

# SOUTH AFRICAN BUILDER®

AUGUST 2022 | No 1162



## WBHO



## WE ARE OUR PEOPLE

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and Leaders in Transformation

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## ORGANISED CRIME

The Global Initiative Against Organised Crime released its important findings about one of our industry's serious challenges with one of the most telling titles of the decade: *Extortion or*

*Transformation? The Construction Mafia in South Africa*. It is a report that confirms what most have been thinking and it lays the root of the problem at the government's door.

The executive summary reaches this conclusion: 'In SA, the activities of the so-called 'construction mafia' have been fuelled by the weak response from the state, allowing them to expand their activities. In 2019, at least 183 infrastructure and construction projects worth more than R63 billion had been

affected by these disruptions across the country. Since then, invasions have continued at construction sites across the country."

First appearing in 2015 in KwaZulu-Natal, the so-called "business forums" have been trying to use force to get what they want and extracting sums

commensurate with transformation figures outlined by National Treasury. The report notes that the failure of transformation and weak economic growth is the bedrock of a movement which the government is clearly loath to tackle. In that sense, inaction is tantamount to endorsement – and it is an endorsement of economic destruction. To argue the merits of one transformation policy over another, and even to apportion responsibility between the public and private sectors, should and must be done. But crippling growth while doing so literally denies the role which the government is obliged to play.

The report recommends strong solutions, including partnerships between the government and business, and addressing equity in infrastructure development, but without first stamping out extortion and applying the rule of law, we cannot return to a growing economy. There is too much at stake for this to continue sliding any further and we must all be relentless in finding ways to pressurise the government to push the "re-start" switch and do the right things.

*Nicholas McDiarmid: editor* ■



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Wilson Bayly Holmes (WBHO) is the largest listed construction company in southern Africa, with a driving force comprising a core of dedicated, hands-on management professionals whose experience spans decades on major construction projects across Africa and the UK.

For the past two decades, WBHO has been at the forefront of transformation, playing a major role in bringing the industry together via the SA Forum of Civil Engineering Contractors and facilitating the formation of the first construction charter, the charter constitution, the construction sector codes and the amended construction sector codes.

**SUSTAINABILITY DEPENDS ON TRANSFORMATION**

Our transformation philosophy

# WBHO – EMPOWERMENT ACROSS THE VALUE CHAIN

is to create an inclusive and representative economy in which all South Africans are able to participate. This is vital not only for the sustainability and success of the country, but also for WBHO’s sustainability.

We have made significant efforts to improve our broad-based black economic empowerment (BBBEE) levels over the past five years, moving from Level 4 in FY2016 to Level 1 in FY2017, and we have retained that Level 1 status ever since. This was only achievable through a culmination of years of development and investment in both the economy and our

people. WBHO is proud to have been rated the highest, most empowered company on the Johannesburg Stock Exchange in 2019. We pride ourselves on being a company that strives to empower as many participants as possible throughout the construction value chain.

**BUYING INTO RETENTION, TRAINING AND THE FUTURE**

In October 2006, the WBHO executive committee decided to incentivise and reward its employees by introducing the Akani Broad-Based Incentive Share Scheme, which allocates shares to its South African employees with more than five years’ service. This incentive provides employees with an investment for their future.

Another key to our success has been the cross-amplification of employment equity and training. We believe that the training and

**“WBHO HAS DEVELOPED EFFECTIVE TOOLS FOR SUCCESSFUL CONTRACTING AND IT SHARES THESE WITH ITS DEVELOPING BLACK-OWNED COMPANIES, WHICH WILL BECOME OUR PARTNERS ON PROJECTS.”**

development of our people are cornerstones for our success. We continuously invest in tailored training programmes aimed at maintaining a competent and skilled internal talent pool from which future leaders can emerge who will enable the sustainability of our company. To this end, we have developed an engineering school aimed at supporting the growth of graduate engineers right up to senior management.

**BEING SOUTH AFRICAN**

WBHO has recognised that the industry has a real need for registered BEP black professionals and we are extremely proud that we now have 65 such individuals, eight as full professionals and 57 as candidate professionals. We work closely with the Engineering Council of SA to assist with the growth and development of young black graduates and take them to professional registration.

WBHO believes in the imperative of youth development and the Akani Foundation carries out a country-wide programme dedicated to making our employees' children aware of career choices and paths to employment. Apart from the group bursary programme for BEP studies, we also

support 41 employees' children with full scholarships.

**ENTERPRISE DEVELOPMENT AND HEALTHY COMPETITION**

We have 15 black-owned companies on our enterprise development programme of varying sizes, with senior WBHO managers specially deployed to assist these companies in their growth and development. We pair our best people in various disciplines such as finance or project management, tasking them with the same functions within our ED beneficiaries to help guide, coach and mentor them in performing their functions effectively.



With more than 50 years of operation, WBHO has developed effective tools for successful contracting and it shares these with its developing black-owned companies, which will become our partners on projects. Many past ED participants are now our competitors.

**A RESPONSIBLE MEMBER OF THE COMMUNITY**

WBHO has always embraced the concept of corporate social responsibility as a moral obligation, having implemented sustainable and measurable programmes well before the introduction of legislative requirements. Our site teams consist of only a few core WBHO staff who have not only helped uplift the community by using local labour and suppliers, but have also developed black women-owned companies and assisted numerous communities with the provision of infrastructure.

The resounding success we have achieved in our transformation journey is due to the dedication, vision and spirit of the leaders within our organisation. This is not measured by our BBBEE level, but by the investment and impact we have made in our economy and industry over the years. ■

Our investment in BBBEE over the past decade can be summarised as follows:

BLACK TRAINING SPEND				PREFERENTIAL PROCUREMENT	ENTERPRISE DEVELOPMENT SPEND	CORPORATE SOCIAL INVESTMENT SPEND
SPEND BLACK EMPLOYEES	BLACK BURSARY STUDENT	SPEND BLACK WOMEN EMPLOYEES	NO OF BLACK STUDENTS	TOTAL BBBEE SPEND WITH ALL SUPPLIERS		
R 415,231,689	436	R 92,051,152	1,834	R 70,924,378,862	R 166,170,903	R 46,066,182

# MBSA STATEMENT ON FUEL PRICE INCREASES AND POWER OUTAGES

Master Builders SA (MBSA) has noted, with concern, the impact of the latest increase in the price of fuel on construction projects. The Department of Mineral Resources & Energy announced new fuel prices that came into effect on Wednesday, 6 July, with petrol prices hiked by R2,37 (93) and R2,57 (95) a litre, while diesel prices increased by R2,31 (0,05% sulphur) and R2,30 (0,005% sulphur) a litre. This was a result of increased international oil prices, as well as the latest reduction of the fuel levy reprieve announced by the government.

At the time of writing, the government had announced plans to procure and enable local organisations to find alternative sources of electricity with less red tape to negotiate. It had also hinted at a possible reduction of the fuel price in August. However, the damage already done to the construction industry by both load-shedding and the higher price of fuel will be with us for a long time to come.

“The direct impact on ongoing building projects has been an immediate increase in the cost of construction for contractors who’re already on sites. Fuel is a big cost component of equipment used in construction and the steep increase in its price that we’ve experienced in the past 12 months



isn’t absorbable by contractors in fixed-price contracts,” says Roy Mnisi, executive director of MBSA.

Construction has traditionally been known as a high-risk and thin-margin industry, where slight changes or delays in a project can result in significant financial losses for contractors. “We have the double-whammy of fuel price increases and power outages, which will also soon reflect in construction material shortages and price increases. Many projects will overrun their budgets because the rate of escalation was unforeseen and current

escalation indices in contracts are inadequate to cover these increases in project costs. Small contractors will be most affected because they don’t have adequate cover to accommodate these shocks,” says Mnisi.

The federation says it is already engaging client bodies and the Department of Public Works & Infrastructure to consider alternative specifications and designs that would allow current construction projects to keep within budgets and reduce the burden of unanticipated fuel and material price increases on contractors. ■

# MESSAGE TO YOUTH: COME AND WHEEL IN THE BUILT ENVIRONMENT!

While South Africa is ranked No 1 among the top 10 countries with the highest unemployment rates globally (World Population Review), the Master Builders Association, Western Cape (MBAWC) notes that there is a shortfall of 40 000 skilled artisans in the country. This shortfall could be addressed if young people stepped up to pursue careers in industries that require skills such as plumbing, building and carpentry.

When taking a closer look at the number of qualified artisans in the industry, the most noticeable observation is that over the past three to four years, many qualified and experienced artisans have retired and left the industry. The number of retired artisans vs the number of new entrants does not equate, which has resulted in a shortfall. "This is a concern not only for the MBAWC, but for the construction sector and country as a whole, as the built environment is a huge contributor to the country's economy," says Letitia van Rensburg, training officer at the association.

## AMPLIFYING THE FULL RANGE OF OPPORTUNITIES FOR ARTISANS

Over the years, the MBAWC has kept a close eye on the talent pool within the sector and a key trend which has emerged is that many young people may not be aware of the career opportunities offered

to artisans (such as carpenters, plumbers or joiners). This means that there is an immediate need for associations such as the MBAWC, the Department of Education and the government to start educating young people about career opportunities available within the built environment. Some inroads have been made with the introduction of the A21 programme, but there is still a lot of work to do to close the skills gap.



(Above): Contrasting South Africa's high unemployment rate is the rich ratio of students to highly skilled retirees.

Training a qualified artisan takes three to five years and it takes about 10 years to qualify as a master artisan. What is important for young people to know is that pursuing a career within the built environment and ultimately qualifying as an artisan is multi-faceted and allows for personal growth and the ability to make a good living, once qualified.

The MBAWC has several training programmes aimed at empowering and upskilling young people.

One of the best-performing of these is the Apprentice Training Programme, which is particularly tailored for young people aged 18-23. The purpose of the programme is to ensure that young people can be placed into the industry as qualified artisans.

In addition, the MBAWC runs a Supervisory Learnership Programme and an Occupational Health and Safety Programme, both of which are aimed at jump-starting careers for young people in the built environment.

## BUILDING THINGS

"As the MBAWC, we're focused on providing learning opportunities for young people, but we need more of them to join and grow in the field. Many retired artisans are willing to mentor new entrants who have a passion for working with their hands. Our young people need to understand that a career requiring skilled labour is just as important and rewarding as one that requires working on a PC at a desk," notes Van Rensburg.

"Platforms such as YouTube allow anyone to acquire new skills. In essence, my advice is to always be on the lookout for ways to grow and upskill yourself, while pursuing opportunities."

• For further information about the MBAWC training programmes, contact Letitia van Rensburg at: [letitia@mbawc.org.za](mailto:letitia@mbawc.org.za). ■



# AVOIDING REPEAT-TYPE INJURIES



By Neil Enslin, occupational health and safety manager

Companies should not be satisfied with a low injury rate if they are experiencing repeat-type injuries. These should be included when determining a company's safety performance. A repeat-type incident means that certain controls, procedures or actions have failed. These include:

- Investigations.
- Action plans.
- Communication.
- Training.
- Monitoring action plans.

The following recommendations will help prevent these incidents:

## HIGH-QUALITY INCIDENT INVESTIGATIONS

Suitably qualified persons should

facilitate incident investigations. These persons and the investigation teams must ensure that the quality of investigations is of a high standard and that the root causes of incidents are identified. Inadequate incident investigations prevent the development of suitable action plans to manage or eliminate risks.

## SUITABLE MANAGEMENT ACTION PLANS

Once the investigation is concluded, management and the investigation team should develop action plans which address the root causes and contributing factors that were identified. The action plans must be developed with a "zero injury" mindset to

(Above): Proper first aid and medical triage training needs constant revision.

eliminate the possibility of the incident being repeated.

A "zero injury" mindset means that the persons developing the action plans must be certain that the action points will prevent the incident from recurring. If this is not the case, the investigation should continue until suitable action plans have been developed.

## GOOD COMMUNICATION WITH THE RELEVANT PERSONS

The details of the incident should be clearly communicated to all relevant employees and contractors to ensure that they understand what occurred, the

causes and the resulting action plans. This communication should also include details of revised standards, procedures, engineering revisions and any other changes implemented to prevent a recurrence.

The responsible manager or supervisor should create this communication as soon as possible after the incident investigation has been completed. All relevant departments and operations should be required to share this content throughout the organisation within an agreed time-frame.

#### FOLLOW-UP AUDITS

Follow-up audits play an important role in ensuring that repeat-type incidents do not occur. In most instances, they will aim to determine whether the action items developed during the investigation have been completed. However, it is more important for these audits to determine whether the actions implemented are adequate to prevent a repeat of the incident.

These audits should also be conducted with a "zero injury" mindset, which means that if the implemented action plans are ineffective at preventing a repeat

of the incident, the team should return to the drawing board and address all pertinent issues again.

#### HOLDING PERSONS ACCOUNTABLE FOR THEIR ACTIONS

Persons failing to adhere to the company's safety standards, rules and procedures and who endanger the safety of any person should be held accountable for their actions.

Some organisations believe that safety and disciplinary actions are not related. This is incorrect, because disciplinary actions can discourage unsafe behaviour.

If an organisation tolerates at-risk behaviour and non-compliance with safety standards, rules or procedures, employees are likely



(Above): Safety awareness is statistically shown to decrease injuries on site, and well-placed signage is the most consistent.

to take risks and work in an unsafe manner. Conversely, organisations that do not condone such behaviour generally achieve a much higher level of safety compliance.

Supervisors and foremen who knowingly permit their subordinates to work in an unsafe manner should also be held accountable and disciplined accordingly.

#### ONGOING SAFETY PROGRAMME

Once all of the above has been completed, managers and safety professionals should revise some of the focus areas of the safety programme to ensure that employees and contractors remember the incident and the issues surrounding it. These include:

- Focusing a selected number of behavioural audits on the issues identified during the investigation.
- Focusing certain system audits on the issues identified during the investigation.
- Developing and providing safety toolbox talks which address issues arising from the incident.
- Developing and providing safety posters to support communication about the incident.
- Senior managers and safety professionals should only be satisfied that enough has been done to prevent a repeat of the incident when they have treated an incident with a "zero injury" mindset. They must ensure that all departments learn from the incidents and that suitable actions have been implemented. ■

**"PERSONS FAILING TO ADHERE TO THE COMPANY'S SAFETY STANDARDS, RULES AND PROCEDURES AND WHO ENDANGER THE SAFETY OF ANY PERSON SHOULD BE HELD ACCOUNTABLE FOR THEIR ACTIONS."**

# MASTER BUILDERS KZN 121ST AGM



The KwaZulu-Natal (KZN) Master Builders and Allied Industries Association held its 121st annual general meeting (AGM) on 28 June 2022. The executive council for the next term of office was elected and

Marcus Peter Gonzalves of FS Gonzalves Construction was designated as the president of the association, which once again received an unqualified audit report.

The association represents member companies in the KZN construction value chain and provides them with specialist support services. During the AGM, it reported on its financial performance, highlighted the services provided to its members to overcome various challenges and outlined its plans to contribute to the growth of the construction industry.

## LEADING THE WAY TO A SUSTAINABLE CONSTRUCTION SECTOR

“These are challenging economic times and we need to join hands in resuscitating the construction industry,” said Gonzalves. “Under my leadership, I’ll certainly strive towards vigorously pursuing a sustainable construction industry as we participate in the rebuilding process.”

He said emphasis would be placed on enhancing lobbying and advocacy with participation on key industry platforms, facilitating work opportunities for members through engagement with developers and funders, and increasing infrastructure investment and skills development in the industry.

Outgoing president Bhekisisa Samson Ngongo said: “The industry’s been in crisis mode since 2020, which has led to serious challenges. However, the association’s steadfast in its commitment to keep both itself and the industry afloat during these tough times.”

## GROWTH IN SOME BUILDER CATEGORIES

Executive director Vikashnee Harbhajan indicated that considering the state of the economy during the period under review, the association was relieved to close the

financial year with 715 members, indicating increased growth in the small business member category.

## THE EXECUTIVE COUNCIL FOR THE NEW TERM OF OFFICE

- Marcus Peter Gonzalves, FS Gonzalves Construction (president)
- Bhekisisa Samson Ngongo, Dambuza Community Development Trust (immediate past president)
- Rajeshree Moodley, Globacon (vice-president)
- Lance Walter Ridl, Ridl Construction (vice-president)
- Craig Gainsford, GVK-Siya Zama Building Contractors (vice-president)
- Moegamat Sharwat Behardien, MET Developments
- Matthys Johannes Blom, Plankonsult
- Dirk Jacobus François Louw, MET Builders
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- Kalwyn Ramiah, WBHO Construction
- Joyce Dolly Tembe Sakhisizwe, Development Training
- Nelson Paulo dos Santos Rodrigues, Grinaker-LTA
- Moses Sangweni, Afriscan Construction. ■



(Above, from left): Incoming president of the KZN Master Builders and Allied Industries Association, Marcus Peter Gonzalves of FS Gonzalves Construction and Vikashnee Harbhajan, executive director of the association.

# INDUSTRY LEADERSHIP DEVELOPMENT INITIATIVE LAUNCHED

A leadership development initiative has been launched for middle to senior managers, executives and entrepreneurs in the construction industry.

The opportunity to participate in the programme is being made available by workmen's compensation provider, the Federated Employers Mutual Assurance Company (FEM).

Through the FEM Education Foundation (FEMEF), successful applicants will engage in a 12-month immersive leadership experience during which they will work with school principals in under-resourced communities. Through this process, the principals become empowered to embed their schools at the centre of their communities and to improve the quality of education being offered to youth. Business leaders, in turn, develop their leadership skills through hands-on experience in a complex environment very different from their day-to-day working lives.

The opportunity is available for up to 300 selected business leaders who would otherwise not be able to afford the programme, with 100 places per year over the next three years. "The aim is to impact positively on the participants, the schools and, ultimately, the economy," says FEM CEO Ndivhuwo Manyonga.



(Above): Komala Pillay, CEO of Symphonia for SA.

## POWER OF PARTNERSHIPS

"FEMEF has partnered with Citizen Leader Lab [formerly Symphonia for South Africa] and its Partners for Possibility [PfP] initiative to offer FEM policyholders this special opportunity for a fully-funded place on the programme. Through PfP's leadership development programme, FEM policyholders will have the opportunity to impact education in SA, while developing their own leadership skills," adds Komala Pillay, CEO of Symphonia for SA.

PfP was founded in 2010. "Over the past decade, the initiative has empowered over 3 200 school principals and business leaders nationwide and is globally considered to be a best-practice example of 21st-century leadership development," says Pillay. "School princi-

pals are vital in terms of ensuring that schools are environments of quality teaching and learning, as they nurture and equip the future workforce of the country."

## A VOICE OF EXPERIENCE

"The PfP programme is an amazing leadership development opportunity with the potential to create a new level of social consciousness among our corporate leaders in SA. Through PfP, I engaged with an amazing community of committed South Africans whom I'd otherwise never have met," says financial services executive Grant Kelly.

"My PfP experience clearly highlighted the duality of the South African experience and exposed me to its 'latent' talent, especially from some of the students who have so little financial and, in many cases, emotional support. It inspired me to try to be a catalyst for creating a more inclusive society, where those talents can be fulfilled.

"Creating a heightened level of social consciousness among business partners and partner principals really is a very powerful experience. My principal and his team were absolutely capable of solving their school's challenges, but PfP created the framework that gave us the space to discuss and collaborate on what we wanted to achieve." ■

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# MANAGING A CONSTRUCTION CONTRACT: THE POST-AWARD PHASE

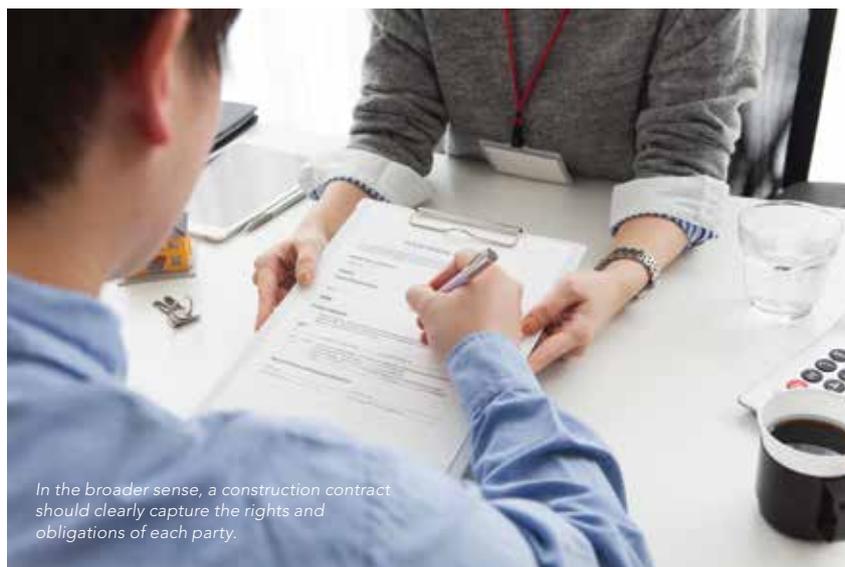
By *Bilal Dawood*,  
*Bilal Dawood Attorneys*

The post-award phase commences once the contract has been awarded. The employer (project-owner) has now chosen a contractor according to their selection criteria and has presented a contract for signature by the parties.

The first step is to review the contract presented for signature. The parties should ensure that the terms contained in it do not differ from the tender phase contract. As a matter of good practice, the contract should clearly capture the rights and obligations of each party. In addition, the parties should ensure that the following are annexed to the contract and signed:

- Concise scopes of work.
- Pricing information, together with the pricing basis.
- The schedule for managing progress on the works, with an updated start and completion date (reflecting the timing of the award).
- All other relevant documents with which the parties are expected to comply.

Once the contract has been reviewed and signed, the parties will be required to manage the project according to its terms. The form of the contract may be a bespoke agreement or one of



*In the broader sense, a construction contract should clearly capture the rights and obligations of each party.*

**"THE DATE OF PRACTICAL COMPLETION INDICATES WHEN THE WORKS WILL BE FIT FOR USE. IT IS AN IMPORTANT MILESTONE ON THE PROJECT AND THERE ARE USUALLY PENALTIES FOR LATE COMPLETION LEVIED AGAINST THE CONTRACTOR."**



*(Above): Managing any construction project is all about meeting the conditions laid out in the contract.*

the various recognised standard form contracts. Standard form contracts have the advantages of representing good practice and being easier to understand, since they are widely used. Both parties need to be familiar with the standard form contract being used.

After signing the contract, the parties will be required to ensure that the necessary payment guarantees, bonds and insurances are in place. Both the employer and the contractor should know what is required of them and comply. In the absence of compliance, the party requiring the guarantee, bonds or insurances must request them from the party who should be providing them. The parties should take note of the contract periods for providing these.

Once the project has commenced, both parties should:

1. Ensure that frequent progress meetings are held and that minutes of these meetings are taken. These meetings will allow both parties to resolve issues.
2. Both parties should be represented by sufficiently skilled human resource practitioners who understand the terms of the contract. Currently, more emphasis is placed on contracts, rather than verbal agreements. Therefore, the parties representing the contractor and employer should be conversant with the terms, rights and obligations of the parties, as stipulated in the contract.
3. The employer should implement good contract management

processes, including management of the commercial commitments of the employer. At a minimum, the following management aspects are recommended for the parties:

- i. Contract cost vs projected contract value, taking into account variations still to be approved.
  - ii. The contract cost should be updated to reflect the approved variations. This then becomes the contract price.
  - iii. The planned completion date in terms of the schedule vs the actual completion date.
  - iv. A schedule of variations to the contract value, what is approved and what is currently under assessment.
  - v. Delay registers – what are the root causes of the delays? What is their extent?
4. Where the contract requires notices and/or claims from a party to the contract, it is imperative for the parties to comply with this. The contractor, in particular, faces a risk of being time-barred if he does not comply with the notice periods for claims.

The following aspects are some of the most referred-to matters during the post-award phase and close attention should be paid to them. The basis of the assumptions made below is in terms of the JBCC agreement. However, there are other standard term agreements and the parties should refer to their specific requirements when addressing these matters.

These are addressed below generically, as each contract may have different requirements:

- **Notices of intention to claim money or delay:** The contractor should refer to the contract, including the terms that sometimes modify standard term agreements, to ensure compliance with the periods for submitting notices of delays or claims. This is important, as the contractor may be time-barred for failure to comply and would lose their right to the claim. The notice should include all aspects referred to in the contract clause dealing with notices. It should clearly identify the nature of the claim, what caused it, when it ceased or when it is anticipated to cease, or what is required in order for it to cease.
- **Claim:** The contractor should claim according to the relevant clause of the contract. These clauses are well defined in standard form contracts. The reason for the claim, the clause on which the contractor is relying, the cost of the claim and – if additional time is required – the basis thereof must be stated. Here again, different contract forms have different requirements and the contractor must familiarise themselves with the terms of their specific contract. Where a standard form agreement is used, the parties should also pay attention to any modifications of its terms.
- **Variation orders:** Employers often change the scope of works with different specifi-

cations or requirements, or alternatively add to the scope of works. These should be dealt with as variation orders. The general rule is that approval from a cost and schedule perspective must be obtained before executing the variation orders. However, the contractor must refer to the contract terms dealing with variation orders.

- **Interim payment certificates:** These usually refer to monthly payments made for works complete up to a specific point. The contractor usually provides the basis of their monthly claim to the agents of the employer to process a payment certificate. Some contracts require the employer and/or their agent to make fair assessments on a monthly basis. Cash flow is critical for project success. Therefore, the parties should use this mechanism of the contract as intended by the contract.
- **Practical completion:** The date of practical completion indicates when the works will be fit for use. It is an important milestone on the project and there are usually penalties for late completion levied against the contractor. The standard terms contract addresses the requirements for the contractor to meet this milestone. These requirements usually include ensuring that the works are complete prior to this date and thereafter inviting the employer or their agent, where required, to inspect the works and certify practical completion. There may be a list of items that the con-

tractor needs to address for practical completion to be certified.

- **Defects liability period:** This is the period pursuant to practical completion and usually spans three to 12 months, depending on the terms of the contract. During this period, there may be defects that the contractor must address.
- **Retention monies:** The contractor may sometimes put up a performance bond up to

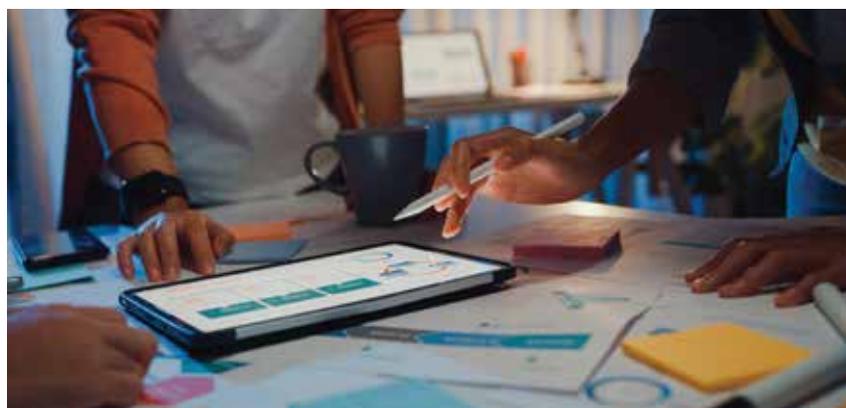
**"THE CONTRACT PLAYS A KEY  
ROLE DURING THE ENTIRE  
PROJECT, BUT HAVING ROLE-  
PLAYERS WHO UNDERSTAND  
IT IS EQUALLY IMPORTANT."**



the value of 10% of the contract sum. In instances where the contractor does not put up a performance bond, the employer may withhold 10% on each payment certificate to serve as the performance bond. The contract provides for the terms of release in percentages at certain milestones towards the end of the project or, in other instances, the full retention to be released when a certain milestone is reached.

- **Latent defects liability period:** The latent defects liability period relates to defects that arise after completion which could not be found through a reasonable inspection at the time of completion. This is usually a period of five years, although the terms of the contract would specify it.

The contract plays a key role during the entire project, but having role-players who understand it is equally important. Compliance with the requirements of the contract offers protection to both parties, who should act in good faith and agree on most matters. ■



# THE HOUSING CONSUMERS PROTECTION MEASURES ACT: WHAT IT MEANS AND WHO IT AFFECTS

By Victor Smith, MBA: KZN

The Housing Consumers Protection Measures Act 95 of 1998 was promulgated to make provision for the protection of housing consumers and to provide for the establishment and functions of the National Home Builders' Registration Council (NHBRC). A home builder is anyone who constructs or undertakes to construct a home. A home builder is also one who causes a home to be constructed or constructs a home for the purposes of sale, leasing, renting out or otherwise disposing of it.

A home is any dwelling unit constructed or to be constructed wholly or partially for residential purposes and includes a private drainage system, garage or store-room, permanent outbuilding designed for residential purposes or for a purpose ancillary to residential purposes and a retaining wall, necessary to maintain the structural integrity of the home constructed/acquired under the agreement.

A developer is obliged, for the purposes of the physical construction of homes, to appoint a home builder registered with the NHBRC. As a condition of the Act and the regulations of the NHBRC, all home builders must register with the NHBRC and enrol all new homes with it.

*(Right): Fair protection of consumers, suppliers and builders is the foundation of a strong sector.*



**"A DEVELOPER IS OBLIGED, FOR THE PURPOSES OF THE PHYSICAL CONSTRUCTION OF HOMES, TO APPOINT A HOME BUILDER REGISTERED WITH THE NHBRC."**



## THE OBJECTIVES OF THE NHBRC:

To represent the interests of housing consumers by providing warranty protection against defined defects in new homes:

- To regulate the home building industry.
- To provide protection to housing consumers in respect of the failure of home builders to comply with their obligations in terms of this Act.
- To establish and promote ethical and technical standards in the home building industry.

- To improve structural quality in the interests of housing consumers and the home building industry.
- To promote housing consumer rights and provide housing consumer information.
- To communicate with and assist home builders to register in terms of this Act.
- To assist home builders, through training and inspection, to achieve and maintain satisfactory technical standards of home building.

Upon the conclusion of a building contract or sale agreement, the home builder must give the housing consumer a copy of the signed contract. The home builder must comply with all the obligations under a building contract that he or she enters into and may not vary any of the specifications, or any of the agreed terms of the agreement relating to specifications or materials to be used, unless the variation and the amount by which the contract price is increased or decreased in consequence thereof are agreed to in a written document, which must be signed by the parties.

The home builder is responsible for enrolling the new home with the NHBRC at least 15 days prior to the commencement of construction and to pay the enrolment fee.

The home builder shall not demand or receive a deposit from a housing consumer for the construction or sale of a home unless a written agreement has been entered into.

The home builder who has concluded a housing contract/building contract must begin building the home on the date stated in the contract, proceed regularly with the building, until the home is completed and complete the home on or before the completion date, as agreed in the building contract.

The home builder must:  
(a) immediately issue a receipt for all payments made to him/her by the housing consumer; (b) issue such receipt on a business document; and (c) issue statements which are clear, contain all information and are understandable to the housing consumer.



*(Above): The operating standards of the homebuilder's segment of the construction sector needs specialised attention, due to the high level of trust involved.*

The home builder is responsible for rectifying any non-compliance with the terms, plans and specifications or any deficiency related to design, workmanship or materials. The home builder is responsible for rectifying any defects related to design, workmanship and materials which occur within 90 days of occupation and to repair any roof leaks attributable to workmanship,

design or materials occurring within 12 months after occupation.

The home builder must provide a five-year warranty on the structural integrity of the new house, ie superstructure (walls), sub-structure (foundations) and private drains, and rectify major structural defects notified by the housing consumer within five years of the date of occupation caused by non-compliance with the NHBRC's technical requirements.

The warranty scheme only applies to new houses built by home builders registered with the NHBRC. The enrolment provided by the registered home builder is transferred automatically to anyone who buys the house during the five-year warranty period.

The registered home builder must ensure that both he/she and the prospective home buyer complete and sign all relevant documents before construction commences, cause the home-owner to sign a letter confirming acceptance of occupation (for building contracts) and forward a copy of this letter to the NHBRC.

The home builder must also indemnify the housing consumer against any claim arising out of personal injury or damage to property attributable to the negligence or other unlawful conduct of the home builder in the construction of a home for the housing consumer.

A home builder shall attend promptly to a housing consumer's complaint and attend any meeting arranged by a conciliation officer appointed by the NHBRC. ■

# LEADING CONSTRUCTION SOLUTIONS THAT PACK A PUNCH

Technical Finishes is a leading manufacturer and supplier of a vast range of construction-related systems, each uniquely tailored to address a specific set of construction challenges, whether in an industrial or commercial environment. The company offers construction solutions for:

- Concrete curing compounds and sealers
- Epoxy adhesives and repair products
- Construction grouts
- Epoxy flooring and coatings
- Waterproofing products
- Joint sealants

Technical Finishes' range of construction solutions includes its well-respected cement underlayment products such as Flowline, Floorskim and Floorflow, coupled with its comprehensive range of screeds such as Solidscreed 400 and the unmatched, Polyscreed PMC micro-screed.

Self-levelling cement screeds, non-shrink grouts and polymer-reinforced cementitious slurries



are also included in Technical Finishes' range, each ideally suited for use in the repair and protection of concrete structures. Whether for bridges, buildings or silos, the industry favourite is Technical Finishes' aptly named smooth and patch to repair spalled and damaged concrete screeds.

Technical Finishes' range of standard adhesives systems is unique in that it is one of only a few suppliers offering such a wide selection of specialised epoxy adhesives for various construction applications. The adhesives are suitable for bonding mild steel, stainless steel, various plastics, ceramics and different metals such as brass and copper. The range includes rapid-set and underwater curing adhesives for pool repairs and reservoirs

In addition, the company's standard range of repair products can be used to repair cracks and protect steel and concrete against corrosion, while delivering an aesthetically pleasing finish in either industrial or commercial environments.

Its specialist range of cementitious and acrylic waterproofing products can be applied as a water barrier system to cementitious substrates or for sealing off flowing water, for use in common structures such as walls, ponds, roofs, tunnels, foundations and underground structures.



For further information on Technical Finishes' range of specialist construction solutions, visit:

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# TECHNICAL FINISHES

SPECIALIST FLOORING AND CONSTRUCTION SOLUTIONS

## SPECIALIST CONSTRUCTION SOLUTIONS

*Technical Finishes' leading range of specialist construction solutions include:*

- Concrete curing compounds and sealers
- Epoxy adhesives and repair products
- Waterproofing products
- Epoxy flooring and coatings
- Construction grouts
- Joint sealants

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Parking deck waterproofing with polyurea coating.



# SOLVING THE COMPLEXITIES OF WATERPROOFING PARKING DECKS

A parking deck waterproofing system needs to go a lot further than effectively preventing water ingress; it must also protect against wear and tear by natural forces, vehicles and pedestrian traffic – not to mention the movement of expansion joints. As *abe*'s regional sales manager, Warren Trew, explains: "Parking decks must be durable, resilient, elastic, skid-resistant and aesthetically designed. *abe*'s extensive and proven range of waterproofing systems fulfil all these requirements."

## CARE AND CONSIDERATION TO MAXIMISE VALUE

"Parking decks are costly to build, repair and replace. To have a durable deck, water management is vital. Designing, installing and then testing waterproofing systems are the keys to diverting water from the structural elements. Water is the major cause of concrete deterioration and steel corrosion. The quality of the waterproofing membranes is critical and the waterproofing system should only be specified after consideration of the type

of the finished wearing surface. The specification could call for traditional waterproofing systems or new developments, all of which are provided for by *abe* waterproofing systems," he adds.

The waterproofing of parking decks should only be specified after consideration of the type of the finished wearing surface required. All substrates – post-tensioned or coffered – should be cast or graded to fall to outlets, and should be smooth and free of voids or protrusions.

**DOUBLE-LAYER MEMBRANES**

Whether choosing a blacktop or premix that can be hot or cold applied, or brick pavers and interlocking blocks, a double-layer waterproofing system is recommended. This usually comprises an application of abe’s Index 3mm membrane, followed by an Index 4mm membrane, laid with staggered side- and end-laps. The 3mm membrane should be fully sealed by torch fusion to the primed substrate and overlaying 4mm membrane.

When employing a double-layer membrane system, essential practices include:

- Correct installation of concrete and screeds to falls.
- Correct detail regarding the damp-proof course to upright structures (upstand).
- Priming of the surface, both on the prepared screed and upstand.
- Attending to the gusset using either abe Testudo waterproofing membrane or abe Index Fidia 4mm membrane, both manufactured from a compound of bitumen and polymers, also fully bonded to the primed horizontal surface.
- Fully-bonded abe Unigum 4mm waterproofing membrane applied to the vertical face, finished off with abe’s super laykold bitumen rubberised waterproofer and super laycryl bitumen/acrylic emulsion, over the top of the upstand to ensure the system is fully waterproofed.

- Then installing abedrain G geotextile membrane as a drainage layer, followed by a layer of sand and pavers to complete the system.

**FULL-BORE OUTLETS**

“For the waterproofing of the full-bore outlets before installation of the clamps and grating sections, correct torching of the Index Fidia 4mm into the primed throat of the unit should be done, followed by the application of the Testudo membrane. The throat of the outlet should then be overcoated with abe super laykold membrane and all exposed plain surfaces coated with abe silvakote reflective aluminium paint for UV protection,” explains Trew.



(Above): Parking deck waterproofing.

**THE POLYUREA COATING OPTION**

He says another acclaimed option for parking deck waterproofing now available from abe is a polyurea coating, the VIP

Quickdeck system, which was most effectively used by approved abe applicator Sanika Waterproofing Specialists, to waterproof over 2 500m<sup>2</sup> of parking deck at the Eastgate Shopping Centre in Johannesburg.

Suitable for both outdoor or internal parking areas, as well as ramps, the system comprises the application of QuickPrime 2K SF epoxy resin primer. followed by 3mm Quick Spray industrial coating, incorporating a fine aggregate to create a non-slip texture, and then sealed off with an aliphatic, UV-resistant topcoat in the colour specified.

Trew says Sanika was extremely impressed with the VIP Quickdeck system and lists among its many advantages:

- High anti-skid and anti-slip properties.
- A single-application process and rapid curing make one-day applications possible.
- Ready for foot traffic in 30 minutes and vehicular traffic in only six hours.
- No excess aggregate is produced, saving clean-up and aggregate recovery time.
- Exceptionally strong adhesion to concrete.
- Superior crack-bridging abilities, even at low temperatures.
- High flexibility, tensile strength and abrasion-resistance.
- Environmentally friendly, as the system components are solvent- and VOC-free. ■

The findings of the latest research by Institute of Plumbing SA (IOPSA) into the level of plumbing compliance across the country are cause for concern. This is especially so in a water-stressed country that is also grappling with a severe water, sanitation and energy crisis. Non-compliant plumbing installations exacerbate the situation, while also posing a serious health and safety risk to the general public, negatively impacting the environment and damaging public and private property.

Brendan Reynolds, executive director of the IOPSA, says these findings demonstrate a serious disregard for the rule of law and a very limited understanding of the importance of the plumbing profession. "There's scant enforcement of the municipal by-laws,



## NON-COMPLIANT PLUMBING MORE SERIOUS THAN ANTICIPATED



*(Left): There is a dire shortage of qualified plumbers who are able to ensure that plumbing installations comply with the law.*

a situation that's allowed many unqualified 'plumbers' to operate without fear of repercussions. This is despite the many risks associated with sub-standard plumbing workmanship.

### NON-COMPLIANCE OUTSTRIPS DIRE EXPECTATIONS

"From anecdotal evidence, we expected to find a significant number of non-compliant plumbing installations throughout the country. However, we certainly didn't anticipate the situation to be as dire as it is. The IOPSA had a good idea about the extent of non-compliant water heating system installations, as our inspectors examine them on a regular basis, and their research only confirmed our concerns.

"Conservatively, we expected that 30-40% of these plumbing installations would be non-compliant, so we were alarmed to learn that 70-80% of them didn't comply with the law. To be clear, most qualified plumbers are trustworthy and abide by the regulations and standards. The challenge is really with unqualified 'plumbers' who haven't been properly trained and often unwittingly cause serious problems," says Reynolds.

The research was undertaken by 42 experienced IOPSA plumbing inspectors located throughout the country during April and May

2022. A total of 725 properties in the formal housing sector were inspected in eight provinces. The IOPSA's inspectors requested permission from property-owners to conduct a visual inspection of other aspects of their plumbing. Their focus was exclusively on significant and/or critical safety failures. Home-owners were also alerted to these problems so that they could take the necessary action to correct them. The inspectors reported only on what they could see externally and, to fully ascertain the extent of non-compliance, a more in-depth examination would be required. However, the information garnered by the inspectors provided a statistically significant indication of the level of plumbing installation compliance in the country.

Worryingly, many property-owners did not allow the IOPSA's personnel to inspect other plumbing installations on their properties, particularly in suburbs in KwaZulu-Natal, Limpopo, Mpumalanga, the Free State, the Northern Cape and the Eastern Cape, while no reporting was received from IOPSA inspectors in North West. As a result, the findings of the research focused mainly on Gauteng and the Western Cape. They are also heavily weighted to water heating systems, such as geysers, solar water heaters and heat pumps.

Of the 725 water heating installations that were inspected nationwide, 67% were found to be non-compliant.

#### **LONG-RANGE IMPACTS OF MINDLESS SHORT CUTS**

These installations were not

energy-efficient, placing additional pressure on an already strained electricity grid and increasing the carbon footprint of properties. They also presented many health and safety risks, including scalding and electrocution, while non-compliant water heating systems provided a breeding ground for harmful bacteria and pathogens. Legionnaire's disease and Pontiac fever, for example, are caused by the legionella bacteria which grows and multiplies in building water systems. Water containing legionella can spread in droplets small enough for people to inhale. In extenuating circumstances, an incorrectly installed water heating system can also explode, placing the lives of occupants of a building at risk. This is not to mention the significant damage that incorrectly installed water heating systems can cause to property.

The IOPSA's auditors inspected 394 water supply installations, including cold water piping to the property and fixtures, throughout the country. Of these installations, 57,6% were found to be non-compliant.

It is imperative that these systems are installed correctly to avoid contaminating drinking water and eliminate leaks. Repairing leaks is always the first step taken by responsible property-owners towards reducing their water footprint. These interventions, combined with the use of smart water-efficient fixtures and other measures, helped Cape Town avert a crisis when it was in the throes of the worst drought in its history. The Eastern Cape is now facing its "Day Zero", when taps will run

completely dry. This serves as a stark reminder of the need to use our scarce water resources more efficiently – which begins with ensuring that supply systems have been installed correctly.

#### **WASTEWATER SYSTEMS DOWN THE DRAIN**

Of the 264 wastewater installations from basins, sinks, baths and showers that were inspected, 65,5% did not comply with legislation.

These sub-standard installations spread dangerous waterborne disease and can contaminate scarce freshwater and groundwater resources. Many areas where dry conditions have persisted for the past seven years are very reliant on groundwater resources as the only alternative supply. These sources of water must therefore need to be safeguarded against contamination.

The IOPSA inspectors also examined drainage systems, such as sewerage from toilets, gulleys and manholes, on properties. Of the 248 installations that were inspected, 74,2% were found to be non-compliant. These faulty installations can also contaminate freshwater sources and spread waterborne disease. Moreover, they can damage municipal infrastructure, placing further pressure on local government service delivery systems. More than one-quarter of SA's municipalities are on the brink of collapse and lack the financial means to develop new service delivery infrastructure.

#### **A FLOOD OF SUB-STANDARD RAINWATER SYSTEMS**

A total of 159 rainwater systems were inspected by the IOPSA,

including gutters, sub-soil drainage and stormwater drains on properties. Of these, 48,4% were found to be non-compliant. These systems can also damage municipal infrastructure, contaminate freshwater sources and spread waterborne diseases. Moreover, they contribute to the severe flooding many parts of the country have experienced recently.

A total of 727 other plumbing systems, such as grease traps and those that manage swimming pool waste, were also inspected by the IOPSA's auditors and 17,6% were found to be non-compliant.

### ILLEGAL INSTALLATION OF LEGALLY AVAILABLE PARTS

While the inspectors only focused on the installations, previous research undertaken by other organisations – such as the Water Research Commission – have revealed that up to 60% of all plumbing materials used in the country are non-compliant.

“We have a strange situation in SA, where it's legal to sell certain products, but illegal to install them,” says Reynolds. “This, combined with a dire shortage of qualified plumbers in the country, has led to a significant increase in sub-standard plumbing workmanship.”

Research undertaken by the Deutsche Gesellschaft für Internationale Zusammenarbeit and Trade & Industrial Policy Strategies in 2019 found that only 20 000 individuals of the 126 000 who were working as plumbers were qualified. A qualified plumber has completed three years of structured and formal



(Above): The full plumbed environment needs careful planning and attention when building any structure and overall quality of the building is in lockstep with it.

training. By the time they complete their theoretical and practical instruction, they also have a more holistic view of the industry. This includes the importance of safety, health, the environment and quality.

The findings show that the authorities also need to help regulate this industry by enforcing their municipal services by-laws. An investigation undertaken by the IOPSA in 2021 found that only 33% of plumbers had a copy of their municipal water by-laws. Only 80 of the 256 municipalities had water service by-laws publicly available and a mere 15% of plumbers said that local government held them accountable for their workmanship.

### HUGE BENEFITS VS DIRE CONSEQUENCES

“Plumbing is a critical component of water and sanitation. While much of the focus is on developing ‘hard’ infrastructure, such as dams and desalination plants, water still needs to be conveyed from

there into homes and businesses. Wastewater treatment plants and bulk services are meaningless if the sewage never reaches them. These are important roles that are fulfilled by qualified plumbers. It's painfully clear that something needs to be done urgently to arrest the situation. I doubt whether stretched municipalities can accomplish the necessary changes on their own. The private sector's already devised a workable solution in the form of a Certificate of Compliance from the Plumbing Industry Registration Board, the professional body for plumbers. Significant positive impacts could be made in a very short time and with very little cost if we focused on safeguarding quality plumbing workmanship,” says Reynolds.

“Given the water, sanitation and energy challenges that the country faces, we have no more time to deliberate. We need to take immediate and decisive action.” ■

# OVERCOMING URBAN SPRAWL FOR MORE EFFECTIVE COMMUNITIES

The rapidly increasing urban sprawl experienced in developing countries like South Africa can have a massive negative impact not only on the environment, but also on the people living there. With increased importance being placed on sustainability, more work needs to be done to create communities with intrinsic and inclusive value, says Sivan Govender, operations executive for TUHF, a commercial property financier specialising in inner-city areas.

“TUHF is committed to investing in urban regeneration and creating an enabling environment where service delivery can be significantly improved. This requires the involvement of multiple stakeholders across the public and private sectors. For instance, local municipalities need to do more to maintain infrastructure in these communities. In turn, this will result in the areas becoming more attractive for potential investors,” says Govender.

Putting the spotlight on urban regeneration sees attention turn to restoring an area with the essential services – such as access to power, water, roads, security and cleanliness – that facilitate an impetus to grow and be sustainable. As part of this, TUHF enables small property entrepreneurs to invest in buildings that they can refurbish and bring up to standard

to deliver affordable housing to students, young professionals and new families.

## A NEW WORLD IN THE NEW NORMAL

As more people have turned to working remotely over the past two years, there has been a renewed focus on access to fast and reliable Wi-Fi networks. Those property-owners in which TUHF invests are also making it a priority to upgrade their buildings with access to connectivity that will enable people in these communities to work from home, children to perform research for school assignments and students to take online classes.

“This is reinforced by the semi-gratification trend that’s emerged in SA since the onset of the pandemic, which sees people embracing work-from-anywhere set-ups and leaving major urban centres in favour of smaller, quieter towns. However, this adds to the need to provide affordable rental housing to people who’re faced with new challenges in rapidly expanding urban areas,” he says. “If we’re to combat urban sprawl, we need to promote socially desirable levels of population density. Sprawl can just as easily translate to fragmentation. By becoming more sustainable and unified in their approach to creating development opportunities, stakeholders in



(Above): Sivan Govender, operations executive for TUHF.

the sector can positively disrupt communities and combat urban sprawl in a more concerted manner,” says Govender.

## HOUSING DONE DIFFERENTLY

The UN believes that many countries will face challenges in meeting the needs of their growing urban populations, including housing, transportation, energy systems and other infrastructure, as well as employment and basic services such as education and healthcare.

For Govender, this means the focus must be on stimulating the economy in localised spaces – one city block at a time. This is a critical intervention to uplift people from poverty.

“This is what TUHF often refers to as ‘impact through scale’ – developments that offer real benefits in transformation through diversity, accessibility and economic inclusion,” he says. ■



**"IT WAS CLEAR THAT THE INDUSTRY WAS MORE THAN READY TO RE-ENGAGE AND RECONNECT ON AN IN-PERSON BASIS."**

## POSITIVE TURNOUT FOR INDUSTRY TRADE SHOWS

The occupational health and safety, security, facilities management and fire protection sectors proved once again that face-to-face interaction cannot be beaten, with excellent industry support seen at the recent co-located Securex SA, A-OSH Expo, Facilities Management Expo and Fireexpo trade shows.

The exhibitions took place from 31 May-2 June 2022 at the Gallagher Convention Centre in Johannesburg, with the "four-industries-one-roof" offering from Specialised Exhibitions, the largest trade show organiser in southern Africa, drawing in more than 8 300 visitors over the three-day period, and featuring over 200 exhibitors.

"It's been a long two years since we've been able to hold larger live events and exhibitions in SA, so 2022 was a landmark year for

these trade shows in many ways," says Mark Anderson, portfolio director at Specialised Exhibitions

"Not only was it the first year since 2019 that we were able to bring Securex, A-OSH Expo and Facilities Management Expo back to the industry after a two-year hiatus, but we were also able to introduce the very first Fireexpo, focusing exclusively on fire-related products and services.

"As Africa's biggest security exhibition, we were extremely proud to celebrate 29 years of Securex this year, with its continued focus on all elements of the security sector, from physical and retail security to access control, vehicle and personnel tracking, cybersecurity and more, while A-OSH marked more than a decade of being Africa's leading occupational health and safety

expo. 2022 also commemorated the second year that Facilities Management Expo, the trade show that brings together all aspects of facilities management, has run alongside these two sector stalwarts.

"The show floor was buzzing over the three-day period and it was clear that the industry was more than ready to re-engage and reconnect on an in-person basis."

While there was a very small drop in visitor numbers compared with the 2019 figures, reflecting the same trend already seen this year, both locally and globally, the quality of visitors across the board was still extremely high.

"Securex, in particular, attracted a high ratio of purchasing decision-makers and influencers, at 82,9% of those attending," says Anderson.

The four trade shows also brought in a number of visitors from outside SA's borders, particularly from neighbouring African countries. "Securex drew in many visitors from Botswana, Namibia, Zimbabwe, Mozambique, Ghana, Togo and Eswatini, as well as Angola, Malawi, Kenya, Tanzania and Madagascar. Attendees from further afield hailed from across Europe, the USA and more."

Visitors' reasons for attending highlighted that exhibitions continue to be a powerful sales, marketing and general business platform. On the Securex side, 71,8% of visitors came to the show expressly to source new products and solutions, with 18,8% wanting to view technologies showcased by local manufacturers and distributors.

Very positive feedback from exhibitors was received across all four shows, says Anderson. "It's clear that this type of live event

is now more important than ever in terms of building face-to-face connections and relationships, as well as allowing for first-hand experience of new offerings."

"Securex was phenomenal, even better than expected," says Western Digital's Brad Bennett. "We thought we'd be busy, but the response and footfall through our stand were beyond expectations. We've been engaged in quality conversations and fielded many questions about our solutions offering, receiving many good leads and quality engagements, with a number of people from beyond SA's borders. We're very excited to see where it goes in the future."

"This was our first time exhibiting at Securex and it was very enlightening," adds Phophi Marara from Dwyka Mining Services. "We were very pleased to be able to show that our technology, which was introduced to the local mining

market, can be easily adapted for other industries as well – for example, for security patrols and bomb detection services – simply by switching out the payload on top of the mobile robot. The visitors were very enthusiastic about our offering."

"Fireexpo was a fantastic experience – we've already signed up for next year's show," says Fireball's Le Roye van der Merwe. "I've been extremely pleased with the quality of the visitors to our stand."

"The BBF Safety Group is very committed to A-OSH Expo and we're very pleased that we had a busy stand," says BBF Safety Group's Ruan Breedt. "We had a brilliant turnout and I'm very happy with the attendance."

"Our experience of the Facilities Management Expo – as the main sponsor of the 2022 show – was excellent. The foot traffic was plentiful and the seminar theatre was great. There were also some fantastic talks that were very well received. I've been most impressed by the atmosphere and level of technology that was showcased. After the Covid-19 lockdown, I see this as strong evidence of our economy getting back on its feet," says Mel Barends of Broll Facilities Management. ■

• Securex SA, A-OSH Expo, Facilities Management Expo and Fireexpo will return from 6-8 June 2023 at the Gallagher Convention Centre. For further information, visit: [www.securex.co.za](http://www.securex.co.za), [www.aosh.co.za](http://www.aosh.co.za), [www.fmexpo.co.za](http://www.fmexpo.co.za) and [www.fireexpo.co.za](http://www.fireexpo.co.za).



# NEMLA IV FURTHER TIGHTENS RECTIFICATION PROCESSES

*By Garyn Rapson, partner and  
Carma Rossouw, candidate attorney,  
both from Webber Wentzel*

Recent amendments to the National Environmental Management Amendment Act IV (NEMLA IV) have significant implications for developers. Without vigilance about the authorisations required for projects and robust applications listing all activities, costly work stoppages and administrative fines could be faced.

The proposed amendments to the rectification application process are intended to tighten the risk associated with these applications and deter abuse. These changes

will take effect when NEMLA IV becomes law, on a date to be proclaimed by the president.

**ADDRESSING PAST ABUSES**

The rectification provisions of NEMA have a sordid history. They have been abused by certain developers in the past, even though such applications are risky, given that they are the subject of an administrative fine and do not limit the risk to the contraveners of being prosecuted for the underlying criminal offence.

Section 24G gives contraveners of NEMA and the Waste Act the opportunity to apply for after-the-fact rectification of the unlawful commencement or continuation of listed activities under both Acts.

The legislature amended section 24G in 2008 and 2013 respectively to tighten the risk associated with these applications and deter the abuse of these provisions. The most recent proposed changes to section 24G by NEMLA IV follow the same trend.

**“MUST”, NOT “MAY”**

In terms of NEMLA IV, it is proposed that the applicable competent authority must – as opposed to “may” – direct the contravener to immediately cease its unlawful activities, pending a decision on the rectification application, unless there are reasonable grounds to believe that the cessation will result in serious harm to the environment. This small change in wording may appear insignificant, but the stoppage of a contravener's

*(Left): Rectification of damage from unmandated activities can now be done by successive owners.*



*(Above): The new rules for building site waste redefine the what, where and how of managing it as a resource.*

operations can have an enormous, if not disastrous, financial effect on its business.

When multi-million-rand projects are at stake, the stoppage of operations (either in construction or operation) could cause costs to skyrocket. Developers would be wise to conduct proper due diligences regarding which authorisations are needed for a project and then ensure that the applications they submit are robust and cover all the listed activities required.

NEMLA IV will also require contraveners to undertake appropriate public participation to bring their unlawful conduct to the attention of interested and affected parties and give them a reasonable opportunity to comment on the application. These proposed amendments

are in line with the legislature’s intention of tightening the rectification process.

NEMLA IV will extend the scope of section 24G rectification applications. “Successors in title” and “persons in control” of land on which a listed activity under NEMA or the Waste Act has been unlawfully commenced will be permitted to submit a rectification application. Currently, only the guilty person who carried out the unlawful activity without the required environmental authorisation or waste management licence can apply. The proposed changes will empower successors in title, such as the purchaser of a business, to clean up any historic irregularities that it may have inherited from the previous owner.

**“WHEN MULTI-MILLION-RAND PROJECTS ARE AT STAKE, THE STOPPAGE OF OPERATIONS (EITHER IN CONSTRUCTION OR OPERATION) COULD CAUSE COSTS TO SKYROCKET. ”**

## INDUSTRY NEWS

Unfortunately, this imminent amendment does not incentivise innocent successors in title to clean up someone else's unlawful conduct. Innocent successors will remain vulnerable to having operations shut down while the rectification application is being processed (which seems unfair) and to paying administrative fines. It is unfortunate that exemptions were not included in NEMLA IV for successors, to encourage clean-up operations. The maximum administrative fine will also be increased from R5 million to R10 million.

NEMLA IV proposes to overhaul section 22A of the Air Quality Act in the same way as described above, for activities it lists. Notably, however, it has not extended the



scope of section 22A applications to include "successors in title" and "persons in control" of land.

The largely welcome changes to be introduced by NEMLA IV to NEMA section 24G, and the Air Quality

Act section 22A, are a continuation of the legislature's attempt to tighten the rectification process to combat abuse. ■

*(Above): Developers must take care to include every activity that will, or is likely, to happen during the full construction and utilisation of the project.*



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# CONSULTING ENGINEERS SA – 70 YEARS AT THE APEX OF THE BUILT ENVIRONMENT

Consulting Engineers South Africa (CESA), representing close to 600 member firms employing approximately 17 000 people, is celebrating 70 years of engineering excellence in 2022.

“Our 70th anniversary bears testament to the critical role we continue to play in the engineering sector since the organisation was first established in 1952. We’ve unquestionably become the apex organisation of the consulting engineering sector,” says Chris Campbell, CEO of CESA.

The past decade has been a particularly eventful one for SA and the industry. The Covid-19 pandemic had an important impact on the country’s economy and has set back a number of infrastructure development initiatives.

## PARTNERSHIPS FOR TRANSFORMATION

“One of our strategic goals is to promote transformation of the sector. In SA, there’s a recognition of the need to develop local capacity to address the backlogs in infrastructure resulting from the apartheid era,” he says. This has necessitated CESA’s focus on capacity development and through its member base, it has developed the means for larger established companies to partner with newer SMMEs and for the latter to participate in public-sector projects.

In full support of the government’s transformation targets, more than 70% of CESA member companies are more than 51% black-owned and of these, 3,1% are owned by black women. Two-thirds of the member firms have a staff of 20 or fewer and 50% have fewer employees than 10. The number of black-owned and managed firms joining CESA has grown from 38% in 2009 to 55% in 2022.

In another milestone, celebrating 20 years of service excellence, CESA’s School of Consulting Engineering



(Above): CESA’s Young Professionals Forum plays a major role in shaping the perspectives of young engineers. The Sustainability Imbizo (YP Imbizo) which took place 28-29 June is a vital contribution to our future.

(SCE) offers more than 100 courses countrywide and has provided training to thousands of practitioners.

## THE YOUNG PROFESSIONALS ASSOCIATION

CESA’s Young Professionals Forum, established in 2004, serves the needs of professional engineers, technologists and technicians in member firms under the age of 35, providing a platform for young practitioners to network and grow. CESA’s YPF Imbizo also celebrates its 10th anniversary this year.

CESA became a member of the International Federation of Consulting Engineers in 1959 and of its regional grouping, the Group of African Member Associations, in 1981. That regional body is now FIDIC Africa, with CESA fulfilling the role of secretariat since 2018. CESA has been recognised in two FIDIC award ceremonies.

For 50 years, CESA member firms have been celebrated at the annual CESA Aon Engineering Excellence Awards. This is a showcase of member firms, their clients and their projects which uphold world-class standards of design and innovation and contribute to enhancing the quality of life of the public and the communities being served. ■



(Above): CESA CEO Chris Campbell.

# CLIMATE-PROOF ROADS

By Solomon Kganyago, chief operating officer: Bakwena Platinum Corridor Concessionaire

The vulnerability of South Africa's primary road network to severe flooding and climate change-related incidents has been thrust into the public domain in recent months.

The devastating floods in Kwa-Zulu-Natal not only contributed to the unfortunate deaths of more than 450 people, but also caused immeasurable damage to vital transport infrastructure. This should raise concerns about the overall quality of the country's road network and its ability to withstand future cataclysmic weather-related events – and such events are a certainty because of the climate crisis.

## ROADS AT RISK

Bakwena manages and operates two vital stretches of the N1 and N4 roads stretching from Tshwane to Bela Bela, north towards Zimbabwe/Zambia and linking Gauteng westwards, through Rustenburg and Zeerust, to the Botswana border. These are

*(Below): South Africa needs a cross-sector national road maintenance strategy.*

economic arteries that are key to the mining, agriculture and tourism sectors in southern Africa, given the fact that more than 75% of the country's total freight tonnage is transported on roads.

A 2020 study conducted by the World Bank concluded: "Africa's development is highly dependent on an adequate, reliable road system." Good-quality road connections expand access to jobs, markets, healthcare, education and government services. In predominantly rural provinces, such as Limpopo and the North West, a road is an essential lifeline that links isolated villages to economic opportunities.

Roads are particularly vulnerable to extreme climatic events such as heat waves and sudden increases in rainfall, resulting in flooding. In recent years we have seen a steady escalation in the frequency and magnitude of extreme weather-related disasters, which can be accompanied by widespread damage to road infrastructure and transport assets.

## FUTURE-PROOFING OUR ECONOMIC ARTERIES

There is therefore a clear need to make the country's road network more resilient to climate stress factors such as flooding and extreme temperatures. This can primarily be achieved by comprehensive maintenance to extend the lifespan of road

networks which were built many decades ago, adapting to materials and construction methods that are in line with countries experiencing similar weather patterns.

If this is not done in a planned and proactive manner, the climate will continue to cause substantial disruptions to transport networks and lead to soaring costs for future repairs and rehabilitation of vital road arteries.

## ROUTINE MONITORING AND MAINTENANCE

Most of the major stormwater and bridge infrastructure on the N1N4 network is designed and



built to withstand 100-year flood conditions. When heavy rain does occur in the region, all the rivers that cross the Bakwena route are monitored closely. There is a strong emphasis on routine and preventive maintenance of the 385km of road surface on the network, as well as the road verges, fencing and vegetation.

When it comes to the stormwater infrastructure along the route, our teams conduct regular inspections to ensure that they are clean and capacity is optimal for all weather conditions. Inspections are also conducted on the road surface to check for cracks and subsidence of the road that can result in potholes. Defects are identified and repairs are made in terms of performance specifications, guided by routine road maintenance, rehabilitation and upgrading strategies. If left unrepaired, these defects could deteriorate and endanger the lives of road-users or cause serious damage to vehicles.



*(Above): Is a co-ordinated maintenance approach more cost-effective than continued minor repairs?*

Early and preventive action saves both money and lives in the long run. If the road network is not adequately maintained, the costs will eventually accrue to the entire economy. However, regular maintenance and timeous upgrades of roads have a multiplying effect on downstream economic activities.

**A NATIONALLY INTEGRATED ROAD MANAGEMENT PLAN**

What is needed is a national approach to co-ordinate ongoing research of new materials and innovative construction methods which can mitigate the impact of adverse weather conditions on roads. The CSIR can play a leading role in that regard, in collaboration with the Department of Transport. In addition, SA participates in

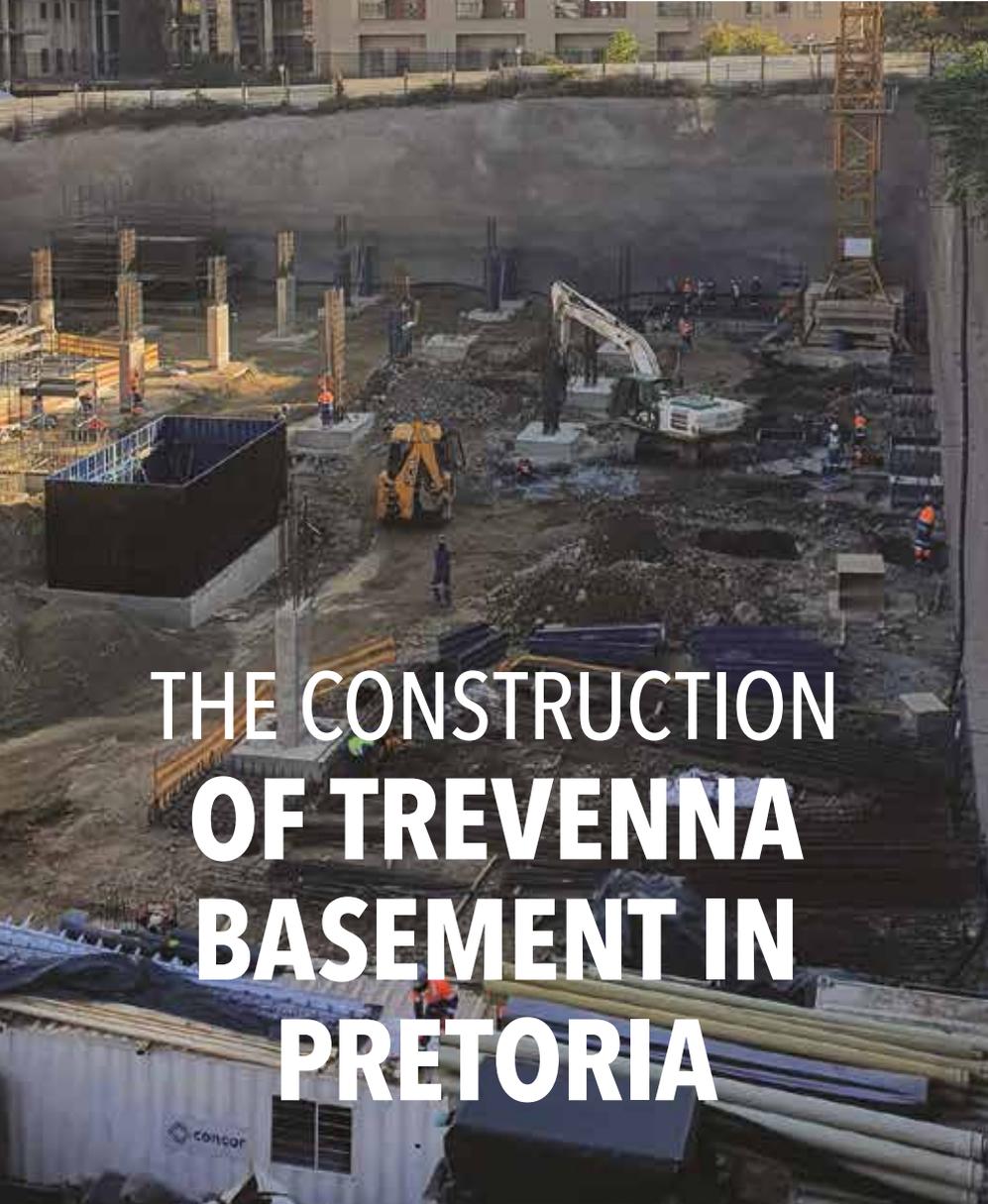
international forums like the World Road Association (PIARC), where climate-resilient infrastructure and the impact of climate change on road infrastructure are discussed. Some of these measures can be implemented in SA.

The PIARC aptly concludes: "Given the state of climate change, with its increasing apparent effects, winters have become uncertain, unpredictable and often exceptional, leading or forcing road facility operators to modify their practices over time. Beyond improving road-related practices, new policies and organisations need to be implemented in order to limit or avoid altogether the consequences of such episodes." ■



*(Above): Climate change means changing the way we approach building and maintenance.*

**"THIS CAN PRIMARILY BE ACHIEVED BY COMPREHENSIVE MAINTENANCE TO EXTEND THE LIFESPAN OF ROAD NETWORKS WHICH WERE BUILT MANY DECADES AGO, ADAPTING TO MATERIALS AND CONSTRUCTION METHODS THAT ARE IN LINE WITH COUNTRIES EXPERIENCING SIMILAR WEATHER PATTERNS."**



# THE CONSTRUCTION OF TREVENNA BASEMENT IN PRETORIA

*(Above): The first half of the Trevenna basement under construction.*

*(Left): Construction of the bases and columns underway at the Trevenna basement project.*

The Trevenna basement project in central Pretoria is among the contracts that got the year off to a strong start for black-owned construction leader Concor. The company will be building a large, five-level basement to serve the Trevenna Campus precinct, part of a larger venture driven by the Public Investment Corporation (PIC).

The basement project is a precursor for A-grade office buildings in the Trevenna Office campus. According to Martin Muller, senior contracts manager at Concor, the contract is part of a multi-phase development at the Trevenna Campus and will begin as soon as the major earthworks are completed. The company will carry out the first and second phases of the project, which comprise the five-level 68 000m<sup>2</sup> super-basement with all services, lobbies and finishes.

### SCOPE OF WORKS

The large basement extends some 20m below ground level and will be constructed with post-tensioned concrete slabs. The scope of work

also includes extensive underground services such as sewer and stormwater infrastructure, electrical reticulation, lifts to the ground floor and access control.

“It’s likely that the fast-track project will deal with challenging rock conditions and water ingress from surface and groundwater. However, we’re ready to deal with any of these challenges,” says Muller.

Phase 1 of this 11-month project began in March 2022 and phase 2 started in June. The third phase, which is yet to be awarded, will comprise four A-grade office buildings some five storeys high, making up almost 43 000m<sup>2</sup> to be constructed above the super-basement.

**PRINCIPLED PROCUREMENT AT WORK**

In line with local procurement principles, the project will rely heavily on local sub-contractors, suppliers and labour, with a considerable workforce of 500-600 people expected to be active on site. Among the key sub-contractors will be

specialists in excavation, formwork, concrete, post-tensioning and reinforcing.

Space is at a premium, as the footprint of the basement extends across almost the entire site and Muller notes that dealing with the

**“SPACE IS AT A PREMIUM,  
AS THE FOOTPRINT OF THE  
BASEMENT EXTENDS ACROSS  
ALMOST THE ENTIRE SITE.”**

*(Below): Construction underway at the Trevenna basement project.*

challenges of congested urban environments is one of Concor’s many strengths.

The company will deploy five tower cranes on the site to facilitate the fast pace of construction required, ensuring the safe and expedited movement of steelwork, formwork and other construction materials. Readymix concrete will be pumped in-situ for the post-tensioned slabs.

“This is the first contract that we’ll undertake for the PIC and we look forward to delivering excellence and demonstrating our extensive capabilities,” says Muller. ■



*The second half of the Trevenna basement under construction.*

## PROJECTS

# MORETELE SOUTH BULK WATER SUPPLY SCHEME PIPELINE

The Moretele South Bulk Water Supply Scheme Pipeline Project was officially commissioned in Hammanskraal in North West Province on 5 May this year.

Minister of Water and Sanitation Senzo Mchunu was the keynote speaker at the official commissioning, which was also attended by dignitaries including North West Premier Bushy Maape, Magalies Water chairperson Pinky Mokoto, Bojanala District Municipality Mayor Matlakala Nondzaba officials from the Moretele Local Municipality and traditional leaders.

Mchunu highlighted the constitutional right of access to water for all South Africans and emphasised the importance of the community looking after the Klipdrift Water Treatment Plant, from which this pipeline is fed. "The main goal of this project is to provide the people of Moretele with water seven days a week. It's important for us to remember that water is life and sanitation is dignity," he stated.

### ENVIRONMENTAL MANAGEMENT

Multi-disciplinary engineering, procurement and construction management firm COENG Consulting & Construction Engineers led the project. Welsh Dlamini, head of department for Quality Assurance and Risk



**"MCHUNU HIGHLIGHTED THE CONSTITUTIONAL RIGHT OF ACCESS TO WATER FOR ALL SOUTH AFRICANS AND EMPHASISED THE IMPORTANCE OF THE COMMUNITY LOOKING AFTER THE KLIPDRIFT WATER TREATMENT PLANT, FROM WHICH THIS PIPELINE IS FED."**



Management, explained that COENG's scope in this project was two-pronged: the environmental management scope, specifically as the project's environmental control officer, and the health and safety agent scope, specifically as the project's occupational health and safety agent.

### OCCUPATIONAL HEALTH AND SAFETY

COENG's active involvement in the pipeline project dates back to 2016, when the client (Magalies Water) started applying for the mandatory construction work permit. The construction phase of the project commenced in 2018 until the completion in April this year. "Our key role as the occupational health and safety agent was acting on behalf of Magalies Water to supervise and ensure that the provisions of Construction Regulations (2014) of the Occupational Health and Safety Act 85 of 1993 were

upheld from concept to the commissioning of the project,” said Dlamini.

“It was especially important that when this pipeline was being laid, environmental compliance with the provisions of appropriate environmental legislation was strictly adhered to, with the ultimate aim of protecting the environment, especially with water being provided to the community.”

Charity Tagwireyi, COENG’s health and safety manager, indicated that no downtime was experienced on the project as a result of safety incidents. “As part of our scope, we had to compile the baseline risk assessment, as well as the health

and safety specifications, which were given to the contractors so that they could compile their safety files and also operate as appropriately guided during the laying of the pipeline,” she said.

**PHASES OF CONSTRUCTION**

COENG was also involved in stage five of the project, which was



the construction phase. “During construction, our resources were based at the project site on a full-time basis and we further undertook monthly audits. We then compiled and circulated audit reports to all project stakeholders,” said Tagwireyi.

Maria Ramugondo, environmental control officer at COENG, was responsible for environmental compliance on the project. “At this tail-end stage of the project, we need to ensure that the environmental rehabilitation phase is completed. However, we’re excited that water’s provided to the community courtesy of the Department of Water and Sanitation and Magalies Water,” she said. ■

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## INNOVATION



"THE COMPANY IS BLAZING A TRAIL IN SA AND THE CONTINENT FOR A NEW ERA OF CARBON-NEUTRAL BUILDING MATERIALS ."

# HEMP UNLOCKS SUSTAINABLE BUILDING BLOCKS

A global first, 84 Harrington Street in Cape Town is officially the world's tallest building, constructed using hempcrete blocks and building materials.

A partnership between two Cape Town-based companies, Hemporium and Afrimat Hemp, 84 Harrington Street is setting the benchmark for how to build a safe, carbon-neutral, multi-storey building using hemp blocks and hemp systems.

### THE ORIGIN OF HEMP AS A BUILDING PRODUCT

"I bought 84 Harrington in 2016, with the idea that it would become the flagship Hemporium store, a steak restaurant, and house the 'Hemp Hotel', a place where people could experience living in a hemp-constructed space. From a sustainability and eco-construction perspective, we wanted to take hemp construction in South Africa to the next level, while also contributing to the inspiring hemp construction projects being undertaken glob-



ally," says Duncan Parker, Hemporium's founding partner and CEO.

"We also believed that once licences for the commercialisation of hemp in SA were issued, having innovative examples of what could be achieved with hemp would lead the way for the fledgling hemp industry in SA."

**THE SUSTAINABILITY RACE**

There is a massive increase in the global demand for bio-based construction, driven by the need for the reduction of CO<sub>2</sub> emissions. Hemp construction is considered to be the gold standard for CO<sub>2</sub> reduction in buildings.

The South African government has initiated a drive to create employment within the industrial hemp sector, so the timing for developing hempcrete-based construction materials is ideal.

Previously, hemp houses built in SA used hempcrete. For a project of 84 Harrington's scale, however, this was not feasible and inspiration was taken from hemp blocks developed in Europe. The creation of hemp blocks is a viable way of commercialising hemp in the construction industry.

**PASSIONATE PARTNERSHIPS**

"With this in mind, Hemporium naturally looked for strategic partners on this project, which we found in Wolf & Wolf Architects and Afrimat Hemp," notes Tony Budden, founding partner and director of Hemporium.

Wolf & Wolf Architects is a small practice specialising in contemporary and sustainable



(Above): The superior acoustic performance ensures privacy between units.



(Above): Using hemp blocks reduces the CO<sub>2</sub> footprint of a building, as well as its operational CO<sub>2</sub> footprint.



(Above): Vapour-permeability: The ability of hempcrete to easily absorb and release moisture helps regulate the building's internal humidity, thus maintaining a healthy indoor air quality.

architecture and is considered to be a pioneer of hemp construction in SA. It is passionate about pushing the envelope of hemp construction.

**JUMPING INTO THE SECTOR'S MAINSTREAM**

"Afrimat, a mid-tier mining company, prides itself on having an innovative and entrepreneurial culture, always looking at global trends. Our subsidiary, Afrimat Hemp, focuses on carbon-neutral construction and unlocking value in the industrial hemp sector. Afrimat has developed its own formulated lime binder for hempcrete and is producing hempcrete blocks at one of its commercial block plants," says Afrimat's MD Boshoff Muller.

The company is blazing a trail in SA and the continent for a new era of carbon-neutral building materials and investing in a sustainable future in construction, and proudly supplied the hempcrete blocks and building systems for 84 Harrington Street.

**FUTURE GOAL**

Hemporium's long-term goal is to continue promoting legislative change so that cultivation of industrial hemp in SA becomes a mainstream reality. This could provide solutions to many of the challenges that the country faces in terms of sustainable housing, nutrition and job creation.

Afrimat Hemp also expands its upstream hemp processing capabilities through its built technology. This will help enable the hemp value chain to be unlocked cost-effectively in SA for all. ■

# RAPID RESULTS OF DIGITALISATION IN CONSTRUCTION

A multi-disciplinary construction company's digitalisation processes is already yielding favourable results. This is especially noteworthy for the company's technically complex projects for private-sector clients operating in the energy and mining industries.

A case in point is how Murray & Dickson (M&D) – the company in question – uses 3D, 4D and 5D building information management (BIM) modelling techniques during the tendering phase, the basis of any successful construction project. The technology is also being deployed during the project

construction phases to maintain high levels of productivity, efficiency, accuracy and safety throughout the duration of the contract. This has helped M&D deliver its core values of "being safe", "doing it right", "finding the best way" and "doing what we say" on its projects.

## MAJOR BENEFITS FOR TENDERS

"The implementation of BIM modelling has bolstered our tendering processes. Through providing enhanced 3D visualisations and 4D timeline simulation tools, we're able to visually present the envisaged

infrastructure in a digital twin," explains Marius Bierman, M&D's virtual design and construction (VDC) manager. "This is highly beneficial, as it enables us to leverage the BIM technologies to present our proposed construction sequence to our clients. Potential design and/or constructability issues can be identified early in the project life-cycle. Misunderstandings and ambiguities can, therefore, be clarified before construction commences to avoid potential cost overruns and delays.

"By having a better understanding of the project in the very early phases of its life-cycle, we're also able to begin and complete our proposal significantly quicker, under tight deadlines and competitive tendering processes. Increased visibility of the proposed work scope enables us to eliminate the risk of missing components and errors in the engineering design.



*(Left): Through providing enhanced 3D visualisations and 4D timeline simulation tools, the company can visually present the envisaged infrastructure in a digital twin.*

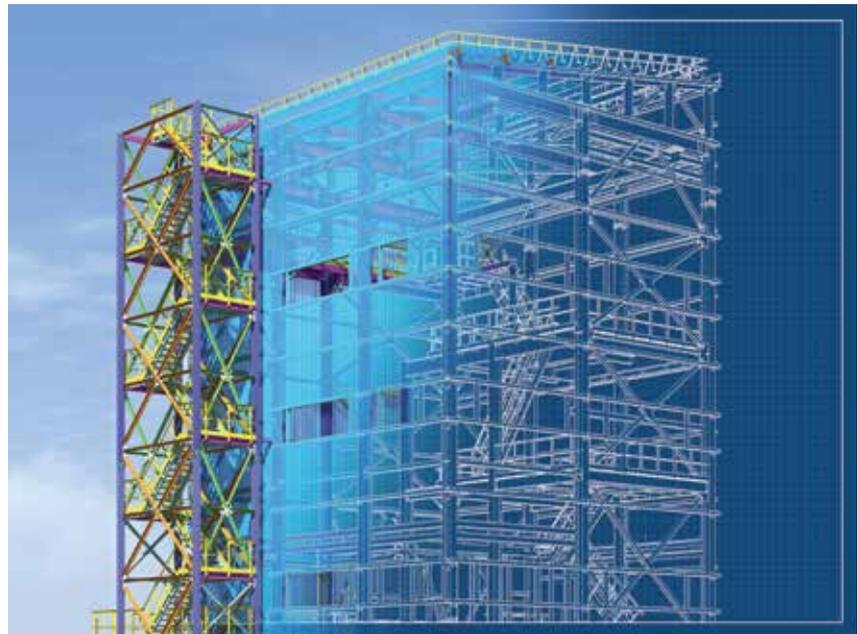
In these ways, the technology has greatly improved our ability to accurately cost, plan and schedule the scope of works, considering the depth of project information which we have on hand at this very early phase.

“Moreover, because we’re better able to communicate our proposal to the client and the various members of the professional team, the technology improves collaboration and fosters trust between M&D, the client and other members of the professional team. However, one of the biggest advantages of this approach to tendering is that it’s enhanced our ability to find and suggest alternatives that will improve the constructability of the project and add value wherever we can as a skilled and experienced multi-disciplinary contractor,” says Bierman.

He is spearheading M&D’s digitalisation drive and ensuring the group’s seamless transition into the Fourth Industrial Revolution (4IR). M&D is one of only a few South African construction companies to have a full-time VDC manager. This demonstrates the company’s commitment to remaining at the cutting-edge of industry by harnessing sophisticated 4IR technology.

**REALISING THE NEW WORLD OF THE 4IR**

The results of M&D’s digitalisation drive are also evident in the company’s many live projects. This is through improved collaboration, sharing and versioning that would not be possible using conventional paper drawing sets. Drawings and



(Above): BIM took centre stage in developing tenders from the most granular perspectives.

models are also being reviewed on site on mobile devices by members of the professional team to facilitate access to information whenever it is required. Moreover, design and documentation are undertaken simultaneously and modified efficiently to swiftly adapt to new information, including site conditions. The accurate scheduling and work sequences that were developed ahead of construction can also be communicated efficiently to the various team members on site using the technology. This has ensured that all members of the professional team and the client have a sound understanding of the project at any given point to avoid misunderstandings and costly mistakes, while also vastly improving the co-ordination of the large teams on M&D’s worksites.

These advantages are complemented by the depth of

project knowledge which the company’s construction teams already gain before moving to site, which better prepares them for the scope of work. Using space-use simulations and 4D visualisations, M&D’s construction leaders visualise the entire project and make modifications and corrections wherever necessary before beginning construction. They are also able to finely co-ordinate the various trades and sub-contracting work to avoid potential clashes, while the technology optimises prefabrication activities to avoid waste and delays.

Certainly, the technology has also enabled M&D to significantly improve its already strong health and safety track record on site. Potential health and safety risks can be identified early and contingencies devised and

## INNOVATION

incorporated into site planning and logistics ahead of actual construction.

BIM is one of the 4IR technologies that has the potential to transform the entire built-environment industry, spanning the design, construction and maintenance of infrastructure through to the way it is operated to optimise the use of assets. M&D has long identified the critical role that this technology can play in helping the company hone its competitive edge.

### BRINGING THE PUBLIC SECTOR ON BOARD

Bierman also sees immense potential in introducing this technology to some of the company's many public-sector contracts, as a number of M&D's international peers are doing to help deliver quality service delivery infrastructure on time and within budget.

"In the UK, for example, it's mandatory for contractors to submit 3D, 4D and 5D BIM models when tendering for government work. This has ensured that contractors are able to develop accurate proposals that improve the delivery of quality infrastructure. It's an approach that encourages contractors and engineers to work more closely in the early phases of a project, facilitate value engineering and improve constructability of the planned infrastructure. Contractors, such as M&D, have extensive contracting knowledge and experience that could be better harnessed to optimise engineering designs. In doing

so, we also have the opportunity to position ourselves as the contractor of choice as early as the feasibility and detailed engineering design phases of a project because of our intricate understanding of the infrastructure that's going to be built," he says.

3D BIM technology has successfully addressed the many limitations of 2D digital geometric modelling. It is a digital geometric model that constitutes an X, Y and Z axis associated with further information – a type of modelling enables 2D views of geometric information to be generated from a 3D model with various levels of detail. This is in addition to improving the ability to create schedules and report on objects of different types within the 3D model. In addition, multiple 3D models can be combined to report on any geometric clashes.

4D BIM adds a dimension of time to facilitate improved visualisation of the construction sequence, while 5D BIM includes project cost information to the modelling process.

However, M&D is in the process of taking this capability much further. For example, the company is currently investigating the potential of point cloud technology to generate as-built designs of infrastructure before construction commences. Point cloud technology consists of a collection of data points in space that have been generated by 3D scanners or photogrammetry software. They capture an accurate as-built model of an area, which can then

be used to create a drawing of an existing structure with the exact dimensions and specifications. Drone footage can also be incorporated to provide even more accurate as-built designs of the planned infrastructure.

### IMAGINING THE FULL VALUE OF THE VIRTUAL CONSTRUCTION SITE

Bierman is also exploring the possibility of integrating virtual reality (VR) and augmented reality (AR) into M&D's processes. VR and AR enable the overlay of digital models on an actual site so that the client and all members of the professional team can better visualise the various elements of the project as they appear in the external world. These 3D blueprints will enable the contractor to further reduce errors and troubleshoot aspects of the project before mobilising to site. M&D's teams will also be able to clearly visualise where all the various project components, such as piping, will be installed and make modifications very early in the project life-cycle. By doing this, the technology facilitates improved communication, organisation and planning.

### A DISRUPTOR INDUSTRY

"To continue raising the bar even higher for ourselves and the construction industry, we strive to be among the first to fully harness the best available technologies in the market. We take pride in being an industry disruptor, which is something we set out to do right from the outset to deliver unrivalled value to our clients," says Rukesh Raghuram, CEO of M&D. ■

# FROM CATTLE-HERDER TO CHIEF QUANTITY SURVEYOR

You will always become what you are meant to be if you put in the hard work. So says Mthokozisi Maduna, who was recently appointed chief quantity surveyor of GVK-Siya Zama. It is a leadership role to which he brings his inspirational personality, charisma and pragmatic approach to business and life.

Maduna's journey has been underpinned by dogged perseverance in overcoming many obstacles in his path, including limited resources available to him when growing up, difficulty in speaking English after matriculating and a lack of finances to further his studies.

Now – at 37 and with 14 years of construction experience under his belt – he is one of the leading quantity surveyors at GVK-Siya Zama.

## THE FRUITS OF FAILURE

Raised in the small, rural town of Hlabisa in northern KwaZulu-Natal, his formative years were spent herding cattle. When he completed school, he wanted to study engineering, but lost his chance of obtaining funding during a bursary interview because he was unable to articulate himself properly. He returned to his hometown to herd cattle and grappled to come to terms with failing an interview that could have changed his life.

"It bothered me that I'd lost a possible life-changing opportunity," recalls Maduna. "I'd



(Above): Mthokozisi Maduna, chief quantity surveyor of GVK-Siya Zama.

herd cattle with my little radio and my German shepherd dog for company, asking myself where I'd gone wrong and what steps I could take to improve," he recalls.

## CHANCING ON THE RIGHT WORDS

One day he heard a presenter on East Coast Radio discussing communication. "Communication is always about effectiveness; without it we can't achieve anything. That was when I started forcing myself to read and listen to more English to improve my articulation," says Maduna.

This changed everything, as he upskilled himself and pushed forward with his dream to study and succeed in whatever career path opened for him.

## STEADY PROGRESS, INCREDIBLE ACHIEVEMENTS

His hard work led him to GVK-Siya Zama in 2012, when he was appointed to a junior position, quickly progressing in the company and eventually being given responsibility for some of the largest projects the company was building at the time.

"For me, GVK has been excellent in supporting me and my aspirations. By its very nature, the job I do offers some independence, which means it's been up to me to explore my potential to the fullest and take responsibility for what I've been given as a leader by the company," notes Maduna.

"We've seen tremendous growth not only in the region where I work, but also nationally. The key for us remains simplicity, doing the simple things in the best way possible and simplifying processes," he adds.

## THE NEEDS OF THE FUTURE

Looking ahead, Maduna hopes to see more eager and talented youth joining the ranks of GVK-Siya Zama and hearing more stories about people breaking boundaries and overcoming challenges in pursuit of their dreams.

"You're the only master of your destiny and your future, success and dreams are in your own hands," he says. ■

# WONDER WOMEN!

The Wits University's Framework Project run by GVK-Siya Zama is paving the way for young women leaders in construction, with 29-year-old Nonthando Maseko and 32-year-old Deetashree Pillay showing why there are limitless opportunities for the youth, and women.

The Framework Project is a contract that has been awarded to GVK-Siya Zama to carry out a given bundle of construction projects required by the university in a given timeframe. Leading the project since September last year is Maseko, a site agent, and Pillay, a quantity surveyor.

The duo oversees all projects involving renovations and new construction – some in the multimillion-rand bracket – with hundreds of workers under their leadership.

Maseko says that since entering the field of construction, she's seen endless opportunities for the youth, especially women, if they're ready to put in the work and glean from the experience of those around them.

"The industry is constantly growing and evolving and there are many roles which the

youth and women can occupy successfully, from quantity surveying to engineering, architecture, and so on. The important thing about the sector is to realise that every step is about gaining experience and no task is a waste of time, however menial. It's all about the process and learning the little details. You could start out folding drawings, but at the same time, you will learn the different types of drawings necessary for the various components of projects," said Maseko.

Pillay says that the industry could benefit from the varied perspective and different approaches that women bring and it's certainly not an industry only for men.

"Our empathetic side makes it easier to work in this type of environment – we can connect with the labourers on a level that men might not feel comfortable with. It makes the whole journey much more rewarding. Being in construction is tough: we work long hours, so if we've built a tight knit team, it makes things much easier," said Pillay.

Some of the projects that Maseko and Pillay are overseeing include a





new student residence being built, as well as the revamping of some of the oldest structures on the campus. As part of these projects, the duo assists students from Wits looking to enter the construction industry, to use the opportunity to gain on-site in-service experience.

Maseko and Pillay have embraced this initiative to attract and introduce the youth, especially women, into the sector.

“The project entails various elements, and Wits has put forward several students for us to take in and provide in-service training to, so that they can graduate. It’s been exciting to work with the students and offer them on-the-job training.

“GVK Siya Zama has provided valuable opportunities in the construction industry to encourage women in construction to enter and thrive in the industry. It has become more important than ever for construction companies to illustrate the economic, social and environmental benefits it provides. Construction companies who can demonstrate their economic, social and environmental value create a more diverse workforce, which improves performance in all of these areas,” said Pillay. ■



# 7 NEW COURSES FOR CONSTRUCTION PROJECT MANAGEMENT

The Project Management Institute (PMI), the world's leading association for project professionals, has introduced a series of seven courses to improve project management skills in the construction industry. Leading to a Construction Professional in Built Environment Projects (CPBEP) certification, the courses are designed to help project managers improve margins in the industry often plagued by cost overruns and project delays.

The CPBEP is the PMI's first industry-specific solution designed for construction professionals.

## **TECHNOLOGIES AND TALENT**

The PMI created the certification

in collaboration with construction industry leaders and consultations with project managers who face the twin challenges of balancing technology and talent. Both the Lean Construction Institute and the Construction Industry Institute were integral to developing the certification, along with Saudi Aramco, the US Department of Energy, DPR Construction and BHP, among others.

"We see improvement in technology adoption, but technology is just an enabler. It's still people and their skills that are critical to improving project performance," says George Asamani, business development lead: Africa at the PMI.

## **ADDRESSING CREEPING SCOPES, BUDGETS AND SCHEDULES**

A recent PMI survey of more than 40 000 certified project management professionals working in the construction industry found that 70% of construction projects experienced scope creep. A further 73% of such projects ended over budget. Moreover, it found that 72% of construction projects often experienced project delays.

GCR Ratings SA, in its Corporate Sector Risk Score, records that risk in the South African construction industry is characterised by the complex nature of work undertaken, as well as the relatively low margins that can be

extracted. It adds that lack of skills is a particular risk in the domestic construction sector.

In addition, construction companies face the ongoing threat of delays and cost overruns, resulting in loss-making contracts and substantial unanticipated cash outflows. Safety and environmental factors are also concerns, often leading to large, unexpected liabilities that damage reputation and add costs. GCR expects that a gradual adoption of technology will increase operating efficiencies, enhance skills, improve sustainability, reduce costs and improve profit margins.

#### ELIGIBILITY FOR CERTIFICATION

To be eligible for the certification, individuals need three or more years of experience as a project manager, lead or contributor in the construction/built environment. The courses can be taken in any order and present an opportunity for professionals to focus on topics they are most driven to explore. Students can either complete individual courses and earn specific micro-credentials or complete all courses in preparation for the capstone exam.

Three of the seven courses offer micro-credentials upon completion of a post-course exam. The micro-credentials award a digital badge to show the user's mastery of the content. Each course explores a specific area of construction project management, such as communication and risk management. The courses are:

**Built Environment Project Communication Pro:** This is a micro-credential opportunity,

including an online course and a post-course exam that teach how to create a communications strategy and increase stakeholder buy-in for a construction project.

#### Scope and Change Order Management in the Built Environment:

This course covers strategies to develop scopes, manage scope creep and establish change order processes.

**"THE GOVERNMENT, IN ITS LATEST BUDGET, HAS ALLOCATED R812,5 BILLION TO INFRASTRUCTURE PROJECTS OVER THE NEXT THREE YEARS."**



**Interface Management in the Built Environment:** This course teaches how to manage relationships and deliverables among project stakeholders, including improving real-time visibility and oversight and proactively mitigating risk.

**Built Environment Performance and Materials Management Pro:** This is also a micro-credential opportunity that teaches how to use metrics-orientated processes to increase transparency in projects, reduce waste and proactively address global supply chain challenges.

**Contract and Risk Management in the Built Environment:** This course explores best practices in risk management to implement throughout the entire project life-cycle, including how to manage high-impact risks effectively.

**Built Environment Technology and Innovation Pro:** This is the third micro-credential opportunity focusing on how to incorporate modern technologies across various construction projects and organisations.

**Execution Planning in the Built Environment:** This course focuses on new planning and execution approaches to improve project outcomes at all stages of the project life-cycle, including advanced work packaging, the last planner system and more.

The government, in its latest budget, has allocated R812,5 billion to infrastructure projects over the next three years. While this should significantly boost the construction industry, lack of implementation remains a key risk due to fiscal weakness and capacity constraints, including project management skills. If the construction industry is to leverage this spend, it needs to accelerate the adoption of technology and upskill employees, particularly project managers responsible for scoping, scheduling and budgeting.

"Construction is a demanding industry subject to the vagaries of weather, supply chain disruptions and a host of other often uncontrollable variables. It requires a well-versed project manager to bring the work in on time and within budget," says Asamani. ■

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# CAPTAINS OF CONSTRUCTION

**Faith Tshepiso Mabena, director of Nokhanya Services  
and MBA Western Cape executive committee member**



Faith Mabena has been a member of MBA Western Cape since 2018, having founded Nokhanya Services six years earlier. Her career in construction evolved from her stint in marketing, working for a prominent powerline and fibre-optic installation enterprise. Her lifelong passion for community development and desire to make a difference brought her to the world of bricks and mortar.

"I'm determined to have my work make a meaningful contribution to the lives of ordinary people and construction allows me not only to deliver housing, but to engage deeply with the communities I work in and properly understand what they need," explains Mabena.

With a series of successful low-cost housing projects under her belt, she puts a lot of work into optimising each project's opportunities for enriching the lives of the communities she works in. "Providing training must be guided by the practical outcomes," she notes. Her official training and professional competence are given expression in the various qualifications she holds from Unisa, GIBS, the University of Limpopo and the University of the Western Cape.

She says that receiving Best Established Woman Contractor of the Year at the 2018 Govan Mbeki Awards was a moment of real pride for her.

Mabena is committed to making an ongoing contribution to the MBA, as well as continuing to enjoy its benefits and making them available to other developing contractors. "I really found my 'construction voice' at the MBA," she enthuses. "It's truly invaluable: the contractual services, the health and safety support and all the other very real support provided by the association can't be underestimated. It represents the very concrete foundations of our trade." ■

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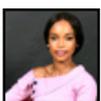
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- Integrating ESG into the business process: what opportunities does this bring for women in mining and mining business
- Developing capacity building tools and programmes that attract, retain, and promote the advancement of women in the mining sector
- Technically we are ok, all we need is Confidence
- Promoting leadership, inclusive and sustainable empowerment of women in the African mining sector
- Discussing road safety in the mining sector in Zimbabwe
- Looking at the role of WIM organisations in engaging men to promote gender equity
- Highlighting the role played by women in mining forums in advancing the African mining sector

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