Van der Westhuizen. "This allows the trucks carrying sunflower seeds to enter the premises and report to a weighbridge, before offloading the seeds into the pit."

Partnering with AfriSam, Lemay was supplied with readymix concrete from AfriSam's nearby plant in Spartan. AfriSam also provided Lemay with the recommended 35 MPa pump mix, which was signed off by the project's engineers. The total concrete volume needed for constructing the bunker was approximately 1 500 m³.

Lemay also constructed a 24 m high cleaning tower, comprising a 12 m concrete structure with two floors and 12 m of steelwork with platforms. This is fed by conveyor from the pit.

"The concrete work also included the bases for four silos, with diameters of 26 m each and used a total of about 700 m³ of concrete," he says. "Conveyors on gantries transport the seeds to the existing plant for processing." Hardstands consuming

about 2 300 m³ of concrete have been constructed over the area between the new installations, along with a weighbridge, ablution block and transformer room. There is also a boundary wall with concrete columns along the west side of the customer's premises, adjoining Diesel Road.

"We have been responsible for all the concrete work, and have relied on AfriSam for the readymix supply," he says. "There are also various aspects of steelwork that we conducted."

Paul Baggott, Business Development Executive at Lemay, highlights that as a 9GB contractor the company has built its success on a history of high quality general building projects.

"We are proud of having a depth of experience in engineering construction and multi-storey structures," says Baggott. "These include processing facilities, bottling plants and shopping centres, in addition to a large variety of residential, commercial and industrial buildings – with concrete making up an important aspect of most contracts."

At the Willowton site, the bunker includes 38 concrete bases and columns, 19 along the south side and 19 along the north. The walls for the bunker were 230 cm reinforced concrete structures, constructed from a beam on the bases on the north, east and west sides. Cast in single pours, this required the use of mobile cranes – as well as high frequency pokeres due to the limited space on either side of the reinforcing bars.

"The design called for considerable reinforcing to allow for a narrower wall that uses less concrete," he explains. "We used a mix with a 13 mm stone – instead of our usual 25 mm – to allow more effective flow into the restricted space."

The single pour delivered a monolithic result with no



Concrete is a central component of the Willowton Group's expansion of its Isando plant.



The project includes a large 30 m by 90 m bunker with 11.5 m high walls, topped with a 5 m steel structure.

vertical joints in the wall, which aims to reduce the risk of water seepage and corrosion. The concrete bases comprised a circular footing with a 2,2 m wall of 600 mm thickness. A conveyor channel runs through the middle of the structure.

Van der Westhuizen says he was pleased to be able to rely on AfriSam, who consistently delivered a high quality product – with the 35 MPa mix regularly reaching 45 MPa strengths.

Among the challenges, he points out, was that the water table was relatively close to surface – just 2,5 m below natural ground level. In terms of concrete admixtures, this factor affected the choice of mix for the cleaning tower, as well as a for a 7,5 m deep lift pit.

“The high water table, as well as the summer rains, meant that we had to continuously pump water from the site,” he says. “With the amount of groundwater present around the completed construction, we decided to use a waterproofing admixture in the concrete as an added precaution.”

Space on the site was confined, especially as an existing hardstand had to be demolished, crushed and stored as a 4 500 m³ stockpile of G5 fill. Excavating to depths of 7,5 m



The concrete work also included the bases for four silos, using a total of 700 m³ of concrete.

had to be done in stages, extending well beyond the concrete footprint. Apart from the bunker, most of the concrete could be pumped using a 35 m capacity boom pump to accommodate space limitations. ©



The total concrete volume for constructing the bunker was approximately 1 500 m³.

Promoting health and safety on construction sites: **A VITAL COMMITMENT**

In the wake of a recent construction site tragedy in George where a building collapse resulted in injuries and loss of life, the imperative of prioritising health and safety protocols on construction sites has come sharply into focus. Such incidents underscore the paramount importance of adhering to rigorous health and safety procedures to safeguard workers, mitigate risks, and ensure the wellbeing of all involved.

“**H**ealth and safety procedures are crucial because construction sites are inherently hazardous environments. These protocols help protect workers from accidents, injuries, and long-term health issues caused by exposure to various risks such as falls, hazardous materials, and heavy machinery”, says Seipati Leboko, Head of the Occupational Health (**pictured**), Safety and Environment (OHSE) Division at Afroteq Advisory.

Leboko stresses that health and safety procedures are not merely a checklist; they are a commitment to providing a safe and healthy workplace environment. They form the foundation of a culture of care and wellbeing that protects workers and enhances productivity.

“Prioritising health and safety through implementing rigorous procedures flow out of the commitment made by the employer to look after their workers’ wellbeing in the form of the OHS Policy. This plan is indicative of how the company’s commitment will become a way of life, part of the corporate culture and is adhered to on the construction site. Implementing and following through on these procedures shows employees and construction workers the way and guides them on how to support the commitment made and what to do to reach the goal of a safe, risk-free environment that not only safeguards workers and employees, but promotes their wellbeing and improves

productivity in the workplace,” she says. Some of the key protocols that construction workers (and other people on site) need to follow to prevent injuries include following safe work procedures and practices for tasks like lifting heavy objects and working at heights, conducting regular safety inspections, and adhering to emergency response procedures.

Although it is often referred to as a “last resort”, wearing appropriate personal protective equipment (PPE) such as helmets, gloves and safety harnesses is essential. In addition, warning notices and barricading of overhead work and deep excavations will assist in creating awareness and mitigate the potential for workers and visitors alike to be exposed to serious harm or injury.

“Crucially, as construction is deadline driven, all those involved in the development and construction process need to ensure that the correct timeframes are adhered to, while ensuring no undue pressure is placed on getting the job done, which could result in corners being cut, risking tragedies as witnessed recently in George,” Leboko warns.

Leboko also highlights the necessity of comprehensive training to educate workers. “Proper training is essential as it educates workers about safety protocols, equipment usage, hazard recognition and emergency procedures. It empowers workers to take ownership of their safety and that

Thatch-roofed structures face increasing **INSURANCE CHALLENGES DUE TO FIRE RISK**

*Insurance companies are increasingly wary to insure thatch-roofed structures, says ASP Fire CEO Michael van Niekerk (**pictured**). The danger posed by thatch in terms of fire risk was starkly illustrated recently when the Radisson Hotel in Hoedspruit was struck by lightning. “The only factor preventing a disastrous fire was the presence of an intumescent coating on the thatch, but there was still significant water damage in putting the fire out,” highlights Van Niekerk.*

“**W**hile thatch was great ten, 15, maybe 30 years ago, it has actually lost its flavour with insurance companies,” he points out. “My recommendation to clients is simply to replace it, as it just causes such a headache from a fire management and insurance perspective.”

Advancements in insulation materials and technology

present more viable alternatives to control the temperature of a house or building. For example, a thatch-roofed structure can be covered with metal tiles to stop any fire from propagating. However, this will not stop a fire spreading inside.

Van Niekerk points out that both the outside and inside

of their colleagues by identifying and reporting concerns, and following established safety guidelines. Skilled and experienced workers create a safer environment taking care not only of themselves, but also their co-workers. Training increases accuracy of incident data and reports, places greater focus on mitigating risk exposure and ensures a heightened sense of responsibility of all in their respective tasks on construction sites or within workplaces.

Effective supervision and oversight play a crucial role in ensuring consistent adherence to safety standards. Regular safety meetings, site inspections, and safety audits help identify and address potential hazards promptly, reinforcing a culture of safety and accountability among all stakeholders.

While cost, quality, and time are significant considerations in construction projects, health and safety should never be compromised. Balancing these factors with a steadfast commitment to health and safety measures is key to achieving successful and sustainable construction projects.

Companies cannot undervalue the importance of excellent health and safety management carried out by committed individuals and supporters of workplace health and safety. Enforcing, monitoring, and adhering to the provisions of Sections 8 and 9 of the Act has the advantage of guaranteeing that workers possess the requisite training and background to safely carry out their daily responsibilities and are more informed, driven, and ideally enthusiastic about occupational health and safety in the workplace.

“One of the most effective strategies to ensure compliance and ownership will be to implement Planned Task Observations (PTOs) or Job Safety Analysis (JSAs) on a regular basis. This will highlight activities with potential non-compliance or inherent risks timeously and prevent them from becoming habitual or leading to injury. By prioritising health and safety from the initial phases of a project and involving stakeholders at every



step, we can minimise incidents and strive for zero harm. Together, we can create a culture where the wellbeing of workers is paramount, and construction projects thrive in an environment of safety and accountability," Leboko concludes. ☺

“Regular safety meetings, site inspections, and safety audits help identify and address potential hazards promptly, reinforcing a culture of safety and accountability among all stakeholders.”

surface of thatch needs to be protected by treating it every five years with a fire retardant and ensuring that the electrical supply is maintained properly. While thatched structures are common in high-end game reserves, Van Niekerk reveals that one client in this sector has decided to forego thatch due to the fire risk and insurance challenges. “The client simply considered it not viable as it also posed a business risk,” explains van Niekerk.

Most commonly used for lapas, ASP Fire can assist to ensure that the construction and positioning of the structure is compliant. In addition, these can either be treated or isolated by means of a fire-rated protection system.

“We can inspect a thatch-roofed structure to determine whether or not it has been erected in accordance with the regulations,” adds van Niekerk. Recommendations will be made where the structure or buildings close by do not comply fully. “The secret to a cost-effective fire-prevention strategy for thatch-roofed structures is proper planning. Involving a fire consultant at the outset means that compliance need not be costly in the long run. If you are unsure whether a thatch-roofed building is compliant or not, simply contact us and we will gladly assist you. We can also

provide advice where you wish to remove any such structure safely,” concludes van Niekerk. ☺





2024 TWENTY-THIRD 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 23rd 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 and CIOB.

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.

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

<p>1 <i>Category</i> Civil Engineering Contractors</p>	<p>2 <i>Category</i> Building Contractors</p>
<p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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 	<p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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
<p>3 <i>Category</i> Civil Engineering and Building Contractors (outside South Africa)</p>	<p>4 <i>Category</i> Specialist Contractors or Suppliers</p>
<ul style="list-style-type: none"> • In addition to the common prerequisites, projects outside South Africa must be executed by a South African contractor. <p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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 	<p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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
<p>5 <i>Category</i> Consulting Engineers</p>	<p>6 <i>Category</i> Architects</p>
<p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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 	<p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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
<p>7 <i>Category</i> The AfriSam Innovation Award for Sustainable Construction</p>	<p>Construction <small>WORLD</small></p>
<p>Please address the following criteria:</p> <ul style="list-style-type: none"> • 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 	<p><i>Main Sponsor</i> <i>Gold Sponsor</i> <i>Silver Sponsor</i></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p><i>Associate sponsor</i> <i>Associate sponsor</i></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>
<p>Entry Deadline Friday, 6 September at 17:00</p>	



LHWP II's Senqu Bridge progressing steadily: **FIRST DECK SEGMENT CAST ON NORTHERN ABUTMENT**

The construction of the Senque Bridge marked a significant milestone on 24 May when the first deck segment was cast on the Northern abutment.

The Senqu Bridge is the largest of the three major bridges under construction to span the Polihali reservoir. Almost a kilometre long (825 m) and at a height of 90 m, it is the first extradosed bridge in Lesotho. The bridge design has taken into consideration the long, cold and harsh winter conditions experienced in the Mokhotlong highlands.

Due to the deep valley and the terrain of the area, the deck is being constructed incrementally from both abutments. This will minimize the disturbance to the surrounding work area and increase workers' safety. An in-situ segment midspan of the centre span will connect the two parts to form a continuous deck. The deck shape is ideal to be constructed with sliding formwork.

The deck segments are reinforced and cast in 25 m sections using shutter moulds located in the fixing and casting yard on either abutment. Once cured the section is hydraulically jacked out over the gorge along the tops of the piers and then the process is repeated. The retractable roof seen on the temporary fixing shed will allow more consistent curing temperatures, better working conditions through the long harsh winter as noise abatement for the adjacent community when working

night shifts. The first segment has an 8 m long temporary noise attached that helps to span between the piers during the incremental launch process.

A significant milestone was reached on 24 May when the first deck segment was cast on the Northern abutment. Visible is the leading cable tube that will house the cables for the 50 m long middle section which will be supported by a small cable stay system. This will allow the bridge to span 100 m directly over the Senqu River and avoids difficulties of having to build a pier mid-stream on what can sometimes be a ranging torrent.

On the southern bank Piers 11 and 14 columns are currently both being constructed simultaneously working 24 hours per day seven days of the week to complete them in a continuous slide. Overnight temperatures in May in the Lesotho Highlands regularly drop to the lower single figures and only reach the low to mid-twenties during the day. This slows concreted curing time and has reduced the rate at which the piers can be slid from 3,5 – 4 m a day achieved in summer to 2 – 2,5 m per day currently. The slide of pier 10 in the foreground will be resumed after the completion of piers 11 and 9.

Work on the bridge design started in 2018, led by Zutari,



formerly Aurecon Lesotho. Zutari also designed the Mabunyaneng and Khubelu bridges, the other two major bridges being constructed under Phase II.

The Lesotho Highlands Development Authority awarded the Senqu Bridge construction contract valued at approximately M2 billion to the WRES Senqu Bridge Joint Venture in August 2022.

The WRES Joint Venture includes South African, Lesotho and international companies as per the requirements of the Phase II Agreement. The primary partners are: Webuild S.p.A. (Italy); Raubex Construction (South Africa); Enza Construction (South Africa) and Sigma Construction (Lesotho).

Sub-contractors include: EXR Construction (South Africa); Gleitbau-Gesellschaft (Austria); Post Tensioning and Structural Solutions (South Africa) and Freyssinet International et Cie (France).

The Senqu Bridge which is larger than the Mphorosane Bridge on the 'Malibamats'o River which spans the Katse Dam constructed in Phase I of the Lesotho Highlands Water Project (LHWP), is expected to be completed in early 2026.

The main water transfer infrastructure works of Phase II of the Lesotho Highlands Water project are the Polihali Dam and the Polihali Transfer Tunnel.

The Polihali Dam will create a 5 042 – hectare reservoir at the confluence of the Senqu and Khubelu rivers. It adds 2 325 million cubic metres in storage capacity to the LHWP enabling an incremental increase in the volume of water to be transferred to South Africa from 780 to 1 270 million cubic metres per annum, while simultaneously increasing power generation at 'Muela by 40%. New roads and bridges are required to restore access across the reservoir and connectivity to the national road network. The three major bridges of Phase

II are being built along the Maseru to Mokhotlong A1 road at the Mabunyaneng, Khubelu and Senqu rivers. They will provide access to Mokhotlong town across the reservoir even at full supply and retain connectivity to the national road network along the A1, the main road between the Mokhotlong district in the mountainous north-east of the country and Maseru, Lesotho's capital city.

The major bridges programme is complemented by the construction of four pedestrian bridges and six vehicle bridges under the feeder roads and bridges programme to maintain connectivity and ensure mobility for communities in the reservoir area. This programme is currently under procurement. ©

Benefits of digital engineering in **THE INFRASTRUCTURE SECTOR**

Digital engineering is a holistic approach to product engineering that harnesses the power of digital data and connectivity. It allows the creation of intricate digital models that encompass every aspect of complex products or systems.



easy to handle, have been manufactured from a newly patented concrete technology, with all components having hand grips, enabling top structures to be erected in mountainous areas in 15 minutes,” said Simon Wells, Business Manager for Sanitation at Rocla.

“The design and development of this product required extensive research, testing and collaboration between our engineers and all the relevant stakeholders to ensure that the sanitation units we manufacture for different communities are constructed to solve their particular problems. The sanitation units have been well received, particularly in rural areas and educational

establishments where human dignity is the key word,” concluded Andre Labuschagne, Product Development Manager at Rocla.

This comprehensive process ensures that products meet and exceed customer expectations.

Rocla, part of the Infrastructure Specialist Group (ISG), has embraced the digital engineering concept in the development of their unique precast concrete products such as separators, filters and purifiers for the grease, oil, water and petrochemical industries and sanitation units.

This concept places a great emphasis on collaboration, agility, and high performance throughout a product's entire lifecycle. Digital engineering, quite clearly will take center stage as a pivotal driver of progress.

How does digital product engineering work?

Digital product engineering comprises five key phases: ideation, design, development, testing, deployment, and ongoing maintenance.

These phases enable businesses to define their product goals, create visually appealing designs, code for scalability and performance, conduct rigorous quality assurance testing and provide ongoing support based on user feedback.

Rocla's separators, filters and purifiers are perfect example of the implementation of digital product engineering. These products evolved from our engineering expertise and excellence and through our partnership with Alltrap Engineering, the local importers of the ecoTechnic® range of products from Austria. Through this partnership we were able to ideate, research, design and produce a range of filters and purifiers that will serve our local market, with applications across many sectors of industry.

“Another product that aptly shows the benefits of digital product engineering is our lightweight concrete sanitation units. The concrete panels, which are light and

Importance of digital engineering

Digital engineering offers numerous benefits, making it an essential process for business success. It accelerates time to market, enhances the user experience by applying user-centric design principles, and gives companies a competitive edge through innovation and collaboration. Furthermore, it reduces operational costs, as innovative strategies streamline product development and improve customer support.

Industries that benefit from digital engineering

Digital engineering's adaptability makes it relevant across various sectors. In government and the military, it has driven monumental changes, inspiring collaboration and innovation through a formalised approach.

The construction industry has witnessed a transformation through Building Information Modeling (BIM), while renewable energy sources rely on digital engineering to optimise designs and increase energy efficiency.

In manufacturing, it is instrumental in designing more efficient and sustainable products, minimising the need for physical tests.

As technology advances, businesses across various sectors are reaping the rewards of digital engineering. ©

Speeding up concrete CURING IN COLD WEATHER

With South Africa's winter season on its way, many concrete users will know that slower curing times could derail their contract or production schedules, but accelerating admixtures – or accelerators – are available to solve this challenge.



In freezing temperatures, the mixture resists water expansion to prevent concrete cracking.

With the country's generally temperate climate, it is easy to forget that many provinces and neighbouring Lesotho regularly experience sub-zero temperatures, points out Hannes Engelbrecht, Concrete Business Unit Director for Domestic and sub-Saharan Africa (SSA) at CHRYSO Southern Africa. Temperatures do not even need to reach freezing point; the concrete hydration process slows down steadily as temperature drops and actually stops when it goes below about 5 degrees Celsius.

A significant amount of current concrete construction – especially for wind turbine bases and foundations for solar photovoltaic infrastructure – is, in fact, taking place in provinces like the Northern Cape and Eastern Cape where temperatures fluctuate widely. Efficient stripping time of formwork is crucial in allowing these projects to meet their stringent deadlines to complete construction and start delivering renewable energy.

“Low temperatures create a range of problems for contractors and concrete product manufacturers,” says Engelbrecht. “Most projects in today's world need to be delivered on a fast track basis, so there is no room for slow concrete curing to hold up the schedule. Similar constraints apply in the manufacture of precast products, where production must simply keep up with customer orders and delivery deadlines.”

He highlights that precast product manufacturers can use a combination of super plasticisers and accelerators to speed up their stripping times and reduce the storage space needed for products to cure. Accelerators work during the first 18 hours of the concrete's curing time to ensure efficient hydration required to depalletise. Should temperatures be lower than freezing point, this makes the concrete strong enough to resist the expansion of water as it freezes – so that the concrete will not crack.

Patrick Flannigan, Technical Manager of the Concrete Business Unit at CHRYSO Southern Africa, explains that



Choosing a non-chloride accelerator is essential when steel reinforcement is present in the concrete.

there are two categories of accelerator – chloride and non-chloride. While chloride-based accelerators are usually the first choice, they cannot be used if there is steel in the structure or where steel reinforcing is present due to the risk of rust, corrosion and degradation.

“If there is steel reinforcing in the concrete, then a non-chloride accelerator must be selected,” says Flannigan.

Regarding the use of accelerators in readymix concrete that must travel varying distances to site, he points out the accelerator is best applied once the readymix has arrived on the customer's site. After it is added to the concrete in the mixing truck, it needs to be thoroughly mixed for 5 to 10 minutes before being poured. The admixture gives operators a good 30 to 40 minutes of workability before the accelerated hydration begins, depending on the type of concrete mix.

Another growing benefit of accelerators has emerged as a result of the global sustainability drive, he says, as cement producers, contractors and other customers aim to reduce their carbon footprint. This trend has seen the increased use of extenders such as fly ash and granulated slag in cement.

“The fly ash and slag only start working once there is an initial hydration of cement,” he says. “This means that the early strength of a concrete mix will be delayed when there are extenders added.”

The accelerating admixture overcomes this initial delay in the early setting, allowing users to achieve their sustainability goals without compromising on speed of the curing process. ☺

EB Construction has built its reputation on its attention to detail and on the lasting quality of its workmanship.



AfriSam quality cements **EB CONSTRUCTION'S SUCCESS**

Taking an unconventional route into the construction sector, EB Construction's Ben Wagner has built a solid contracting business that serves residential, commercial and industrial clients. Partnering with responsive and trustworthy firms like construction materials specialist AfriSam has been one of his secrets of success.

According to the World Bank, housing is considered affordable when it costs below 30% of the average household income. In South Africa, the term often invokes thoughts of government-subsidised housing, notably the Reconstruction and Development Programme houses and its successor, called Breaking New Ground. Lloyd Wallace, Technical Director and Expertise Lead, Infrastructure Advisory, Zutari and Suzette van der Walt, Consulting Manager, Infrastructure Advisory, Zutari.

Affordable housing initiatives span a spectrum of models, from Informal Settlement Upgrading (UISP) and site-and-service provision to ownership models like RDP and first home finance (formerly FLISP). Social housing, a privately owned and subsidised rental housing option, along with public housing and community rental units (CRUs), further diversify the landscape of subsidised housing.

Amidst this complexity, the private sector plays a pivotal role in developing affordable housing and introducing innovative models like sub-market rental and subsidised social housing. Affordable housing, considered a crucial element of economic redress, is a public good when it provides safe, good-quality housing. It provides the foundation for upward mobility and contributes to positive urban environments.

Private sector involvement brings its typical advantages,

but some challenges need careful consideration. The grant-based nature of subsidies, particularly those directed to Social Housing Institutions (SHIs) for project capital finance, may inadvertently disincentivise comprehensive asset renewal budgeting. Without a viable exit strategy or a larger share of liability for developers, there is a risk of social housing projects falling into a state of disrepair once the capital commitments (sometimes as low as 30% of total development cost) have been met.

The refurbishment of existing housing stock aligns with green principles, as it is inherently more sustainable than the construction of new structures. Infill design, a strategy that enhances urban density and reduces pressure on infrastructure networks, can further contribute to environmental and social sustainability.

The private sector, equipped with its efficiency and innovation, can play a transformative role in reshaping the landscape of affordable housing. Collaboration between public and private entities is essential to navigate the intricate challenges the housing backlog poses and create resilient infrastructure for future generations. As we strive for economic redress and equitable access to housing, it is crucial to leverage the strengths of the private sector while mitigating the risks associated with subsidy-based models. By doing so, we can

pave the way for sustainable, affordable housing solutions that address both the immediate backlog and future challenges. The success of subsidised housing lies not only in its provision but in its ability to endure and adapt to the evolving needs of our communities.

Zutari's Infrastructure Advisory Team attended two housing conferences in November 2023. The 8th Annual Affordable Housing Africa conference held in Cape Town saw specifically DFIs and private developers in good attendance. The session also concluded with a masterclass on PPPs in affordable housing. Zutari presented two case studies, contrasting insights from the teams working with the City of Cape Town's Public Housing Department and insights from providing lenders with technical advisory services for social housing developments. ☉



EB construction could rely on the quality of AfriSam's readymix concrete for the construction of a complex structure over a dam.



Left: AfriSam is EB Construction's building material supplier of choice. Right: EB construction uses AfriSam's Roadstab Cement for road stabilisation.

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New partnership agreed on for **GLOBAL DECARBONISATION**

A ground-breaking agreement has been signed by the UN's Industrial Development Organisation (UNIDO) and the Global Cement and Concrete Association (GCCA) to work together on decarbonising the cement and concrete industry, with a strong focus on the Global South.

Signing of agreement: GCCA CEO Thomas Gullot (left) and Gerd Müller, Director General of UNIDO.



UNIDO supports its 172 Member States with economic and industrial development, in line with the UN's Sustainable Development Goals (SDGs). With its long-standing experience in renewable energy projects and the application of clean energy technologies in industry, UNIDO successfully collaborates with a wide range of partners globally supporting industries on their pathway to net-zero emissions.

The GCCA is the cement and concrete industry's main membership body, representing 80% of cement production outside of China, as well as a number of leading Chinese manufacturers. It is leading the industry's decarbonisation work, with its members, through delivery of the GCCA 2050 Net Zero Concrete Roadmap.

Cement and concrete are essential materials, vital for modern infrastructure, used for homes, hospitals, bridges, tunnels, roads and so much more. But their manufacture and wide use (concrete is the most used material on earth after water) account for around 7% of the world's CO₂ emissions.

The two organisations have agreed a Memorandum of Understanding (MoU), which will see them working together on key sustainability and decarbonisation issues.

Speaking at the signing ceremony in Austria, Gerd Müller, Director General of UNIDO, said: "Cement and concrete are a vital part of resilient infrastructure development. Decarbonizing the cement and concrete sectors worldwide is essential to reducing CO₂ emissions and tackling climate change. The GCCA and its members are leading the way on doing so for this important global industry. Our UNIDO Member States face a number of technical,

market-related and policy hurdles that make decarbonisation commitments even more challenging. That is why I am very glad to sign this Memorandum of Understanding with the GCCA and start a new phase of closer cooperation that will help our Member States overcome those challenges." Thomas Gullot, GCCA CEO, said: "Through our Net Zero Roadmap and the accelerator programme we have put in place, we are already working with policymakers, governments and industry to overcome procurement and resourcing challenges across the global south. Having this ground-breaking agreement with UNIDO is a natural progression which we hope will fast-track progress in a meaningful way." ©

THE PARTNERSHIP AGREEMENT INCLUDES PLEDGES TO:

- Provide recommendations for decision-makers to create the right market environments for the development of low and near zero emissions cement and concrete
- Develop innovative technological solutions to help meet net zero commitments
- Organise joint international industry and government events
- Jointly author and publish documents, recommendations and research tools
- Identify promising companies and innovative solutions and showcase these at relevant events and in publications

About the SACPCMP

The South African Council for the Project and Construction Management Professions (SACPCMP) is a statutory body established, through an act of Parliament. It derives its mandate from Section 22 of the Constitution of the Republic of South Africa and was established by Section 2 of the Project and Construction Management Professions Act (No. 48 of 2000,) “to regulate Project and Construction Management Professionals to protect the public”.

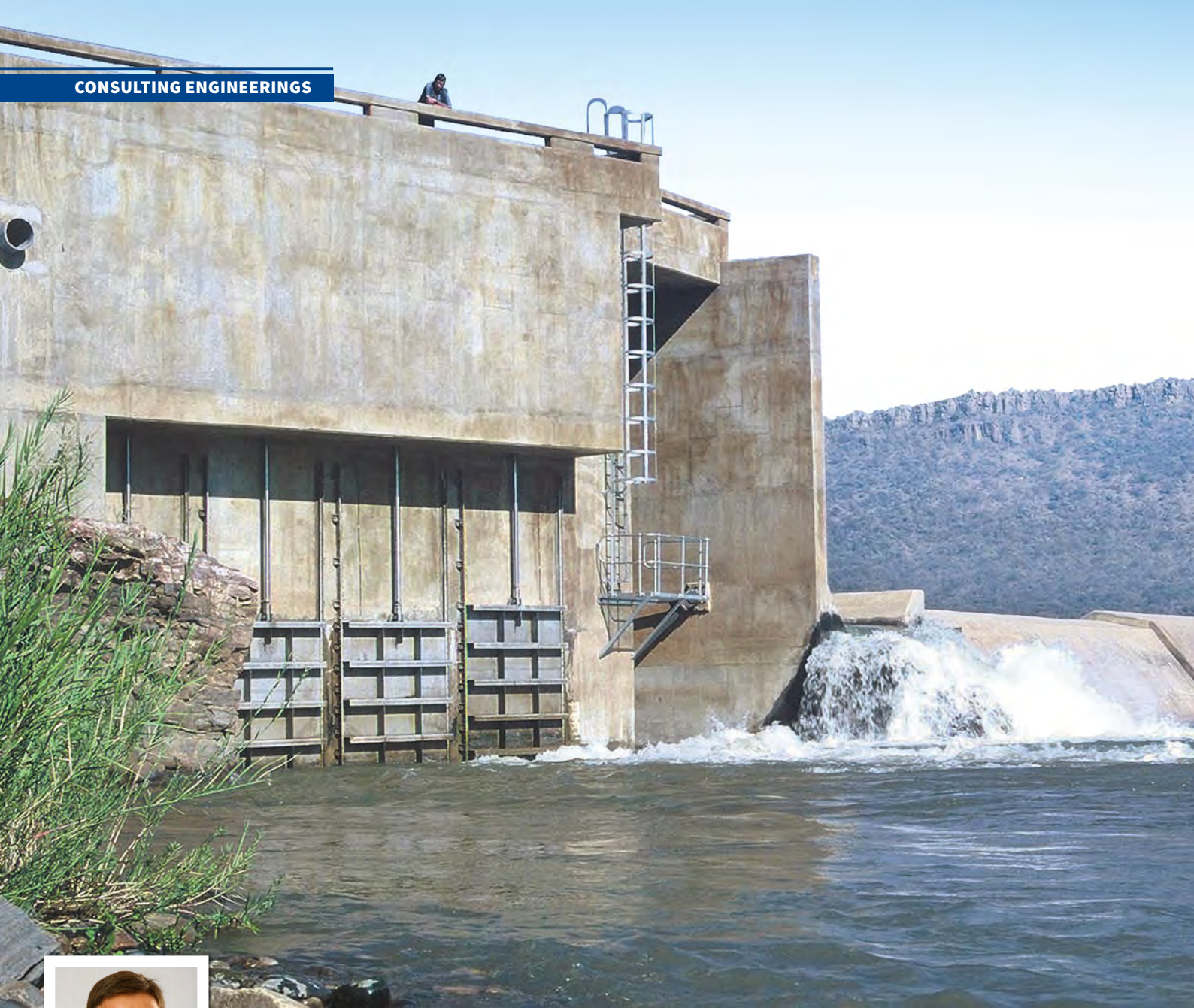
The Council, which is self-funded, protects the public by identifying the type and scope of work, registering professionals and maintaining a national register of professionals who adhere to a Code of Conduct.

SACPCMP Registered Persons are the principal agents on all sites, determining the selection of other agents required for the progression and continuation of all construction-related projects.

The SACPCMP is a juristic person established by the Project and Construction Management Professions Act (Act No.48 of 2000) to “provide for the registration of professionals, candidates and specified categories in the project and construction management professions; to provide for the regulation of the relationship between the South African Council for the Project and Construction Management Professions and the Council for the Built Environment; and to provide for matters connected therewith”.

Mandates of the SACPCMP

1. Identification of Work
2. Guideline Professional Fees
3. Continuous Professional Development
4. Accreditation of Built Environment Programmes
5. Code of Conduct for the Professions
6. Professional Registration
7. Recognition of Voluntary Associations
8. Recognition of Specified Categories
9. International Agreements
10. Recognition of Prior Learning
11. Standard Generation
12. Appeals and Tribunals
13. Competency Standards for Registration



SRK's Managing Director, Andrew van Zyl.



Steve Bartels, Partner and Principal Civil Engineering Technologist.

“Doing what we do, **BETTER**”

Five decades ago three pioneering South African engineers started SRK Consulting (SRK) with the aim of establishing a consultancy with a culture of innovation and a broad based business model based on employee ownership, one that facilitates people to grow specific areas of technical consulting. Originally started as a consultancy focusing on mining, more areas of expertise were added as the company grew its global footprint and network of people with a shared outlook. **Construction World** spoke to SRK's Managing Director, Andrew Van Zyl and Steve Bartels, Partner and Principal Civil Engineering Technologist about the company's innovative approach to growth, its changing involvement in infrastructure in Southern Africa and how innovation still forms the backbone of everything this company undertakes.

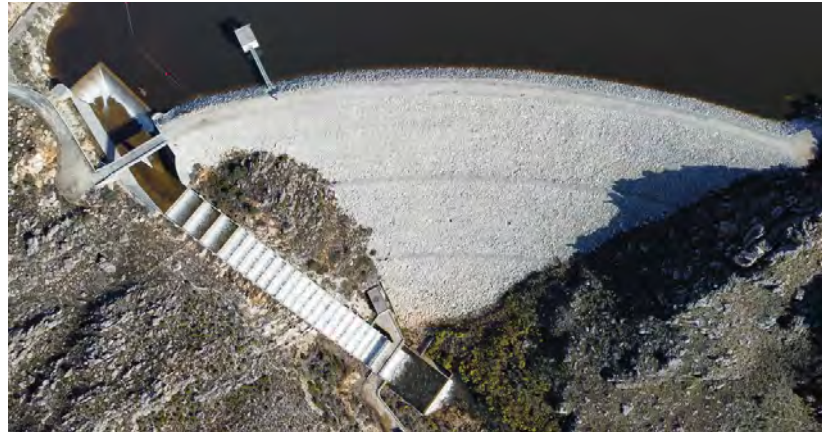
“The three founders believed that there was a place for a specialist and technical consultancy despite the fact that mining houses were self contained entities,” says Van Zyl. As new areas of expertise were added, a network

was established that brought together people with a similar outlook. “The founders believed in broad based ownership and in enabling people to be independent experts able to solve complex technical problems,” he says.

SRK was involved in the first phase of the Lesotho Highlands project, carrying out work on the 180 m high concrete arch, Katse Dam and appurtenant structures, and approximately 100 km of transfer and delivery tunnels. SRK's role was to investigate options, undertake site investigations, prepare designs, tender drawings and documents, adjudicate tenders and perform construction inspections.



With the growth of the Ceres region, additional water supply was required.



SRK Consulting carried out the feasibility studies, the design of the dam and the appurtenant works, among others. (Top and the photograph above courtesy <https://koekedouwdam.co.za/>)

of the community and business. The civil and structural engineering services offered by SRK include project management, design, drawing, contract documentation, administration, and site inspection, while it also acts as consultants for urban, commercial, and industrial developers and undertake the design and construction of specialised structures and barrier systems for the containment and disposal of pollutants.

“The landmark projects in which SRK has been involved over the decades such as work for the Umgeni Water Board, the construction of the Ceres Koekedouw dam and the Lesotho Highlands Water project are indicative of the strong structural engineering side of my department,” says Bartels.

From a structural side, he says his department's biggest focus is on reinforced structures for water. “Any construction has to contend with groundwater and surface water issues, noted Bartels.

SRK's structural engineering focus has narrowed over time to focus on mining related structures. In mining, water balance is vital. Mines are a big consumer of water and this balance ensures that water can be conserved to minimise water loss to ensure that as much of it can be reused which involves treatments, pipelines and pumping.”

The Global Industry Standard on Tailings Management (GISTM) that was launched in 2020 is directed at operators and applies to tailings facilities, both existing and to-be-built. To be compliant with the standard, operators must use specified measures to prevent the catastrophic failure of tailings facilities and to implement best practices in planning, design, construction, operation, maintenance, monitoring, closure and post closure activities.

SRK is involved in various large tailings dams that are currently under construction while Bartels' department is also involved in construction projects to strengthen existing tailings dams.

“The design and management of operation for tailings dams – and the closures thereof – involves a myriad of subtle aspects,” says Bartels. SRK is currently involved in

“They grew the business to enable someone like Steve Bartels to build a consulting practice within it. One of my aims as Managing Director of SRK is to facilitate this, to provide a constructive company culture, expert support services and a productive office environment for this to successfully happen,” he says. “Expert corporate services handle all those aspects needed for him to run a business and our strong focus on company culture and values allows our practice leaders to attract and retain people.”

The result is that, five decades later, SRK is involved in many more fields than originally envisioned in 1974. Currently the company has a 1 700-strong global network of scientist and engineers. “Even though we are a consultancy with a strong focus on geotechnical engineering, hydrology, hydrogeology, the environment and on social aspects in the mining context, we are involved with the infrastructure needed to have mining operations function such as water, roads, railways and other structures.”

SRK Consulting's infrastructure involvement

“We operate mainly in the mining space, but we are also able to apply our civil technology expertise for governmental infrastructure. However, mines are often in rural areas and need to be self-contained units, able to cater for the food, water, housing, transport, health and other needs

the first lined tailings dam at Steelpoort which in itself has necessitated finding innovative solutions to problems.

His department consists of a group of around 40 engineers who specialise in water, hydraulics, dams and pipelines. Bartels moved to SRK with expertise in the design, construction and rehabilitation of roads.

Organic expansion

Van Zyl says that SRK's expansion is conditional on finding people who share its values and are looking to build an expert practice. "We try to ensure that there is some diversification of projects and sectors and therefore operate in multiple regions and commodities but any new business area or expansion is on the proviso that we find the right person who has the expertise and who shares our values with which a practice can be built. We will assist our experts with opportunities for diversification, but we start with the people, not with the geography or commercial considerations," says Van Zyl.

SRK's global footprint is a huge advantage. "You are able to find an expert in a range of technical disciplines and geographic areas. For example, we have offices in China and because China has many investments in Africa, working with the Chinese office has made it easier for us to get involved in projects that are done by Chinese companies," says Bartels.

Changes and expansion

Van Zyl says that over the last five decades whilst there have been changes in the way the company provides its services

there are certain aspects that have not changed. "Innovation was a focus and remains a focus. Being a good engineer was a focus and still is. We have never had a corporate career path. One starts as an engineer, then becomes a senior engineer and then a principal engineer.

There is no limit as to how many can be at that level as there is no limit to how many people can run a consulting practise at SRK." There is an expectation of innovation and collaboration and it is essential that all practices are aligned with our corporate values and our overall objectives, like diversification and transformation.

What has changed is that disciplines like ESG that were not envisioned 50 years ago, have become vital and have to be integrated into every project.

Van Zyl says that SRK does not have a growth target. "If we find people that share in SRK's passion and values and have a skill to grow a new practice, then SRK will grow. "There are many things to consider in mining which includes responsible sourcing initiatives, sustainability concerns such as decarbonisation, safety aspects with the GISTM and we have to ensure that we integrate those aspects into how we do business and ensure that our people remain passionate about every niche part of engineering.

We have to keep on doing what we do, better. If a person comes in and connects with that vision, SRK grows along with their practice.

But I am happy for SRK to remain the same as long as we practise responsible engineering within a constructive and respectful culture," he concludes. ☺



SRK is involved in various large tailings dams, including the construction of new dams and the strengthening of existing dams.

Volvo to launch **HYDROGEN-POWERED TRUCKS**

Volvo Trucks is developing trucks with combustion engines that run on hydrogen. On-road tests with trucks using hydrogen in combustion engines will begin in 2026, and the global commercial launch is planned towards the end of this decade. Trucks that run on green hydrogen provide a significant step to Volvo achieving its net zero goal and supporting customers to reach their decarbonisation targets.

Trucks that run on green hydrogen instead of fossil fuels provide one way to decarbonise transport. Hydrogen trucks will be especially suitable over longer distances and in regions where there is limited charging infrastructure, or time for, recharging of batteries.

Volvo will begin customer tests with trucks using hydrogen in combustion engines in 2026, and the trucks will be commercially available towards the end of this decade. Already, testing in labs and in vehicles is ongoing. The hydrogen-powered combustion engine trucks will complement Volvo's offering of other alternatives, such as battery electric trucks, fuel cell electric trucks and trucks that run on renewable fuels, like biogas and HVO (Hydrotreated Vegetable Oil).

"Trucks where the traditional internal combustion engine remains but runs on hydrogen will have the same performance and reliability as our diesel trucks, but with the added benefit of potentially low CO₂ emissions wheel-to-wheel. They will be a valuable complement to our battery electric trucks, which have been on the market for several years," says Jan Hjelmgren, Head of Product Management and Quality, Volvo Trucks.

Volvo trucks with combustion engines powered by green hydrogen have the potential to deliver net zero CO₂ when using renewable HVO as ignition fuel and are categorised as "Zero Emission Vehicles" (ZEV) under the agreed new EU CO₂ emission standards.

"It's clear that several kinds of technology are needed to decarbonise heavy transport. As a global truck manufacturer, we need to support our customers by offering a variety of decarbonisation solutions, and customers can choose their alternative based on transport assignment, available infrastructure and green energy prices," says Jan Hjelmgren.

Volvo trucks with hydrogen-powered combustion engines will feature High Pressure Direct Injection (HPDI), a technology where a small amount of ignition fuel is injected with high pressure to enable compression ignition before hydrogen is added. The advantages of this technology include higher energy efficiency with lower fuel consumption, and increased engine power.

Volvo Group has signed an agreement with Westport Fuel Systems to establish a joint venture utilising HPDI technology. The joint venture is anticipated to become operational in the second quarter of 2024, following



formal closing. In South Africa there are a number of green hydrogen projects that are in various stages of maturity.

"Some notable examples are the 'Hydrogen Valley' feasibility study conducted by the DSI with partner companies, as well as the 'Boegoebaai Hydrogen Cluster' in the Northwest Province," says Eric Parry, Senior Manager of Sustainable Solutions at Volvo Trucks South Africa. "Projects like these will enable the introduction and testing of hydrogen fuelled commercial vehicles in South Africa."

Volvo Trucks believes that there is no single solution that can solve climate change. Local interest in sustainable transport solutions continues to grow, and the first movers in South Africa are companies that value their environmental impact and already have programs to reduce emissions. ☺

FACTS

- Hydrogen-powered Volvo trucks will have an operational range comparable to many diesel trucks, depending on the type of transport.
- Due to the low CO₂ emissions from hydrogen combustion, these trucks are categorized as "Zero Emission Vehicles" under the agreed new EU CO₂ emission standards.
- Hydrogen combustion engines will also emit very small amounts of nitrogen oxides and particles.
- Hydrogen can also be used to power fuel cell electric trucks, where electricity is produced on board the truck. Fuel cell electric trucks do not emit any tailpipe emissions, only water vapour.

Tata Motors' Ultra FE+ range OF SMART TRUCKS

Construction World spoke to Anurag Mehrotra, Head – International Business, Tata Motors Commercial Vehicles about Tata Motors' new generation Ultra FE+ range of smart trucks that tailored to meet the demands of varied applications and duty cycles in the construction segment.



What makes the trucks that were introduced to the South African market ideal for the construction industry?

Tata Motors' new generation, Ultra FE+ range of smart trucks is tailored to meet the demands of varied applications and duty cycles in the construction segment. These trucks, available in two models – Ultra T.9 and T.14, are designed to provide solutions that align with the specific needs and operational conditions of the South African construction markets.

Some key highlights of the new range include:

Fuel efficiency and performance: The Ultra T.9 and T.14 trucks are equipped with globally proven turbocharged diesel engines—3,3ℓ for the T.9, and 5 ℓ for the T.14 — delivering best-in-class power and torque. Designed to handle heavy loads across long distances and challenging terrains, these offer fuel efficiency and power optimisation for South Africa's road infrastructure and higher speed norms.

Lower Total Cost of Ownership (TCO): One of Tata's primary goals with the Ultra range is to provide a lower Total Cost of Ownership. By optimising fuel efficiency and reducing maintenance costs, it ensures that these trucks are economically advantageous over their lifecycle, which is crucial for the cost-sensitive construction industry.

Higher comfort and safety: The Ultra range of trucks offers features tailored to the South African driving experience. This includes a walk-through cabin, power steering, dashboard-mounted gear lever, booster-assisted clutch, and mechanically suspended seat for safe and fatigue-free driving. The trucks also provide best-in-segment safety with an antilock braking system, crucial for navigating the often rugged and uneven terrains found on construction sites.

Technology and connectivity: With the integration of Fleet Edge, Tata Motors' connected vehicle system, fleet managers in the construction industry can monitor vehicle and driver performance in real-time. This allows for the monitoring of driving patterns, potential fuel theft, and overall vehicle usage,

ensuring optimal fleet management and efficiency, which is critical for maintaining project timelines and budgets in construction industry.

Extensive after-sales support: Tata Motors underscores its commitment to the market with a robust after-sales network that includes 90 touchpoints. The company also offers a range of vehicle lifecycle management with a warranty of five years or 500 000 kilometres, demonstrating our confidence in the quality and reliability of our vehicles. Additionally, Tata offers optional Value Added Services such as Scheduled Services Package (SSP) and Annual Maintenance Contract (AMC), providing construction companies with flexible options to tailor their needs according to their project schedules and usage requirements. Together with vehicle financing and customised repayment options, these solutions provide complete peace of mind for customers, leading to enhanced profitability.

In terms of pricing, how competitive are the trucks (especially in an industry that is experiencing difficulty)?

In terms of pricing, Tata Motors' Ultra FE+ range of trucks are designed to be highly competitive. The Ultra range offers a low Total Cost of Ownership (TCO) which can be attributed to its 5-year or 500 000-kilometer warranty, optional Scheduled Services Package (SSP), and Annual Maintenance Contract (AMC). The integration of Fleet Edge, Tata Motors' connected vehicle system, allows fleet managers to monitor vehicle performance in real-time. This technology helps in optimising routes, reducing idle time, and improving overall fuel efficiency, which translates to cost savings.

Moreover, Tata also provides financing options and customised repayment plans. These financial solutions are tailored to meet the needs of businesses, making it easier for them to invest in new vehicles without immediate financial strain.

What does Tata offer the market in terms of after-market support?

As mentioned previously, Tata Motors offers a robust after-sales package designed to provide customers with complete peace of mind. In addition to exceptional after-sales service and easily availability of parts, Tata Motors demonstrates its commitment to the market through a comprehensive after-sales network that includes 90 touchpoints. The company also offers a range of vehicle lifecycle management providing a warranty of 5 years or 500 000 kilometres, demonstrating our confidence in the quality and reliability of our vehicles.

Additionally, we offer optional Value Added Services such as the Scheduled Services Package (SSP) and Annual Maintenance Contract (AMC), providing customers with flexible options to tailor their needs according to their preferences and usage requirements.

Discuss the innovations in vehicle design and how these make them ideal for the construction industry?

The Tata Ultra T.9 and Ultra T.14 trucks are tailored to meet the demanding needs of the construction industry, featuring innovations that enhance their performance, durability, and efficiency in challenging environments. The Tata Ultra T.9 is best suited for a wide variety of applications boasting best-in-class fuel efficiency crucial for construction operations. It features a powerful new generation 3,3 ℓ engine that generates a maximum output of 114 KW at 2 600 rpm and a torque of 450 Nm. Built for tough terrains, the Tata Ultra T.9 comes equipped with a GBS 550 6F + 1R gearbox, ensuring a comfortable driving.

For medium to long-haul cargo transportation needs, the Tata Ultra T.14 delivers exceptional performance and fuel efficiency. This model is powered by a robust 5 ℓ diesel engine that delivers 132 KW at 2 400 rpm and a torque of 590 Nm. The GBS 750 Synchronmesh gearbox enhances driving comfort, while the Dual-circuit Full-air S-Cam Brake with ABS provides maximum control and safe braking under heavy loads. The parabolic spring suspension and semi-elliptical leaf springs with telescopic double acting shock absorbers ensure a smooth and comfortable ride, making the T.14 ideal for transporting construction materials.

Overall, the Tata Ultra Range is meticulously crafted for comfort and convenience. Equipped with HVAC systems and walkthrough cabins featuring mechanically suspended seats, the vehicles ensure a smooth ride on rugged terrain. With a dash-mounted gear lever and ample storage space, drivability remains effortless. Tested rigorously for South African conditions, the Tata Ultra range sets new standards for quality, comfort, and economy, delivering the lowest total cost of ownership in its class.

What warranty structure do the trucks offer?

Our trucks come with a warranty of 5 years or 500 000 kilometers on the driveline, underscoring our confidence in their quality and reliability. Additionally, we provide a range of vehicle lifecycle management services to further support our customers.

How fuel efficient are the trucks and how does it minimise the environmental impact of the vehicles?

The engines that power the Ultra T.9 and T.14 are engineered with a key focus on fuel efficiency. They are rigorously tested

across varied terrains and environments to ensure that they offer reliable performance across various duty cycles. The 3,3 ℓ and 5 ℓ engines that power the Ultra T.9 and T.14, respectively are Euro IV compliant to ensure low environmental impact.

They also come equipped with Fleet edge, allowing customers to map driving patterns, optimise fuel efficiency and further reduce environmental impact. Tata Motors also offers a comprehensive driver training program to focus on safe and efficient driving techniques.

How do you aim to convince an industry that does not easily switch from brands, to switch?

Convincing an industry that traditionally remains loyal to familiar brands requires a multifaceted approach focused on demonstrating clear, tangible benefits. Our vehicles are engineered for best-in-class fuel efficiency and lower total cost of ownership (TCO), key factors that can significantly impact a customer's decision.

Tata Motors is a name synonymous with trust and reliability, built over decades of experience and operating in over 40 countries. Our commitment to innovation and extensive after-sales support further sets us apart. The integration of advanced features, such as the Fleet Edge connected vehicle system, allows for optimised fleet management and improved operational efficiency. Coupled with our robust network of service centers, comprehensive warranty packages, and flexible financing options, we provide unparalleled support throughout the vehicle's lifecycle. Through direct engagement, demonstrations, and personalised consultations, we strengthen trust and offer potential customers the opportunity to experience the superior value and reliability of Tata Motors' commercial vehicles. ☺



SA's ageing dam infrastructure needs urgent **MAINTENANCE, RECOMMENDS ZUTARI**

With the era of large dam building having peaked in South Africa in the 1970s and many dams reaching their 50th anniversary, there is a growing focus on the correct and timeous maintenance and rehabilitation of the country's dam infrastructure. Concrete can develop cracks, spalling and other forms of deterioration over time due to exposure to environmental factors like temperature fluctuations, movement, moisture, and chemical reactions.

“The concrete structures of many dams have undergone a natural ageing process over the decades,” comments Dr. Frank Denys (pictured), Technical Specialist: Dams at leading consulting engineering and infrastructure advisory firm Zutari. Dr. Denys is a member of several reference groups as part of the Water Research Commission (WRC), assisting in developing a national implementation strategy for sustainability and grey-green infrastructure.

“The era of major dam building is definitely over in South Africa,” says Dr. Denys. This is due to the fact that most of the most feasible sites have already been developed. “The ageing concrete on the dams built in that era is a cause for concern, but it will not result in imminent structural failure. There is no significant risk of multiple dams suddenly failing and the country left with no water.”

That said, concrete dam maintenance issues are not wholly dissimilar to the country's current power generation and water infrastructure maintenance and development issues. The key is liberal maintenance spread out over time instead of major rehabilitation work, if necessary, every few decades. “Concrete ageing is part of that. If the concrete is looked after, you can be sure that the rest of the structure is well-looked. Thankfully, there is no imminent massive threat from an ageing perspective,” stresses Dr. Denys.

“Every dam is treated as unique with its own set of requirements, so there is no generic way of fixing them,” points out Dr. Denys. However, there are certain ‘go-to’ solutions that tend to work well, especially related to advances in technology and concrete mixes. “We implement and apply these where the manufacturer or supplier feels it is appropriate. Time will tell in terms of the actual performance of the solution, whether newer technologies in the cement and concrete industry can stand the test of time.”

Regular maintenance is needed to identify signs of

distress, such as cracks, spalling, or leaks. These inspections detect issues early and prevent further deterioration. Dams also accumulate silt and debris over time, affecting their storage capacity and functionality. This requires regular dredging and sediment removal.

“Sedimentation build-up is a related, but completely separate, issue. The storage capacity of dams is declining steadily due to this issue, resulting in catchment areas reduced from when these dams were originally planned. That is being looked at on a national scale by the WRC and the Department of Water and Sanitation. It is a very challenging issue that is also a global problem,” says Dr. Denys.

Another issue is uncontrolled vegetation growth on dam surfaces, which can lead to cracks and damage. Thus, proper vegetation management is essential. Installing systems such as strain gauges, movement monitors, piezometers, and inclinometers can also greatly assist in monitoring dam behaviour and identifying anomalies over time.

When it comes to refurbishment and rehabilitation challenges, structural repairs may be needed to address concrete cracks, spalling and other defects. Common techniques include epoxy injection, shotcrete application, and grouting. Applying protective coatings or cathodic protection systems can also mitigate corrosion of steel reinforcement.

Dr. Denys explains that there are different international approaches to dealing with ageing concrete dam structures and sediment build-up. For example, some US agencies actively decommission and totally remove such structures. “In South Africa and many other African countries, they are rather allowed to age gracefully.

At the current stage, we are just raising awareness about the importance of maintenance and the fact that these structures must be looked after in the long term. That is critical,” he concludes. ©



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