

Construction WORLD



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ON THE COVER

Leading construction materials company, AfriSam, has long been at the forefront of cement and concrete technology development in South Africa and *Construction World* recently spoke to Mike McDonald, Manager of the Centre of Product Excellence (CPE), AfriSam, South Africa and Dr. Grizelda du Toit, Project Professional at AfriSam, South Africa.

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When viewed in comparison to the growth of other industries in the period 2023 to 2024, the construction industry is on a downward trend, and has been for quite some time. If viewed in this manner, this sector is the worst performing amongst the transport, trade, mining, manufacturing, electricity, community services and business services sectors. However, despite the decline, the country's construction industry still ranks amongst the top GDP and employment contributors in the country.



This has been the reason for its resilience over the last decade and has stopped the industry from collapsing completely.

In contrast to this resilience, the industry is faced by challenges that delay any real recovery. In 2024 this slow recovery is caused by the drop in foreign investment, lack of allocation for infrastructure, the general election and the ongoing construction mafia's presence. Ironically, a general election year normally leads to an uptick in construction activity as the ruling party sets out to secure support, but this year – for whatever reasons – the earliness of the elections negates any positive impact this may have had.

The industry is characterised by three trends especially:

Slow and stable growth

Yes, there is a constant onslaught on the performance of the industry by factors that include high interest rates, geopolitical tensions, and a decline in the know-how of how infrastructure projects can be unlocked, but one has to keep in mind that there has been a modest upward trajectory from 2022 to 2023. Statistics South Africa estimates that the construction industry added some R332b to the local economy between January and September 2023, compared to R324b in the same period

in 2022. It is a small increase, but an increase nonetheless.

Increase in employment

The construction industry, once one of the biggest employers across the major sectors in the country, has seen a decline in the number of employees, but in the previous financial year there has been an increase in construction employment by 11% year-on-year – albeit off a low base. As the industry recovers, the number of employees will increase.

Slow, but increased adoption of technology

Construction, in developing countries, is a labour intensive process and as such averse to technology as there is a fear that such advances may lead to job losses. However, in a competitive industry with fierce competition, construction companies have been forced to adopt new technologies to evolve and so stay competitive.

This has taken the form of new materials and construction methods which in turn have also minimised the carbon footprint of, for instance, concrete.

In addition, technology is increasingly employed on the job site with the use of drones and other mobile devices to improve interconnectivity and minimise

wastage. Technology is extensively used in construction to make the job site safer, while machine learning such as predictive analysis (e.g. BIM) is increasingly employed on projects.

Wilhelm du Plessis

Editor

2024

T W E N T Y - T H I R D

BEST

PROJECTS

This issue publishes the first call for entries for *Construction World's* Best Projects awards. This is the 23rd time these awards are to be held and will recognise excellence in civil engineering, building, specialist contracting, specialist supply, consulting engineering, and architecture. The AfriSam Innovation Award for Sustainable Construction recognises how a project contributes to sustainability in the built environment.

The deadline for entries is Friday, 6 September.

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PUBLISHED MONTHLY BY
Crown Publications (Pty) Ltd
P O Box 140
BEDFORDVIEW, 2008
Tel: 27 11-622-4770

PRINTED BY
Tandym Cape



Scan for website

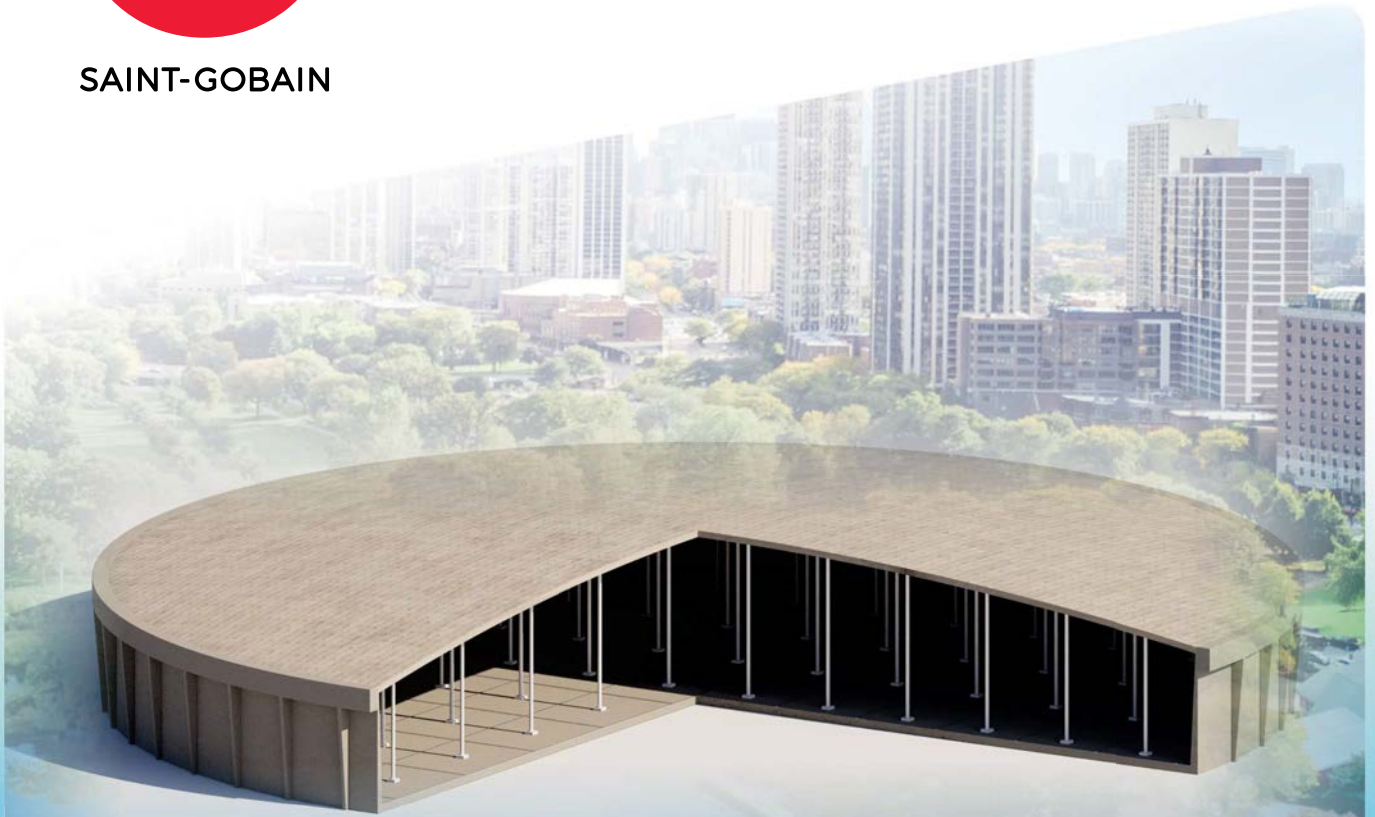


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Embracing diversity, **EQUITY AND INCLUSION**

A global celebration that recognises the achievements, contributions, and challenges women worldwide face, this year's theme for International Women's Day (IWD) on 8 March was #InspireInclusion. It is based on the idea that when we inspire others to understand and value women's inclusion, we forge a better world.

“At Zutari, we are committed to fostering diversity and inclusion, recognising the invaluable contributions that individuals from diverse backgrounds bring to our organisation,” comments **Senzekile Mdluli (5)**, Head: Diversity, Equity, Inclusion & CSI at Zutari. “We are actively pursuing increased representation of women by setting targets, demonstrating our commitment to inclusivity and gender diversity.”

She adds: “As we continue to refine our overall strategy, we reflect on our dedication to creating a workplace that values and champions diversity at every level.” The leading consulting engineering and infrastructure advisory practice showcases four women taking great strides at the company.

1. Isabelle Meyburgh, Revit Modeller Built Environment, Zutari

“In my experience, it should not matter if you are male or female. If you love something and are good at it, you should have the opportunity to prove that to the world,” says Isabelle, a Revit Modeller in the Built Environment, Bloemfontein office team. Her role is to model all structural components for projects and compile all construction drawings.

While only at Zutari for a year, Isabelle is already involved in ongoing projects. “The highlight for me is to complete my drawings, have my name cited as the author, and then see those drawings come alive at sites. It makes me so proud to be doing what I am,” says Isabelle, adding it is a journey that has made her much more confident in herself and her skills.

2. Petronella Taljaard, Technical Specialist Water, Zutari

“I applaud Zutari's various initiatives like its bursary programme, partnering with Protec, and its leadership development courses like Ascend, aimed to develop female leadership. Zutari is being deliberate about making changes to advance women at all levels. I think all sectors in the engineering industry can do more to create awareness and support for youth, especially girls, to join the industry,” comments Taljaard.

She is a professionally registered civil engineer in the East London office, forming part of the water team. At present she focuses on project controls, design reviews and management and assists in delivering water projects for government clients.

“An important consideration that keeps me motivated is the belief that my contribution matters and has value, and having this belief validated by my team. I love that I am constantly exposed to new challenges and that no two days at work are ever the same. The wealth of knowledge, expertise and resources within Zutari excites me. I feel privileged to be able to share this knowledge with others,” says Taljaard.

3. Lize Brand, Technical Director: Business Communication Management and Sustainability, Zutari

“It brings me immense pride to have played a role in creating a new team that adds value to Zutari's services,” Brand says. What is even more gratifying, she adds, is that Zutari has embraced the idea of building a communication team amid the traditionally engineering-centric environment.

This not only underscores the importance of effective communication in its projects, but also highlights Zutari's commitment to adapting and evolving to meet the diverse needs of its clients and stakeholders.

A team of strategic and visual communication experts uses best practice methodologies to support project implementation and ensure buy-in to change. Zutari, unlike most other engineering consultancies, pairs technical experts with communication specialists to maximise the value of its projects with impacted stakeholders.

“Our work allows us to play in both the creative, human capital and strategic aspects of projects,” says Brand. This means developing smart solutions for key project and business risks linked to people that also push the boundaries of what people are used to. “It is challenging, but also rewarding, as the impact can be seen, felt and heard through stories.”



4. Lwandisiwe Solundwana, Electrical Technologist, Zutari

"Society and the workplace need to remember that our differences make us stronger and give companies an added advantage over their competitors," argues Solundwana. "Inspiring inclusion should not be a once-off trend but a continuous task, and it begins with you! Are you inspiring inclusion where you are?" she questions. Solundwana's original intention was to be a doctor. However, she was drawn to electrical engineering as she hails from a rural area and knew well the struggle of not having electricity. "I wanted to better my community and could envision a rural area lit up everywhere." She later discovered a passion for lighting design, which incorporates all the different



electrical engineering components. "I can safely say I am bettering my community while inspiring young rural girls that they, too, can be in the electrical engineering world."

As an Electrical Technologist, Solundwana, is mostly involved in the project management and electrical designs of buildings, infrastructure, sports fields, and street lighting.

What keeps her passionate about her role revolves around several factors. Firstly, Zutari designs to bring change

to local communities. Secondly, it designs not only for the present but for future generations. Thirdly, it designs in consideration of the environment. Thus, it strives for sustainable designs with minimal carbon footprint.

"Lastly, it is always nice when you can physically see a project finally completed, as it makes you strive to do more and do it better. As a woman, it feels good to bring the feminine aspect to designs, as you see things differently from men," says Solundwana. The IWD 2024 theme of #InspireInclusion is important because it means all inputs, opinions, and feedback are valid for consideration. "It means my voice, opinions, skills and capabilities are not diminished because I am perceived as a woman. It means my femininity as a woman is not used against me but embraced and used to grow society at large," concludes Solundwana. ☺

AfriSam and the Northern Cape Department of Education provide **A FUTURE OF POSSIBILITIES FOR YOUNG LEARNERS**

Leading construction materials company, AfriSam, has collaborated with the Northern Cape Department of Education to complete a community development initiative aimed at improving educational infrastructure in the region. As part of this initiative, AfriSam constructed two Grade R classrooms at the GN Pressley Intermediate School, providing a conducive learning environment for 60 young learners.

The newly built classrooms go a long way in ensuring the students have access to quality education. Each classroom can accommodate up to 30 learners, allowing for smaller class sizes and personalised attention.

The collaboration between AfriSam and the Northern Cape Department of Education underscores their shared commitment to investing in the future of South Africa's youth. By providing enhanced educational facilities, the initiative aims to empower learners and contribute to their overall development.

"We are proud to partner with the Northern Cape Department of Education in this community development project," Lerato Masiu, AfriSam Community Development Specialist, says. "Education is the cornerstone of a prosperous society, and we believe that by investing in quality infrastructure, we can create a positive impact on the lives of young learners."

The Grade R classrooms at GN Pressley Intermediate School are designed to foster a stimulating and inclusive learning environment. The spacious and well-lit classrooms

are equipped with age-appropriate furniture and educational materials provided by the Northern Cape Education Department.

Ralph Langeveldt the Principal of GN Pressley Intermediate School, expressed his gratitude for the new classrooms, stating, "This initiative has significantly improved the learning experience for our Grade R learners. The modern facilities and resources have created an environment that inspires curiosity and supports their holistic development."

The community development initiative by AfriSam and the Northern Cape Department of Education aligns with the United Nations Sustainable Development Goals, particularly Goal 4: Quality Education. By investing in education infrastructure, the partners aim to contribute to the achievement of equitable and inclusive education for all.

"Nelson Mandela once said, the true character of society is revealed by how it treats its children, as AfriSam we are extremely proud and grateful to make a contribution towards the development of our children", concluded Nathi Shoba, General Manager of AfriSam's Ulco Operation. ☺



Environmental

Social

Governance

KPMG International global survey ON ESG GOVERNANCE AND ORGANISATION

ESG (Environmental, Social and Government) and broader sustainability strategy have made their way to the top of board agendas in 2024, despite business leaders facing a bulging inbox of issues and challenges, according to new research from KPMG International.

Chief Sustainability Officers from some of the world's largest companies were interviewed for KPMG's global survey on ESG governance and organisation, to gain a deeper understanding of how companies are structuring their set-up and teams for sustainability and responding to a wave of new regulation and increased stakeholder and investor pressure for transparency on ESG. Almost all respondents reported high ambitions for ESG in their organisations, with half now viewing sustainability as a strategic issue that is embedded in core business operations. With ESG covering a wide area of societal and governance issues, the challenge for many businesses can be deciding what to prioritise. For many respondents, decarbonisation and the race to net zero was the topic most-often included in their corporate ESG strategy, with diversity, equality and inclusion and human rights in the value chain the next most-mentioned theme.

Nadine-Lan Hönighaus, Global ESG Governance Lead, KPMG International, said: "Sustainability is growing in strategic importance for companies, with increasing reporting requirements on environmental, social and governance (ESG) as well as other demands on the organisation regarding sustainability. This creates challenges

for the group sustainability units within organisations charged with ESG work. On one hand, such units must produce more material than they did 10 years ago while strategically developing and implementing work on a wide range of topics from climate to human rights. On the other hand, the framework conditions for this work have become much more complex and the standards for implementation, reporting, mandatory auditing and governance requirements increasingly require a robust approach.

"KPMG's research highlights that companies should (RC) start developing a clear analysis of the characteristics, strengths and weaknesses of their existing sustainability-focused organisation and how effectively it supports their (A) ESG strategy, performance and reporting."

Who leads on ESG?

With ESG recognised by boards as a key issue, there is evidence of companies finding their feet on who makes the decisions on future strategy and the structures needed to measure, implement, and report effectively.

About one-quarter of the organisations covered by KPMG's research said they have a board level sustainability

mental

nce



committee. A further fifth discuss it through committees that cover other topics, most commonly the audit committee. There was also evidence that ESG is a topic making its way into committees typically focused on management, innovation, remuneration and safety and culture.

The question now facing many business leaders is who should make the ultimate decision on ESG as it increasingly becomes embedded in the fabric and purpose of a company. The chief executive officer is responsible for sustainability in almost half of organisations surveyed, with a dedicated chief sustainability officer as the second most-popular option. The remaining respondents revealed a wide variety of roles taking charge of ESG – from head of supply chain and manufacturing to the chief risk officer.

Responding to rising regulation with better resources and a focus on remuneration

Reporting on ESG has generally been a voluntary exercise, but some jurisdictions are in the process of making it compulsory, most significantly the European Union through its Corporate Sustainability Reporting Directive (CSRD). Nearly half of the organisations in this research plan to report in accordance with CSRD for their 2024 financial year, with nearly a fifth more planning to do so a year later.

Nearly three-quarters of organisations in this research have six or fewer full time equivalent staff working on non-financial reporting, and more than half have three or fewer. Just over half said they expect to see an increase in this number, with most of the rest expecting numbers to stay about the same.

Group sustainability units take sole responsibility for ESG reporting at more than half of the organisations in this research. It is shared between several department at a further quarter with written responses suggesting that most involve both sustainability and finance with some also including communications. Most of the rest make finance and accounting solely responsible, except for one where a

communications and government affairs department runs reporting with an ESG unit in the finance group responsible for data quality.

Just under half of the organisations in this research have ESG topics in their core corporate key performance indicators (KPIs), with more than a quarter more including them in management level performance reviews. Some respondents say that their organisations plan to increase such work, with one mentioning that they currently have a single indicator on carbon dioxide emissions intensity but plan to add more.

Almost half of organisations interviewed produce internal indicators on a quarterly basis and several use monthly reporting for some measures. Annual is the most common frequency for external reporting used by more than three-quarters of organisations, with the remaining respondents doing so quarterly.

ESG key performance indicators are used in calculating executive pay in a majority of the organisations in this research, with just over half using these for short-term incentives and two-fifths for long-term incentives. Just under half have between 16 and 25% of variable executive pay linked to ESG indicators.

Looking to the future of ESG

Sustainability professionals see their task becoming more and more a part of everyone's job in the future. Some see the central function becoming smaller as individual business units take up work, while others believe that finance is likely to take over reporting on sustainability given its increasing importance. The result of these two trends is that group sustainability units need to become more strategic in outlook so they can provide oversight and guidance across the business and to the board.

John McCalla-Leacy, Global Head of ESG, added: "Businesses have the opportunity to embed robust ESG and suitability governance by ensuring effective connectivity between functions - from finance to internal operations and supply chains - which can both help to (RC) enable compliance with reporting requirements and the identification of sustainable value creation opportunities through enhanced operational transparency and data-driven insights. As one respondent put it in this survey- 'if we want to exist as a company in 10 or 20 years from now, we need to transform'". Gustav Von Bratt (**pictured**), Governance Lead for ESG at KPMG in Southern Africa, added:

"In South Africa, the concept of governance has been traditionally well-defined through the King IV™ Code on Corporate Governance. However, a recent emphasis on ESG mandates and international developments has propelled this topic into the spotlight. Investors, shareholders, and stakeholders now insist on increased transparency and accountability concerning ESG performance, and also for boards and management to take clear and direct responsibility.

While South African companies are urged to concentrate on climate action, social equity, corporate responsibility, technology, innovation, and stakeholder engagement, ESG governance is viewed as fundamental in determining how companies strategically prioritise, monitor, and report on their performance going forward. Integrating ESG governance into corporate practices is crucial for South African companies to foster long-term resilience, stakeholder trust, and sustainable growth in this evolving global landscape." ©



SA's largest private renewable energy PLANT GETS GREEN LIGHT

The construction of the three 110-megawatt (MW) Impofu wind farms in Kouga Eastern Cape will begin in March 2024 – this will be the largest pure private renewable energy plant in South Africa. At a length of 116 kilometres, the project also boasts the longest privately permitted powerline developed for any renewable energy project in the country. Following over a decade of planning and stakeholder engagement, the wind farms are scheduled to be operational in 2025.

“Since 2013, we’ve signed up 87 separate parcels of land for the powerline and spent years negotiating with farmers to lease land on which to build wind turbines. In total, the wind farm’s 57 turbines will extend across 12 pieces of land – with significant benefits for landowners and local agricultural output,” says Jadon Schmidt, Business Development Manager at Red Cap Energy, and project manager of the Impofu project since its inception.

Red Cap, a renewable energy developer, worked closely with landowners to plot the position of each wind turbine, managing expectations and leveraging local in-depth knowledge of the landscape; “The whole process has been pretty smooth. I had a good idea of where I didn’t want roadways to go, to make sure I didn’t end up with unusable pieces of land. Besides that, I made suggestions about where it would and wouldn’t work to put up the turbines, for example, if an area was too wet or difficult to access,” says Vernon Basson, owner of Vergaderingskraal, who has leased land for the Impofu project.

The turbines will be constructed with locally made concrete towers. Once complete, the development will supply 330 MW of renewable energy to Sasol South Africa’s Secunda site, where French-based industrial gas supplier Air Liquide operates the largest oxygen production site globally. In partnership with multinational renewable energy corporation Enel Green Power, the R9b project was subject to an extensive environmental impact assessment and public engagement process.

Red Cap faced several challenges during development, including the discovery of a Marshall Eagle nest in the area, a year and a half into the impact assessment process. Collaborating with local environmental organisations, the placement of certain turbines had to be reviewed to ensure the protection of the endangered bird. The powerline was also rerouted and redesigned on numerous occasions, to accommodate objections from a small portion of landowners.

“The relationships we’ve established with everyone involved have been critical to the success of the project and overcoming obstacles. We are so grateful to the landowners, who had to be incredibly patient and flexible during the planning process. Then there’s the host of environmental specialists, who helped us ensure that we’ve made the best decisions for all animals and people who depend on the land,” says Schmidt.

“The extra income from the turbines is going to help us keep our livestock healthy and deal with drought during the summer. We are going to use this opportunity to grow and expand our farming interests,” says Xolile Peter Lamani, Chairperson of the Reebok Rant Worker’s Trust – who own a dairy farm near Oyster Bay that has leased land for the wind farm.

Red Cap Energy is a leading local developer in renewable energy, with a depth of experience developing wind farms. To date, Red Cap Energy has developed 191 MW of installed wind power and has 1,5-gigawatts (GW) of wind power fully permitted, with an additional 2 GW in various stages of development. ©

MBA North emphasises benefits of **SAFETY AS REGIONAL SAFETY COMPETITION CLOSES**

Entries for this year's Master Builders Association North Regional Safety Competition have now closed, and the adjudication or auditing phase has begun. Gerhard Roets, Construction Health and Safety Manager at MBA North, says that the annual competition highlights the importance of safety in an intrinsically dangerous industry like construction.

“Ultimately, any business is only as good as its people and the same is true of industries as well. Our people are the core of our success, and protecting our human capital makes sense on every level,” he says. “Our annual safety competition plays an important role in recognising those firms that are setting the benchmark when it comes to safety, and also allows all entrants to receive an objective assessment of how they are doing.”

Statistics collected by Federated Employers Mutual Assurance Company (FEM) over the years show which areas of the construction business cause the most fatalities. Motor vehicle accidents cause the most deaths (6 in 2023), followed by the “Struck by” category (4) and “Falling from different levels” (2). In terms of the overall number of accidents “Struck by” leads the pack with 857 accidents.

Aside from the human cost of accidents on site, FEM's statistics indicate the financial cost involved. The average cost per incident for motor vehicle accidents is R112 446, while “Struck by” incidents cost on average R57 815. “Falling from different levels” incidents cost an average of R99 189 each. High costs like these can impact a company's bottom line significantly, especially given the industry's low margins.

“Improved safety reduces the costs and downtime caused by accidents, and it also lessens ongoing costs for medical insurance, worker compensation claims and so on,” Roets says. “A better safety record also impacts the firm's legal position as regards compliance with safety regulations and, above all, enhances its reputation with clients and employees.”

Previous award winner, VIVA Group, commented on the benefits of winning an award. “Our core scope, Temporary works, is in one of the highest risk categories, which means we need to take additional care to ensure the safety of our people and the project. Placing or winning in a category is a badge we at VIVA wear with great pride,” says VIVA Group Director, Thor van Eunen. “It shows our trusted customers that we are going the extra mile in ensuring their project is delivered to the highest possible safety and compliance standard.”

“Over the last five years we have spent a lot of time getting closer with the MBA North to ensure we are at the highest level of compliance and standard safety. By entering the competition it allows us to accurately gauge how we as VIVA compare with the rest of the industry – and we are starting to see more of our competitors enter the competition with the MBA North, which is great. The

construction industry, and specifically in the formwork and scaffolding sector, is full of guys trying to take shortcuts that do not meet the minimum requirements to be compliant onsite. The competition highlights those in the industry that are looking to improve their safety and compliance as opposed to hiding away from it. It is all part of making our industry a safer place to work,” says van Eunen.

Lester Stubbs, Safety Manager at WBHO, agrees, saying that MBA North's safety awards is a significant milestone. “It's not just a check on our safety standards; it's a chance to see how well we're doing in our jobs compared to others. Importantly, the results aren't just about recognition; they directly benefit all of us working on-site.” “And the real motivation comes from being in a room filled with like-minded individuals. This shared space encourages every company to step up their compliance game, ultimately contributing to a safer industry and better working conditions for everyone,” says Stubbs.

This year's entrants dropped to 67 with a higher total project value of R13,3b, compared to 78 entries with a total project value of R10,6b in 2023. Roets says this is likely a sign of the tough economic conditions prevailing in the industry, with many well-established companies having gone bankrupt or in business rescue.

The audit process ends on 30 May. Roets says that there are three auditors, each one of which will handle all the audits in a category. “That's very important in ensuring we get a consistent rating across the category,” he says.

Category winners of the regional competition will go forward into the national awards programme, which will be adjudicated during June and July. However, MBA North's Regional Competition category award winners will only be announced publicly at a function in August, with the national award ceremony scheduled for September.

MBA North's focus on safety is not restricted to the award programme. It runs regular safety and compliance workshops for members, making it possible for smaller, less well-resourced firms to improve their safety posture.

“Over the years, FEM's statistics show that our safety record as an industry is improving, and we can assume that this safety competition, which we have been running for more than 40 years, is playing a part in driving the safety message home,” Roets says. “These awards, along with our regular workshops have also driven higher levels of compliance with the Department of Employment and Labour's Health and Safety guidelines, something that the Department recognised at the 2021 award ceremony.” ©

The Public Procurement Bill – a document that needs to address our **REAL SOCIO-ECONOMIC DILEMMA**

*South Africa retains its status as the most unequal nation globally. While this assertion may appear unbelievable, it holds true when considering the Gini coefficient of 0,63 recorded in 2023. This metric serves as a persistent reminder of one of the real issues we face as a nation. Regrettably, our democratic institutions have yet to make substantial strides in addressing this issue of inequality. Upon reflecting on the foundational tenets of our Constitution, we acknowledge the historical injustices, that significantly underpin the current phenomenon of how inequality is experienced. **By Vishaal Lutchman, Vice President of the South African Institution of Civil Engineering (SAICE)***

The current economic trajectory suggests that the intended healing may be undone while many actors, politicians and others, may wish that division to remain. Broadly we seem to be working against ourselves with no end in sight. The behaviours of some leaders are questionable, and regulations, such as the Public Procurement Bill, currently under revision, if constructed to give effect to past and current needs, have the potential to advance our objective of mitigating inequality. This article focuses on procurement practices within the public sector.

There are two broad concepts worth exploring, namely, the purpose of procurement and the ability to use such regulations for the public and private sectors to work effectively in growing a sustainable economy for all – as mentioned in the preamble to our Constitution. Literature reveals many objectives for procurement, that when broadly summarised include concepts of fairness; competition; transparency; value for money; quality and application of standards for the purchase;



construction; operation; maintenance; and disposal of assets.

In order for these objectives to be achieved, the requestor typically needs to know the product or service required; the location of where it is needed; the quantity desired; the time it is needed; and the price of the products or services. It is simplified intentionally to give easy articulation of the objectives that are often ignored and postulated in a manner that does not give effect to these objectives in a balanced manner.

Simply, if we seek to address balance across the objectives, implemented with efficiency, professionalism and integrity, this would go a long way in creating much improved public-private collaboration to the benefit of both parties. The lure of money seems to entice one to behave alternatively to such an extent that we have defined new terms such a “state capture”, and “systemic or institutionalised corruption”, which gives one an indication of how significant failures in the implementation of procurement has been and in so doing achieved perhaps, one or none, of these objectives - which I assert as one of the reasons our inequality is not being properly addressed.

The consequence of this is dire and laid bare by our socio-economic KPIs. In addition, when we consider

new regulations or regulatory amendments, it is reasonable to identify a good sense of the gaps: what is not working, what is best for now, and the future based on the objectives we want to achieve. The regulations should make explicit reference to such objectives and give such effect in the construction of the relevant clauses. It is on this premise that I argue the construction of the Public Procurement Bill.

It is my opinion that the current iteration of the Public Procurement Bill [B 18-2023], if passed into law, will not address the existing dysfunction within South Africa's public procurement system, which is a key objective of the proposed legislation. The criteria for this assertion is based on the objectives. My main assertion is that the regulations are too high level, and leave much to the regulations, that may not segue into the guidelines.

As much as I may simplify this assessment, we have numerous research reports, academic articles, and the Zondo Commission's findings, that clearly explain that one of the primary causes of the dysfunctional state of public procurement in South Africa is the complex nature of our regulatory framework. Currently, there are more than 100 pieces of legislation plus a wide array of regulations, instruction notes, practice notes, policies, "circulars", and guidelines aimed at regulating public procurement. It makes for complexity but how is it that we do not embrace the concept of complexity and deviate to abuse the existing procurement regulations and guidelines?

The primary purpose of the Bill should be to integrate existing legislation to create a single piece of national legislation that regulates public procurement, including preferential procurement. It does not appear to be the case at the moment. The significance of preferential procurement is to assist our country with redress, create an environment for new business growth and economic inclusion, among others. This Bill is intended to give effect to the entirety of section 217 of the Constitution and its introduction is probably the most significant development in public procurement regulation in South Africa.

I mention this as it can no longer remain an assumption and that if there is regulation by the state, that effective implementation will happen. If we reflect on the past performance of our public procurement, we may easily argue that preferential procurement has not yielded the desired effect, although significant gains have been made. Some of the objectives missed are the development of rural economies; skills development to serve economic needs of the country; value for money with many transactions having exceeded the appointment value; delayed provision of infrastructure solutions; and sustainable job creation.

Simplifying the procurement bill's legal framework is the most effective step government can take towards improving the public procurement system. An overarching legal framework will be welcomed as a positive step towards reform.

The simplification of such a process can be made easier, and transparency can be achieved, through the adoption of digital solutions to enable integrity in the procurement process and artificial intelligence to assess the quality of the bid.

These options have been available for some time but have not been considered for adoption.

In its current form, the Bill fails in its primary objective as it does not contain provisions that meaningfully improve the public procurement system, thus falling short of the standards in Section 217 of the Constitution. Should it be promulgated, we will find that the systemic issues will remain and if not worsen as the guidelines leave agencies with the decision to determine preferential procurement with no guarantee that its objectives will be attained. I use the inequality lens which remains relevant and should be a fundamental driver underpinning the rationale for the amendment to the Bill.

The Bill gives the National Treasury, the Public Procurement Office and organs of state significant regulatory making powers, instead of providing concrete rules for implementation. This could be problematic as most of the rules that have to be followed or applied will be contained in various pieces of subordinate legislation and may be inconsistent across public sector agencies. It is unclear when these subordinate pieces of legislation will be provided to the public for meaningful input.

Given that government has not been able to manage its capital outflow efficiently, coupled with the nationwide enforceability of the Bill, it should provide clear, unambiguous, accurate and consistent definitions and other core concepts, that in its current form is lacking. It suggests that that compliance to existing regulations is insufficient to make the inroads needed to make progress towards an egalitarian society.

Furthermore, those responsible for adhering to public procurement laws may well feel daunted by the litany of laws, or just pay lip service to them in departments and entities that have weak leaders, processes, checks and balances.

Nor, in our opinion, should interpretation be left to the discretion of the Minister. In other parts, the Bill is not clear which body holds the power to carry out certain aspects. For example, it is not clear who establishes the procurement "policy" that an organ of state will implement.

In principle the Bill is correct but lacks a multi-dimensional view of all its affected participants, lacks collaboration and consistency, has not undergone any confirmation testing or details of how it will provide value for money. As such a fundamentally important piece of legislation, it is more than appropriate that it must be phased in, offering the potential of fine tuning.

In addition, the Bill does not stand on its own and there are enabling initiatives required to give meaningful effect to the intention of the Bill. It has become more apparent that procurement is being used for showcasing agencies.

Public sector clients put bids into market with no intention of awarding or no budget for transactions, that is in contravention of the PFMA, for example. If this is not addressed, there will be transactions with low thresholds that do not screen quality meaningfully with the singular focus on objectives of ownership and price with no sense of quality.

SAICE, through our members, is a major influencer in the construction sector – a significant contributor to employment and major contributor to the national economy – and implores government to engage with the key stakeholders in the construction sector in ensuring that the revised Public Procurement Bill addresses our country's real socio-economic dilemma. ©

Paving trains for faster ROAD CONSTRUCTION

South Africa's largest multi-franchise equipment supplier ELB Equipment, has moved speedily to supply machines needed to uplift the country's road infrastructure as much anticipated funds are released by Government to complete a plethora of projects.



Craig Sheppard of ELB Equipment with an Ammann AV70X tandem roller

At the forefront of its offering are the pavers, compactors and rollers from global leader Ammann, which are used in conjunction as hyper-efficient paving trains to surface, compact and finish roads to exact specifications using the latest technology in road construction. The Ammann paving trains can cut road construction times considerably and are able to provide higher quality surfaces than traditional methods.

ELB Equipment's road and compaction equipment specialist, Craig Sheppard, says that the company works with the country's leading road construction contractors and are ready to supply paving trains and other road construction equipment as the contracts are awarded.

"A typical Ammann configuration consists of a AFW700-3 paver, AV70X tandem roller and AP 240 pneumatic roller working in tandem. With a paving speed of up to 30 m per minute it is clear to see why this paver leads the paving train lineup. In addition, it is able to pave extra wide sections with up to three metre width and deep runs of up to 300 mm deep. It also allows either electric or gas heating of the screeds depending on the requirements.

"With its advanced Pavemanager 2,0 control automated paving system the paver is able to constantly monitor the process and provides feedback to operators. It also controls many key functions for precise results. Some other features include:

- CAN-based control system
- Connected both to the main operator control and to the screed remote control panels
- Full overview of the complete paving process
- Automatic programming of slope and/or crowning
- Constant operator feedback
- Saves and loads paving parameters for each layer (memory function)

- Automatic levelling system
- Offers colour displays and intuitive menus and functions on both, the main dashboard and the remote controls.

Similarly, the screeds provide infinite settings with concentric flexlevers for rapid and automatic changes of the angle of attack. Efficient side shield controls can be operated from behind the screed with a single crank for safety purposes. High compaction screeds for thick layers and roller compacted concrete can also be used. The powerful machines are available in either 4- or 6-wheel drive depending on traction requirements.

In the most common configuration of the paving train the paver is followed by a Ammann AV70X articulated tandem roller. This combines drum dimensions, frequencies and amplitudes to deliver optimum compaction results. The roller has two frames connected by an oscillating joint that enables

crab steering on each side. The crab steering provides increased compaction output and responsiveness, which is crucial on any jobsite.

A unique propulsion system drives the roller and the powertrain is situated in the rear frame with independent pumps for drive and vibration which provides optimal traction and compaction force. With an operating weight of nearly 8-tons the roller provides a wide range of amplitude, frequency and centrifugal forces to ensure correct compaction of any road sub bases and surfaces. A high-capacity water tank and the ability to work on steep gradients makes the Ammann AV70X suitable for most road projects.

Last, but not least of the machines in the paving train is the Ammann AP 240 Tier 3 pneumatic tyred roller which has a ballasting range of 9,5 tonnes to 24 tonnes helps make the Ammann AP 240 Tier 3 Pneumatic Tyred Roller a good fit on diverse jobsites.

Also helping with flexibility is the air-on-the-run system, which the operator uses to adjust tyre pressures without ever leaving the cab. The optional Ammann Traction Control (ATC) boosts productivity on tough terrain. Its proven hydrodynamic propulsion system ensures productivity while it shares a common thread in reliability and durability with the other machines in the train which ensures the best possible reliability and durability in our tough African conditions.

"Paving trains are just a part of the solution best suited for main roads, national carriageways and freeways, while ELB Equipment's full range of compactors, graders and other equipment ensures that there is a solution for every road requirement. Our footprint also extends throughout the region wherever roads need to be built and maintained," concludes Sheppard. ☺

SANRAL to invest R740m towards the **IMPROVEMENT OF ROADS IN KOU-KAMMA MUNICIPALITY**

The South African National Roads Agency SOC Limited (SANRAL), is poised to inject millions of rands into the Kou-Kamma Local Municipality when it implements six road maintenance projects with a combined value of R740m, over the next few months.



“The construction tender for the special maintenance of the National Road R62 between Louerwater and Joubertina is in design stage, while the periodic maintenance between Bloukrans River Bridge and Storms River Village is at tender evaluation stage, and the contract for the periodic maintenance between Storms River Village and Wittelsbos is in construction tender stage, closing in March 2024,” added Bulose.

Presenting SANRAL’s pre-tender training endeavours, Zenande Mpondo, from SANRAL Southern Region’s Transformation unit, said that the roads entity will train and develop SMME contractors to enhance their business acumen and tendering skills.

“All SMMEs will be required to undertake assessment and class activities during the training, and they will have to demonstrate competence to be awarded the unit standard.

SANRAL announced the investment during a Taking SANRAL to the People stakeholder engagement session held at the Ravinia Multipurpose Community Centre in Joubertina in the Eastern Cape Province. The session was a follow up to the ones that SANRAL held in Tsitsikamma and Kareedouw at the end of January this year.

Local leaders from the municipality, SMMEs and local community members, including youth, women, military veterans and people with disabilities, attended.

Outlining SANRAL’s investment, Siphesihle Bulose (**pictured**), SANRAL’s Project Manager, said SANRAL will implement several road infrastructure development projects in the municipality. “These projects include a periodic maintenance contract for the N2 National Road from Bloukrans River bridge to Storms River village intersection, valued at R80m, and another contract from Storms River village to Wittelsbos, worth R50m. The scope of work will entail the construction of surface seal, localised surface repairs, crack sealing and edge break repairs,” said Bulose.

“The special maintenance project on the R62 National Road between the border of the Eastern Cape and Western Cape provinces is expected to start in June this year and over 30 SMMEs are expected to benefit and over 200 job opportunities will be created.

About 250 job opportunities are expected to be created and over 35 SMMEs will benefit on the special maintenance project on the R62 National Road between Joubertina and Kareedouw.”

The unit standards are from the National Certificate: Construction Contracting NQF 2. These unit standards are a skills programme that will have a credit value towards the National Certificate,” said Mpondo.

Welekazi Ndika, SANRAL Southern Region’s Stakeholder Coordinator, emphasised the importance of communicating through Project Liaison Committees (PLCs). “Whenever communities have issues, they should be dealt with through the PLCs. As government entity that is committed to its transformation agenda, it is part of SANRAL’s mandate to develop local SMMEs.

At the completion of a project, SMMEs in Grade One, for example, should be able to upgrade Grade Two or Three,” said Ndika.

SANRAL uses its stakeholder engagement sessions as a platform to outline benefits of its road infrastructure build programmes to local communities in terms of job opportunities, skills development, training and subcontracting of emerging contractors, suppliers and services providers.

Through these sessions, the roads agency underscores the imminent impactful road infrastructure investments it makes, improving the socio-economic conditions of communities that live along its national road network.

The announcement of these upcoming projects has garnered a positive reaction from the community, who expressed satisfaction that the projects will finally kick off. ©



Municipal officials can prevent further **DETERIORATION OF THEIR ADMINISTRATIONS**

Proven internationally-recognised standards – from quality management to health and safety – officials have options to prevent failing audits, poor governance, or corrupt procurement.

It is a tragic reality that many South African municipalities are in disarray. Of the country's 257 local and district administrative areas, 66 are considered dysfunctional. That means more than a quarter of all municipalities are in a state of turmoil.

A Department of Cooperative Governance and Traditional Affairs report presented to parliament towards the end of last year also revealed that only 11m67% of municipalities are deemed "stable".

While Deputy President Paul Mashatile attributes the situation to poor governance, weak institutional capacity, woeful capacity and political instability,

corruption also plays a major role.

The Hawks told parliament last year that more than 120 corruption cases were being investigated across all municipalities. At the same briefing in June, SIU chief national investigations officer Leonard Lekgetho said R1,7b related to local government corruption was under civil litigation.

Given the huge amounts of money changing hands illegally, tackling corruption may seem insurmountable.

However, Muhammad Ali (**pictured**), Managing Director of World Wide Industrial & Systems Engineers (WWISE) and ISO Specialist, believes there is a simple solution when it comes



to municipal procurement and supply chains: automation.

“By working within the Public Finances Management Act and international standards agreed to by the International Organisation for Standardisation (ISO), municipalities can create robust criteria selection, and the automated system can identify the best possible supplier,” he says.

“The system logs must be protected to ensure there is no foul play. Another advantage is that organisations awarded tenders will be appointed faster. At the same time, machine learning can also identify poor performing vendors who do not conform to standards in executing their duties.”

One of the big changes Ali advocates for is boards of directors and top management being held more accountable for what happens in municipalities.

“They need to sign letters of appointment that clearly define the consequences of failing audits with reoccurring findings and how this impacts their leadership role and municipality’s reputation.”

He says the time has come for the public sector to embrace the ISO standards which have proved so successful in assisting private sector companies.

“ISO standards promote effective understanding, training and on-the-job implementation. This way, a municipality can see value, understand consequences and ultimately feel satisfied with its performance.

“Insecure employees do not trust the process. That is where we ultimately fail, as no decisions are made. In South

Africa, we are over-governed because of insecurities in our processes. But trust, automation and internal quality checks improve these processes.”

The systems to ensure the health and well-being of the public should also be standardised, Ali adds.

If there is a fatality, the Occupational Health and Safety Act can hold the highest person in the organisation responsible. “Once processes, policies and procedures are in place, the employees must understand what is expected of them and who to hold responsible.”

He says there are numerous ways in which municipal officials can measure the success of implementing internationally recognised standards.

These include risk reduction, improvements in audit findings and governance, and constructive feedback from the public on improvements that have been made in streamlining processes and finding effective solutions.

He points out that nations like Singapore have adopted ISO standards at the municipal level to great effect.

It has benefited from standards like ISO 18091, the first ISO standard directed at the public sector, which gives guidelines for the implementation of ISO 9001 for quality management systems. This includes a diagnostic methodology for local authorities to measure the scope and evolution of their processes and services.

“The problem in South Africa is there few understand the importance of using a risk register to optimise processes. This needs to change,” Ali says. ☉

About WWISE

Launched in 2009, Centurion-headquartered WWISE employs 27 full-time ISO consultants who specialise in more than 40 industries, both locally and abroad implementing ISO standards and training programmes for a broad range of small, medium and large-scale business and organisations. The company has a solid local and international client base, with more than 689 clients in 16 countries, implementing more than 30 standards and achieving a 100% certification record. Its training programmes are accredited with SAATCA, SETA, NEBOSH and various international bodies, and it offers training through an e-Learning portal which 12 000 delegates in 40 countries have been trained so far.

The 70-year-old International Organisation for Standardisation (ISO) is an independent, non-governmental international body that develops business management standards to ensure the quality, safety and efficiency of products, services and systems across a multitude of industries. It aims to uphold consistency and quality in an increasingly globalised marketplace.



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>ConstructionWORLD</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></p>  <p>Entry Deadline Friday, 6 September at 17:00</p>



Dipula and REO's innovative approach **TO TENANT INSTALLATION**

Dipula Income Fund's (JSE: DIB) new lease with EOH for the Montrose Place at Waterfall Park in Midrand's Vorna Valley has led to an innovative and high-impact corporate social responsibility project. The entire 4 000 m² building was fitted out by REO, using small contractors who not only completed the entire build project but also tailor-made the furniture in the basement of the building.

Zak Petersen (**above**), CEO of Dipula, which participates in numerous corporate social responsibility initiatives and works with various SMME contractors, comments, "It is critical that we as landlords adjust our thinking. Our tenants are the foundation of our business and collaboration rather than dictation is the future of these relationships. But this hasn't always been easy to implement; that was until we found a potential new tenant with a different approach to space, community and collaboration.

"Working with EOH and REO has been amazing. Their thinking aligned with ours, and that was the beginning of what was to be a hugely successful project that was delivered on time, within budget and entirely homegrown. Not only do we have a happy tenant, but we helped to develop skills, create jobs - directly

and indirectly - and unleash new opportunities. As a socially responsible South African business it is particularly rewarding to pave a new avenue to deploy capital in a way that contributes to positive impacts in our communities."

Petersen adds that while Dipula may have a large portfolio of properties, it is not the end-user of these buildings; its tenants are. "Working together for initiatives like this enables both landlords and tenants to have a greater positive impact, and we take our hats off to EOH and REO for its innovative solutions to the complex challenge of creating an inspiring, enjoyable and productive place to work."

Since 2019, EOH and REO have been on a journey to rationalise the EOH property portfolio and, at the same time, leverage the opportunity to create office



spaces that encourage productivity, collaboration and flexibility. CSI has always been a significant driver of the property consolidation project and, in keeping with this, all the office furniture in the numerous buildings exited has been donated to staff, schools and NGOs across the country.

The final leg of the consolidation strategy was to create a home for the newly formed Easy HQ, a division of EOH, in a fit-for-purpose building that addressed both the bespoke requirements of call centres and training centres while at the same time incorporating shared “hub space”.

Diana Hingeston, Executive at REO Consulting, comments, “Montrose Place, within walking distance of the EOH IOCO Hub, was perfectly located. An occupied building with an outdated fit-out and three months to deliver seemed an impossible task. That’s where landlord-tenant collaboration became a critical success factor. Simultaneous white boxing and fit-out, sharing of contractors and a common understanding of what it means to be proudly South African.

“In keeping with our commitment to community, the entire fit-out project was expertly executed by SMMEs, and the furniture was all built in the basement by REO using traditional hand tools and a welding machine.

We are blown away by how collaborative the Dipula team are, and it was encouraging to experience their commitment to good corporate citizenship first-hand. We look forward to exploring similar opportunities

together in future.” Leveraging years of experience in workplace change management and incorporating various design learnings, REO’s goal is to craft spaces so enticing that people would be eager to leave their homes for them.

With a design philosophy of “a little bit like home, a little bit like work and a little bit like a coffee shop”, being different was imperative and remaining competitive essential. With “cool office space, job creation and easy entry to market” as the goal, the REO team came up with the concept of an “Anywhere Factory” - furniture made by anyone, anywhere for everyone everywhere. REO and the Anywhere Factory have been designing offices and making furniture for EOH since 2019.

“Montrose Place is by far the most ambitious of all projects and would not have been possible without the support of Dipula and their easy acceptance of our somewhat unusual request to turn their basement into a makeshift welding and carpentry factory,” says Hingeston.

Bringing the EOH vision to life, the “Anywhere Factory” team powered by REO manufactured the furniture using hand tools. They produced desks, cladding, kitchen units, coffee tables, bar stools, desk dividers, call-centre tables, and benches - everything but the upholstered furnishings and carpets.

The result is a clean and contemporary industrial office design featuring steel and pine wood with various stains, which come together in multifunctional open and shared spaces that embody an agile, fluid approach to office space. Anyone can sit anywhere - even the CEO.

This collaboration between Dipula, REO, and EOH has proven a resounding success and planted a seed for more small businesses to fit out commercial premises with customised solutions crafted on-site.

These solutions help businesses better express the brands and values inside their business places in unique ways - impossible to achieve by using cheap, modular, imported furniture.

Petersen says, “We are encouraged by the increased uptake of office space and believe that office fundamentals have finally turned the corner. Creative initiatives such as this one are beneficial to society, tenants and landlords.

This project speaks to the dignity of the employees of the SMMEs that were involved who would have otherwise been unemployed and creates a pleasant working environment for people as companies call staff back to the office.”

Dipula is a prominent, diversified, South Africa-invested REIT that owns a R9,8b portfolio of 170 retail, office, industrial and residential rental assets countrywide. It has a strong retail property focus, with convenience, rural and township shopping centres comprising 64% of its portfolio value.

“Through this initiative with EOH and REO, we are also particularly pleased to play a small part in encouraging makers and creators in South Africa. To grow beyond where we are as a country, economy and society, we need to be able to produce. We have deep respect for artisans and their trades, and we are humbled to showcase their valuable skills at our buildings,” says Petersen. ☺

Beyond green: **SUSTAINABLE FINANCE VS GREEN LOANS**

A holistic approach to ESG-linked funding can unlock additional funding benefits for businesses. Understanding the various elements in the ESG umbrella and the interplay between them, coupled with determining the right funding instrument and type of funding arrangement, appropriate metrics, reporting obligations and intervals are key to this and can require specialist insight from a number of advisors. Businesses should partner with experienced advisors to achieve these objectives.

By Natasha Pather, Partner at Webber Wentzel

ESG-linked financing is a hot topic in the finance arena. What does it mean for you? To begin, let's define "ESG". ESG is an umbrella term encompassing three broad spheres – environmental aspects, social causes and governance issues. These three spheres are often considered mutually exclusive, but this is frequently not the case, and they can each be much broader than they first appear.

A great practical example of the interlinked nature of ESG is a renewable energy project. There are obvious potential environmental benefits to the construction and operation of a renewable energy project. When you look closer, however, it is easy to see how the implementation of that project can have far-reaching social implications for the immediate local community and broader society – job creation, contributing to relieving the energy crisis, and income generation, to name a few – while the manner of implementation, quantifying and reporting on performance, as well as ensuring compliance with the relevant regulatory regimes falls firmly within the "governance" sphere. Businesses tend to focus on the environmental aspects, as these are easiest to identify and quantify, but the social and governance aspects can be equally important levers when negotiating your funding arrangements. The interplay between these

aspects is key to unlocking value in funding arrangements.

Forms of funding in the South African market

In the South African market, we generally see two types of ESG-linked funding made available to corporate borrowers – sustainable financing and use of proceeds financing (also sometimes known as green loans or social loans). Here are a few high-level risks and benefits of each and when they might be suitable for your business:

Sustainable financing

Sustainable financing is a type of funding that allows borrowers to measure their performance against a set of predetermined key performance indicators (KPIs). Depending on the level of performance achieved against those KPIs, the borrower can obtain a financial benefit, such as a margin reduction or access to additional funding for which that borrower may otherwise not be eligible. A failure to perform against one or more KPIs can sometimes also result in a margin ratchet, which was not the case in the early days of sustainable financing. Depending on the number of KPIs and level of performance with individual KPIs and as a whole, the margin ratchet or reduction may be structured on



a tiered basis. Naturally, this arrangement requires detailed and accurate information to be delivered timeously to, and verified by the funders. Suitable KPIs are usually determined with reference to the nature and extent of the business of the borrower or its group, its operational requirements and what is achievable and sustainable, without compromising on the business's product.

This type of funding typically takes the form of a loan instrument, rather than a bond, commercial paper or other securities, as the number of funders is generally limited (and thus the borrower is more easily able to manage these information requirements with a smaller pool of funders). Depending on the nature of the business of the borrower, its creditworthiness and various other factors, other financial institutions may also not be able to participate in the instrument, which would limit uptake in the broader market.

Sustainable financing is typically a better fit for larger corporates who already have their own corporate social responsibility programmes geared towards one or more ESG objectives and have the relevant information and verification systems and relationships in place, as well as the requisite financial resources to implement these.

Funders may be willing to accept pre-existing KPIs determined by the borrower where it can be shown that adequate consideration and objective assessment have gone into determining these KPIs. However, they may wish to set their own KPI targets or verify that the proposed targets are sufficiently ambitious. In the UK and European markets, there appears to be an emerging trend of requiring more aggressive KPI targets, both upfront and year-on-year, to avoid allegations of greenwashing. The basis for these allegations within the funding space specifically seems to be that the funders' intervention has not caused the "good behaviour" for which both these corporates and funders are being rewarded through financial incentives. We may see a similar trend for more aggressive KPI targets in future in the South African market and perhaps more punitive margin ratchets and structuring. The benefits of a sustainable financing arrangement are that a borrower can:

- save on its interest costs (and often in circumstances

where it is already complying or aligning with its own internal objectives); and

- potentially access additional funding that it may otherwise not be eligible to access.

The risks are that:

- failure to comply could result in an increased interest cost; and
- if the KPI targets are not set at appropriate levels, one could potentially face allegations of greenwashing.

Use of proceeds financing

Use of proceeds financing focuses on the purpose against which the proceeds are applied. This funding arrangement can be either a loan (or similar instrument) or a security, such as bonds, notes or other commercial paper. Listed bonds and notes tend to largely be limited to the use of proceeds financing due to many of the factors mentioned above.

This type of funding is appropriate where it is possible to link the purpose to which the funding will be applied to an ESG-linked cause. This purpose could take various forms, such as a once-off expenditure such as the installation of a solar-powered system, a multi-stage project, such as the construction of a greenfields development; or a brownfields expansion, or even a longer-term, ongoing initiative such as a housing or education development programme.

We initially saw a number of "green bonds" or "green loans" (also known as sustainability-linked funding instruments) where the proceeds were used to fund an environmentally friendly or climate-based initiative. There has been a recent rise in the number of social funding instruments (targeting, for example, housing or employment initiatives), "blue" funding instruments (targeting ocean-based initiatives) and sustainability funding instruments (which combine characteristics of green and social instruments). A benefit of this type of funding is that it can be more accessible for a broader range of borrowers or issuers, ranging from governments, project companies and big corporates to smaller enterprises looking to fund an ESG-linked purpose. There are even products available now to individuals who are looking to fund alternative energy sources for their homes. In addition, access to the listed and unlisted bond market may provide additional funding opportunities for a range of borrowers.

It is a key requirement for the borrower or issuer to disclose how the proceeds are applied for this type of funding. This may include a report on initial expenditure and subsequent reporting on the actual and anticipated impact of the funded initiative.

There are similar risks and benefits for this type of funding – namely, a potential margin ratchet for non-compliance, on the one hand, and a margin reduction and/or access to additional funding on the other. Greenwashing also remains a risk if, for example, the purpose to which the loan proceeds are applied does not actually benefit, or even indirectly support an initiative that actively harms the relevant cause.

Additional bond market considerations may also apply if the funding instrument is a debt security. These include, on the one hand, access to a different, potentially broader pool of funders (each with their own internal investment criteria) and the ability to determine the pricing of the instruments up front. On the other hand, the listed bond space is also subject to additional regulatory requirements, which may impose further reporting obligations and pose other regulatory pitfalls. ☺

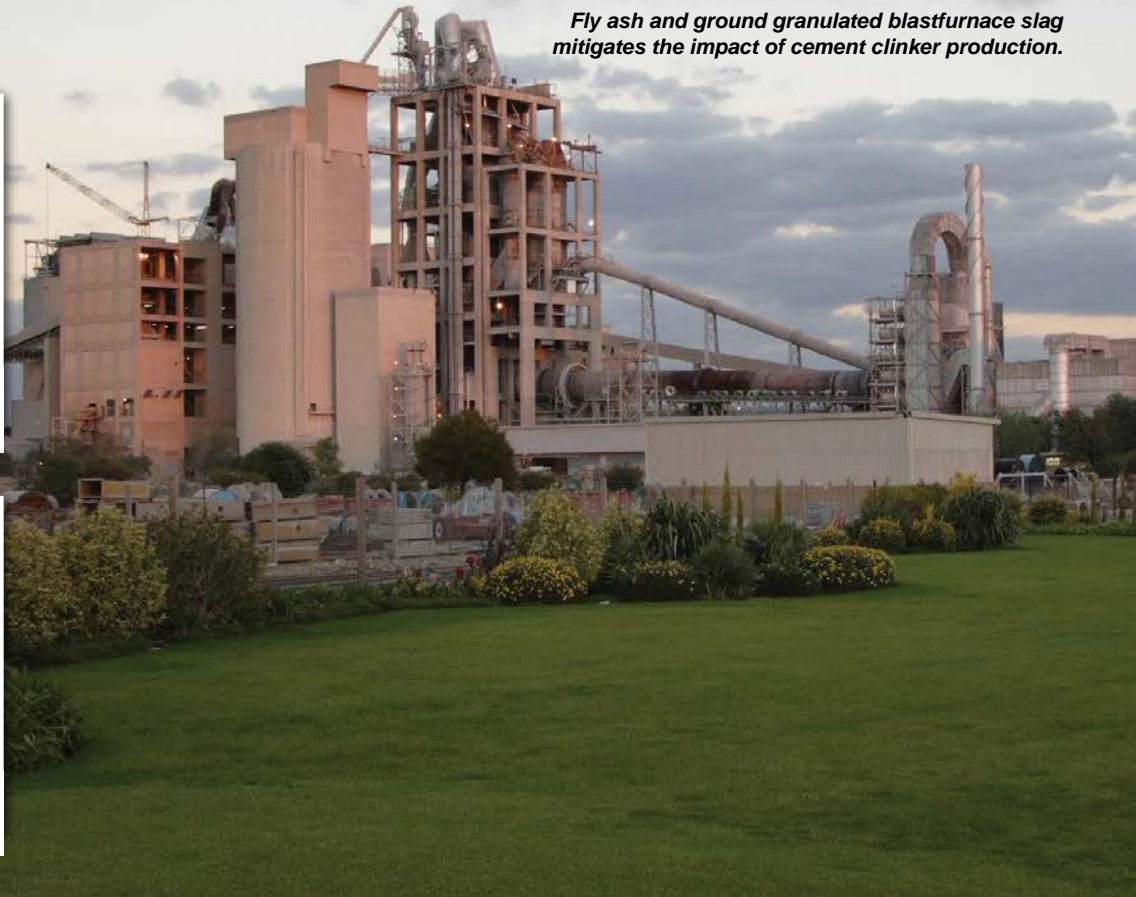




Mike McDonald,
AfriSam Centre of Product
Excellence Manager.



Dr Grizelda du Toit,
AfriSam Project
Professional.



Creating sustainable concrete possibilities **WITH REDUCED CARBON FOOTPRINTS**

Both locally and internationally, the construction industry is at a crossroads. While it plays a crucial role in economic development, it is also a significant contributor to greenhouse gas emissions. One of the primary culprits is traditional Portland cement production, responsible for an estimated 8% of global carbon emissions.

As the world grapples with the urgency of addressing climate change, finding sustainable alternatives to conventional cement becomes paramount. Leading construction materials company, AfriSam, has long been at the forefront of cement and concrete technology development in South Africa and *Construction World* recently spoke to Mike McDonald, Manager of the Centre of Product Excellence (CPE), AfriSam, South Africa and Dr. Grizelda du Toit, Project Professional at AfriSam, South Africa.

The conversation was around the world of cementitious alternatives like fly ash (FA) and ground granulated blastfurnace slag (GGBS) and we explored how these can help reduce the industry's carbon impact while maintaining the performance of construction materials.

The carbon challenge of cement

McDonald explains that cement remains an essential ingredient in construction projects around the world, from towering skyscrapers to sturdy bridges. However, the environmental cost of cement production is driven primarily by the de-carbonation of limestone and energy-intensive process of manufacturing clinker, the main component of Portland cement. He says that with the global consensus on the need to reduce carbon

emissions, the cement industry is under pressure to adopt sustainable practices.

“Enter cementitious alternatives like fly ash (FA) and ground granulated blastfurnace slag (GGBS),” he says. “These materials offer a promising avenue for mitigating the environmental impact of cement clinker production while maintaining the quality and performance of construction materials.”

Most significant is that AfriSam took its first steps towards sustainability by introducing a 'green cement' range as early as 2000. This groundbreaking move demonstrated their commitment to reducing the carbon footprint of their products. In 2009, AfriSam became the first cement company in Africa to launch CO₂ labelling on its cement bags, providing consumers with transparency about the environmental impact of their purchases.

“The core idea behind using FA and GGBS lies in their significantly lower carbon footprints compared to traditional Portland cement,” explains Du Toit. “Research shows that FA can potentially replace 20 to 50% of Portland clinker, while GGBS can replace 50 to 90%, resulting in a reduction of the clinker factor by 30 to 50%. This reduction has multiple benefits, including a lower carbon footprint for concrete and cost savings in construction.” She says that one of the



Cement remains an essential ingredient in construction projects around the world.



AfriSam introduced a 'green cement' range as early as 2000.



AfriSam has long been at the forefront of cement and concrete technology development.

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CEMENT

2

All Purpose Cement 51%*CO₂/t

AfriSam was the first cement company to introduce CO₂ labelling on its cement bags.

most exciting aspects of these cementitious alternatives is their positive effect on the durability and physical properties of concrete. “For instance, classified FA is much finer than Portland cement and helps concrete pack more densely, making it less permeable to external elements. This enhanced durability not only increases the lifespan of concrete structures but also reduces the risk of reinforcing steel oxidizing and cracking the concrete,” Du Toit explains.

Concrete strength is a key factor in construction, and it's worth noting that the 28 day convention, commonly used to assess concrete strength, may not fully capture the potential of SCMs (supplementary cementitious materials) like FA and GGBS. While traditional Portland cement largely completes its hydration reaction within this timeframe, SCMs continue to gain significant strength beyond 28 days, up to 90 days or even longer. This extended strength gain has important implications for the design and performance of sustainable construction projects.

Commenting on the use of FA and GGBS, Du Toit says this aligns seamlessly with the principles of the circular economy, where waste products are transformed into valuable resources. In the case of South Africa, FA, once considered waste, has become a valuable by-product with the potential to reduce production costs while reducing carbon emissions. The circular economy philosophy supports sustainability and resource efficiency, which are crucial in the fight against climate change.

Admixtures play a significant role in optimising the use of SCMs in cement and concrete. These additives can accelerate cement hydration or enhance the solubility of mineral components, leading to more sustainable concrete mixes. By carefully selecting and using admixtures, cement producers can maximize the sustainability benefits of SCMs and increase their adoption in the construction industry.

While the environmental benefits of SCMs are clear, there are limitations to their adoption. For instance, industry standards often limit the ash content in cement, hindering the full use of materials like FA. “It is essential to regularly assess and update

these standards based on industry research and developments to promote sustainable practices effectively,” Du Toit asserts.

“With the global commitment to reducing greenhouse gas emissions, the onus is on cement users, including engineers and contractors, to explore and embrace modern cementitious alternatives. By rigorously testing and optimising mix designs, construction professionals can quickly realise the environmental benefits of using SCMs without compromising performance.”

“The transition to a sustainable future requires innovative solutions across all industries, and the construction sector is no exception. Cementitious alternatives like fly ash and ground granulated blastfurnace slag offer a pathway to reducing the carbon footprint of construction materials without sacrificing performance,” McDonald says. AfriSam's pioneering efforts in this field demonstrate the potential for meaningful change in the cement industry.

“As the world grapples with the urgent need to address climate change, it is crucial for all stakeholders in the construction industry to embrace and explore these modern options. By doing so, we can build a more sustainable future; it is really about creating concrete possibilities to ensure our cities and infrastructure are resilient in the face of a changing climate,” he concludes. ☺

Design and build imperishable **CONCRETE RESERVOIRS**

There is no reason that an appropriately designed, built and maintained concrete reservoir should not continue adding value for at least 100 years. This is considering the durability of concrete which enables it to resist many deleterious effects while maintaining its desired engineering properties.

So said renowned materials specialist, Dr Rod Rankine, when addressing cement and concrete industry stakeholders at Cement & Concrete SA's (CCSA) Concrete Working for Water Roadshow. The well-attended events in Johannesburg, Durban and Cape Town brought together leading local built environment professionals to find solutions to South Africa's dire water crisis. Also offering cost-savings for the initial build and maintenance later on, concrete will no doubt continue to play a central role in the country's water-augmentation strategies.

However, Dr Rankine noted that it is important that South African engineers, contractors, sub-contractors and participants in the civil-engineering construction supply chain ensure that concrete water infrastructure realises its full potential. This relies on best practice in terms of construction; quality control; structural design; and detailing.

"When we design and build new reservoirs, it should be done so well that they last as long as possible, which is at least a century. This is not unusual for an appropriately maintained concrete reservoir that has been delivered to the highest possible quality standard," Dr Rankine said.

He expressed deep concerns about a rapid decline in the quality of the design and construction of concrete water retaining structures in municipal jurisdictions. He showed delegates examples of concrete reservoirs in various stages of construction that would never be able to function. In some instances, concrete construction design and application was so poor that these partially completed and final structures would have to be demolished and rebuilt entirely. Others required large concrete repairs, also costly and disruptive to service delivery. The situation places additional strain on already-stretched municipal resources, exacerbating the serious water crisis with which the country currently grapples.

Dr Rankine noted that appropriate concrete design and construction, which included adequate measures to prevent corrosion of steel reinforcing, would save asset owners significantly in major repairs further down the line.

He cited Prof Walter de Sitter's, "Rule of Five" to demonstrate his point. According to De Sitter's Rule of Five, R1 invested during the design and construction of reservoirs is equivalent to R5 after the structure has been built, but corrosion is not yet evident; R25 when corrosion has started at some areas; and R125 when corrosion has become widespread, and rehabilitation is required. For example, a concrete reservoir that has been built with reinforcing steel that has been hot dip galvanised according to the SANS 121 specification will last three times longer than a similar water-retaining structure that has been constructed with black rebars. This justifies the additional expenditure in hot dip galvanising. There is currently no other method that

safeguards against reinforcement corrosion, the leading cause of failure of reinforced concrete structures, than hot-dip galvanising.

Despite the availability of such state-of-the-art technologies that improve the performance of concrete and the already many proven benefits of concrete, defective reservoirs are still being constructed on behalf of South Africa's municipalities.

The reservoirs inspected by Dr Rankine mainly leak through cold-joint lifts, which he described as the "weakest link" in concrete water-retaining infrastructure and where reinforcing bar starts to corrode first.

Cold-joint lifts are a necessity, but they are inevitably a weak point because the concrete at the top of the previous lift is of inferior quality as a result of bleeding. Honeycombing at the bottom of walls, adjacent to joints between form panels and at cold-joints is a problem, and is common cause of inherent weakness and deficiency which continues to bedevil this industry. It can all be attributed to a poor understanding of concrete technology and poor site practice.

Appearing as cracks, honeycombing and areas with exposed aggregate and reinforcing of various sizes, they prevent a strong, water-tight bond between the two layers in the reservoir wall.

The large areas of honeycombing that Dr Rankine has observed time and again are as a result of poor compaction practices and incomplete placement of concrete in formwork.

He told delegates during his session at CCSA's Concrete Working for Water that it was clear that sound concrete compaction practice was largely being ignored by contractors appointed to work on these projects. However,



Appearing as cracks, honeycombing and areas with exposed aggregate and reinforcing, cold-joint lifts prevent a strong, water-tight bond between the layers in the reservoir wall.

onus also lies with resident engineers supervising the works. “There are some inconvenient truths when it comes to proper concrete placement that need to be heard by the companies that were appointed to build these reservoirs. Firstly, there is no such thing as self-levelling concrete and pumped concrete is certainly not self-compacting. Secondly, there are limits to the amount of concrete that a single concrete vibrator can vibrate in an hour and at least three workers are required to operate a single poker vibrator (one to hold the poker, one to manage the engine while the third is sitting on the toilet),” he said.

Because the natural packing density is interrupted by shutters, the flat floor and struck-off top, Porosity near the top and bottom of the reservoir walls surveyed by Dr Rankine is 0,30pu. Near the surface, porosity is less than 0,48 due to interruption of the natural packing density by the flat shutter. In the centre portion of the reservoir walls where natural packing density is optimal, porosity is 0,26. Thus, the paste requirement near defined edges is always higher.

This would not have occurred if greater care had been practiced when placing the pumped concrete in the deep forms by using an elephant truck or hydro-valve, Dr Rankine noted.

Meanwhile, the many vertical cold joints that he had analysed were as result of working in one direction on closed-circuit structures. Rather, seasoned contractors know that best practice is to place concrete by starting with two teams at one position and then working in opposite directions so that when they meet, they can join fresh concrete to fresh concrete, when constructing a reservoir wall to avoid this problem.

Dr Rankine was also concerned about high incidences of inadequate concrete cover that he has noticed. This is considering the very large part that concrete cover plays in concrete durability. He said that contractors had one chance to get it right but, disappointingly, were failing to do so judging by the dismal state of the reservoirs that he was asked to inspect.

Grout loss between adjacent shutters was also a cause of honeycombing on these water-retaining structures. As he explained, a lot of grout was being lost due to “leaky formwork”. Skilled and experienced contractors, therefore, ensure tight joints and sometimes use self-adhesive compressible foam gaskets to successfully retain the grout between the adjacent shutters.

He also identified incorrect application of and, in some

instances, over reliance on hydrophilic waterstops as a recurring problem. Installed across concrete joints, they also often become misaligned and are damaged when casting adjacent concrete panels. “For a hydrophilic waterstop to work as intended, it has to be coaxially confined. Many contractors have been coerced into using these just because they exist, whereas an excellent watertight joint can be achieved without a hydrophilic strip,” Dr Ranken said.

Furthermore, he identified problems in the correct design and installation of bearing pads, which play a critical role in transferring loads to the foundation of the structure and facilitating movement. A case in point was the severe load- and movement-related cracking of a reservoir wall founded on a Kilcher-type polytetrafluoroethylene bearing with bandage seal between the inside wall and floor.

Dr Rankine also clarified misunderstandings around the allowable size of cracks in a reservoir wall for autogenous healing purposes. Widely regarded as a conservative standard, EN 1992-3-2006 provides for autogenous healing by limiting the ratio of hydrostatic head-to-wall-thickness to a maximum allowable value of 35 for crack widths not exceeding 0,05 mm. However, as he noted, this is not practical or realistic. Dr Rankine said that cracks that do not exceed 0,3 mm in width will almost certainly seal themselves with time. Calcium hydroxide ($\text{Ca}(\text{OH})_2$), a by-product of cement hydration, from within concrete is conveyed by leaking water to the dry side of the wall. Thereafter, it evaporates and the $\text{Ca}(\text{OH})_2$ is deposited on the dry face as a precipitate. This then reacts with atmospheric carbon to form calcite sealing the cracks.

Dr Rankine concluded by quoting an excerpt from the first edition of *Everyday uses of Portland Cement*, published in 1914, to support his views that good construction; quality control; structural design; and detailing would ensure top-notch concrete water-retaining structures that continue to add value for many years. “The Romans used lime concrete that has stood for centuries and is doubtless better today than when it was first made.

“However,” concrete made with hydraulic lime or Roman cement, was nothing like so strong and serviceable as Portland Cement concrete. We refer to it merely because it shows the remarkable resistance and life possessed by concrete.

“If lime concrete has stood unharmed throughout the ages, Portland Cement concrete, which is infinitely superior, must be imperishable.” ☉



There has been a rapid decline in the quality of the design and construction of reservoirs in municipal jurisdictions.



Appropriate concrete design and construction including adequate measures to prevent concrete corrosion, will save asset owners significantly in major repairs further down the line.



Raising of Tzaneen Dam showcases **CONCRETE DESIGN AND APPLICATION**

The raising of the Tzaneen Dam wall ogee crest and tongue wall and replacing its existing ogee spillway with a combination of labyrinth and ogee-spillway crests, will entail placing 16 400 m³ of concrete, which is about 3 280 concrete-mixer truck loads. This project again demonstrates the fundamental role that the cement and concrete industry plays in ensuring water security.

So said Wessel Janse van Rensburg, Technical Advisor to the Construction North Infrastructure Management Directorate of the Department of Water & Sanitation, at Cement & Concrete SA's (CCSA) Concrete Working for Water Roadshow. The raising of the Tzaneen Dam wall by 3 m was just one example of excellence in the design and application of concrete technology that was showcased at this prestigious CCSA event. It brought together representatives of client bodies; engineering firms; principal and specialist sub-contractors; and participants in the South African water-infrastructure supply chain.

The construction of Tzaneen Dam was completed in 1977. Comprising a mass concrete-gravity spillway section that is flanked by earth-fill embankments that are paved with bricks, the dam has a current capacity of 157,3-million m³. This will be increased to 193-million m³ when the project is completed.

"The more than R600m upgrade needs to be undertaken to ensure an acceptable level of supply based on an anticipated increase in water demand over a 20-year planning cycle. In addition to supplying municipalities for domestic use, Tzaneen Dam is a source of important irrigation water for farmers in the Mopani district of Limpopo, many of whom are small-scale producers. This project will, therefore, ensure their sustainability," Janse van Rensburg said.

Construction North Infrastructure Management Directorate of the Department of Water & Sanitation is the principal

contractor and the Department of Water & Sanitation Chief Directorate of Engineering Services and ARQ Consulting Engineers serve as employer's agents. The implementing agent is the Development Bank of Southern Africa.

Construction North Infrastructure Management Directorate started working on the 18-month project in June 2023 and sound progress has been made by the seasoned dam builder thus far.

The river has already been diverted by 125 m and construction of the access road completed. By May 2024, the contractor will have erected the state-of-the-art on-site concrete batching plant that will supply the large quantities of concrete that will be placed for this project.

In preparation of the large works to come, Construction North Infrastructure Management Directorate is also busy erecting the tower cranes; clearing areas for material stockpiling; and excavating, loading and transporting construction material from the stilling basin. These activities have not been without their challenges, not least of which was the flooding of the stilling basin during December wet season. To continue with the works, Construction North Infrastructure Management Directorate has had to first redirect large volumes of water from the toe drain.

The upgrade is an extensive undertaking that will also entail excavating 18 500 m³ – equivalent to 3 170 truckloads – for the



concrete spillway will be 91 m in length. A total of 3 770 m³, 2 950 m³ and 2 250 m³ of concrete will be used to construct the bason-apron slab, ogee and still-base toe, alone. This is in addition to the placement of 1 630 m³ for the construction of the retaining wall and 1 450 m³ of concrete for the labyrinth spillway. The construction of the tongue wall will entail placing 505 m³ of concrete and the diversion pipe 310 m³ of concrete. Moreover, 150 m³, 123 m³, 80 m³ and 20 m³ of concrete will be used to build the side/tongue wall and intake tower floor slab and its wall, respectively. An additional 50 m³ of the construction material will also be used for general concrete repairs to the existing infrastructure as part of the upgrade. Janse van Rensburg told delegates during his session of the CCSA Concrete Working for Water Roadshow that a high-strength, water-tight concrete mix that will reach 30 MPa within 25 days had been designed for this project.

“The water-to-cement ratio does not exceed 0:48 and to improve workability, we will use water-reducing admixtures that comply with the SANS 1200G standard that have been sourced from reputable manufacturers. 30% of some of the concrete mixes will also contain fly ash to further improve workability of the concrete and increase its durability. The cementitious content of these mixes will be about 450 kg/m³ and about 250 kg/m³ for those without fly ash,” he said.

He concluded by noting that, when the project is completed, the dam will be classified in the 53,3 m-high Category III. This is the highest hazard rating by the Dam Safety Office considering the size of damage and potential for loss of life in the unlikely event of a catastrophic failure. “Therefore, the highest possible standards are being adhered to throughout the construction project.” ☺

tail pond and placing 140 000 m³ of soil fill – translating into 24 000 truckloads for the construction of the embankment. Tzaneen Dam’s left embankment will be raised to 175 m and right embankment to 780 m and the new labyrinth ogee

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A new legacy of convenience and **COMMUNITY BEGINS AT BARLOW PARK**

The iconic new Barlow Park has revitalised and transformed the site of the former Barloworld headquarters in Sandton into a contemporary mixed-use precinct, with the much-anticipated opening of Barlow Park Retail on 29 February 2024.



Barlow Park's development team.

Offering a vibrant shopping experience right at the gateway to South Africa's business capital – ideally positioned for commuters and neighbourhood residents alike – Barlow Park Retail opened with big names in convenience, including Checkers and Clicks, and food and beverage offerings from favourites like Vida e Café and Roman's Pizza.

The curated selection of daily convenience caters to all tastes and needs and includes Legend's Barber, Pick n Pay Clothing, Mr Price, Crazy Store, Pep Home, Oasis Water, Levingers Dry Clean & Shoe Clinic, Vision Works, Checkers Liquor, All Fix, PostNet and the ATM service of Capitec Bank.

During the month of March, Nando's and Princess Hair are also joining this unique retail mix, designed to complement the community's dynamic spirit.

The eagerly awaited shopping centre opening was celebrated with an exciting array of activities, from live performances to fun giveaways, children's entertainment, showcases, competitions and lots of special offers from the newly opened retailers.

The Barlow Park Retail opening marks the long-awaited

realisation of a vision that began in 2017 when esteemed South African property developer and investor Atterbury took on the redevelopment of Barloworld's former corporate site.

The initial office-centric plan was delayed due to the pandemic, which worked in favour of shifting to a residential-led vision for Barlow Park. With the leading force in affordable multifamily residential rental property Divercity Urban Property Group coming on board, construction of the project began in June 2022, transforming Barlow Park into a modern, mixed-use community, setting new standards for quality affordable living supported by top facilities and security.

This community-centric redevelopment garnered solid stakeholder backing. Moolman Group and Twin City Development are also investors in Barlow Park.

Now, in 2024, the Barlow Park community has come to life with a fusion of urban convenience and community warmth. In addition to the opening of Barlow Park Retail, the first 300 apartments at Barlow Park welcomed residents on 31 January.

Enthusiastic take-up exceeded expectations and resulted in the first residential phase being fully let in its first month. The

much-anticipated second phase of residential apartments will launch in May 2024.

With education being the cornerstone of a thriving community, the top-tier independent school Curro Barlow Park also opened this year and is fully operational. Other precinct amenities will include a medical facility, shared offices and more.

All this can be effortlessly accessed through Barlow Park's

dedicated traffic-signalled entrance. Sandton's newest multifunctional precinct can be found at 180 Katherine Street, with easy access from key road links just a short drive from major M1 Highway off-ramps.

Atterbury and Divercity co-manage the asset, and the Barlow Park Property Management Office (PMO) houses the precinct's letting and property management departments, ensuring on-site support for a seamless living experience. ☺



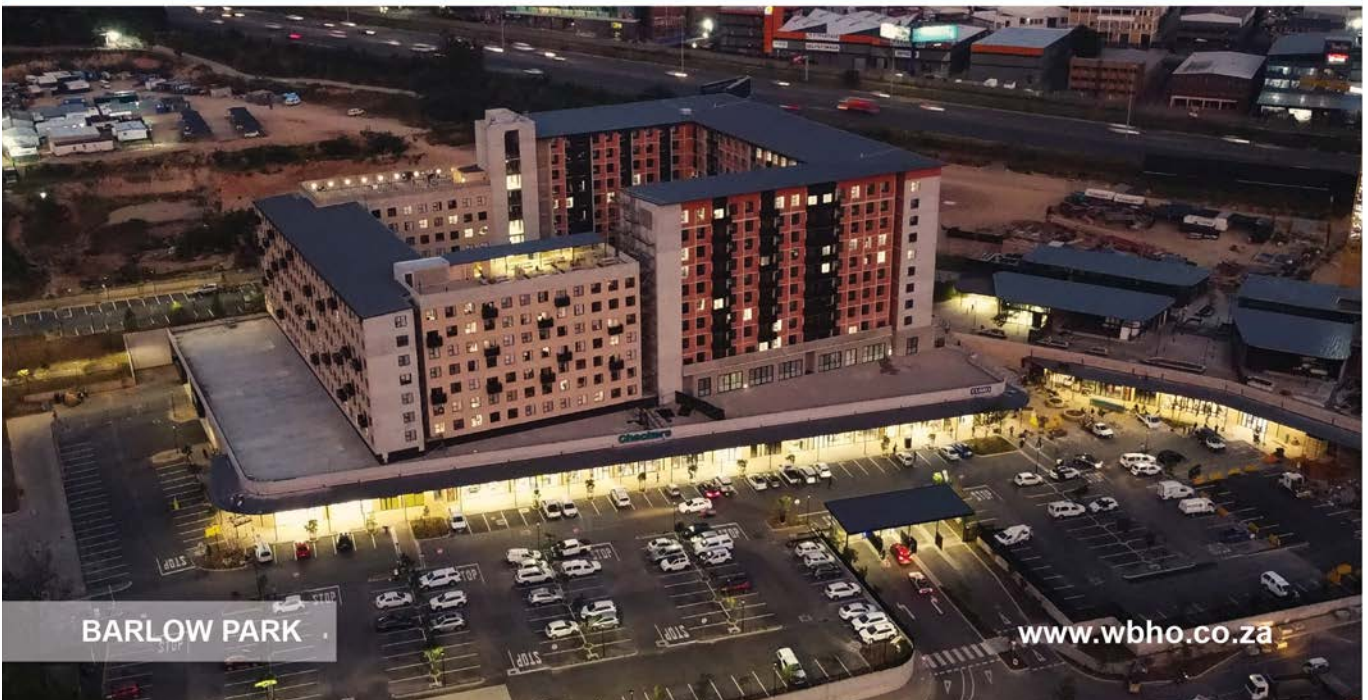
External image of Barlow Park's affordable multifamily residential rental property.



Barlow Park retail opening.

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Breathing new life **INTO ABANDONED BUILDINGS**

Over 900 million people, mostly youth, are expected to move into African cities in the next few decades. At the same time, many of these cities have old buildings with historical and cultural significance that have been left neglected as a result of economic decline and changing demographics.

With innovative strategies, these forgotten spaces and the increased demand for accommodation from urban influx present a valuable opportunity for redevelopment.

South African cities are full of existing buildings that have been repurposed, ranging from a burnt office tower being transformed into affordable housing units in Braamfontein, Johannesburg, to the addition of a new modern block on top of an existing, heritage-protected building on Kloof Street in Cape Town. The radical development of the Zeitz MOCAA Museum in Cape Town is another excellent example, where an existing grain silo was transformed into a museum and hotel, becoming a work of art itself.

Philip du Toit, Project Architect at BPAS Architects, suggests that we need to look at our cities with a fresh lens to find sustainable ways of addressing increased urbanisation. Du Toit champions the idea of looking at how we can use existing buildings and build on them in a three-dimensional environment to create new spaces.

He says that breathing new life into abandoned buildings can transform them into vibrant hubs of activity, fostering economic growth and community rejuvenation.

Reasons for reconstruction

There are various reasons why this is important. Firstly, empty pieces of land are becoming increasingly scarce, especially in cities.

Secondly, the needs of those who use the buildings and people who live in urban areas change over time. For buildings to endure through multiple generations, they need to be adapted to suit changing social, economic and personal requirements.

Thirdly, cities can't keep on expanding horizontally; not only will this take up valuable natural areas, but it will also cause other problems. This is evident in things like traffic congestion along the N1 and N2 in Cape Town and pressure on service infrastructure for water, electricity, etc. that has to provide for

ever-increasing volumes of new developments.

Using existing buildings innovatively can also save costs, time and energy. The cost benefits are twofold – the physical elements of an existing building can be reused, and construction time can often be reduced. “Working with an existing structure saves a large part of the construction of any building. If the building refurbishment can be completed sooner than a new structure would take to build (depending on the level of conversion and the condition of the existing elements), the owner could start earning a return quicker,” says Du Toit.

Renovation: proceed with caution

However, he is cognisant that these types of buildings are not without their challenges. “Sometimes you can open up a can of worms with an existing building. The structure should be inspected properly to determine any age-related concerns. Some services might need replacement or to be moved, while existing physical parameters might prevent certain types of spatial qualities or functions. With very old buildings, the heritage legislation also needs to be taken into consideration.”

An important factor for success when repurposing and revitalising old buildings is the mindset that developers adopt for these types of projects. They need to understand the broader benefits of repurposing existing structures. Having a team that works together from the outset to create a holistic solution is another important success factor.

“Creative thinking is important. It is good to find a balance between what is required and what could be left as is. Some regulatory bodies take the age of the building into consideration when applying the rules,” adds Du Toit.

His tips to make repurposing work successful are: take time to investigate the existing elements carefully, get expert opinions, plan carefully, and look at alternatives of what could work, taking not just the physical but also the social and contextual aspects into consideration. ☺



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Skills and expertise exist to **SOLVE WATER CHALLENGES**

Local engineering and scientific expertise already exist to solve South Africa's ever-deepening water and sanitation crisis. However, these are yet to be fully harnessed by government to help to articulate a clear vision to decisively arrest the decline which threatens to significantly exacerbate the "triple challenges" of poverty, inequality and unemployment.

This is according to **Dr Anthony Turton**, a renowned scientist specialising in water-resource management. He was addressing the many built-environment professionals who attended the Cement & Concrete Society South Africa's Working for Water Roadshow. Held in Johannesburg, Cape Town and Durban, the event provided an important forum to unpack the extent of the water and sanitation crisis and, importantly, find solutions and mobilise action.

Dr Turton reminded delegates that South Africa was already in the midst of a crisis. "South Africa became a water-constrained economy as early as 2002. This was when the National Water Resource Strategy indicated that the country had allocated 98% of all available water. It is no longer a looming problem," he said.

Worsening and widespread water shortages are already posing a severe risk to a beleaguered economy. Agriculture is the biggest consumer of water, using 60% of the country's available resources. Meanwhile, mining and industry account for about 6% of total water consumption in the country.

However, Dr Turton believes that the sanitation crisis is the single biggest challenge that the country currently faces. This is considering the severe risk that it poses to the health of all South African citizens and the cost of productivity losses to the economy.

The country's more than 800 potable water systems have been overwhelmed by the highly contaminated water that flows into the country's rivers and dams. At present, only 10% of the 7-billion litres of sewage that is produced daily is treated to a standard considered to be safe for direct human contact. The state is the biggest polluter of water by far, dwarfing industrial flows significantly. Even the best performing bulk water supplier in the country is buckling under the increasingly high biological load entering its water-treatment plants.

Most of the country's water and sanitation problems are due to neglect of existing infrastructure and poor planning at policymaking level which, ordinarily, is influenced by political ideology as opposed to developing the best solutions. This is being compounded by widespread corruption.

Therefore, Dr Turton, reemphasised the need for a team of apolitical technical experts to help government navigate the dire water and sanitation crisis that the country is facing.

He noted that political will to find sustainable solutions to the problems that are clearly articulated in an informed and carefully considered and formed policy and strategy would also attract much-needed private capital into the country's water and sanitation industry. This is in addition to facilitating more technological innovation by the private sector to optimise processes.

According to Turton, efforts should mainly be geared at water recovery, including desalination; reuse; and recycling which, he believes, have the potential to make a large and lasting impact.

"If we multiply the 38-billion-m³ of water that is accessible from our dams 1,6 times, we derive at the 63-billion-m³ that we will

need in about six years' time at current consumption levels. This can be achieved by recovery, reuse and recycling of South Africa's total water resources," Turton said.

However, as Dr. Turton noted, this approach requires a complete paradigm shift in the way in which water is currently being managed. At present, water is viewed as a single-use stock, requiring dams and inter-basin transfers to be constructed to ensure security of supply. The world over, this approach has been the driver of industrial growth. However, its unintended consequences are the economic decline of areas that previously thrived on a foundation of dammed water areas. Already, South Africa's largest municipal jurisdictions, namely eThekweni, Johannesburg, Tshwane and Ekurhuleni, are grappling with severe water shortages. Meanwhile, Cape Town narrowly averted "Day Zero", which is when taps were expected to run dry, while many areas of the Western Cape are still in the throes of a severe drought.

Instead, Turton says that water should be managed as "an infinitely renewable resource that it is." "Science shows that water is a flux flowing in time and space, with the same volume returning to the ecosystem after it has been used," he said.

This radical approach to managing water will also serve as catalyst for the development of dual stream reticulation economy in which water of different prices is used for various productive applications. For example, water of a lower quality, as opposed to water treated to potable standard, should be used for industrial processes. This is already done in the Durban South Wastewater Treatment Plant that supplies industrial grade water to the Sapref oil refinery and the Sappi paper mill.

South Africa already has vast knowledge recycling sewage. As early as the 1970s, the Council for Scientific and Industrial Research developed the first sewage-recycling technology. This technology was deployed in Windhoek in the then South West Africa as successful solution to water scarcity in the city.

Meanwhile, the country has almost 20 years of experience reclaiming and desalinating the worst water, namely AMD, into the cleanest drinkable water. This is also knowledge that is ready to be mobilised, according to Dr Turton.

An example of excellence in the field is the eMalahleni Water Reclamation Plant, owned by a joint venture between BHP Billiton Energy Coal South Africa and Thungela Resources. Operating since 2007, the plant consists of a collection system that pumps excess contaminated mine water from several surface and underground coal mines in the eMalahleni area for treatment. A total of 50ML/d of AMD is currently being treated to drinkable water standards for use by mines and the eMalahleni Local Municipality.

Certainly, the plant also serves as a sound example of what can be achieved when government and the private sector work together to find solutions that effect society.

Significant strides are still being made in the field. A case in point is eutectic freeze crystallisation treatment of wastewater,

technology developed by Prentec and based on research by the University of Cape Town's Faculty of Engineering & the Built environment. This world-first technology that was first deployed at Glencore's Tweekfontein Colliery to treat briny wastewater into clean water and valuable salts – a major leap towards achieving zero-effluent discharge.

In addition to recycling all components, the technology reduces the need for evaporation ponds which are used to treat large amounts of wastewater produced as a by-product of coal mining. This infrastructure requires large tracts of land; is costly to build; has an extremely short lifespan; and can leak into the surrounding soil, threatening the environment.

Moreover, eutectic freeze crystallisation treatment of wastewater is not as energy intensive as heat water evaporation. The heat of fusion of ice is six times less than that of water evaporation, although energy for freezing is more expensive.

Potential applications for the technology are vast and encompass a wide range of applications beyond mining. This includes treating paper, pulp and textile wastes, as well as brines that are produced from the desalination of seawater.

Dr Turton also sees significant potential for managed aquifer recharge (MAR) at a large scale in the country. MAR provides long-term storage for drought periods; natural treatment; and a low- cost and energy water-supply solution. It is also a way of replenishing over-exploited aquifers and safeguards water against evaporation. The Atlantis Water Resource Management Scheme (AWRMS) in Cape Town has been operating for the past 40 years. The scheme currently has a supply capacity of between 5ML/d and 13ML/d which will be upgraded to 35ML/d. This will be achieved by bringing additional water from a new wellfield situated

between the Witzands and Silverstroom wellfield. The established managed aquifer recharge component uses treated domestic wastewater and stormwater, which is diverted to recharge basins where it infiltrates the aquifer.

There are also plans to develop a state-of-the-art indirect potable reuse scheme with a capacity to deliver super-treated water in the municipal jurisdiction. Water produced by the scheme will have an extremely high reduction in viruses and bacteria, while micro-pollutants will be well below detectable levels. The final effluent will be treated at Cape Flats and Borchers Quarry Wastewater Treatment Works to a higher than drinking water standard, and then injected into the Cape Flats Aquifer. In the aquifer, it will undergo further treatment. It will be treated again after it has been extracted as part of a multiple-barrier treatment approach. This is the first scheme of its kind in South Africa to incorporate such an advanced water-treatment system.

He says that South Africa should look to Australia for further inspiration as to what can be achieved with MAR. Large quantities of treated wastewater is supplementing Perth's drinking water supply at the Beenyup Wastewater Treatment Plant. Meanwhile, treated stormwater and wastewater are being used for irrigation purposes in Kalamunda and Mandurah, respectively. Dr. Turton says that developing the market for "New Water" – water recovered from waste or from the ocean – presents immense opportunity for the South African cement and concrete industries. "The size of the market is about 25 billion m³ per annum. This means that we must invest into new infrastructure to generate two-thirds of our total dam storage capacity if we want to create full employment by 2030. This is all going to be concrete dependent," he concludes. ☺

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Concrete roof tiles outperform metal **SHEETING ON COST, COMFORT AND CREATIVITY**

Over the years, the Concrete Manufacturers Association (CMA) has commissioned several independent surveys which demonstrate how concrete roof tiles outperform their rival materials across a host of performance criteria.



A Plettenberg Bay house where Eagle Roof Tile's Tuscan profile tile was used on this Spanish-inspired hip-roof with exposed eaves and verges.

More recently, Port Elizabeth's Eagle Roof Tiles commissioned its own cost comparison study between a concrete tile roof and a corrugated metal roof. The company has had a longstanding relationship with the CMA and uses its certification arm, CMACS, to certify Eagle's tiles which are produced to SANS 542 specifications.

"We focus on three Cs when comparing the performance of concrete roof tiles with metal-sheeted roofing, namely, Cost (initial cost and maintenance), Comfort (peace of mind, thermal and noise dampening performance) and Creativity (style and beauty)," says Tarn Derman, general manager of Eagle Roof Tiles.

"We decided to re-visit the cost aspect in an updated appraisal and to that end we commissioned an ITC SA certified

truss fabricator, Africa Timbers, to run a comparative cost study between a concrete tile roof and a metal sheeting roof in September 2023.

"Africa Timbers followed a common roof design to allow for the most accurate and fairest cost comparison and the use of MiTek design software validated the engineered design and material costs of both roofs. The costing exercise covered complete roof structures from the wall plates and above, but excluded facias and bargeboards.

"The study was based on an average-sized house of 161m² with an intersecting gable and hip-roof design pitched at 25°. Double Roman through-colour roof tiles and 0.47 corrugated sheeting F/H, the cheapest acceptable sheeting for this type of house, were the two materials chosen for the comparison.

TERRAFORCE 45 YEARS OF RETAINING

Carving out their own path, while honouring a family legacy that spans over four decades, Elgin Rust and Karin Johns (née Rust) are taking over the reins of the retaining wall business conceived 45 years ago by their father, Holger Rust.



Left: Karin Johns, Holger Rust and Elgin Rust at Klapmuts Concrete, Terraforce's Western Cape licensed manufacturer. Right: Heritage brand, Terraforce, celebrates 45 years and new female leadership to catapult it into the future.

The dynamic duo is not only driving forward the company's success, but also redefining the role of women in the construction and retaining wall industry.

Rooted in innovation

The story of Terraforce is rooted in the vision and entrepreneurial spirit of Holger Rust. In 1979, he began importing gabions, a conventional method of retaining walls, into South Africa. However, he was recognising the need for a more cost-effective, practical and aesthetically pleasing solution.

Rust pivoted towards developing innovative earth-retaining solutions that would meet the unique demands of the South African landscape.

Growing up surrounded by the construction business, Rust and Johns found their calling, inheriting their father's passion for innovation and excellence.

The future is female

As women in a (still) predominantly male-dominated industry, Rust and Johns faced numerous challenges along the way. Yet, their resilience and unwavering commitment to quality allowed them to overcome barriers and earn respect within the construction community.

Their journey serves as a testament to the vital role that women play in the built environment.

Quality-driven

In a market where cheaper, less durable replicas are finding their way onto sites, Rust and Johns caution the market to ensure that the product specified, and the one used on site, is indeed a genuine Terraforce product.

Citing the technical support, research, testing and engineering excellence that the brand is known for, Rust and Johns affirm the commitment of this heritage company to the local construction industry.

Rust and Johns are dedicated to honouring their father's legacy, while charting a new course for the company's future. Their story serves as an inspiration to aspiring female entrepreneurs and professionals, proving that with vision, discipline, determination and a willingness to challenge the status quo, women can thrive in the construction and retaining wall business. ☺



The total cost for the metal roof was R154 748,38, comprising R76 468,34 for roof trusses and fixtures and R78 280,04 for the roof sheeting. The total cost for the concrete tile roof was R116 216,34, comprising R88 254,97 for roof trusses and fixtures and R27 961,37 for the concrete tiles.

“This represents a substantial saving of just under R40 000, or 33% less for the concrete roof tile house, an amount which could be used towards countering load-shedding or to contribute to a child’s education.

“It is clear from the above that concrete roof tiles are the most economical roof cover and the savings will be even greater over the lifetime of the roof as the maintenance on concrete roof tiles is virtually zero.

“A major comfort factor with concrete roof tiles is the associated peace of mind in knowing that they almost never have to be replaced. Since they were first introduced to the South African market over 70 years ago they are still protecting homes with minimal fuss. Due to their large thermal mass, they absorb high levels of energy when it is warm and then slowly release the accumulated heat at night when it is colder, ensuring a comfortable interior,” says Derman.

In order to prove that concrete roof tiles are considerably more thermally efficient than metal sheeting, in 2012 the CMA commissioned the AAAMSA Group to run a series of tests comparing the thermal performance of metal sheeting roof with a concrete tile roof. One of the tests, which involved roofs with ceilings, revealed R-values of 0,38 for the metal roof as against 0,49 for the concrete tile roof, a 29% comfort factor improvement.

“Concrete roof tiles are also vastly more efficient noise insulators. Metal roofing, especially when used in working environments such as schools and government buildings, have to be installed with far more insulation material to damp down noise from rain, hail and wind to reach tolerable levels.

“Creativity with concrete roof tiles is only limited by one’s imagination and really broadens one’s design horizons. Tiles can be cast in innumerable colour choices for enhanced beauty and they allow designs with hips, gables, mono or duo-pitch, modern or traditional which add individuality and value to any house.

They are definitely the best roofing material available, and can convert any house into a home” concluded Derman. ©



Left: One of the Western Cape’s most-loved concrete roof tiles, Eagle Roof Tile’s Shingle profile lends itself to the sharp triangular lines on this exposed intersecting gable roof. Right: Eagle Roof Tile’s slate grey shingle as seen on this A-frame with exposed gables in Eerste Rivier, Western Cape, was used to cover the roof and clad the vertical sides.



Covered with Eagle Roof Tile’s slate tile, modern elegance gives way to crisscrossing angles and framed gables at The Waves in Wilderness, Western Cape.

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