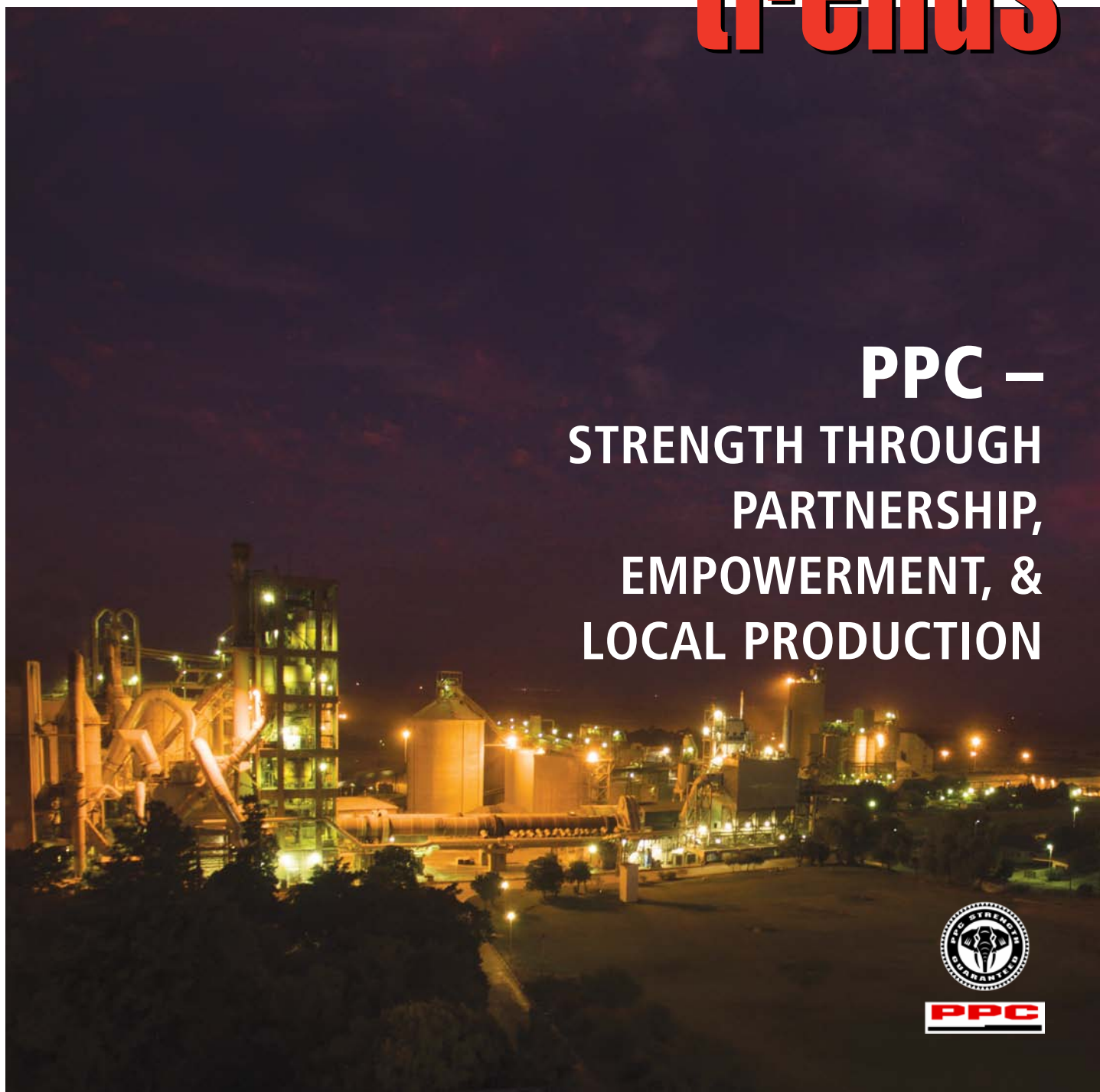


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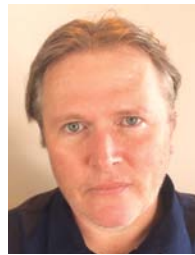
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## Changing for the better



Nicholas McDiarmid

As 2021 dawned, it seemed like all bets were off when it came to how this year unfold. I have the good fortune to communicate with so many wonderful concrete professionals, and everyone has reason to feel cautious. Together, however, we can take a collective sigh of relief: there are enough signs of recovery, paired with highly effective market changes, to have full confidence in a better environment all round.

### IMPORTS, EXPORTS AND THE ASSOCIATIONS WORKING FOR US

The extremely welcome news of government action in full support of our local cement producers cannot be celebrated enough. The impact of cheap, largely unregulated imported cement has been dire. The need for correction has been clear, and finally government has agreed that all public sector projects are required to use locally produced cement, to the exclusion of imported cement. There is wide agreement that this is a fair solution. Work remains to be done, and National Treasury notes that formalising the designation of local cement for all public sector build projects will take a little time. The strength of the industry and its associations has won a great victory.

### CEMENT & CONCRETE SA

On a related note, the creation of a consolidated industry body has been in the works for some time now, and the welcome announcement the Cement & Concrete SA (CCSA) is open for business came on 1 March 2021. With such recent evidence of the market power of unified industries, the significance of CCSA is profound. As CEO Bryan Perrie points out: "At a time where many conflicting and ambiguous messages are shared readily on various platforms, and with the proliferation of substandard products and services, the need for authoritative engagement with all stakeholders is critical."

Being strongly member-driven, CCSA is a gravitational point for the rich base of expertise, skills and in-the-field experience of its member companies and individuals. Structured to empower members to truly shape the association's activities and services, the branch committees of the erstwhile Concrete Society of SA will be retained to ensure that CCSA will have concrete ambassadors in various regions.

### THE VACCINE

We must never underestimate the number of lives saved by the numerous lockdown measures required to minimise the spread of COVID-19. Now that we have a vaccine, and South Africa will be making its own inroads into getting the jab into the nation's arms, the reality of actually beating the pandemic is upon us. So whilst South Africa has reached level 1 again, let us reach the vaccination point as safely as we can. We need those masks, the sanitisers, the distances. We need them especially on the construction site, and in our concrete factories.

Here is to a safer, happier and more prosperous industry. ■

Nicholas McDiarmid, Publishing Editor, Concrete Trends

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# Cement & Concrete SA

## driving the industry sector to new heights

**C**ement & Concrete SA (CCSA) has announced the new consolidated industry body is open for business and is set to take the lead on all matters relating to cement and concrete in South Africa.

The single non-profit entity, CCSA, was established through an extensive and thorough process of engagement with various stakeholders to consolidate The Concrete Institute (TCI), Concrete Society of Southern Africa (CSSA) and the Association of Cementitious Material Producers (ACMP).

### THE BENEFITS OF A UNIFIED PLATFORM

The body will create long-term shared value and industry growth in South Africa through driving collaboration, skills development, innovation, and the highest standards in sustainable cement and concrete materials and products.

Bryan Perrie, CEO of Cement & Concrete SA, states that CCSA has been mandated to promote and support



the industry, to drive growth and deliver shared value through a unified platform for cement and concrete. "At a time where many conflicting and ambiguous messages are shared readily on various platforms, and with the proliferation of substandard products and services, the need for authoritative engagement with all stakeholders is critical." Perrie adds.

### SERVICES FOR INDIVIDUALS AND CORPORATES

A new and inclusive membership model will make the portfolio of services offered by CCSA available to individuals or corporates, either for free or at members' discounted rates. These services include courses presented by the School of Concrete Technology, access to the Information Centre, attendance at technical events and webinars, publications, and hyperlinked listings on various electronic sources, to name a few. CCSA, through its members, will create the opportunity to build a healthier future through a network of influencers. Working with industry role players to develop the value propositions of cement and concrete is one of the identified objectives of CCSA.

### THE VALUE OF CREATING THE SOUTH AFRICAN CEMENT AND CONCRETE STORY

Other goals include: to promote the value creation story of the cement and concrete industry in South Africa, supporting research as a means of increasing the ongoing expertise base, and the promotion of industry standards and audit compliance amongst members and industry role players.

### TRAINING, RESEARCH AND ADVISORY SERVICES

On a more practical level, CCSA will grow industry expertise and build capacity by developing and offering courses, seminars, and training materials.

### CONCRETE AMBASSADORS

The provision of information, research, advisory and on-site technical consulting services will be another service offering available to members. CCSA's dedicated focus on committees will ensure that all relevant areas are addressed with expertise through consultation. The committee structures will empower members to guide and shape many of the services. The branch committees of the erstwhile Concrete Society of SA will be retained to ensure that CCSA will have concrete ambassadors in various regions. "We are excited about the future of the cement and concrete industry in SA. The staff of CCSA are ready to discuss membership options and benefits. We are poised to add value and unlock opportunities for all members, and the industry at large," Perrie concludes. ■



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Tel: 011 315 0300 | [www.cemcon-sa.org.za](http://www.cemcon-sa.org.za)**



## WCA Gender Focus Network

In late 2020, the World Cement Association launched the Gender Focus Network (GFN) with the aim of tackling gender inequality in the cement industry and making the sector more attractive to women, as the participation of women in this particular working environment is very low.

According to data from the US and from the “Big Four” cement companies, only about 13-15% of the sector’s workforce is made up of women. This number decreases as you move up the management hierarchy, in particular departments and in the plants themselves. This is due to a number of issues, including structural barriers, many fewer women in STEM subjects, and problems in attracting and retaining female talent in what is perceived as an old, male-dominated industry.

In light of this, the GFN has four key aims: firstly to improve the representation of women within the cement industry, to encourage member companies to implement gender diversity programmes and strategies, to create a space for sharing best practices and also to foster women’s empowerment and professional development in the industry.

The first area of work will be addressing the information deficit in the industry by carrying out a benchmarking exercise of WCA’s member companies, aiming to fill the data gap and to make the issue more visible. Further activities will include hosting online networking events and information-sharing sessions, identifying and promoting female speakers at WCA’s events, and also, COVID permitting, hosting a dedicated in-person session at a future conference.

In addition, for this year’s International Women’s Day, the GFN featured in an episode of the Clinker Factor, WCA’s podcast, in line with 2021’s theme of “Choose to Challenge”, choosing to address the diversity issue head-on, exploring



cement’s gender gap in different countries and showcasing the work of women in WCA’s member companies.

We acknowledge that this is a complex issue, and that there is no ‘one-size-fits-all’ solution to the issue: what works in one cultural or company context doesn’t necessarily work in another. However, by creating a space for women in the industry, to share experiences and best practice, foster networking opportunities and highlight the achievements of cement’s diverse women, we are confident that we can create a more positive and inclusive environment for all. ■

**Manon Burbidge**  
**Communications & Policy Coordinator**  
**World Cement Association**  
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# Preparing for the repair of non-structural concrete defects

*There are essential steps to follow before and during the repair of relatively minor yet unsightly concrete defects. Bryan Perrie, Managing Director of The Concrete Institute (TCI), outlines what to do – and avoid – when tackling such projects.*

**F**irstly, repairs to new concrete should be done as soon as possible after the formwork has been removed to reduce differential shrinkage and improve the bond between the original concrete and the repair material. Before doing the repair, all dust and detritus must be removed from the surface to be treated by, for example, washing vertical and near-vertical surfaces with clean water.

For manual repairs, suitable for small areas, feather edging – trying to seamlessly blend the repair material into the existing concrete – should be avoided. The outline of a repair should be cut with a masonry cutting disc or saw to ensure a square edge.



## THE ADHESION FACTOR

Good adhesion between the original concrete and the repair material is essential and, to ensure this, the surface of the original concrete must be strong, rough and clean. Any loose or weak material must be removed with sharp chisels, driven by relatively light hammers. But it is important to remove the unwanted concrete in such a way that the remaining concrete is not badly damaged. Sand-blasting, which can remove small volumes of concrete, is an excellent means of achieving a rough surface free of loosely adhering material.

In cases where the repair areas are large (say over 0.1m<sup>2</sup>), and especially where persons could be injured by falling fragments, it is strongly recommended not to rely solely on adhesion between repair and background concrete but to provide mechanical fixing. Ideally, done with corrosion-resistant metal devices such as screws or rods, preferably of stainless steel. Install fixing devices after the surface preparation is complete.

To ensure strong adhesion of fresh concrete or mortar to a substrate of hardened concrete, the substrate should have enough suction to absorb the water film at the interface but should not desiccate the repair material. There are various ways to achieve such suction, depending on the age and density of the concrete. If the concrete is fairly new – say within 48 hours of being placed – simply allowing the surface to become visibly dry should suffice. Concrete with low absorptiveness does not require pre-wetting and should be repaired in a dry state.

## PRIMING THE SUBSTRATE

The substrate should be primed with a slurry immediately before the repair material is placed. The primer slurry should be a mixture of equal volumes of cement and dry plaster sand with sufficient water to achieve a “paint consistence”. Neat cement paste is difficult to mix and is not recommended. Polymer emulsion may be added to the mixing water – one part emulsion to two parts water is usually satisfactory.

Primer slurry must be applied as a thin coating to the substrate using suitable brushes. Do not allow primer to accumulate in depressions in the surface and prevent the primer to dry before applying the repair material. Priming must therefore be done immediately ahead of repairing and is best done over a small area at a time. Polymer emulsion on its own must never be used as a primer.

Older concrete should be assessed for absorptiveness by wetting the surface: if the water is rapidly absorbed, the rate of absorption would be too high; and if the water is hardly absorbed, the rate is too low. Concrete with high absorptiveness should be saturated for some hours before repairs are carried out. Surface water must then be removed and the surface allowed to become visibly dry and repairs undertaken straight away. Remember never to attempt repairs to concrete that has a water sheen.

Good compaction is essential in concrete repairs. Semi-dry mixes must be compacted by heavy tamping and plastic mixes applied with heavy pressure on the trowel or spatula.

## KEEPING UP APPEARANCES

Where appearance is important, repairs should be finished to match the texture of the surrounding concrete using tools such as wood floats, steel trowels, sponges, wire and nylon brushes. If colour matching is essential, it should be noted that repairs tend to be darker than the original concrete when dried out. So, white portland cement may be substituted for about a third of the grey material if such a colour match is required. The optimum substitution ratio should be determined by test: carry out a repair in an unimportant area and assess colour once the repair material has hardened and dried.

Repairs must be moist cured for at least seven days. Plastic sheeting, fixed along the edges to the concrete with pressure-sensitive tape, is effective to trap moisture and ensure adequate curing. Good quality membrane-forming curing compounds may also be used but remember that drying of the concrete repairs may be retarded if these curing compounds are not removed from the surface.

After completion of the curing period, polymer-modified repairs must be allowed to dry out completely before being subjected to wet conditions. This allows the emulsion to coalesce and become water-resistant. ■



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- Assistance with procuring the services of an alternative dispute resolution practitioner

# Greening hard wearing driveways with Armorflex

Don't you just wish, when driving along a bumpy sand road, that there could be some form of tracking to make the journey easier? Or even when driving up your own driveway, that there is an attractive greened track that blends in with your already established landscaping? A simple yet highly engineered hardlawn paving from Technicrete, Amorflex HLP, is probably the best solution for a stable grounding.

Easy to maintain by using traditional lawn maintenance techniques, Amorflex HLP paving blocks allow the natural greening of paved surfaces to form hard wearing grassed driveways, roadways, parking areas and embankments. They can also be used on embankments for light duty erosion protection as well as a light stormwater run-off.

Once earthworks have been designed to suit the application loading, the preparation for the laying of the Amorflex HLP blocks includes creating a surface of layer works to standard specifications 1200MJ (max 10mm in 3m), and putting down a river sand bedding (with a recommended thickness of between 10mm and 15mm). The blocks are then hand-compacted into the bedding sand using a rubber mallet.



The top openings in the Amorflex HLP blocks are filled with topsoil and grassed prior to trafficking. The blocks allow natural or planted vegetation to grow through their openings providing the natural aesthetically pleasing finish once installed. Keeping the soil intact is helped by the roots of the plant growth.

The Amorflex HLP blocks are available in 340mm x 294 mm with a 90mm thickness, primarily in grey but other colours are available upon request. ■

## World-class sustainability ratings for top-rated projects

Despite the slowdown in new-build projects, Zutari is still receiving enquiries from property developers keen to pursue Green Star ratings. The engineering consultant has worked on two out of only a handful of projects in South Africa to receive an As-Built 6 Star Green Star rating from the Green Building Council of South Africa (GBCSA), the highest level of sustainability accreditation in the country. This demonstrates the skills and knowledge of the Zutari team to successfully deliver consulting and certification for such large, complex commercial projects.

### FROM SANDTON TO CENTURION

The first was One Discovery Place in Sandton, developed by Growthpoint Properties in joint venture with Zenprop Holdings. As the Environmentally Sustainable Design (ESD) consultant, Zutari was responsible for integrating the design and building services, explains Yovka Raytcheva-Schaap, Associate, ESD Consulting & Project Management.



*Yovka Raytcheva-Schaap, Associate, ESD Consulting and Project Management, Zutari*

In addition to achieving a 6 Star Green Star As Built rating and a 5 Star Green Star Design rating, the Exxaro head office in Centurion, also developed by Growthpoint Properties, is the first building in South Africa to achieve Silver Level WELL certification for Core and Shell by the International WELL Building Institute (IWBI).

One Discovery Place and the Exxaro head office are not only in the top echelon of 'green' buildings in South Africa, but can be benchmarked against the best internationally. In addition, the tenant Exxaro is also pursuing a Green Star 'Interiors' rating for the head office, reveals Louwna Joubert, ESD Consultant at Zutari.

### WHAT'S INSIDE ALSO MATTERS

"The overlap between all of these different ratings and certifications is the indoor environmental quality category. The interior design team did an excellent job and ticked all of the boxes, from large open spaces and space planning that allows views to the outdoors and immediate connection of occupants to appropriate material and finish selections," highlights Joubert. "It is really a journey you embark upon with a lengthy project like this. The entire professional team has to collaborate in terms of problem-solving and it is a proud moment when you see the end result."



Louwna Joubert,  
ESD Consultant  
Zutari

"Pursuing a Green Star rating for a project of this scale is all about co-creating a tailored solution to meet the client's specific requirements. It is a truly integrated approach with all working together to achieve a common goal of sustainability," stresses Joubert.

Explaining how the Green Star certification and WELL rating process dovetailed at the Exxaro head office, Raytcheva-Schaap notes that a high score was the goal from the outset. "During the concept design phase, we explored the option for a WELL rating because both the client and tenant were keen to push the envelope." While Green Star targets environmental sustainability, WELL focuses on occupant health and well-being.

"It was a natural process to leverage Green Star targets towards a WELL rating. From our early assessments, it was clear that WELL certification was also within our reach," adds Raytcheva-Schaap. The health of building occupants is currently under the spotlight due to the Covid-19 pandemic, from ensuring infection control measures in air-conditioning systems to creating a healthy and comfortable indoor working environment.

In terms of current property trends, Raytcheva-Schaap

sees an increased focus on developments that pursue greater energy and water efficiency and increased indoor environmental quality. "This will really contribute to the sector promoting better living and more sustainable practices that are likely to become the norm rather than the exception going forward."

#### THE POWER OF MULTI-DISCIPLINARY TEAMWORK

Key to Zutari's success in this sector to date has been its approach of promoting an 'engineered impact' for its clients. "Our team is composed of members from diverse professional backgrounds and with different skill and experience levels. Our multidisciplinary service offering definitely contributes to what we can provide as complete solutions for clients," elaborates Raytcheva-Schaap.

Looking at the Covid-19 pandemic in particular, Zutari has developed a comprehensive tool to assess buildings in terms of their readiness for return to office after the prolonged lockdown. In addition, Zutari collaborated with the GBCSA to develop a broad guideline for such safe return. "Many are expected to do so in the New Year. However, the pandemic is not over yet, so it is important that property owners implement operational and management practices to ensure the health and wellbeing of building occupants when they do return," concludes Raytcheva-Schaap. ■

## Global recognition and sound prospects for 2021



Jet Demolition  
Contracts Manager  
Kate Bester

Being crowned 'Best of the Best' at the World Demolition Awards 2020, in addition to winning the Explosive Demolition category, in an online awards ceremony on 12 November topped out an extraordinary year for Jet Demolition. "The honour of being recognised as world leaders by our peers gave us an innate and indescribable sense of humility and was a reminder of the incredible talent of people we have the privilege of working with." Jet Demolitions' Contracts Manager Kate Bester (NDip Civil Engineering – PMP),

speaks to **Concrete Trends**.

#### FROM REACTIVE TO PROACTIVE – A SOUND LEARNING CURVE

"Last year was extremely demanding. To have industry effectively grind to a halt amidst a global pandemic has never been factored into any risk strategy. As was the case with most businesses globally, it resulted in a very reactive approach that eventually evolved into a proactive approach to ensure the safety of our teams," explains Bester.

Jet Demolition has risen proudly to the challenge of maintaining an ingrained safety culture, clinching its 19th consecutive NOSCAR award in 2020. These awards celebrate a

commitment to developing, maintaining and implementing the finest in global safety practices and speak of the commitment to safety throughout all areas of an operation. "Recognition on this level is encouraging and affirms our drive to tackle the most demanding and challenging projects head on," highlights Bester.

#### WORKING WITH MULTIPLE IMPACTS

Another challenge has been determining the impact of the pandemic on related industries such as construction. Of course, the South African economy was struggling prior to that point,



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## Industry trends

with major projects suspended or put on hold. There certainly was a marked increase in the number of suspended projects when the pandemic took hold which, in turn, directly impacted the demolition industry.

"All contractors, whether demolition or civil, are systematically navigating these challenges as best as possible," stresses Bester. Jet Demolition's commitment to keeping its equipment modern, current and in good condition has assisted in mitigating what are ultimately short-term challenges. "The vast majority of our fleet is owned and in top condition, giving us the freedom to commit to projects as they arise," adds Bester.

Could the demolition industry see an increase in the deployment of robotic or automated technology due to Covid-19 restrictions such as limited interpersonal contact? Such technology is ideal for operations where it is simply too dangerous to deploy personnel to the workforce, including demolition works in an area prone to sinkholes.

"Although this technology is available and is in limited use, it will never replace the skill and capability of personnel with years' experience. There is always an opportunity to improve on methods and strategies, but in an industry such as ours, the ability to read a structure, or to assess and reassess an approach based on the way it reacts during demolition, is still a long-way off from being replaced by remote equipment," notes Bester.

As for growth and expansion going forward, Jet Demolition is always on the lookout for opportunities within South Africa and further abroad. "We have successfully partnered with companies such as Edifice Engineering for the Kochi Implosions Project, and look forward to partnering with other contractors wherever our services may be required. By partnering, other contractors are able to undertake projects that may require a specific skillset. Similarly we get to explore interesting countries and assist in some of the most challenging work out there."



▲ Jet Demolition has over 60 specialised demolition machines in its fleet

◀ Large scale commercial demolition within an urban environment

## STRENGTH IN ADAPTATION

Bester remains upbeat about the prospects for the South African economy in 2021. "We hope to see an upturn in business as more companies and individuals learn to adapt to an ever-changing environment in ways that are responsible and proactive. The only certainty is that Covid-19 will be around for a while yet. South Africans, by virtue of who we are, remain resilient. We will adapt and adopt safer procedures and practices to keep our personnel safe and learning new ways of doing business."

Bester concludes: "We have found the pandemic disruptive and our year-end a complete diversion from where we had hoped to be. We are adapting and transforming our practices to suit our new reality. As with the rest of the global community, we will continue to face these challenges head-on, implementing changes and improvements where necessary, all the while delivering the safest solutions to the most challenging projects." ■

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Quality cast in concrete

# PPC – partnership, empowerment, & local production

*As South African as... De Eerste Cement Fabrieken Beperk... or PPC to you and me. Literally South Africa's first cement production company, PPC started out life in 1892, named purely for its place in the order of things. There simply isn't a South African alive who has not grown up, worked in, healed in, learned in, walked on, walked under or sat on something made with PPC Cement. The ubiquitous PPC elephant is as South African as...*



PPC De Hoek at sunset

**A**nother very South African characteristic is our ability to survive, adapt and thrive under both adverse and ideal conditions. And as Johan Vorster, Head of PPC Coastal Business Unit points out, PPC's success owes much to its uncompromising attitude to quality: "PPC has a legacy in South Africa, which includes adapting and changing our operations to continuously streamline our operations and create a robust ability to include and develop the communities we operate in and around."

**ADAPT AND THRIVE**

With its long history in South Africa, PPC has the institutional knowledge and the skills to best adapt to constantly shifting demands: "It is quite interesting that our decision to shut down our Port Elizabeth kiln led to the impression that our area operations as a whole had shut down," explains Vorster.



*Johan Vorster, Head of PPC Coastal Business Unit*

"Quite the opposite is true: we shut down the kiln as part of our strategy to meet our country's emission standards." The option to transport clinker by rail from PPC's North West Slurry factory put a stop to the older kiln's emissions entirely, and allowed for the positive R60 million investment into their new Port Elizabeth material landing facility, employing 34 local residents.

**QUALITY SUPPLY CHAINS IN EVERY REGION**

Supplying materials to its Eastern Cape operations is essential to its ongoing commitment to providing access to quality cement and cement products across South Africa. This advanced exercise in logistics, coordinates delivery not only all over South Africa, but to Botswana, Zimbabwe, Rwanda, the Democratic Republic of Congo and Ethiopia, is a testament to the company's legacy, presence, place in its communities and incredible track record.

"PPC's customers in the entire Country have access to our laboratories, which is an essential component of building with cement and concrete," continues Vorster. "We have Technical laboratories at all of our factories to ensure that we provide consistent quality products to the market and also provide value added services like mix designs, application onsite training to our customers."



*PPC's De Hoek plant started operating in 1923*

“With so much imported cement in South Africa, our customers are more vulnerable than ever that standards can be compromised. Imports themselves have no technical backing, but of course they can be cheaper.”

By way of example, Vorster points to PPC’s 360 degree marketing programme, which sees brick making skills transferred to local residents, enabling these end-users to become producers themselves. “It is now more important than ever that traceability of product through the whole supply network be transparent and clear. Our laboratories are essential in supplying this function.” It is important to note that PPC also has the skills to ensure projects like the wind power installation – for which the quality and composition of product is non-negotiable – are deliverable to any part of the country.

**LOCAL IS ESSENTIAL**

The extremely welcome news of government action in full support of our local cement producers cannot be celebrated enough. The impact of cheap, largely unregulated imported cement has been dire. The need for correction has been clear, and finally government has agreed that all public sector projects are required to use locally produced cement, to the exclusion of imported cement. There is wide agreement that this is a fair solution.

“PPC, as a local producer, is at the centre of this messaging,” says Vorster. “We as industry must do our part to ensure this comes to pass in a meaningful way, that is helpful also to local emerging contractors as well.” Vorster acknowledges that when price is the dominant choice factor, imports have an advantage, unfair or otherwise.

**BUILDING A STRONGER INDUSTRY**

“With local designation, if a brick maker is buying cheap imported cement; those bricks cannot be used in any public construction project. Now, to level this playing field, and ensure that this message is transmitted accurately, and is adequately enforced,” explains Vorster. “As industry, we have to play a strong role in establishing practical and meaningful controls, rules and recognisable marks of compliance,” he

◀ *The plant is a hub of economic activity*

continues. Vorster emphasises the importance that the cement industry and the construction industry immediately start to play a central role in making the designation work from a practical stance. Equally, the role of the media is essential in distributing it and playing the role of witness to its establishment, implementation and keep a watchful eye out for deviation.

The establishment of Cement & Concrete SA (CEMCON-SA) is especially welcome at this time. “This consolidation is long overdue” enthuses Vorster. “We can now truly bring our industry to maturity, and exercise proper influence at levels of government and be a force for good in transferring skills, setting standards and bringing all players into the fold.” PPC RSA Managing director, Njombo Lekula, has played an active role representing the cement industry through the Concrete Institute, and the consolidated advantage of CEMCON-SA is the strong leadership necessary for it to thrive.

Vorster welcomes early support being shown by The Western Cape Government: “We have had such positive reinforcement from Department of Economic Development and Tourism,” says Vorster. Positive discussions with the Head of Department, Mr Solly Fourie, has resulted in a commitment to drive adherence to the national designation of local cement through Western Cape’s municipalities.”

Partnership is key to moving the whole construction sector forward. Positive signs abound in terms of projects, transparency, skills management and now procurement. “We have to drive the commitment of every stakeholder to using local products, and managing the ability to do so effectively. PPC is in a top position to contribute to this, with multiple channels, and overall offering,” says Vorster.

Before ending our interview, Vorster emphasised two other top priorities:

- CO<sub>2</sub> reduction in cement production – achieving zero emissions by 2050
- Upskilling through education and training

“There are many wonderful advances we must continue to champion in South Africa. Women in construction are very close to my heart; we have supported many woman owned initiatives in the Coastal region, including a Building Stokvel for women.” say Vorster. “PPC has always thrived on optimism and continues to do; South Africa thrives when we promote a can-do attitude coupled with upskilling through education and training.” ■



*The plant is model of modern technology*





## An engaging market for strategic growth

**T**he African Continental Free Trade Agreement (AfCTA) kicked in on January 1 2021, and is a sea change for companies expanding their African operations. West Africa represents some of the continent's leading centres of growth for the construction industry.

In Nigeria alone, active construction projects represent a collective value of US\$54.2 billion and comprise 28 percent of all West Africa's construction projects. Nigeria's construction industry has a projected value of US\$28 billion by 2024. Demand for building materials in West Africa has never been greater, driven by both the mining and construction sectors, and the need for innovative solutions for greener concrete tops the list. Construction projects on the continent are getting bigger and more complex. A rising middle class combined with strong economic growth is driving urbanisation as never before. Activity in infrastructure is driven in support of this, and in both cases, funding models are becoming as innovative as the materials driving a greener economy.

### GETTING IN ON IT

Accessing this vibrant market place is in itself an important business, and both information and networking remain the top routes in. Once there, questions that seem answered in one market, may need an entirely different answer in another. Understanding the region's priorities, the role-players and stakeholders, the logistics and trade relationships and the intricate network required to bring a project to completion demands a very specific approach to project management.

“The country currently has 68 major building projects with a total capital expenditure of approximately \$73 billion, second only to South Africa on the entire African continent.”

### RISING COSTS – BUILDING IN MATERIALS AND LABOUR

In rapidly markets it is not unusual to encounter rapid escalations in the cost of materials and labour, and to maintain profitable margins requires a great deal of forward planning – and

where possible – forward procurement. Indeed, the current dip in material prices is an alert that project managers would do well to pay attention. The bottom line of growth expectation brings to anticipated 5 percent of the coming two years to 2023.



### DEMAND FOR GREEN CEMENT IN WEST AFRICA

Demand for green cement in Africa will provide an increasingly lucrative market over the next few years due to growing trends in sustainability and energy efficiency for both buildings and infrastructure

The global market for green cement is expected to grow to US\$38.1 billion by 2024 from US\$14.8 billion in 2015. Green cement reduces the carbon footprint of construction activities through the substitution of cementitious industrial wastes, such as fly ash from coal-fired power plants and slag from the steel and iron processing industry, as a replacement for traditional cement. Other attributes of green cement and concrete include mitigation of transport CO<sub>2</sub> contributions, as well as the associated outputs of aggregates and admixtures.

The coming years will witness an increase in demand from local African marketplaces for more sustainable products in the local built environment.

### NIGERIA'S CONSTRUCTION INDUSTRY

Nigeria is one of the most attractive markets in Africa for all in the construction sector. In West Africa, of the US\$120bn committed to infrastructure spending across 92 projects, 61 percent is earmarked for plans in Nigeria. The country currently



Dangote Oil Refinery

has 68 major building projects with a total capital expenditure of approximately \$73 billion, second only to South Africa on the entire African continent.

The stabilisation of the naira, the utilisation of new contract structures and an increase in local suppliers are now helping to provide fertile ground for trade. Local content, in particular, is playing a larger role in the market, with domestic companies active as both standalone contractors and as subcontractors for foreign firms. While public sector tenders – which have traditionally been the source of major works – remain limited compared to the booming years of the 2000s, the increase of private development in the residential and commercial building segments offers promise.

Given the size of the Nigerian economy and traditional spend of other African states, however, these figures mask a

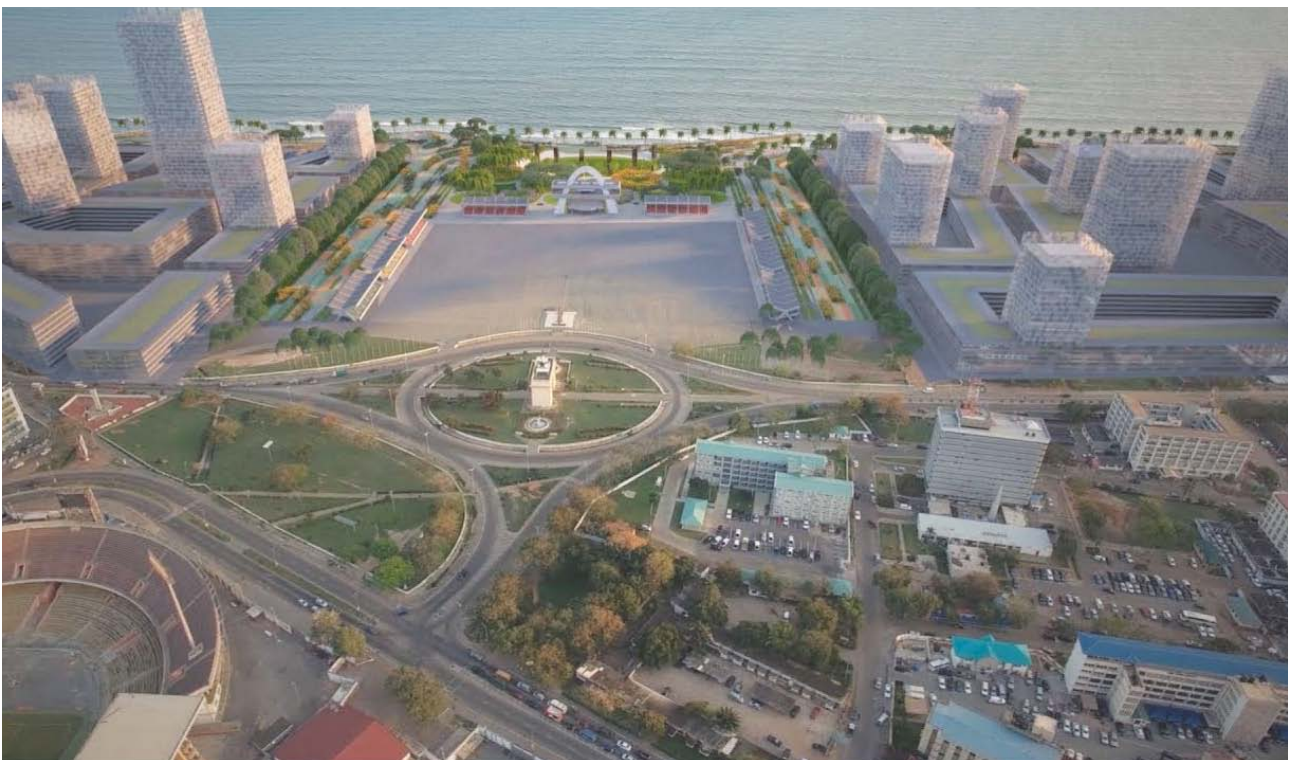
historical underspend in gross fixed capital formation (GFCF), a category that includes infrastructure projects and land improvements. An average GFCF of 30 percent of GDP is considered optimal for creating a growth-conducive environment, but in recent years, Nigeria has spent just 11.9 percent of GDP compared to a sub-Saharan Africa average of 21.5 percent. Ethiopia, the continental leader, spent an average of 32.8 percent of its GDP on infrastructure over the last decade.

**Construction and infrastructure project in Ghana**

- Rail network, including several rail lines within Ghana and regional lines; a coastal line running from Nigeria through Ghana to Cote d'Ivoire; and a North-South line from Ghana to Burkina Faso
- District and regional hospitals project
- West Africa Petroleum Hub - proposed
- Takoradi Gas Tank Farms
- Gas Pipelines – laying pipelines in mining areas around Tarkwa
- Ghana Trade Fairground Redevelopment
- Expansion of Secondary Schools under the Second Cycle system
- Affordable Housing
- Accra Marine Drive Tourism Project
- Tetteh Quashie Cocoa Museum
- National Cathedral
- Cape Coast Slavery Museum
- Petronia City Project

**GHANA UNDER CONSTRUCTION**

The construction sector in Ghana appears to be performing well, and contributes substantially to gross domestic product (GDP) and employment. For example, the demand for cement,



a key indicator of construction activity, is expected to increase consistently from 8.8 million metric tonnes in 2017 to 12.5 million by 2021.

The US\$8 billion Ghanaian construction sector, which accounted for 18.8 percent of the nation's annual GDP in 2018, is a central pillar of Ghana's National Development Plan. Provisional estimates released by Ghana Statistical Service indicate that the construction industry recorded a growth rate of 18.3 percent year-on-year for the third quarter of 2018. The industry provides employment for approximately 420,000 people and an estimated 2,500 active building and construction contractors currently operate in the Ghanaian market. Players range from indigenous micro-enterprises and individual contractors to foreign multinational civil engineering and construction giants.

### INDUSTRY PLAYERS

The construction industry in Ghana is composed of building project consultants, engineers, architects, quantity surveyors, building contractors and artisans. The Chamber of Construction Industry Ghana is responsible for governing and regulating the activities of this industry, from advocating to helping find overseas suppliers.

Contractors in Ghana are classified under the housing and roads and civil works subsectors. This classification is made primarily based on the company's financial resources, human resource capacities and level of technology (i.e. type and efficiency of equipment employed). However, there are different

classifications for contractors in the housing and roads subsectors. Those in the housing subsector are grouped into four classifications, depending on the value of the project to be implemented. Please find classification below:

1. Contractors with the capacity to execute projects that are above \$500,000 in value
2. Contractors that have the capacity to execute projects up to a value of \$500,000
3. Contractors having the resources to implement projects with a maximum value of \$200,000
4. Contractors with the means to carry out projects with a maximum value of \$75,000.

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- Air transport operators for domestic and sub-regional services
- Upgrading of existing trunk roads
- Affordable housing construction
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**TECHNICRETE**

*AfriSam is committed to environmentally responsible operational practices and regards itself as a leader in this field within the cement and construction materials sector*

# Cementing the future of our planet

**H**aving met the requirements of South Africa's environmental regulations, AfriSam is proudly moving beyond compliance toward a more sustainable future.

As the first cement manufacturer in southern Africa to publish an environmental policy – as early as 1994 – environmental concerns are a central mandate for the management team, according to Nivashni Govender, environmental specialist at AfriSam.

"We consider ourselves as leaders in this field within the cement and construction materials sector, as it has been our focus since the early 1990s," says Govender. "Our prioritisation of people, planet and performance is now a personal commitment for each employee in their area of work."

## NATIONAL FRAMEWORKS

This highlights that, with government regulation becoming steadily more stringent, AfriSam has now identified that four of the 10 most high risk Acts governing the company's compliance relate to the environment."

These four Acts – the National Environmental Management Act (NEMA), the National Water Act, the National Environmental Management Air Quality Act and the National Environmental Management Waste Act – have provided the framework against which AfriSam has been continuously improving its environment-related performance, she says.

"With the commitment from as high up as board level, we will be increasing our environmental awareness levels within the business this year," she says. "This supports not only the senior and middle management levels who drive environmental compliance, but also is important in raising awareness among all employees."

## MANAGING WATER

Water is a key focus for the company across its cement, readymix and aggregate divisions, she highlights. At the cement operations, considerable water volumes are required for dust suppression and other purposes – so rainwater is collected and stored in sumps, as well as in the mining areas. This is used to meet many of the plant requirements, to the extent that the Ulco plant near Barkly West in the Northern Cape, does not rely on municipal water supply. Drawing a limited volume from the Vaal River, the operation treats water for its own use, including potable water, thus reducing reliance on the already stressed municipal system.

"The same principles apply at our aggregate operations, where the aim is to reduce any consumption from municipal

sources, thereby easing pressure on their resources," says Govender.

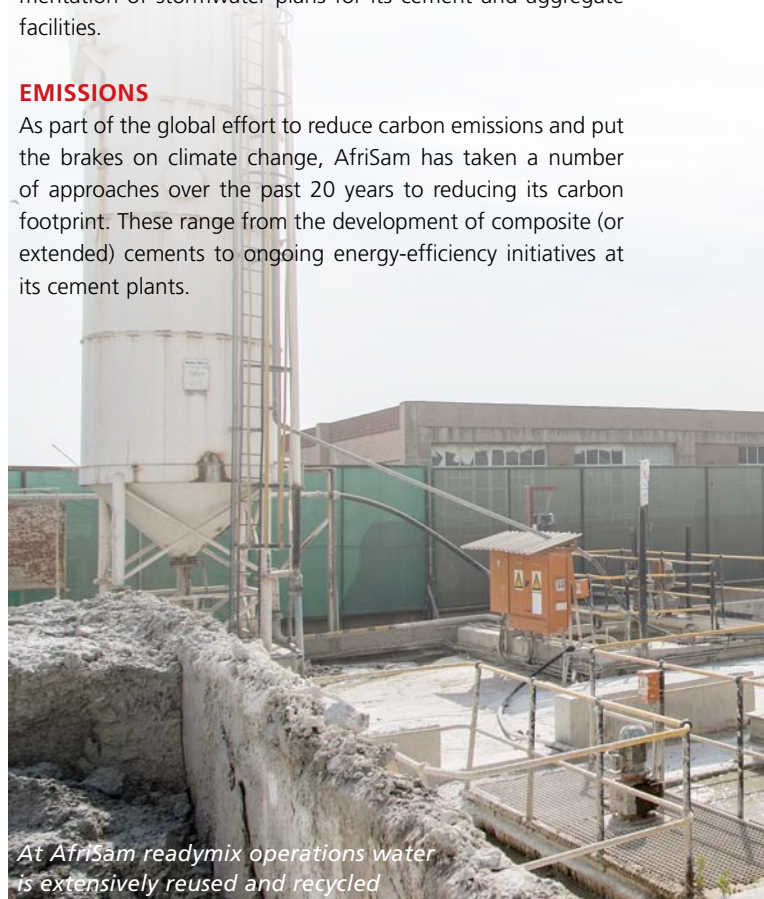
At the readymix operations, water is extensively reused and recycled. Among the most water intensive activities is the cleaning out and washing of concrete residue from the inside of concrete mixer drums after product is delivered. This water is channelled and stored in lined settlement facilities, and is then reused in the batching process of making concrete.

"It is also vital for us to monitor water quality at our cement and aggregate plants, so we conduct monthly testing on all applicable waterpoints," she says. "By applying certain parameters for identifying chemicals through SANAS accredited laboratories, we are able to pick up any signs of pollution timeously and respond accordingly."

It is also important to have all stormwater facilities in good working order, to maintain the separation of clean and dirty water. AfriSam has invested heavily over the years in the implementation of stormwater plans for its cement and aggregate facilities.

## EMISSIONS

As part of the global effort to reduce carbon emissions and put the brakes on climate change, AfriSam has taken a number of approaches over the past 20 years to reducing its carbon footprint. These range from the development of composite (or extended) cements to ongoing energy-efficiency initiatives at its cement plants.



*At AfriSam readymix operations water is extensively reused and recycled*

The company has for many years been a leader – along with other local industry players – in the development of composite cements. These cements contain not only clinker but other cementitious materials such as fly ash from power stations and ground granulated blast-furnace slag (GGBS) from steel-making plants. The scientific usage of these products into AfriSam's cement significantly enhances the performance of the resulting concrete without compromising on quality.



*AfriSam has taken a number of approaches over the past 20 years to reduce its carbon footprint*

"In addition to essentially re-using waste products from other industries, this process also reduces the amounts of limestone that we have to mine and clinker we have to produce, again reducing carbon emissions from those processes, as well as reducing waste to landfill," she says. "We are constantly searching for new extenders and additives to further reduce our carbon footprint and our impact on the environment as a whole."

At the cement plants themselves, AfriSam is busy with a five-year emission reduction programme to upgrade various key items of equipment. This will reduce emissions in alignment with the minimum emission requirements as contained in Section 21 of the NEM: Air Quality Act.

### CONTROLLING DUST

Concern with air quality extends beyond point source emissions from stacks, to the management of fugitive dust created at the company's operations. In the cement and aggregate

quarries, dust fallout monitoring has been conducted for many years. Levels of dust fall-out are checked on a monthly basis, and can now be usefully analysed and trended to better understand how levels change according to the seasons and onsite activities.

"Our monitoring efforts over the years have generated sufficient data to now allow us to proactively identify activities that contribute to increase in dust fallout, such as the windy season between August and October," she says. "We can then implement more intensive management measures during this particular period, such as increased dust suppression on haul roads and on stockpiles."

Dust fallout monitoring is not legally required at readymix sites currently, but AfriSam conducts this proactive monitoring nonetheless, with a particular focus on determining the potential environmental effects the operations may have on surrounding areas.

### LESS WASTE

Govender emphasises that the company has established more aggressive recycling targets for this year, encouraging all operations to increase their reuse and recycling of general waste and thereby reducing the amount of waste destined for landfill.



*Rainwater is collected and stored in mining areas to meet many of the operational requirements, thus reducing the reliance on the already stressed municipal system*

"At the readymix sites, for instance, unused concrete that is returned from construction sites is taken to the nearest AfriSam quarry to be recrushed and re-used at a later stage," she says. "This recycled aggregate and crushed cementitious material can then – in consultation with the customer – be used to augment aggregate orders."

She notes that this process reduces the amount of aggregate that needs to be mined and crushed, saving energy and reducing associated dust and carbon emissions. It also removes unsightly waste concrete from the surface environment and again reduces waste to landfill.

In terms of AfriSam's 2021 roadmap, all company operations are steadily rehabilitating a portion of their disturbed footprint, part of an overall effort to reintroduce biodiversity to mined out areas and return these areas to a self-sustaining landform. The biodiversity management plan implemented a few years ago supports this effort.

"Environmental stewardship is today an integral part of any responsible business, representing the seriousness with which we view our role as custodians of our fragile planet on behalf of future generations," says Govender. ■



# Increasing the life of concrete for sustainable built environments



Carl White,  
Managing Director  
of SprayLock  
Africa (Pty) Ltd

Over the years, built-environment professionals have increasingly turned their efforts towards improving the durability traits of concrete to construct longer lasting structures for sustainable built environments.

Fire resistant and durable, concrete enables the construction of buildings and infrastructure that can sometimes last for about 100 years. Increasing its durability will, therefore, further reduce the amount of energy, time and resources that

would otherwise have been required for maintenance, repair or rebuilding.

## LONGER IS GREENER

“The global ‘green’ building movement has transcended merely using recycled materials to construct sustainable structures. Built environment professionals are taking a longer-term view of sustainability by, importantly, also focusing on raising the expected lifecycle of service-delivery infrastructure and buildings. By building concrete structures that last two to three times longer than current designs, we can reduce the need to rebuild them as often and, in so doing, alleviating the burden on existing resources,” Carl White, Managing Director of SprayLock Africa, says.

SprayLock Africa is the African distributor of United States-based Spray-Lock Concrete Protection’s (SCP’s) cutting-edge technologies, which have been designed and developed to provide enhanced concrete durability, protection and performance.

Factors that influence concrete durability include water to cementitious ratio; aggregate packing; reinforcement and type; curing methods; the environment in which it is placed; and finishing practices.

All concrete is susceptible to contaminant ingress, considering its porous nature and bleed-water channel. This is especially true for reinforced concrete, where the corrosion potential of reinforcing steel is directly related to the water, oxygen and chloride movement into the building material. It disrupts the protective layer around the reinforcement which leads to corrosion/rusting of the rebar.

White says that SCP helps reduce the corrosion potential of concrete by reducing the pathways of water and contaminate ingress.

“SCP is a colloidal silica product that enters the concrete through capillary voids. Once inside, the colloidal silica reacts with calcium hydroxide to form more Calcium Silicate Hydrate, or ‘C-S-H’, essentially filling the capillary and pore structure

with more concrete. This action dramatically reduces permeability for the lifetime of the concrete,” he explains, adding that SCP penetrates a minimum of 38 mm into the concrete effectively enhancing and creating a more durable concrete cover.

## LIFE CYCLE MODELLING

Using life cycle modelling software, such as Life 365, laboratory-derived permeability parameters can be set to reflect the improvements to permeability gained with SCP products. Comparisons can also be made between untreated concrete and that which has been treated with SCP technology. These comparisons can estimate a percentage in life cycle expectancy gained with the use of SCP products.

The assessments have demonstrated that SCP can enhance the life expectancy of concrete by as much as two to three times. For example, the permeability of the concrete of a bridge in a marine environment can be reduced to elevate its life expectancy to between 60 and 90 years or more after treatment with SCP technology. This is opposed to only 30 years with the current mix design.

White says that this focus on improving the durability of concrete complements an array of other existing characteristics that make concrete a very suitable choice for sustainable construction.

“Among these is concrete’s thermal mass which absorbs and retains heat, reducing the need for heating and cooling. This is complemented by its reflectivity, which minimises the effects that produce urban heat islands. Moreover, concrete can be produced in the quantities needed for each project, reducing waste. It is also encouraging to note the work that is being undertaken in South Africa into recycling concrete for use in various applications, such as road layers. These traits position concrete, which is used more than twice as much every year, than all other building materials combined, as a champion of sustainability,” he concludes. ■



Built environment professionals have turned their efforts towards improving the durability traits of concrete



SCP can enhance the life expectancy of concrete by as much as two to three times

# The power of wind – Bringing in the reinforcements

**T**he manufacture of concrete wind turbine towers requires production speed and segment uniformity. Strengthening the precast concrete segments for these towers across wind farms all over South Africa's Eastern Cape and Western Cape provinces is vital to the sector.

The average concrete turbine tower comprises 18 precast segments, each with a height of between 18 to 20 metres and a diameter of between 600 mm and two metres. In the manufacture of these precast elements, the production speed and segment uniformity are essential. This demands high early strengths to ensure fast erection, while giving the towers an ability to withstand demanding fatigue loads. Wind turbines must also be able to perform in some of the country's harshest working environments, making durability a key requirement for the concrete mixes used in precast units.

## STRONG ENOUGH TO HOLD UP AT 100 METRES

In wind farms all over South Africa's Eastern Cape and Western Cape provinces, CHRYSO Southern Africa is adding value to the precast concrete segments used to construct the 100 metre tall wind turbine towers.

The range of plasticisers facilitates workability retention of between 30 and 45 minutes while achieving high early strengths. These early strengths allow for the fast erection of the towers owing to the quick turnaround time as the mould release and pre-stressing release can be done earlier. The plasticisers optimise early and late age strength development in concrete mixes.

These plasticisers maintain consistency in the manufacturing of reinforced concrete components, reducing the sensitivity of concrete to variations in water content.

## DECREASED PERMEABILITY AND SHRINKAGE

Plastic shrinkage cracking and plastic settlement cracking can occasionally penetrate deep into a precast unit, causing significant cost in remedial measures and even replacement. Applying a curing compound from the CHRYSO® Cure Range to the precast segments reduces the incidence of shrinkage



*CHRYSO Southern Africa is adding value to the precast concrete segments used to construct the 100 metre tall wind turbine towers*



*Applying a curing compound from the CHRYSO® Cure Range to the precast segments reduces the incidence of shrinkage cracks*

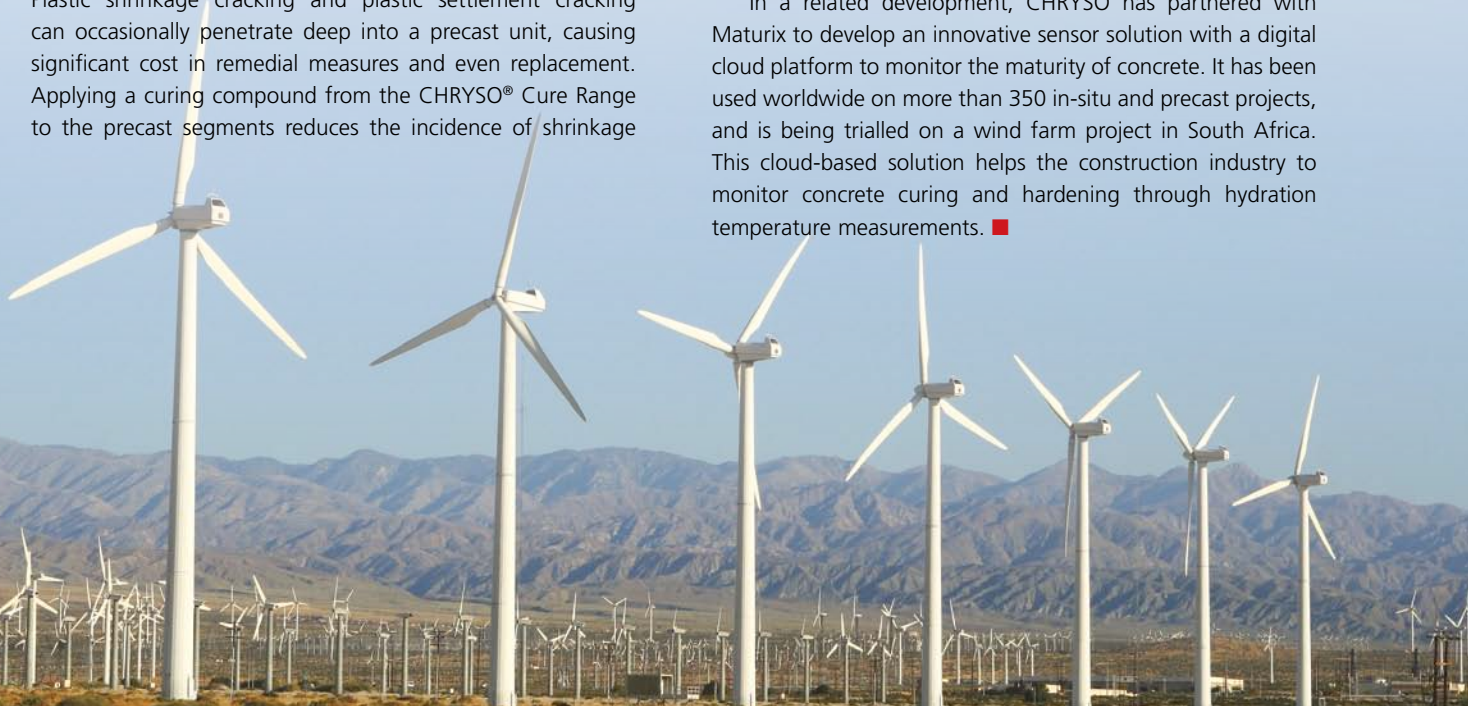


*The CHRYSO® Fluid Premia range maintains consistency in the manufacturing of reinforced concrete components*

cracks and promotes better strength gain characteristics. Curing compounds also increase the impermeability of concrete, making it more durable.

Another important product gaining traction in this market is a.b.e.® duragout. Developed especially for wind farm precast applications, this product which is proving popular is being used to level segment holders. The duragout WF product is used for grouting and bedding of structural elements; it can be pumpable or gravity fed and has good cohesive properties without bleed or segregation. It is pre-blended and ready-to-use, requiring only clean water to be added.

In a related development, CHRYSO has partnered with Maturix to develop an innovative sensor solution with a digital cloud platform to monitor the maturity of concrete. It has been used worldwide on more than 350 in-situ and precast projects, and is being trialled on a wind farm project in South Africa. This cloud-based solution helps the construction industry to monitor concrete curing and hardening through hydration temperature measurements. ■



*Wind turbines must perform in harsh working environments, making durability a key requirement for the concrete mixes used in precast units*

# Unlocking the value of Mozambique's transport infrastructure

**A**lthough unlocking mineral resources underlies much of the developing transport infrastructure in Africa, the projects jointly developed between Mozambique and South Africa have intentionally stimulated investment in shared infrastructure as part of developing diversified capabilities and industrialization is a critical developmental goal. This includes backwards linkages into supplier industries and services.

The initiatives identify major infrastructure investments made to serve a key industry or user and design them in such a way that they can be more widely accessed.

## THE WORLD BANK SOUTHERN AFRICA TRADE AND CONNECTIVITY PROJECT

The World Bank's Southern Africa Trade and Connectivity Project will improve trade infrastructure across the Nacala Corridor in Mozambique, Malawi and Zambia.



The Nacala Corridor is a logistic highway that links four Mozambique Provinces (Nampula, Niassa, Cabo Delgado and Tete) and two neighbouring countries (Malawi and Zambia). The Mozambican Government envisions this corridor will provide fast, competitive infrastructure for trade and commerce, such as modernized borders, rail and roads connecting all major industrial centres and, finally the port of Nacala. This corridor reaches over 40 million people.

The World Bank is developing the Southern Africa Trade and Connectivity Project that will essentially improve trade infrastructure across the Nacala Corridor in Mozambique, Malawi and Zambia. This project will significantly improve the market conditions for international companies doing business in these countries.

The World Bank Southern Africa Trade and Connectivity Project focuses on four areas:

1. **Reduce trade costs:** Improve trade facilitation and regulatory capacity along the corridor. Enabling digital trade

through the development of trade ICT systems, as well as improving transparency

2. **Strengthen regional coordination:** Enhance regional coordination and strengthen regional institutions. Support for the expansion and rehabilitation of border posts
3. **Increase investment in value chains:** Increase productivity, reliability, and enhance quality through an integrated value chain approach, working conjointly with producers who will utilize the corridor
4. **Improve road connectivity:** Fill gaps in key corridor roads or connectors to economic centers. Improving road projects valued at \$ 115m in Mozambique alone.



## PROJECT HIGHLIGHTS

The N4 Toll Route is a brownfield toll road concession of 630 km running from Pretoria to Maputo, the capital of Mozambique and a deep-sea port on the Indian Ocean. The project was structured as a public-private partnership (PPP) between the governments of South Africa and Mozambique and a private consortium for a 30-year period. It was the first cross-border transport PPP project in Sub-Saharan Africa and the first brownfield PPP of this scale in South Africa.

“...the project was the first cross-border transport PPP project in Sub-Saharan Africa and the first brownfield PPP of this scale in South Africa.”

The N4 is one of the most important trade routes in the region, running across South Africa from Botswana to Mozambique. It runs through some of the most industrialised areas in South Africa, including processing, mining and smelting industries located in the cities of Johannesburg and Pretoria. Moreover, the western section of the N4 forms part of the Trans-Kalahari Corridor, a road network spanning approximately 1900 km across South Africa, Botswana and Namibia. The corridor starts in Pretoria and goes to the Port of



Walvis Bay on the Atlantic Ocean in Namibia. The rehabilitation of the N4 was the key project of the Maputo Development Corridor (MDC) program. The purpose of the program was to stimulate and facilitate trade and investment in three key economic regions – Gauteng and Mpumalanga (South Africa) and Maputo (Mozambique) – and connect them to the Port of Maputo.

“ This Spatial Development Project was a short-term investment strategy aiming to unlock inherent economic potential in specific spatial locations in Southern Africa.”

The MDC was also incorporated under a broader Spatial Development Initiative (SDI) between the Governments of South Africa and Mozambique implemented in 1995. The SDI was a short-term investment strategy aiming to unlock inherent economic potential in specific spatial locations in Southern Africa. The SDI policy used public resources to leverage private investments in regions with a high potential for economic growth. The N4 Toll Route contract with the private consortium Trans African Concessions (TRAC) was based on a build, operate, transfer (BOT) model with a capital value of ZAR3 billion (USD660 million, 1997 value). The project was financed through 20% equity and 80% debt finance negotiated by the

**Mozambique: African Development Bank purchases temporary bridges to replace infrastructure destroyed in cyclones**

The African Development Bank (www.AfDB.org) has finalized the purchase of 26 modular steel bridges to replace infrastructure that was destroyed in weather disasters in Mozambique.



The modular bridges are due to be installed in coming months after the appointment of local contractors. The goal is to restore transport connections to the isolated regions of Manica, Sofala, Nampula and Cabo Delgado. An estimated 500,000 people are expected to benefit.



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concessionaire. TRAC assumed full traffic and demand risk. Revenue generated through the collection of tolls must fully cover operational expenditure and debt obligations, but both governments jointly agreed to guarantee the debt finance.

The rehabilitation and tolling of the N4 is considered a major success and demonstrates both the power of political cooperation between neighbouring countries and the benefits of a PPP in the right context. The N4 is still the only cross-border toll concession ever completed in Sub-Saharan Africa

**UNLOCKING DOWNSTREAM BENEFITS**

The project has several goals and objectives:

- Foster trade between South Africa and Mozambique to broaden economic activity, empowerment and development of communities within both countries
- Facilitate regional and global trade through direct access to the Port of Maputo

- Foster regional integration
- Balance regional disparities
- Reduce transport cost by improving the efficiency of roads
- Further develop exporting industries in the region.

The N4 Toll Route has facilitated the development of other infrastructure projects in the MDC, such as the Port of Maputo and the establishment of the Mozal aluminium smelter.

**LONG TERM BENEFITS**

Delivery of the N4 Toll Route under the SDI has developed the N4 into a major component of South Africa’s connection with the global marketplace due to it being the shortest link to an export port for its industrial land-locked region of Gauteng.

The N4 also allows hundreds of thousands of Mozambicans the possibility to access work and opportunities in South Africa. The project has facilitated the development of communities situated along the route. Specific contractual conditions included the obligation for TRAC to subcontract 20% of the work to historically disadvantaged communities in South Africa and 40% to those in Mozambique.

Approximately 5700 jobs were created during the initial phase, with construction workers receiving training on the job. In total, about 12,000 casual, temporary and permanent jobs have been created by the project. TRAC also developed three training centres along the route as a part of the company’s integrated community participation program. Over 20,000 members of the local communities were trained through various programs, including literacy and HIV awareness. ■



# Meeting the construction logistics demand

**UD Trucks Southern Africa has announced the launch of two new additions to its Croner range, to meet the increased demand in the urban and regional logistics sector.**

**"T**he world has changed significantly during the past year, and so has the way we live our lives and run our businesses," said Filip Van den Heede, managing director of UD Trucks Southern Africa. "While adhering to government regulations, we also understand that there is a need to continue with economic activities, and that is why we are more committed than ever to support the logistics industry in the country."

He said the company commends the strong resilience of the local transport industry that supported the good recovery of the market in 2020 after the hard lockdown.

"We believe this challenging spirit will continue into 2021, as we remain positive about the future and committed to support logistics in our region," stated Van den Heede.

## NEW ADDITIONS TO CRONER RANGE

Since its launch in 2017, UD Trucks' Croner range originally operated only in the Heavy Commercial Vehicle (HCV) segment. Through UD Trucks' expansion programme, the new Croner truck-tractor will be classified as an Extra Heavy Commercial Vehicle, operating in the up to 350hp lightweight truck-tractor segment. The new LKE 15-tonne freight carrier will operate in the 8-tonne payload segment in the HCV segment.

Rory Schulz, UD Trucks Southern Africa's marketing and sales director, said the company is expanding its Croner range to improve their offering in urban and inter-city distribution.

"In the very competitive 8-to-9-tonne payload segment, we saw the need arise for a fuel efficient, high payload unit with good drivability at good value for money. With the new model introductions, we are improving payload, fuel efficiency and adding more driver comfort, as well as extending service intervals," said Schulz. "With UD Trucks Telematics Services as standard and a nationwide dealer network, fleet owners are supported no matter where they operate."



*Filip Van den Heede MD UD Trucks Southern Africa*

The Croner LKE 210 freight carrier boasts a GH5, 5-litre engine and an Allison 2500 series automatic transmission.

With 850 Nm of torque along with a good transmission ratio ensure the truck can quickly get to the 60km/h mark in city, or to the 80km/h where the law allows. The LKE 210 has a low tare mass and optimised wheelbase of 5 500mm for both volume and mass payloads. All of this combine to provide a truck with class-leading payload productivity.



*Croner LKE 210 freight carrier*



Rory Schulz Marketing & Sales Director UD Trucks Southern Africa

“The Allison automatic transmissions ease the job at hand for drivers who spend the day in the urban environment, facing long hours of traffic with multiple stops and cargo drops,” explained Schulz. “The new generation torque converter with early lock-up also ensures a smooth and easy drive so driver fatigue is reduced, which means the driver can concentrate on situational driving. Additionally, the enhanced power shifts lead to more efficient fuel consumption, comfort, manoeuvrability and performance.”

The Croner 4x2 PKE 280 truck-tractor has a GH8, 8-litre engine and an Allison 3000 automatic transmission series, with similar emphasis on urban and city-to-city distribution, as well as focus on inter-regional haul.

In 2020, UD Trucks also introduced a Croner 6x2 PDE280 freight carrier, which brings the total of variants in this range to 16 models.

“The work a vehicle does, and the resources required to do it, are essential to the success of any fleet,” said Schulz. “Productivity to us means how much payload you can carry, at the highest possible legal speed, with as little fuel as possible. And the Croner certainly delivers on all these factors in a smart and modern way, day in and day out.”

UD Trucks’ Croner range is assembled at its plant in Rosslyn, Gauteng, according to the company’s global quality standards.

“When we originally launch the Croner range, we wanted to offer fleet owners trucks and solutions that maximise uptime and productivity. These new additions to the Corner family, are no exception,” said Van den Heede. “We know how important it is to make every moment count in the transport business.”

### “BETTER LIFE”: UD TRUCKS’ NEW STRATEGY

Globally, UD Trucks launched its new “Better Life” strategy that challenges the way it cares for people and the planet, by bringing sustainable transport solutions in line with the current transformation of the logistics industry.



Automatic transmissions



“We believe this strategy will lead to a better life for all within the spheres we operate in,” explained Van den Heede. “As a challenger and innovator, we are continuously challenging the status quo, and know that our products, service and people can have a positive impact on the world around us.”

With the launch of the new Quon in 2019 with Euro 5 emission standards, the company entrenched this vision into practice. Since this launch, UD Trucks has secured the availability of Ad Blue, which helps reduce nitrous oxide emissions, for Quon customers across South Africa. Proof in point of the company’s Better Life strategy in practice.

### STRATEGIC ALLIANCE: VOLVO GROUP AND ISUZU MOTORS

In December 2019, the Volvo Group and Isuzu Motors announced the signing of a non-binding Memorandum of Understanding with the intent to form a strategic alliance within commercial vehicles to capture the opportunities in the ongoing transformation of the industry. End October 2020, the binding agreement was signed. The Alliance between the Volvo Group and Isuzu Motors is set to a build long-term and

robust relationship that will encompass but not be limited to:

1. Forming a technology partnership, intended to leverage the parties’ complementary areas of expertise within both well-known and new technologies and creating a larger volume base to support investments for world-class technology.
2. Creating the best long-term conditions for a stronger heavy-duty truck business for UD Trucks and Isuzu Motors in Japan and across international markets by transferring ownership of the complete UD Trucks business from the Volvo Group to Isuzu Motors. This will accelerate growth by leveraging greater volumes and complementary capabilities, creating significant synergies for Isuzu Motors.
3. Exploring further opportunities for even broader and deeper collaboration within the commercial vehicle businesses across geographical areas and product lines for future urban logistics solutions.

Final closing is expected during the first half of 2021. The transaction is subject to certain conditions, including approval from regulatory authorities. ■



Croner 4x2 PKE280 truck



# Sustainable paving project – sustains itself and the environment

Over 6 000m<sup>2</sup> of concrete pavers manufactured by CMA member, Inca Concrete Products, have been used to pave the roads of Bonsai Estate, a new housing project being brought to the market in Langerberg Ridge, Cape Town, by MSP Developments.

The central and by far the largest section of the roads was surfaced with Inca’s Table Mountain (Tan) Exposed Aggregate interlocking pavers and the road edging and the colour breaks were laid with Inca’s Double Cobble pavers in two colours, red and charcoal. Produced to SANS 1058:2015 Class 2.0 specifications, the pavers are 70mm thick.

In addition over 1 000m of kerbing was installed in four derivatives, CK5, MK10, BK2 and C1. It was supplied by

Lascokerbs, a specialist kerb manufacturer which produces kerbs in a state-of-the art plant in Philippi, Cape Town.

The paving layout design was supplied by JVE Consulting Engineers and the paving was done by paving contractor, GLC.

## DIVERSITY OF DESIGN

“We are extremely proud of this project because it has unleashed a very attractive layout which is unique to Inca. This is the first time that this paving combination has been used and it is refreshing to note how one can achieve almost limitless diversity in design and appearance through the creative application of texture and colouring,” says Schalk van Wyk, Inca director of operations.

The layer works of the paved area comprises 150mm G5 sub base aggregate and the pavers were bedded in 20mm of sand.

“One of the advantages of using our exposed aggregate pavers is that they are less prone to show tyre marks. Moreover, the aggregate is imbedded throughout the whole paving block so should any wear occur, the pavers will retain the same appearance,” says van Wyk.

“Our pavers are tested on a regular basis for tensile splitting, abrasion resistance and water absorption at our in-house laboratory and our Tan Exposed Aggregate material through-mix is specifically designed to achieve a uniform natural look that mimics and blends in with the natural environment.

“Another advantage of our interlocking paver is that once laid it doesn’t move and forms an integrated whole. It is also extremely strong and this is why the interlocker is so popular across the world. Furthermore, sections of paving can be removed for remedial work or new below-ground installations and then replaced without patches or visible evidence,” advises van Wyk.

Bonsai Estate is being developed in three phases. Phase 1, which comprises the construction of three-bedroom homes, was begun in February. The construction of two-bedroom apartments will follow. ■



*Inca Concrete Products’ Tan Exposed Aggregate interlocking pavers and its Twin-block Cobble are used creatively on Bonsai Estate’s roads*

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*When streets are for people not cars, Essaouira, Morocco*

# Shaking the foundations: Time to change the structure of our cities

*By Patrick McInerney, Christoph Malan, Catharine Atkins and Malika Walele, Co-Arc International Architects*

It's easy to fall into the doom-and-gloom trap of how the current pandemic will forever change the face of cities and how the very foundations of urban planning and architecture will have to adapt to a new human reality. But rather than adopting a reactive stance when it comes to envisaging how cities might change, looking beyond Covid-19 why not focus on how cities should structurally change?

Inequalities have become starkly apparent as a result of Covid-19, providing us with a new lens through which we view the world. Armed with this deeper realisation, we now have an opportunity – if we choose to take it - to focus on our humanity. Can we, collectively, seize a moment when commercial and residential property values and declining rental yields have been accelerated to help drive structural change?

We are being gifted the chance to change our cities into

more human spaces and more equitable places. Can we use the assets we have in transforming society, through the collaborative provision of inner city clinics, schools, libraries and other community centres, to foster hubs capable of spurring on the generation of inner city housing?

As a society we all have a significant responsibility to ensure that the provision of housing and community spaces is not, and should never be, a numbers game. Providing standard units in their thousands will never translate into the making of individual homes; after all a cramped place to sleep, cook and shower, which is far from work and amenities, is not a quality home. And yet it is the latter for which our cities are crying out: Neighbourhoods in which individuals are nurtured in homes, not bleak repetitive housing without any form of social amenity.



*Left to right – Authors: Patrick McInerney, Christoph Milan, Catharine Atkins and Malika Walele, Co-Arc International Architects*



### CAN WE SEIZE THE MOMENT?

Currently government has a massive opportunity to embed inclusion into its cities for the future. For years, the City of Johannesburg, and most of the other metropolises, have been taking over properties where landlords are in arrears or failing to maintain their properties. These buildings have then been released to the market for housing. As our economy comes under more pressure, more opportunities will doubtless emerge, giving government initiatives such as the Joburg Inner City Transformation Programme further fresh opportunities through which to fulfil its transformative mandate, and to build neighbourhood clusters and government precincts that favour a human-centric approach to living and working.

With property prices likely to dip as a result of economic carnage, together with the impact of a new work-from-home reality for knowledge-based workers, we can expect to see an accelerated decline in inner city property values. By applying a longer-term vision, government could seize the opportunity to set new facilitative policies that would encourage dramatic change. Key to the success of this approach would be greater collaboration with a property sector eager to realise the potential of its underperforming assets by providing inner city communities with better urban environments.

The question is: Are we ready, as a nation, to use this crisis to open discussions about the current models in place to develop our cities? Are we prepared to dramatically change how we work, and to put human beings at the heart of what we do? Can we measure our success through a legacy of successful neighbourhoods and cities, rather than the sheer number of units provided?

A recent accelerated infrastructure spending experiment in the UK, dubbed 'Project Speed', might hold some valuable lessons for us here in South Africa. The concept, as the website Inside Housing<sup>1</sup>, explains, is simple: Allow developers to bypass normal planning applications when it comes to the provision of housing on vacant land and in empty or underutilised office and retail buildings, provided that the intention is to build new homes, or civic facilities. The announcement, made in July

this year, was effectively an extension of the 2013 permitted development rights move, which aimed to make it easier to convert commercial and office buildings into housing, without the need for planning permission.

The move showed a willingness on the part of government officials in the UK to seek new and innovative ways to deal with the housing shortage in the British capital and to fast-track the conversion of unused infrastructure into residential housing. The experiment worked to a certain extent, although some developers abused the situation by exploiting people with the provision of substandard living. This is something it would be critical to bear in mind should South Africa ever elect to put similar policies in place.

“As a society we all have a significant responsibility to ensure that the provision of housing and community spaces is not, and should never be, a numbers game.”

### INCENTIVISE FRESH THINKING

This is not such a dramatic leap. Just before Covid-19 struck we saw examples of this type of thinking at play in several projects by Africrest and the conversion of the former ANC Shell House headquarters in Plein Street, Johannesburg into a 563-unit residential development with facilities such as homework rooms, play areas for children and an outdoor gym.

We need to incentivise more developments of this sort, aimed at a range of LSM brackets and offering not just a room in which to sleep but a compelling urban experience. There is tremendous potential in unused or underutilised commercial property our CBDs and major satellite areas, and the conversion of underutilised real estate represents a massive opportunity which, we believe, must be seized with both hands. If government at all levels works together with the property industry, we could rapidly and successfully transform our cities.



*Victoria Park in Hong Kong, the sports and recreation hub of the city  
Photo Credit: Patrick McInerney*



Hanoi streets become the living rooms of the city at night, filled with vibrancy and light

It would not cost a fortune to undertake myriad transformative projects. However, particular care must be taken to ensure that each element works towards a central goal and vision.

### A ROLE FOR URBAN VISIONARIES

Urbanists and, in particular, urban designers and architects can play a vital role in setting the vision for transformed environments and in the conversion of existing and unused spaces. Projects which are handled through idea-based competitions could inspire innovation in thinking and execution. This would be a welcome departure from the approach government has favoured in recent years, where the cheapest product and cookie-cutter approaches have been favoured in order to show numerical growth in housing but without acknowledging the power architecture vision and good design have in the creation of functioning communities.

“ The social exclusion and dislocation caused by apartheid-era planning and, in more recent years, gated communities and mega shopping malls could be replaced by an inclusivity ignited by reprioritising the pedestrian and re-activating our streets.”

We must never lose sight of the fact that cities have their own pulse. They grow and shrink and they constantly evolve. While these spaces are going through a sudden and traumatic moment, their repurposing – when it happens – will be quick.

Without astute intervention now the evolution of our cities will be driven by economic necessity and opportunism and not the result of a deliberate transformative strategy that puts the human experience at its centre. Policies and strategies, including incentives which can bring the public and private sectors together in a shared vision, should be sought.

Incentivising developments which cater for human considerations, such as the need for social sharing and places in which human beings can interact, leaves less room for developments driven by a purely financial motive. It's this mindset shift that should be at the centre of our current thinking.

Fortunately we have, to some degree, already been sensitised to this new way of thinking. The rapid digitisation of the economy had already begun a process which affected the fabric of our cities and Covid-19 has significantly accelerated this disruption to the standard property development model. With that uncertainty, however, comes the extraordinary opportunity to disrupt. The social exclusion and dislocation caused by apartheid-era planning and, in more recent years, gated communities and mega shopping malls could be replaced by an inclusivity, ignited by reprioritising the pedestrian and re-activating our streets. For many of us, Covid-19 has highlighted the need for these shared, communal spaces. Maybe now is the time to focus on all that is positive in how we interact, and factor social sharing into our architectural and planning models.

In many respects, from economic constraints to social and human transformation and the very real limits of the planet, we would do well – as architects and those with the ability to remould society and reflect its essence – to revisit the work of Fritz Schumacher, the German economist and conservationist and author of the 1970s treatise *Small is Beautiful: A Study of Economics As If People Mattered*.

As Schumacher himself wrote: “An entirely new system of thought is needed, a system based on attention to people, and not primarily attention to goods.”

How we deal with this moment and this opportunity will define our society for decades to come. We must tread carefully and mindfully. ■

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