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Bosch has equipped cordless combis in the 18 volt classes with brushless EC motors. In future, the range will include the GSB 18 V-EC Professional combi.

This is part of the 'dynamicseries' from Bosch – a series of especially compact tools with long battery runtime – and is based on tried-and-tested models.

They have a longer lifetime thanks to their EC technology, lasting for twice as long as tools which do not have EC motors. They are therefore suitable for serious applications and enable finishing trades such as electricians, plumbers and joiners to work quickly and efficiently.

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EDITOR'S COMMENT



Economic development minister Ebrahim Patel says more major projects will be announced to maintain the extraordinary spending undertaken in tough times. At a recent briefing he said that South Africa spent R290-billion on infrastructure in 2015 – more than R1-billion a day.

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Patel was speaking at a post State of the Nation Address Economic Sectors, Employment and Infrastructure Development cluster briefing.

The fact that South Africa has spent billions on infrastructure is a major reason why the country has not gone into recession yet. It is also confronted with factors that are impacting negatively on growth: the volatile global economy results in lower growth, lower demand for platinum, iron-ore and gold and a severe drought. This is in addition to the political problems, viewed negatively by potential investors.

Despite this though, 2015 saw the construction of 160 new schools, 29 clinics, one hospital and 100 000 houses, while 265 000 houses were connected to electricity and accommodation for 3 100 tertiary students were provided. Some 1 700 MW were connected to the grid and 10 new renewable energy plants were built.

Last year also saw the start in the construction of three technical college campuses and two

new universities, while 300 km of transmission lines were erected, and 24 000 km of road rehabilitation commenced. In Johannesburg and elsewhere, the construction of urban transport systems started.

Fast tracked projects

Patel indicated that 20 infrastructure projects will be fast-tracked to be in construction in 6 to 15 months. These projects include the Clanwilliam and Mzimvubu dams, the construction of the long-awaited N2 Wild Coast highway that will connect East London and Durban, a water pipeline to Lephalale/Waterberg, the N3 De Beers pass and the construction of 28 renewable energy plants.

In addition, Patel said, there is significant modernisation of South Africa's port capacity: various projects at ports are under way to attract support manufacturing operation and are aimed at the more efficient operation of these ports. The

provision of free Wi-Fi in metropolitan areas will be another boost to infrastructure development.

Sponsorship opportunities

The first call for entries for the 2016 edition of Best Projects will be published in next month's (May) issue. The awards function is a highlight for the construction industry as it recognises excellence across the entire construction industry.

In addition the AfriSam (the main sponsor) we have *gold*, *silver* and *bronze* sponsorships available. Please contact me to discuss these opportunities.

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STORY is finally TOLD

SRK Consulting's four-decade anniversary book – *SRK: 40 years in the deep end* – was launched to clients and media during the Investing in African Mining Indaba in Cape Town this week, at a special event held at Shimmy Beach Club.

The book captures a roller-coaster journey from SRK's early days in 1970s South Africa to its global presence today – charting a course started by three young engineers with a zeal to do things differently and better.

"Reliving SRK's past through the stories in this remarkable book has reminded us of the main reason for SRK's success – the high calibre of its people," said group chairman Mike Armitage. "Thrown in at the deep end and expected to swim, numerous individuals have risen to the challenge and performed at levels exceeding even their own aspirations."

The SRK story is told characteristically not just through its achievements but rather through the lives and voices of its staff.

Its title reflects both the reality of consultants often having to tackle the unknown, as well as their vital quality of retaining a sense of humour.

For what SRK founders Oskar Steffen, Andy Robertson and Hendrik Kirsten built in 1974 was a magnet that attracted many of the best brains to their cause – described by the book's author, Ian Mulgrew, as an "over-achieving, intellectual individualism, a work-hard-play-hard professional camaraderie within a loose communal framework."

This was clearly not going to be like any other consultancy of its day, which tended to favour corporate-style bureaucracy with autocratic leanings. For a start, partners were to remain involved in delivering engineering services, and all levels of staff were to be drawn in to all stages of a project.

The business model itself was revolutionary: employees would own the company, being allowed to purchase shares and being required to sell them back to the firm when they left or retired. This was to foster the culture of belonging and responsibility; indeed, staff were to stand on their own feet rather than look to the company for job security.

What all this accomplished was to keep alive the fire of discovery and technological progress that universities ignite in their students – and transfer it to the 'real world' of science and engineering. The link with universities has remained vital to SRK's *modus operandi*.




Global chairman of SRK Consulting, Mike Armitage at the launch of *SRK 40 years in the deep end* held Cape Town.

"We set out to take on young people every year so that we could continually bring the latest technologies into the business," said Kirsten. Early on, they invited an overseas professor to spend his sabbatical in the office – and that became a regular practice.

What mattered, said Steffen, was "getting the best people in their field ... and keeping the best by giving them the freedom to grow."

According to SRK chairman Graham Howell, the group has now grown into 20 countries on six continents, with quality systems to optimise integration between practices and continuously raise the bar of global standards.

"SRK's culture endures despite its size," said Howell, "binding colleagues in pursuit of excellence." 

SRK Consulting SA board members Vassie Maharaj and William Joughin with chairman of SRK Consulting SA, Graham Howell.



Two of the founding partners Hendrik Kirsten and Oskar Steffen signing copies.





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FRESH APPROACH

When Pulane Twala joined Corobrik's Durban office as marketing manager on 11 January this year, she was looking forward to bringing a fresh approach to this leading brick manufacturer which has been in operation for 113 years.

➤ A few weeks into the job, Twala is focused on making Corobrik the number one brand choice for clay bricks and paving products.

Reporting to Corobrik's commercial director, Musa Shangase, Twala's key responsibilities are to oversee the company's public relations functions, above-the-line marketing and brand management.

"The marketing team are doing a great job for the brand and I am looking forward to continuing this legacy, revitalising tried and trusted strategies and introducing new ideas where needed," she said.

Twala grew up on the East Rand in Gauteng, obtained a bachelor's degree in business administration from CIDA City Campus in Lyndhurst and has spent most of her 11-year career working in Johannesburg.

Her last job before joining Corobrik, was marketing manager for the JSE-listed Aveng Group: manufacturing operations of construction, infrastructure and engineering companies.

Here, she was responsible for managing all marketing activities for the group's six business units, with a focus on promoting the brand.

While working for Aveng, she was part of the task team that built and marketed a concrete factory at Tete in the north of Mozambique. She also managed the marketing of various newly acquired or newly merged business units.

Prior to that Twala was head of marketing at South African National Blood Service for five years where she managed a division of 22 staff members. Her key role there was stakeholder relationship management, building partnerships and networks with the media, large corporations and institutions.

She has also worked as advertising manager for Marketing Concepts at Vaal Mall Shopping Centre, responsible for events, promotions and exhibi-



Pulane Twala, Corobrik marketing manager.

tions and was an account executive for Fishwick Printers and Du Toit Majola Advertising Agency in Johannesburg.

"I am a marketing all-rounder," she says with a smile. "I consider myself an expert in brand auditing and overall brand management. I also have wide-ranging experience in media relations and implementing corporate identity programmes as well as change management, specifically geared towards brand identity changes."

Describing herself as "a people's person, feisty and energetic", Twala believes that one of her key challenges in her new job will be in the fast-developing digital arena, consolidating Corobrik's position in the digital space and continuing to establish a strong digital reputation.

A self-proclaimed 'short-course freak', she has completed numerous courses at different organisations in subjects ranging from financial planning and budgeting to performance management customer relationship management and media relations.

"I also work hard at keeping abreast of new developments in the industry and being at the forefront of the latest business trends," she said. ■

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GLOBAL PARTNERSHIP FORGED

Hatch, a global engineering and consulting firm with expertise in the infrastructure, mining and metals, and energy sectors, has announced a strategic partnership with the World Council on City Data (WCCD), a world leader in standardised city data and metrics.

Martin Doble is global managing director of infrastructure at Hatch.



Hatch and the WCCD will jointly promote the critical role that ISO-certified city data can play in developing new solutions for planning and infrastructure challenges faced by urban communities in the 21st century.

The two organisations will also build innovative tools to map and analyse urban trends and associated city responses. As urbanisation around the world drives new and established cities to find ways to achieve their social and economic goals more productively, understanding how cities can improve is key.

"Hatch and the WCCD will provide a combination of practical, useful data and expertise on how cities can use this to meet their goals," says Martin Doble, Hatch's global managing director of infrastructure.

Doble is responsible for the strategy, development and operation of Hatch's global infrastructure businesses in transportation and supply chain logistics, economic corridors, urban development and smart cities and water.

He leads business units and regional leadership teams in developing businesses driven by outcomes for Hatch's clients and their communities, and drawing on Hatch's diverse and differentiated skills and technologies. ■



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THE NEW SAFETY EXHIBITION IN NAIROBI

Brought to you by the largest exhibition organisers in East Africa is a brand new exhibition for the safety market in Kenya that will run from 8-10 November 2016 at the Visa Oshwal Centre in Nairobi, Kenya.

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K-OSH is the only trade exhibition that focuses solely on the occupational safety and health market in East Africa and will feature local and international exhibitors that will be showcasing a wide range of products. Stands will include footwear, helmets, warning signs, high visibility wear, masks as well as all protective clothing.

K-OSH will run alongside Securexpo East Africa which was launched and ran last year and is the largest commercial security exhibition in the region. Alexander Angus, regional director of Montgomery ECO East Africa, spoke on the recent launch. "Running this exhibition alongside Securexpo was an obvious choice. Both verticals attract very similar visitors and will therefore allow them to see more products whilst visiting the exhibition."

The safety industry in Kenya is one that is going through a great deal of change. Although systems for ensuring the safety of personnel

have always been in place, it has only been in the last few months where the regulations are being enforced. This is resulting in many local organisations tightening up their safety measures by investing in the newest products. K-OSH will give these companies the needed platform to promote their products to this demand.

Companies are already being confirmed to exhibit at K-OSH. Hubix, a Polish company that supplies specialist tools for working with high voltages is one of these companies that has confirmed to be taking part at the exhibition.

Within K-OSH, a free-to-attend conference will run during the exhibition. This will focus on new legislation, best practice and the developments on the industry in East Africa. This platform will allow local companies to be able to use the event to learn more about the industry. With the ongoing changes, this will be imperative to allow individuals to learn about what is now needed. ■

"In an era of increasing urbanisation, this partnership with the WCCD will focus on providing better solutions to some of the toughest challenges facing cities, in ways that allow cities and communities to plan for real improvements and economic prosperity," Doble elaborates.

As a WCCD lead partner, Hatch will join the WCCD Global City Leaders Advisory Board, chaired by senator Art Eggleton, former mayor of Toronto. The WCCD is an initiative originally established in Ontario, Canada, while Hatch is a leading Canadian firm with project experi-

ence in more than 150 countries. "High-quality standardised data is key to understanding the complex and interconnected challenges facing cities.

Once understood, it is possible to identify practical and cost-effective solutions," professor Patricia McCarney, president and CEO of the WCCD and director of the global cities institute at the University of Toronto, comments.

"Hatch, as one of the world's most respected engineering and consulting firms, is a great partner to drive this data-driven solutions agenda for cities around the



NEW ASSET MANAGEMENT APPOINTMENT

The newly-formed Asset Management division of SMEC South Africa will be headed up by GM, Tom Bürge.

Bürge's experience covers a range of industries and geographies. He has worked in South Africa, Botswana, Malaysia, Sudan, Lesotho, Switzerland and Brazil. This broad exposure within his field has helped to form a global view on Asset Management in developing economies.

Bürge has been an Associate Member of the SAIIE (South African Institution of Industrial Engineers) since 2007. He has spoken on subjects ranging from information systems to asset registers, asset management and strategy at various industry and academic events, including SAPICS, IERM, SAAMA and SAIIE.

Bürge was a representative in the Development Bank's infrastructure dialogues, established to discuss infrastructure management shortfalls within the South African context.

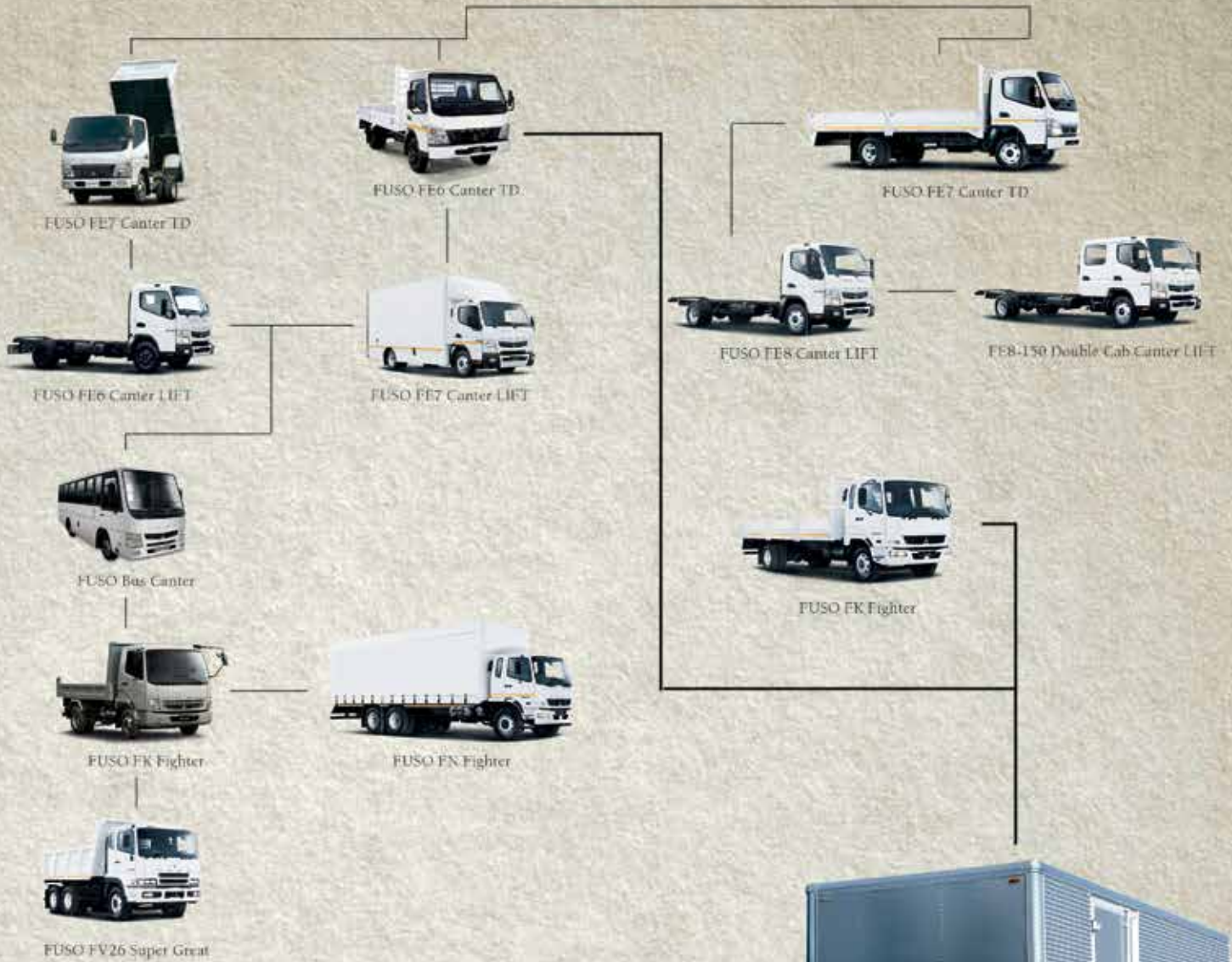
"At SMEC South Africa I have access to many of the world's best and most innovative engineers, and I intend to capitalise on this impressive intellectual capital. This is a real market differentiator for us, especially compared to the other asset management service providers in Africa. It positions SMEC South Africa to make a significant difference to the bottom line of our clients," affirms Bürge. ■

world," professor McCarney emphasises. Hatch and the WCCD have already started working together on data analytics, opportunities to optimise infrastructure investment and growing the network of WCCD ISO-certified cities.

Metropolitan areas in Asia, Europe, North America, South Africa and Australia are initially targeted as locations where comparable data in such areas as transportation, energy, environment, water, waste and emergency response will contribute to improved city planning and decision-making. ■

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The Darvill Wastewater Treatment Works in Pietermaritzburg, KwaZulu-Natal.

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Trend towards **WATER QUALITY**

The water and wastewater treatment component of Hatch Goba's water business unit continues to grow apace, particularly in light of the latest trend to focus on water quality as opposed to quantity.



"Water treatment as a whole is becoming more and more relevant in the South African context. While many of the issues around the looming water shortage in the country are related to the risk posed by the diminishing quantity, there is less discussion about the risk posed by water quality," comments Andrew Officer, water business unit regional director at Hatch Goba.

"This is simply because as the water quality deteriorates, there is a commensurate increase in the cost associated with water treatment." Officer points to major water-quality issues such as the acid mine drainage problem in Gauteng and other mining-intensive areas, and eutrophication in Hartbeespoort Dam. "It is not only just a recreational or tourism issue anymore; the downstream concern is that you have to consume and use that water at some stage," Officer adds.

The water business unit falls within the infrastructure leg of Hatch Goba (the two other legs are Energy and Mining & Minerals Processing). Infrastructure itself operates via five business units, including roads and transportation, rail, ports and marine terminals and water and infrastructure services.

"In South Africa, our business is predominantly public sector, about 90%, and that is in water and wastewater treatment and bulk infrastructure arenas. At this stage we are mainly active in South Africa and its neighbouring states. However, we are looking to expand our presence in the African market."

Hatch Goba is busy in Botswana, Mozambique and Lesotho at the moment from a treatment perspective. "We tend to adopt a strategy of following our existing clients into new geographies in Africa and then using that entry point into other markets within that specific geography."

Officer remarks that Hatch Goba also prefers working with some of the more established multilateral funding agencies such as the World Bank and Millennium Challenge Corporation and development funding institutions such as the DBSA and AfDB "where there are more robust procurement systems and better transparency. We think the reality in the public sector is that you have to partner with local consultancies in these countries."

He points out: "Locally-based consultants have a better appreciation of the business environment, which helps reduce our business risk. We generally target the larger projects where we can benefit from the economies of scale and additional structure that is required to deal with the project risks."

Current projects include water-treatment works in Botswana, Mozambique and Lesotho, major transfer schemes such as Limpopo's R13,4-billion two-phase Mokolo Crocodile Water Augmentation Project and the North-South Carrier Pipeline Project (Phase II) in Botswana, which will transport water 360 km south to the capital city of Gaborone. Hatch Goba is also undertaking several large-scale rural water-supply projects in the Eastern Cape and KwaZulu-Natal.

"From a wastewater treatment perspective

“This is simply because as the water quality deteriorates, there is a commensurate increase in the cost associated with water treatment.”



Jason Browne, Hatch Goba principal engineer.



Andrew Officer, water business unit regional director at Hatch Goba.

ive, we are currently halfway through construction of the upgrade of the Darvill Wastewater Treatment Works in Pietermaritzburg, owned and operated by Umgeni Water,” Jason Browne, principal engineer at Hatch Goba, reveals. This project is aimed at increasing the ultimate design capacity from 50 megalitres a day to 120.

In November last year, Hatch Goba completed another major wastewater treatment upgrade for Johannesburg Water, boosting the capacity at the Bushkoppie plant near Soweto from 200 megalitres a day to 250.

At the Midmar Waterworks near Howick in KwaZulu-Natal, Hatch Goba will nominally add 125 megalitres a day of water treatment capacity in a major project that has just commenced construction, with completion anticipated in 2017. <

ACQUISITION CONCLUDED

The acquisition of SprayPave by Much Asphalt was confirmed in early February 2016 following Competition Commission approval for the transaction, Much Asphalt managing director Bennie Greyling has announced.



Much Asphalt is South Africa's largest manufacturer of asphalt products and the company's acquisition of SprayPave from Basil Read widens its scope to include 35 years of experience in the manufacture, supply and application of bituminous road binders, emulsions, primes, pre-coats and modified binders.

Much Asphalt has a national footprint of 17 static and five mobile manufacturing plants and Spraypave also boasts bitumen production facilities in Gauteng, KwaZulu-Natal and the Western Cape. The SprayPave fleet consists of 12 bitumen distributors and five haulers, as well as numerous static tanks.

A mobile emulsion plant, with a production capacity of 6 000 litres per hour, is able to produce anionic and cationic emulsions as well as emulsion primes.

Bitumen reactor

“We are also delighted to announce that SprayPave's new multistage bitumen reactor has now been commissioned and delivery to South Africa is expected shortly,” says Greyling. “The reactor will enable SprayPave not only to manufacture industry-first multigrade bitumens, but also to modify bituminous products from one grade to another as required. The unit will be located at the Cape Town branch.”

Tests have been carried out on the reactor by both SprayPave and external experts and SprayPave managing director Steven Single says the preliminary results have been even better than anticipated. This unit, which will be unique in South Africa, will place SprayPave at the cutting edge of bitumen technology.

In welcoming the SprayPave team to Much Asphalt, Greyling said: “We are all very excited about the positive impact of this transaction for both companies and, most importantly, for our clients.” >

11

TOP MACHINERY COMPANY FOR SUSTAINABILITY

Atlas Copco, a leading provider of sustainable productivity solutions, was again recognised as the world's most sustainable machinery company by the prestigious annual Global 100 list.



The list, presented at the World Economic Forum in Davos, Switzerland, ranks companies that prove they are increasing productivity while using less resources. Atlas Copco is ranked 34th overall, and is the only company in the machinery industry included on the list. It is the 10th time that Atlas Copco appears on the list.

“Providing customers with the most innovative, energy efficient, safe and ergonomic products is a key part of our business model,” said Mala Chakraborti, Atlas Copco's vice president corporate responsibility. “Integrating sustainability in our operations generates great value for both industry and society.” >

Atlas Copco ranked top machinery company for sustainability by Global 100.



2016: a year of **SCARCE** **CONTRACTS**

The construction industry is facing an extremely challenging year, Master Builders Association North has been warned by a leading economist.



Speaking at MBA North's 112th annual general meeting in Midrand recently, ABSA economist, Miyelani Maluleke, said with government spending on infrastructure starting to slow down after the global economic collapse at the end of 2008, private sector investment at least had remained buoyant. "However, there are strong indications that property developers will have to take a more cautious approach forward. This will have a negative impact on the order books of the building industry: from architects, consulting engineers, contractors and in fact, the entire supply chain," he cautioned.

"The construction sector has always been closely connected to GDP growth so we can not expect any strong growth from this industry soon. South Africa should experience only a 0,9% GDP growth rate this year. This means the building industry is going to have to search much harder to find work."

While Maluleke attributed many of the economic woes SA was experiencing to the dismal state of the world economy, there were local extenuating circumstances that had compounded the situation, such as the severe drought that would, inevitably, result in an increase in food imports, placing further strain on the consumer. The price of maize was now already 150% higher than a year ago.

Players in the retail property space would also feel the impact of subdued growth in durable, semi-durable and non-durable goods, as well as related services. "Confidence is weak across all income groups so the consumer is not going to supply the growth the economy needs."

The situation is like a double-edged sword considering that



ABSA economist, Miyelani Maluleke (right), pictured with Mohau Mphomela, executive director of MBA North, at the MBA's recent annual meeting in Midrand.

dwindling water and electricity resources would also eventually curtail private sector property developments, particularly because of the drought. "Dam levels have fallen by 55%. It is not a crisis yet – but it's very difficult to predict what lies ahead."

Maluleke said rating agencies were not comfortable with the state of the SA economy and were keeping a close eye on the scenario. "SA might not be downgraded to junk status, but there is a lot of pressure on government. We are looking at a very tough outlook this year."

He warned that this, together with a rapidly increasing public sector wage bill and social grants, would lead to an increase in taxes. But, because this was an election year, it was highly unlikely the public sector would reduce its wage bill, but rather opt for a more 'politically-correct' package by cutting on spending on hard infrastructure.

"All signs lead to a tough year ahead and the building industry may find itself following the example of civil engineering that is undergoing a process of 'right-sizing', while pursuing more lucrative contracts across the country's borders. But be warned: choose your African destination carefully. The end of the commodities super cycle, and the drastic drop in the price of oil, have also left many other African countries in a very precarious economic situation," he added. <

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GCC 2015

GCC 2015 revision enables contractors to cease work due to non-payment, says Alusani® Course Leader.



The GCC 2015 revision remains widely unpublicised, but there are a few key changes that can have a large impact on the negotiation power of contractors when doing business in the construction industry.

The upgrade to the contract, which is largely used by state-owned entities, was necessary due to the fact that there were a number of grey areas that needed clarification.

GCC course leader at Alusani Skills & Training Network®, Steve du Toit, says that the most significant revision to the contract is a clause that gives contractors the right to suspend work on current projects if they are not paid.

He says: "This is a major breakthrough in contract agreements. In the past, contractors were never able to suspend work on an ongoing

project, regardless of whether a payment certificate was issued or not, but now this right has been formally carried over to the GCC 2015."

Du Toit, who has practiced as an attorney for over two decades and has defended individual contractors, clients and large construction companies in legal cases pertaining to construction and building projects.



NAME CHANGE

Century old engineering and environmental consulting company, Jeffares & Green, announced that it will be changing its name and renewing its brand to better reflect goals and strategies.



JLS Jeffares founded a consultancy in 1922, and was joined by Hal Green in 1927. They became partners in 1947 and the name Jeffares & Green (J&G) became synonymous with professional engineering that never compromised on quality.

Throughout its existence, J&G has progressed and evolved, keeping pace with fluctuations in demand, the industry and customer requirements. To maintain momentum for continuous development, the shareholders made a bold decision at the end of 2015 to rename and rebrand the company in order to better align the name and the brand with its areas of operation – the African continent. Management also wished to align the brand with the firm's strategy to remain a proudly South African owned company.

According to J&G's marketing and communications manager, Charmagne Denny, "The brand development process started with the appointment of brand specialists. A strategic session was held and, after some collaboration, naming options were presented. After much hard work, research and an inclusive staff voting process, JG Afrika was chosen."

This was a carefully selected name, designed to represent the company's identity to the world, while maintaining its African roots. "The inclusion of 'JG' symbolises the company's acknowledgement of and appreciation for its history, while 'Afrika' denotes its independence, its love for the continent, and is a nod to the African way of spelling 'Africa'," says Denny.

The new corporate identity, which will be launched in April 2016, draws on designs of the past and the company's ethos of dedication, community benefit and environ-

Jeffares & Green, as part of the Lowlands Waterworks Joint Venture, designed the Metolong bridge where the local communities on either side of the Phuthiatsana River need to have easy access to each other.



STANDING, FROM LEFT: Jan Norris, Seetella Makhetha, Phaks Ngqumshe and Martha Makhetha. SEATED: Harold Tiganis, Nomsa Mkaza and Paul Olivier (managing director).

mental protection, while being refreshed for the 21st century.

"The name 'Jeffares and Green' has served us well for nearly one hundred years, and we will certainly continue to pay homage to our distinct history.

"However, the time has come to look to the future and to align our corporate identity with our diverse, modern and highly-skilled workforce," says Paul Olivier, Jeffares & Green's managing director. "We sincerely enjoyed the process of evaluating naming

options, and involving our valued staff – after all, our success is built on their strengths."

He concludes that, "While this is an incredibly exhilarating time for J&G, we assure the industry that we remain the same professional, knowledgeable and independent organisation; our name and brand changing does not alter the spirit of the company, but rather enriches it.

"We look forward to providing another century of experience, quality and integrity as JG Afrika." ◀

Du Toit says that a combination of two factors contribute to ongoing misunderstanding of contractors' rights with regards to non-payment.

"The first factor is that contractors simply don't always know what their rights are and they have to deal with the issue of non-payment both professionally and legally.

"Secondly, those who understand their rights are often reluctant to enforce them because they don't want to upset the relationship with the client, engineer or principal agent.

"This is understandable seeing as it could impact future contract opportunities down the line," explains Du Toit.

Instead of opting to sit back, wait and hope the issue will resolve itself (in other words that a contractor will get paid at some point down the line); the revision enables contractors to be more proactive.

"Thanks to the latest GCC revision, it isn't a case of ceasing works in order to demand payment, which many contractors would be hesitant to do. The GCC 2015 contract enables contractors to put forward a case that shows you are unable to work because you don't have the capital to continue to fund the project without payment.

This makes it much easier for contractors to enforce their rights and continue doing business in a way that makes it financially feasible for everyone involved in the project," says du Toit.

Du Toit says that while this is the major revision that contractors need to take note of in the GCC 2015, there are also more subtle terminology changes that he will be discussing at the upcoming Alusani® CPD – accredited course dedicated to GCC 2015.

For more information, visit the website at: www.alusani.co.za ▶

A MODEL OF SUSTAINABILITY

Nomzamo, a small township just outside Strand in the Western Cape, can now boast a Public Transport Facility (PTF) that gives priority to the community's needs, thanks to the successful design and construction work carried out by SMEC South Africa.

OPPOSITE FROM TOP TO BOTTOM:

Commuters have been regarded as the number one priority in terms of comfort and safety.

Low walls and bollards under tree cover provide seating.

Nomzamo is a small township just outside Strand in the Western Cape.

> The Nomzamo community hall and business centre were built some 12 years ago. At that time the taxi rank was simply a grass and gravel patch located between the community hall and Michael Street, which was being used informally by minibus taxis to load passengers.

Having identified the urgent need for the informal minibus-taxi rank to be upgraded, the City of Cape Town appointed SMEC South Africa in January 2013 to carry out the design and construction of the Nomzamo PTF. The preliminary design was completed in July 2013, while construction of the facility was finalised in August 2015.

"The new facility has integrated several aspects of sustainability into its functionality," Doug Calverey, SMEC South Africa, technical specialist: roads and highways, comments. "It has been planned to accommodate minibus-taxi movements in the most efficient manner."

In addition, the commuter has been

treated as the number one priority in terms of comfort and safety, so that conflicts between pedestrians and moving minibus-taxis are reduced.

The roadway along Michael Street, which passes through the minibus-taxi precinct, has been raised and paved with a grey interlocking concrete paver, so that drivers are made aware that they are entering a public transport area where pedestrians have priority.

Safe pedestrian crossings have been provided at strategic points, delineated in red brick pavers so as to stand out from the surrounding grey concrete or black asphalt. The commuter loading, off-loading areas, and the pedestrian walkways, have been designed with overhead canopies to ensure adequate protection against sun and rain.

Low walls and bollards under tree cover have been designed to double as seating opportunities and to prevent minibus-taxis from mounting the kerbs and parking

in areas identified for the exclusive use of the commuter.

Adequate refuse bins have been placed at strategic positions on columns or against walls to discourage the scattering of litter. The buildings themselves include a meeting room for use by the community and the taxi association.

The Red Box Security Tower has been designed so that the security officer has an unobstructed view of the whole taxi rank as well as the adjacent soccer kick-about fields and the pedestrian avenue in front of the community centre.

The buildings also include a manager's office so that adequate management can be provided by the city to control the maintenance, cleaning and operation of this important public transport facility. This is critical, as the facility generates a huge volume of litter deposited by commuters.

Six trading kiosks have been constructed specifically for traders who wish to cook and provide food for commuters and taxi drivers. These will be hired out by the City of Cape Town at a suitable rental to cover operational costs.

All the kiosks have been provided with water, wash basins, fat traps and an extractor fan. The kiosks themselves are separately metered so that water and electricity costs can be recovered from the traders. Six open trading bays have also been demarcated on the new paved area outside the Nomzamo business centre so that informal traders can be accommodated in a controlled environment.

A wash bay has been constructed for two taxis with an overhead canopy and a separately metered water supply. The intention is to provide a business opportunity for an entrepreneur to provide a taxi washing service. The wash bay features an underground oil separator that prevents oil and grease from entering the foul sewer system.

A photovoltaic (PV) system provides adequate electricity supply for 100% of the administration buildings and ablution block when the sun is shining. The PV system can always be expanded in the future to include batteries in order to accommodate lighting at night.

"It is hoped that the Nomzamo community takes ownership of the facility and proper management control is implemented, so that this public open space can be used for the benefit of the entire community," Calverey concludes. **<**

"It is hoped that the Nomzamo community takes ownership of the facility and proper management control is implemented, so that this public open space can be used for the benefit of the entire community."

A PV system supplies electricity for the admin buildings and ablution block.





World Green Building Trends 2016



DODGE
DATA & ANALYTICS

LEADING THE PACK

Green building is forecast to double globally by 2018, according to new research, which showcased South Africa as one of the top performers worldwide, reporting the highest percentage of green building projects currently underway.

➤ Even more impressive is the fact that South Africa's commitment to green building isn't triggered by regulatory requirements, as is the case in many other jurisdictions, but by "doing the right thing".

Dodge Data & Analytics and United Technologies published World Green Building Trends 2016 last month, on which the World Green Building Council (WorldGBC) was a research partner.

"[In South Africa], respondents believe the green activity so far is just laying the groundwork for an overall shift in the market," says the report. "If this degree of commitment to green building holds, South Africa will be a leader in the global green market in the next three years," it continues.

The report finds that, internationally, twice as many companies are expecting their building projects to be certified green by 2018 – an increase to 37 percent. In comparison, respondents in South Africa indicated that 41 percent of their work is already green.

"South Africa will continue to outperform with almost two thirds of respondents expecting more than 60 percent of their projects to be green by 2018," says Green Building Council South Africa (GBCSA) CEO, Brian Wilkinson.

Especially noteworthy is that South African green building is driven by an acknowledgement that green building is "the right thing to do", rather than by regulations, according to the report.

"In South Africa, there is an absence of regulatory requirements – which in countries like the UK, Australia and Singapore are in fact the trigger for green building," explains Wilkinson.

It's testimony to the work being done by the GBCSA. The GBCSA was founded in 2007, and in 2009 certified South Africa's first green building project. In May 2015, the council certified its 100th building project, and today, there are 167 certified projects.

"It's a clear sign that green building practices are gaining significant momentum in South Africa, along with an acknowledgment that Green Star-certified projects are not only world-class and innovative, but benefit people, the planet and profits," concludes Wilkinson. ■

RUBBER FLOORING

Envirobuild, KwaZulu-Natal's first manufacturer of eco-friendly rubber flooring for commercial, industrial and residential use, has launched an extensive range of rubber paving tiles and bricks made from recycled truck tyres.

> A joint venture between entrepreneur Jaco Snyman, carpeting and flooring giant Van Dyck and Hammarsdale-based Mathe Group, Envirobuild will produce a high quality product that is suitable for the local market and export.

Jaco Snyman, managing director of Envirobuild, says that the new products, which include 93% recycled materials, are a perfect fit with increasing demand for greener flooring options. Internationally, architects, interior designers and the construction industry are under pressure to meet their clients' sustainable building requirements in order to ensure green building certifications.

"There is very little high quality flooring of this nature produced locally so there is definitely a market for it. We are the first company to produce eco-friendly rubber flooring in KwaZulu-Natal and one of very few in South Africa," he said.

Flooring products

A wide variety of flooring products, including rubber paving bricks (200 mm x 100 mm), Dog Bone paving bricks (200 mm x 100 mm), rubber paving tiles (500 mm x 500 mm), a twin brick pattern Tile (1 000 mm x 1 000 mm) and an interlocking tile (1 012 mm x 1 012 mm) will be manufactured at Van Dyck's factory.

They will be available in a variety of thicknesses – from 13 mm to 38 mm for the paving tiles and from 20 mm to 50 mm for the bricks – and colours, including black, rust, green and speckled.

The main component of Envirobuild flooring is rubber crumb that is sourced from Mathe Group.

Significant synergies

Managing director of Van Dyck, Dr Mehran Zarrebini, said the collaboration between the partners was exciting as there were significant

synergies in place. Van Dyck produces rubber based acoustic cradles and underlays for commercial carpeting and sporting applications while Mathe is a well-established tyre recycler.

Minor adjustments to existing machinery at Van Dyck's south Durban factory meant that production could begin immediately. "However, because we anticipate volumes going up both quickly and appreciably, we have invested R800 000 in additional machinery which is due to arrive within the next three months and is expected to be operational by the beginning of June. This will quadruple existing capacity," said Zarrebini.

"This is an exciting venture for us. We are about to commission a new plant in Hammarsdale that has capacity to recycle 250 000 truck tyres. This will be an important market for our rubber crumb. It is particularly exciting venture as there are still very few secondary rubber products made from recycled rubber in South Africa," says head of Mathe Group, Vusumuzi Mathe.

South Africa is currently dealing with a major environmental challenge as it works to recycle 60 million waste truck tyres that have piled up over the years. An estimated 10 million truck tyres more are added to this each year.

Snyman added that the partnership with Van Dyck, a highly respected brand within the flooring sector, was particularly important as that company not only provided the manufacturing expertise but also enhanced the credibility of a new entrant into the market.

He said that although he had initially looked to importing environmentally friendly rubber flooring products from Canada and America, he had quickly abandoned this as the exchange rate made this unaffordable. Imports would be landed at ten times the price of locally made products.

There is a ready supply of used tyres in South Africa and Envirobuild will be able to both make and deliver mats to America more cheaply than they can produce them here, opening up significant export opportunities.

Rubber flooring is suitable for a wide range of applications. It absorbs impact and cushions falls, making it ideal for use in play areas, schools and retirement facilities. Together with increased grip, this also makes rubber flooring particularly suitable for use in gyms, dance studios and sporting facilities. It is also ideal for use around swimming pools and wet areas such as saunas and jacuzzis.

Snyman said that rubber flooring was also suitable for industry and warehousing as it was able to withstand impacts as well as high footfall and the movement of heavy equipment such as hoists and forklifts.

Envirobuild products are low maintenance and durable and are quick and easy to lay. Because rubber bricks are much lighter than brick or concrete paving and some products come in sheets, they can be laid more quickly and easily with the added bonus of far less breakage. This negates additional outlay to cover damaged materials.

In addition, they are easy to lift and replace should repairs to like water pipes or under floor cabling be necessary. Rubber paving is ideal for slopes where there is the risk of moving ground and the need for increased flexibility to mould to the shape of the surface.

Currently, Envirobuild is working towards receiving Green Tag certification in order to further enhance its presence in the sustainable building materials market. GreenTag is a unique, independent third party, green building and other sustainable product rating and certification program based on life cycle assessment (LCA).

This is expected to be boosted by the fact that Van Dyck is both ISO 9001:2008 and ISO 14001 accredited. In 2013, it became one of just a handful of companies with ISO 14064-1 accreditation due to massive reduction in greenhouse emissions. **◀**

Seated left is Jaco Snyman, Envirobuild managing director, standing Mehran Zarrebini, Van Dyck Carpets head and right Vusumuzi Mathe, Mathe Group director.



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WORLD'S MOST 'BANKABLE'

Trina Solar Limited, a global leader in photovoltaic (PV) modules, solutions, and services, recently announced that it has been named the most 'bankable' PV module manufacturer globally by Bloomberg New Energy Finance (BNEF).

> A survey of key PV stakeholders asked about 50 different module brands and 100% of respondents said that Trina Solar was bankable, confirming the company's leading position in the solar PV market.

The report details the findings of a survey conducted by BNEF to identify which module manufacturers are most likely to obtain non-recourse debt financing by commercial banks. Survey participants, which were banks, technical consultants, engineering contractors, asset managers and independent power producers (IPPs) from all around the world, were asked which PV module brands they considered bankable by their own internal criteria, which is usually based on product quality and the manufacturer's financial strength.

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Trina Solar topped the list of 50 module manufacturers, being the only company that all survey respondents believed was bankable. The report also details how Trina Solar modules were used in more debt financed projects than any other manufacturer's modules since the start of 2014, having secured funding for more than 1.2 GW for 15 different projects tracked by the BNEF database. The BNEF database is not fully comprehensive, but contains almost 14 000 solar financings worldwide.

Commenting on the report findings, Teresa Tan, chief financial officer of Trina Solar, said: "The findings from this report are highly positive and we believe that they come as further confirmation of our leading position in the industry around the world. Trina Solar prides itself on the sustainability and strength of its way of doing business and this latest acknowledgement of our leading bankability comes as a logical result. We always strive to deliver bankable PV solutions that are innovative and that will provide the best returns for our customers. We have invested heavily, and will continue to invest, in the quality and performance of our PV modules to ensure that they can deliver the highest yields in the short and long term. ■"



FIVE STAR GREEN OFFICE DEVELOPMENT IN CENTURION

PPS Group, the financial services company in South Africa which focuses exclusively on graduate professionals, announced the opening of the PPS Centurion Square office development last month.

> This new development is situated in the heart of the Centurion Central Business District and consists of two open plan office buildings situated on a total area of 23 000 square metres and has received a Five Star Green Building Rating from the Green Building Council of South Africa (GBCSA).

Tiffany Boesch, group financial director of PPS, says the company is proud to be part of the development as it is PPS Property Fund Trust's latest green office development.

"Investing in green technology will not only lead to cost reductions in the long term, but will also result in reduced use of resources and have a positive impact on the health and wellness of the occupants and surrounding community.

"At PPS, about 15% of our members are professionals within the built environment and we therefore are duty bound to be at the cutting edge of construction trends and green building technology. When the opportunity presented itself to develop a new office park through our Property Fund, we embraced this opportunity to collaborate with the Green Building Council of South Africa and demonstrate our commitment to environmental stewardship and social responsibility," says Boesch.

What the architect says

Lood Welgemoed from Boogertman + Partners Architects, says that the building achieves a 61% improvement in carbon emissions through installation of various energy sub meters, web-based energy meters as well as motion sensors all in an effort to reduce energy consumption associated with the lighting. "The efficient water fixtures and fittings that have been installed in the building also results in significant savings of potable

water consumption. Rain water will be harvested from the roof area to be re-used on the site and greywater collected from sinks and showers will be captured and treated for landscape irrigation purposes."

He explains that the GBCSA is a nationally accepted organisation that leads the transformation of the South African property industry to ensure that buildings are designed, built and operated in an environmentally sustainable way. "The GBCSA's mission is to promote, encourage and facilitate green building in the South African property and construction industry through providing an established common language and best practice standard of measurement for green buildings through the Green Star SA rating tools," concludes Welgemoed. ■



Tiffany Boesch, group financial director, PPS.

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Already published for 33 years, the magazine reaches a carefully managed target audience every month (ABC 4 688 – fourth quarter 2015).

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CROWN
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LARGEST INDUSTRIAL TRANSACTIONS

leasing yet

Growthpoint Properties and Consolidated Steel Industries (CSI) have concluded a landmark multifaceted transaction that will bring several of CSI's Gauteng operations together under one roof in Isando, boosting its efficiencies and furthering its business strategies.



Engelbert Binedell, Growthpoint industrial division director.

In Growthpoint's largest manufacturing sector transaction, both by deal value and square metres, CSI now occupies its new Isando facility on a 10-year triple-net lease basis. Located on the corner of Quality and Barlow Roads, the premises will be used for manufacturing, storing and distributing its impressive range of aluminium, stainless steel and roofing products. It spans a whopping 48 000 m², made up of 44 500 m² factory and warehouse space and 3 500 m² of offices.

CSI, a subsidiary of Tiso Blackstar, has recently merged its two principal operating divisions, Global Roofing Solutions and Stalcor. Stalcor is a dynamic, leading stockist and distributor of a wide range stainless steel and aluminium products. Global Roofing Solutions consists of leading South African roofing brands under the Brownbuilt and HH Robertson banner, making it one of the largest metal roofing and roofing accessory manufacturers in South Africa. It also includes subsidiaries Helm Engineering and Stampede Compaction and holds the brands Zip-Tek, Klip-Tite, Klip-Lok, Nu-Rib, Bond-Dek, Bond-Lok, Arma-Tile, Uni-Tile and QC Flooring, among other well-known trade names.

Proud association

Engelbert Binedell, Growthpoint Industrial division director, says his team is thrilled to have a leading South African business like CSI as a partner in Growthpoint's largest industrial facility.

Binedell comments: "This is a significant transaction for Growthpoint and it has proven to be unique and multifaceted. We've worked closely with CSI to optimise this property to meet its business needs, invested considerable capital of R40-million in refurbishing the facility to client specifications and acquired two new properties as part of the transaction. All this was achieved within an exacting timetable. We are exceptionally pleased with the results."

Chris Ransome, executive chairman of CSI, states: "This is a landmark development for our newly merged Stalcor and Global Roofing Solutions businesses which have a history spanning over 60 years.

"The Growthpoint team has delivered an exceptional, cost effective and all-encompassing solution to our bespoke property requirements in both Gauteng and the Western Cape."

The multi-layered transaction builds on several proven relationships. Growthpoint and CSI have collaborated on other properties, with Growthpoint recently concluding a five-year lease with Stalcor in an 8 526 m² warehouse in Epping, Cape Town. In addition, CSI is replacing Robor as the tenant in the Isando building, and both are subsidiaries of Tiso Blackstar.

The standing relationship with Robor helped drive the building's refurbishment forward swiftly, as it allowed Growthpoint early access to begin the renovation of the factory floor and offices. This valuable preparation

time meant that CSI was able to operate from its smart new facility only a month after Robor moved out, even with the large-scale refurbishment of the entire premises.

Jason Reeves, of Growthpoint's Industrial Property team, explains that due to Robor's former tenancy, CSI was well aware of the property and all of its attributes. "It is an ideal location that consolidates CSI's various divisions in a single facility to optimise the efficiencies within its business."

A sought-after industrial area, Isando benefits from close proximity to OR Tambo International Airport. It is well located between the R24 and N12 with easy access onto these arterials at various points. The area is well served by public transport – buses, taxis, trains and Gautrain – allowing staff to commute easily to and from work.

Reeves adds: "As a long-standing industrial centre, Isando has substantial power supply for manufacturing concerns. Its property is reasonably priced, with a mix of older properties and new properties. As a growing node, landlords are also showing an appetite to invest in upgrades."

Extensive refurbishment

Growthpoint's refurbishment of the property was extensive. The upgrade involved the casting of a 10 000 m² concrete floor in the



Major development in GERMISTON

Atterbury will develop a R850-million industrial and business park on the prime site it has acquired in Gosforth Park, Germiston, in Ekurhuleni.



A leading property investor and developer in South Africa and beyond, Atterbury has designed the ready-to-develop park to provide

103 000 m² of modern business space for blue-chip light industrial users requiring big box logistics warehouses as well as show-rooms and offices.

Superbly located at the intersection of the N3 highway and Rand Airport Road, right on the Elandsfontein interchange, Atterbury's highly visible site is on the preferred side of the busy Gillooly's interchange for freight coming into the province from Durban and other port cities.

Gosforth Park is an area that Atterbury knows well. A decade ago, Atterbury purchased the former Gosforth Park horse racing track, turned motorsport raceway, from Wesbank.

It redeveloped the property into Raceway Industrial Park, the first major commercial property development in the node and a trigger from exponential surrounding property development, which it sold on to Pangbourne in 2009.

Coenie Bezuidenhout of Atterbury Property Developments explains that, in addition to its track record of demonstrated development success in the Gosforth Park node, it chose this site as part of its expanding portfolio of developments in Johannesburg because the node is set to receive a new injection of investment.

Also, the Atterbury site is the best positioned, and last, major site for development in the immediate area. "It offers sweeping highway frontage with excellent visibility and has superb in-out access right on a major highway intersection," says Bezuidenhout.

Commenting on the development, Wouter de Vos of Atterbury says: "Industrial property remains attractive and represents a defensive property play during a cycle of uncertainty. It commands longer leases relative to other commercial property sectors. In a rising interest rate environment, it is an asset class that can match debt with income profiles. For Atterbury, it also lowers risk by strengthening the sectoral diversification of our assets."

He adds: "We're particularly pleased to secure such a sought-after site in a major established and growing industrial node in Gauteng – SA's economic hub."

Atterbury's Gosforth Park development is at a strategic transport confluence, which links Gauteng to the rest of the country, the region and the world, by road, rail and air. As well as its excellent access from the N3 highway, it also is easily accessible from

the N12, N17 and even the M2 highways.

It has a dominant position at the gateway to Gosforth Park and surrounding business areas. The development is also near to the City Deep inland port.

"This development is positioned to be the first choice for business, especially those involved in logistics – from cargo handling to courier services, warehousing and freight," De Vos points out.

The development will be undertaken by Atterbury Property Developments. Construction will begin this year and the development is set for completion over the next three years.

Bezuidenhout confirms the development is already zoned and serviced, and the business park is ready to develop as a full site, or industrial facilities up to 70 000 m² and starting from 10 000 m².

Gosforth Park will be secure to support its tenants with high-spec infrastructure as well as a comprehensive framework of services and other quality features.

Unsurprisingly, Atterbury has received interest for space at the prime Gosforth Park business address, even before it officially launched the development. ◀

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"All this was achieved within an exacting timetable. We are exceptionally pleased with the results."

factory area, constructing a new 2 500 m² office block and a complete upgrade to all the existing offices with new carpets, ceilings and energy-efficient lighting and air conditioning.

All the polycarbonate sheeting on site will be replaced to ensure the maximum use of natural light in the warehouse area.

Growthpoint also added energy-efficient lighting to the factory area, which received new bathrooms too.

Ensuring a comfortable working experience, staff and canteen facilities were revamped and a shaded car park, with space for around 175 staff cars, was added.

Growthpoint is also providing 30 cranes, two weighbridges and a security camera system on the premises, all of which will be incorporated into the rental to ensure CSI has all the necessary equipment on site, supporting cost efficiencies.

As a highlight of the facility, the newly developed 2 500 m² office block, is constructed incorporating the use of CSI's

own steel roofing products into the new, modern design – creating a functional showcase of its own products and capabilities.

CSI began operating from its new premises in January. Binedell says: "This transaction and upgrade reflects Growthpoint's drive to optimise our industrial property portfolio and create better buildings for businesses to thrive and secure their industry footprint."

He adds: "Especially pleasing is that we will have more than a tenant in CSI, they will also be an integral service provider to the broader Growthpoint community." Growthpoint's industrial team gives a priority to using the services and products of its tenants for the projects they undertake. ◀

JOINT CHAIRS

Leading Gauteng-based retail property developers and investors, Flanagan & Gerard Property Development & Investment, recently announced that co-founders Patrick Flanagan and Peter Gerard will jointly chair the group. A new exco has also been appointed as part of the group's succession planning to take it into the future.

> Flanagan & Gerard was established in 2001 and over the years has been involved in the development of several dominant regional shopping centres and high-end niche community centres across SA, working with various joint-venture partners. Noted retail developments under its belt include Vaal Mall, Mall of the North, Middelburg Mall, Highveld Mall, Heidelberg Mall, Eyethu Orange Farm Mall, Morningside Shopping Centre and Nicolway, amongst others.

Patrick Flanagan and Peter Gerard's roles changes from that of executive directors to jointly chairing the group. In this new joint position, they will oversee the strategic growth of the group, while day-to-day operational management will be driven by a young exco led by managing director, Paul Gerard.

As part of the new company structure, Flanagan & Gerard's other exco members include:

- Chris Teague – Group leasing director
- Karyn Southgate – Group financial director
- Elsje Bodenstein – Group development director
- John Rowberry – Group special projects director

Commenting on the new company structure, Patrick Flanagan says: "This is a significant milestone for Flanagan & Gerard Property Development & Investment. The group has grown into a major retail developer and investor over the last 15 years. This move represents an evolution of the company and is part our strategic succession planning. We are excited to announce our new generation exco, who are primed to take the group into the future."

Peter Gerard comments: "Patrick and I have played our part in establishing and shaping Flanagan & Gerard Property Development & Investment into the noted industry player it is today. We will still have strategic oversight in our new role as joint chairpersons, but will be taking a step back from day-to-day management, thus making way for our dynamic, young and driven exco to manage the group." ❏



Peter Gerard, left, and Patrick Flanagan, the co-founders of leading Gauteng-based retail property developers and investors, Flanagan & Gerard Property Development & Investment.

A long history

Patrick and Peter, who are not just business partners but long-time friends, have over 75 years of combined development experience. They met in the 1970s while cutting their teeth at Rapp & Maister, where under Michael Rapp they worked on pioneering shopping centre developments such as Sandton City and Eastgate.

In 1979 they founded RMS Syfrets, which later became Colliers RMS and together, they were responsible for the development of many of the country's largest property investments which include Riverside Mall, Lakeside Mall, Southgate, Somerset Mall, Mimosa Mall, Northgate, and the Boardwalk in Richards Bay to name a few.

They left Colliers RMS in 2000 and founded Flanagan & Gerard a year later, which has grown into a highly respected SA shopping centre development and investment company. Flanagan & Gerard is currently involved in major new regional shopping centre developments that include Springs Mall at Blue Crane Eco Park in Gauteng; Thavhani Mall at Thavhani City in Limpopo; and, Ballito Junction Regional Mall in KwaZulu-Natal. In addition, the company is undertaking an expansion of Vaal Mall. All these developments are being undertaken with joint-venture partners.

In all projects that it undertakes, Flanagan & Gerard is responsible for all aspects of the shopping centre development process. With its new exco structure, together with the strategic leadership of its founders, Flanagan & Gerard has positioned itself for continued growth into the future.

60% OF ALL MAINSTREAM ASSETS

The total value of all developed real estate on the globe reached USD217-trillion in 2015, according to calculations by international real estate adviser, Savills, which is represented in Africa by Pam Golding Properties.



Source: Savills Research, Bank for International Settlements, Dow Jones Total Stock Market Index, Oxford Economics

Global real estate universe in comparison.

> Issued for the first time, the analysis measures the entire developed property universe including commercial and residential property as well as forestry and agricultural land.

The value of global property in 2015 amounted to 2.7 times the world's GDP, making up roughly 60 percent of mainstream global assets and representing an important store of national, corporate and individual wealth. Residential property accounted for 75 percent of the total value of global property.

According to Sandra Gordon, senior analyst for Pam Golding Properties Research, here in South Africa a recent ABSA report indicates that in the second quarter of 2015 the total value of South African residential property was R4 155-billion, which at the current rand/dollar exchange rate represents approximately USD260-billion.

Yolande Barnes, head of Savills world research, comments: "To give the global figure context, the total value of all the gold ever mined is approximately USD6-trillion, which pales in comparison to the total value of developed property by a factor of 36 to 1.

"The value of global real estate exceeds – by almost a third – the total value of all globally traded equities and securitised debt instruments. This highlights the important role that real estate plays in economies worldwide. Real estate is the pre-eminent asset class which will be most impacted by global monetary conditions and investment activity and which, in turn, has the power to most impact national and international economies." ❏



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Bosch has equipped cordless combis in the 18 volt classes with brushless EC motors. In future, the range will include the GSB 18 V-EC Professional combi. This is part of the 'dynamicseries' from Bosch – a series of especially compact tools with long battery runtime – and is based on tried-and-tested models.



However, they have a longer lifetime thanks to their EC technology, lasting for twice as long as tools which do not have EC motors. They are therefore especially suitable for serious applications and enable finishing trades such as electricians, plumbers and joiners to work quickly and efficiently.

Advantages of EC technology at a glance

Unlike conventional DC electric motors with carbon brushes, the brushless EC motors from Bosch are completely maintenance-free and work with a degree of efficiency of more than 80% instead of 60 to 70%. The high degree of efficiency results in less heat loss. The tools do not get as hot and can perform up to 30% more work per battery charge.

In addition to this, the Electronic Motor Protection (EMP) protects them against overload: it shuts the motor down immediately if it stalls. As a result of these factors, the lifetime of Bosch cordless tools with EC motors is double that of tools with conventional motors. EC technology also allows for a very compact and lightweight design of the tools. The cordless combis are only 189 mm long. This enables professional tradespeople to easily use them overhead and in tight spaces or hard-to-reach areas.

Powerful tools for varied and continuous use

The GSB 18 V-EC Professional cordless combis offer professional tradespeople additional flexibility: they can be used not only to drill holes in wood and steel, but also in masonry up to 13 mm diameter. The features of the drill/drivers and combis are completed by a motor brake, which helps to make work precise when driving rows of screws, an integrated LED light, a mountable bit holder, and a belt clip that the user can conveniently hang the tool on.

*The new cordless combis will be available at specialist retail outlets from June 2016 onwards. <



Technical data	GSB 18 V-EC
Rated voltage (V)	18
Battery capacity (Ah)	2 - 6
No-load speed (1/min)	0-600 / 1 900
Impact Rate (1/min)	0-600 / 1 900
Max. torque (hard /soft joint) (Nm)	60/31
Max. drilling Ø in wood/ steel/masonry (mm)	38/13/13
Chuck capacity (mm)	13





- Double the lifetime of tools without EC motors
- Compact and lightweight screwdrivers with long battery runtime
- Powerful: high torque for a wide range of applications

EC Motor
2 x lifetime, 30% longer runtime, no maintenance

Full Metal Chuck
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Less noise and vibration, reduction of wear-out for longer lifetime

Additional Coloured LED
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Improved Ergonomics
For perfect grip and more comfortable handling

Kickback Control
To detect unforeseeable blocking situations

The Power Tools Division of the Bosch Group is the world market leader for power tools, power tool accessories and measuring tools. In 2014, its roughly 19 000 associates generated sales of €4,2-billion, about 85% of which outside of Germany. With brands such as Bosch, Skil and Dremel, the division stands for customer focus and great engineering progress. The core success factors are innovative strength and pace of innovation. The division generated about 35% of its sales in 2014 with products that have been on the market for less than two years. In 2015, Bosch Power Tools will again launch more than 100 new products onto the German market in its four business segments power tools, accessories, measuring tools and garden tools.

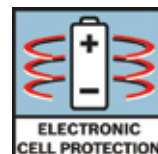
The Bosch Group is a leading global supplier of technology and services. It employs roughly 375 000 associates worldwide (as of 31 December 2015). According to preliminary figures, the company generated sales of more than €70-billion in 2015. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology.

The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. In 2015, Bosch applied for some 5 400 patents worldwide. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is 'invented for life.'

Real Bosch!



dynamicseries



UNIQUE PROJECT in Cape Town

A handpicked team of architectural, construction and design experts is ensuring that Cape Town's eagerly anticipated Radisson Blu Hotel and Residence Cape Town is well on track to opening its splendid doors within a year.



Formerly known as Safmarine House, the award-winning former office building in the heart of the city is easily recognised by its flamed and polished granite exterior. Now, its upper floors are being transformed by developer, Signatura and land owner, Stonehill Property Fund into Cape Town's highest (and one of the most luxurious) residential developments. Stonehill has also commissioned the development of the lower floors into a five star hotel which will be operated by Swedish group Carlson Rezidor as their flagship Radisson Blu hotel.

Floors one to 11 are being reconstructed into the Radisson Blu hotel and floors 12-23 will house up to 170 sectional title, one and two bedroom (40-88 m²) apartments. This includes seven sensational 97-214 m² penthouses, and three three-bedroom penthouses up to 290 m².

Originally costing USD6-million to build the iconic glass, granite and concrete modern high-rise, the current investment will total R1-billion.

Derick Henstra, executive chairman of dhk architects and responsible for the overall hotel, says: "The hotel and residential sector is undergoing rapid growth at the moment, and this development is being turned around in a year to take advantage of this upsurge in the market."

The development is separated into three distinct elements – the Radisson Blu hotel, residential apartments and penthouses. Each element is being handled by a specialist team, bringing their particular expertise to the project and giving each part of the development its own character while ensuring that it works within the vision as a whole. It's a fast track programme and requires seamless coordination among the professional team and contractors.

Brinley Pritchard, dhk associate director, says construction on the apartments started in September 2015 and the hotel started a month later, while construction of the penthouses will start early next year. The apartments and penthouses will be ready for occupation by the end of October 2016, with the Radisson Blu and three bedroom penthouses following later in the year.

Apartments on track

Focusing on the apartments, Juan Bernicchi, director of Bernicchi Architects says current construction is proceeding over several floors in a staged programme. Stripping out existing walling has begun, with first fix installation of services underway on six floors (all the work needed to take a building from the initial stages to putting plaster on the internal walls). The estimated completion dates will also be staged over three months, starting in June 2016 with four floors, another four floors from July and the final three floors from August.

"The existing building form allows for plenty of natural light and views from most internal spaces. The position and shape of the building maximize the 360 degree panoramic views of the city, which are, frankly, unbelievable," he says. Windows (that can be opened) to all external viewing spaces are a unique feature, "not often achieved in conversion of office high rise buildings".

City offices are often noisy due to their direct interface with surrounding activities, so converting this building into more private and comfortable living spaces (and attaining the required acoustic levels) has been a key challenge to address. "We've worked closely with our engineers to achieve the required comfort within the apartments," says Bernicchi.

He adds that there are sufficient experienced people within the construction profession to meet the exacting standards. "Once the project is in full swing there will be hundreds of skilled people working throughout the building with a view to achieving a world class result."

Juan Hugo (owner of JW Hugo Construction group) confirms that initial demolishing has been undertaken and they are working on nine floors, building walls in order to complete the first fix services – heating, ventilation and air conditioning (HVAC), plumbing, fire and mechanical work.

Discussing the conversion of this office building to residential use, Hugo says that apart from the shell of the building and the lifts, all aspects of the apartments will be newly built. Existing services must be stripped before they can start from scratch on the new apartment layout. A particular challenge is penetrating post tension slabs, while bypassing the post-tensioning cables when coring or breaking through.

All the existing windows are being retained, not just to provide natural light, but also to make the most of the fabulous vistas. "The building was designed and built symmetrically, the designers have done a great job in maximising the space and views," says Hugo. As for the 10 sensational penthouses, "the space and finishes will make them exceptional."

Early in 2016 JW Hugo completed the walling and ceilings for the entire project. All this work on the apartment phase has required approximately 120 people working full time.

"Not often does a project in a building like this come along. It's a brilliant project to be working on with a great team," says Hugo. "This is a perfect opportunity for investors and home owners to take advantage of what this building has to offer on completion. It's unique. Imagine living above a Radisson Blu, with all the benefits?"

Hotel progress

Murray & Roberts is undertaking construction of the hotel – and interesting enough, the original high-rise was built in the early 1990s by the same firm. Safmarine House received a merit award from the Institute of South African Architects plus a Fulton Commendation from the Concrete Society of South Africa. And the original site agent, Mark Fugard, is still with Murray & Roberts and has taken over as Western Cape MD in January 2016.

Preparatory work started in mid-September, with demolition of the first occupied levels starting in mid-October. New construction activities, including the first hotel mock-up bedroom, began at the beginning of November.

"The structural layout of the existing building is such that no major structural modifications are required in order to accommodate the hotel requirements," says Dave Heron of Murray & Roberts. "The basic services (water, air conditioning and electricity) are already in place and can be adapted to meet most of the new requirements."

Fire regulations have changed since the original building, says Heron, and these have to be accommodated in the new layouts. Plumbing provisions for water and sewer are far more onerous than required for a single use office environment.

Stripping out of existing partitions, ceilings, and services is already under way. Construction of the new hotel rooms commenced in October 2015. The first rooms will be ready for hotel operators' fit-out by end of June 2016, with balance of the work completed in a phased manner between then and December 2016 when the hotel will open.

As the concrete structure and façade are already in place, the manpower demand for this hotel will be considerably less than for a new build. However, Heron still expects 400-500 employees when construction peaks.

Producing five-star hotel amenities can be challenging, but Heron is unfazed by the requirements: "We are managing the construction of three hotels in Cape Town at the moment, and the secret to the demanding finishes is the careful selection and management of the specialist sub-contractors who carry out these trades."

Source Interior Brand Architecture is responsible for the design of the hotel interiors, and by mid-November 2015 were busy with the construction documentation phase for the passages and guest rooms, and with design development of the public areas.

Director Evon Smuts-Rogers says key references will be the original 1990s building (which was inspired by the Art Deco heritage of the city) and its inner-city location. Influences include the array of city cultures, its stone pavements, waterways, status as an ocean liner destination, geometry of the nearby Company's Garden, and more.


"We are designing the hotel to honour that inspiration in a contemporary manner," she says. "We are approaching the design as one would a finely tailored suit, with attention to detail and respect for being seen in the city."

"Finishes and coloration will be elegant and understated. Many finishes will be borrowed from the original building – such as fine stone, hardwood paneling and stainless steel. Because location is everything, our attention is drawn to the subtle hues the sea mist brings to the atmosphere of our city."

The building retains many fine finishes such as hardwood paneling, white marble and black granite. Source IBA will build on the black-white theme in various ways. Graphics for carpets and screens will be based on patterns found in the existing building, as well as other Art Deco sources, translated into contemporary motifs.

The emphasis is also on local sourcing, achieved to date in the carpets, joinery and metalwork. A number of local artists will create works for the public areas, passages and guest rooms.

"We work constantly with fantastic furniture makers, joiners and artists in Cape Town – our contact base is extensive and Cape Town is bursting with talent," says Smuts-Rogers.

"The development is an incredible opportunity to revitalize the inner city by giving an obsolete building a new lease of life," concludes Henstra. "It's an example of true urban regeneration, and the responsible thing to do as a developer. It supports the notion of maintaining a vibrant and 'alive' city, not allowing the city to deteriorate as we've seen in many other parts of South Africa. From the travellers' point of view it's going to give people the opportunity of experiencing this exciting city and all it has to offer. A true urban experience. Like visiting a great New York hotel, only in a more beautiful city." 



Dave Heron of Murray & Roberts, Shaun Rai of Stonehill Property Fund, Juan Hugo of JW Hugo Construction and David Cohen, MD Signatura.

LEONARDO BUILDING CONTRACT IN SANDTON


The Legacy Group has awarded Aveng Grinaker-LTA with the Leonardo Building contract which comprises the construction of a four-level basement and a 150 m high-rise building at 75 Maude Street, Sandton.

 The new building will include retail, office, a 4 000 m² garden terrace with a gym, spa, crèche and restaurant above, with luxury apartments and penthouses and is within walking distance of the JSE, the Sandton Convention Centre, Nelson Mandela Square and the Gautrain station to be developed on a phased basis.

Construction activities for the duration of the basement development include pouring and placement of 17 500 m³ of reinforced

concrete, 1 380 tonnes of reinforcing, 40 000 m² of formwork, the laying of 350 000 stock bricks, 8 000 m² of plaster and 2 000 m² of screed.

"Aveng-Grinaker-LTA is building a strong presence in Sandton with a number of prime construction projects underway in the area," says Marc Meire, managing director of Aveng Grinaker-LTA's building division.

Aveng Grinaker-LTA offers multidisciplinary services across the construction and engineering value chain to its clients in South Africa, Mozambique, Mauritius and other selected markets in the rest of Africa. It offers a range of standalone or integrated services which range from building, civil engineering and earthworks, to mechanical and electrical engineering. 





Evert Lategan, managing director of Integrated Solutions.

Addressing lack of **STUDENT HOUSING**

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A new residence building on the corner of Rose and Main Street in Mowbray will go some way towards addressing the student housing crisis gripping the Western Cape.

> Nationally, current student housing can only accommodate approximately 18% of the total student enrolments in higher education, according to the Department of Higher Education. Student accommodation across the country and in the Western Cape in particular is in high demand, with new developments needed to match the growing numbers of students entering tertiary education each year.

“The student housing crisis is often ignored and yet it can play a significant role in the success of students,” said Evert Lategan, managing director of Integrated Solutions, the project construction management company overseeing the development of the new building. “The focus seems always to be on the costs of tuition, books and equipment and while this is a real concern, the issue of student housing and its impact on the ability of students from all communities to study is overlooked. It is not just a matter of cost; if there are too few accommodation units, where are the students supposed to go?”

According to the Department of Educa-

tion, 171 755 matriculants achieved entrance to bachelor’s degrees, 173 292 to national diplomas and 94 540 to higher certificates in 2013. Those figures are likely to grow exponentially over the next few years as universities widen access to higher education and demand increases.

Yet student housing provision is not keeping pace. A 2015 survey by the *Times* found that there were only just over 68 000 spaces for the more than 140 000 residence applications received in 2015. The survey focused on nine universities in South Africa. The figures reported point to the real crisis, the University of Cape Town could only accommodate 6 600 students in residence accommodation, but had received over 21 000 applications. New student housing developments are thus vital.

The reality is that there is just not enough residential space within the UCT campus and precincts to provide suitable accommodation.

The new CampusKey building

The new CampusKey building, a redevelopment which saw the previous video store, movie theatre, editing studio, bar and grocery store being demolished, offers accommodation for 610 students in single rooms.

A 2012 study by researchers at the university of Limpopo noted “a very low university accommodation capacity amidst quadrupled demand over the past decade; unregulated

landlordism subjecting students to squalor and academically inhabitable conditions.” This new development, which is innovative in its use of space, provides safe and secure accommodation close to campus and transport nodes.


As the debate around student fees is once again brought to the fore, the need for student accommodation is often overlooked. “The #Feesmustfall debate often forgets to incorporate the cost of accommodation for students who live in the outlying areas of Cape Town and further afield into the debate,” said Lategan.

“Students struggling to pay university fees cannot afford the daily commuting expenses of living in outlying areas.” These new units are planned for affordability.

The central location means lower transport costs, with the building within walking distance from the UCT main campus, approximately 1 km away. There is also a student shuttle that passes the building, offering students an alternative to walking. This can significantly reduce transport costs for students.

In addition, such redevelopments play a vital role in urban regeneration, often transforming previously neglected buildings. Working closely with city planners, the developers have designed a building that meets the needs of the student tenants while also integrating into and uplifting the surrounding community. 🏡

“Students struggling to pay university fees cannot afford the daily commuting expenses of living in outlying areas.”



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R200-MILLION CENTURY CITY HOTEL OPEN

The 125 room Century City Hotel, the sixth hotel at Century City, opened in the burgeoning precinct last week.

➤ Built at a cost of R200-million and located adjacent to the new Century City Conference Centre, the Century City Hotel will cater for both business and leisure markets and brings to 600 the number of rooms now available in Century City.

Greg Deans, a director of Rabie Property Group, says the development was a response to the growing demand for hotel accommodation at Century

On hand to greet staff in front of the reception area with the backdrop of a living wall comprising more than 3 500 plants were, from left, Winson Nyoni (restaurant manager), Walda Meyer (hotel general manager), Michelle Presting (executive housekeeper) and Michael Rentzke (front office manager).



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City which is now home to more than 4 000 residential front doors and 500 businesses. The office component at Century City alone exceeds 300 000 square metres making it the third largest commercial precinct in Cape Town.

General manager of the new hotel, Walda Meyer, says it has been designed to be out of the ordinary with a great emphasis having been placed on room efficiencies for both business and leisure travellers.

"The only thing traditional about it is the laundry shoot." Among its iconic features is a Green Wall comprising more than 3 500 living plants that forms a backdrop to the reception area.

Paolo Viotti of Vivid Architects, says every city should have at least one public square that offers a dynamic, vibrant and safe environment for the public to enjoy.

"Century City Hotel is one of three buildings that now form the new Century City Square, a beautifully proportioned space that will offer users the opportunity to socialise, relax, dine and be entertained. The hotel experience within this environment is further enhanced by the introduction of the extended canal system of Century City and the bold landscaping themes that frame this development."

He says the urban design and planning of this precinct has ensured and encouraged pedestrian connectivity and hierarchy of that over the motor vehicle, a comfortable and safe human environment and a seamless interface between building and square.

"The hotel architecture has employed the maximum use of glass at the ground floor plane to ensure transparency between inside and out while the developer's brief has ensured that restaurants, coffee shops and hotel public areas spill out onto the square to ensure there is a constant buzz of activity, life and energy."

Meyer says the multi-purpose Square Café and Wine Bar on the ground floor of the hotel have been designed to be part of the public square on to which they flow and to welcome not only hotel residents but also non-residents.

The square, which will host community and cultural events, is also fronted by the neighbouring Century City Conference Centre, offices, restaurants and apartments with this entire development representing a private equity investment of more than R1-billion.

The other hotels at Century City, which will also benefit from the new Century City Conference Centre, are the 180 room African Pride Crystal Towers Hotel & Spa, the 165 room Stay Easy, the 68 room Colosseum Luxury Hotel and two boutique hotels Manhattan Suites and Island Club which have 28 suites and 23 rooms respectively. ❏

☛ Each unit features a kitchen, Wi-Fi, fully furnished bedroom units and security systems with 24 hour monitoring. The security provision is paramount.

"Parents and students want to be sure they are safe and do not need to worry about safety while concentrating on their studies," said Lategan. In addition to fencing and monitoring of the building, each room will

also have its own security fingerprint access lock. Other facilities will include gymnasiums, entertainment areas, laundry facilities, bicycle sheds and ample parking comprising 258 parking bays spread over three levels.

The almost 16 000 m² building situated on 4 404 m² property has posed its own challenges. "The site is very restricted and there is very little working space around the building,"

Lategan explained, adding that a tower crane and a mobile crane will be accommodated on site so as to position the materials and equipment that is needed.

The contractors are also making use of temporary lateral support gunite walls to retain the sides of the basement excavation whilst the concrete retaining walls are being cast. ❏



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ROSEBANK REVIVES AL-FRESCO DINING

The Zone Boulevard, a newly revamped building forming part of The Zone @ Rosebank with its indoor/outdoor design, delightful vertical garden, views across a bustling square and romantic nighttime lighting, is the perfect place for alfresco dining.

“We wanted to revive the impression of an avenue where people could enjoy pavement dining in beautiful surroundings, and the Zone Boulevard has exceeded our expectations,” says Anton Bieber, portfolio manager for the Rosebank Node at Old Mutual Property.

Rosebank’s first new-look News Café, with its vibrant contemporary atmosphere, takes pride of place in this premium eating and entertainment area spilling out onto Cradock Avenue. “We offer our customers a complete social entertainment experience, in the perfect venue to enjoy anything from business lunches to afternoon cocktails,” says Varina Singh, marketing support specialist for News Café.

Other restaurants that have recently opened their doors in the Zone Boulevard are Rocomamas, a hip new smash burger and rib grill, and Bombay Blue, a long standing Rosebank institution and North-Indian-cuisine restaurant.

The variety of eateries provides a unique location for patrons to enjoy this relaxing open-air experience.

Designed by R Pv Architecture, a firm promoting women in the professional sector of construction. The three-level, ultra-modern Zone Boulevard building embodies elements of both the natural surroundings and the bustling city. It boasts Rosebank’s first public green space, which is a spectacular 60 m² vertical wall garden featuring a hydroponic irrigation system. The

vertical wall garden is the largest living wall in Africa and has become a much talked about organic space.

The largest living wall in Africa has been built by Organic Space to add substantial greenery to the block. “We’re ecstatic about the completion of this high visibility site at The Boulevard, The Living Wall is a great example of our work and how an urban space was transformed. But, this is just the beginning and we have lots of exciting projects in the works for 2016 and beyond” says Mario Thompson, owner of Organic Space

On the Zone Boulevard building, hand-selected African tapestry granite is used to accent the double-volume entrance and highlight the aluminium ceiling. This ceiling features a criss-cross of linear lights, symbolising the city grid. The building acts as a gateway to the busy public square that borders the Zone@Rosebank. “The idea for the building was to be like the opening of a jewellery box, and the external seating to be the jewels spilling out”, says Rashma Patel, of R Pv Architecture. ■

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ON TIME – restrictions notwithstanding

Pretoria Master Builders, J.C. van der Linde & Venter Projects, has completed a major contract for the construction of a sustainable new office block at 273 Tram Street in Pretoria.

The project entailed the building of a new four-storey commercial office block in Nieuw-Muckleneuk for developers, Duncharl Investments, a client for which J.C. van der Linde & Venter Projects had frequently worked for in the past. The Tram Street building provides floor space of about 1 200 m² on a stand of 1 276 m² – indicative of how densely built-up the precinct has become.

Challenges

Stefan van Wyk, contracts director at MBA North member, J.C. van der Linde & Venter Projects, says the main challenge that faced the building contractors was extremely restricted access to the site in Tram Street. "Access was so limited we had to make

use of a self-erecting tower crane. Such a self-erecting crane 'folds up' upon itself in sections when being prepared for transport. We were able to overcome the limited access to site by bringing this folded up crane on to the building site and then erecting it there for our construction work," Van Wyk explained.

Among the other challenges J.C. van der Linde & Venter Projects faced for this contract included poor soil conditions which called for the provision of piles at an average depth of 7 metres to provide suitable foundation for the column footings. The architects, Jeremie Malan Architects, specified state-of-the-art stoneware tiles, the Agrob Buchtal Plural Plus range, which had to be imported from Germany which meant that importation schedules had to accurately match construction requirements to avoid disruptions in building work.

Van Wyk adds: "Our construction programme also had to be carefully co-ordinated to allow for the installation of a lift in the four-storey structure. As the new office block is adjacent to a residential area, noisy construction activities after 17:00 were totally prohibited and we had to ensure that maximum productivity was achieved during office hours. We nevertheless managed to meet schedules so efficiently that the client also engaged us to handle the shopfitting of the various floors as these were rented out – an aspect not in the original contract. Despite the extra work, we completed the contract in eight months, just one month more than stipulated in the original contract."

A total of 720 m³ of concrete at a strength of 30 MPa was used with Class 1 formwork to ensure superior surface finishes.

Architecturally celebrated

Jeremie Malan Architects in Pretoria won the Pretoria Institute of Architecture's 2015 Award for Commercial and Branding or 273 Tram Street.

Malan says achieving maximum rentable building area on a small site was a major design challenge. "Our design

solution is a compact plan form with vertical extension up to the limit of height restrictions. The main building mass is elevated off ground level by columns to create space for parking underneath the building without the need for a basement. The concrete columns are expressed as vertical fins on the elevations with a fair-face finish."

Malan says a stand-out feature on the elevations is the vertically emphasised glazed staircase and concrete lift shaft which forms the services core of the building. The vertical core effectively links the ground floor parking level with three storeys of offices and the roof space above to which all the tenants have access for relaxation and informal office functions.

"Each floor has lettable office space on either side of the core. This configuration allows for tenant flexibility, as the two office areas per floor can function separately or as one. The basic open plan office areas received internal layouts in drywalling to suit tenant requirements."

Because space for soft landscaping on ground level is limited, custom designed irrigated planter boxes were spaced over the north and south elevations.

273 Tram Street's lightweight external walling system includes pre-coloured steel sheeting.

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The bulk of 273 Tram Street's office windows are orientated north or south and are sheltered by expansive aluminium filigree shading panels.



TUBE STATION CLADDING

Vitreous enamel steel cladding supplied by South African producer, Vitrex, was exported for the refurbishment of the historic 19th Century Hamilton Square Station, part of a large-scaled project to improve all five Liverpool city centre Merseyrail loop line stations.

> Vitrex cladding was already installed at Liverpool Central (2012), Lime Street (2013) and James Street (2013) stations, and Vitrex has started supplying vitreous enamel steel cladding also for Moorfields, the fifth, and final, station to be upgraded and scheduled to reopen in April 2016.

The aim of the R860-million overhaul of the tube stations, owned by Merseyrail, is to improve facilities for the increasing number of passengers as well as modernise the stations with better flooring, brighter lighting and improved passenger information to plan their journeys throughout the stations, says Cristian Cottino, sales and marketing director of Vitrex. Merseyrail's chain of combined ticket offices and convenience stores have also been upgraded.

Cottino says the Hamilton Square cladding contract, secured by David Shepherd of Vitrex Europe and Middle East, called for the provision of 1 000 m² of mainly 'Singapore White' heavy gauge vitreous enamel steel panels, and also 'Slate Grey' panels for the intersections of adits and platforms. The contract included the supply of curved panels, which had to be fitted with acoustic linings, for the platforms of the 130-year-old station.

The panels were designed and specified by the Berkshire, UK, company, SAS Project Management, which also installed the cladding panels and light boxes along the platforms, tube tunnels and commuter walkways. In addition, SAS Project Management (which collaborated with Vitrex on the cladding installation at the other Liverpool CBD stations), also installed 2 000 square metres of bespoke linear plank ceilings

and upstands along the Hamilton Square station.

Vitreous enamel steel cladding panels have been widely exported by Vitrex for several decades now, particularly for installations at rail stations in the UK, Ireland and the Far East. "An important reason is that vitreous or 'porcelain enamel steel' cladding, as it is sometimes called, has specific properties that make it the ideal solution in terms of durability, particularly in high traffic areas such as underground stations," Cottino explains.

Among these benefits are:

- Low maintenance: The wide variety of colours available is permanent, non-fading and the surface requires only simple, periodic maintenance;
- Corrosion proof: The panels do not rust, even in extreme marine conditions. The coating is resistant to most alkalis, acids, organic solvents and unaffected by kerosene and vehicle emissions;
- Hygienic: The absence of pores on the smooth, hard surface eliminates absorption of dirt and grease, and reduces the presence and growth of bacteria and mould;
- Resistance to abrasion: The hardwearing surface is resistant to abrasive materials with a surface hardness rating of between 6 and 7 on the MOH scale (Quartz has a rating of 7).
- Vandal-proof and impact resistant: It is extremely difficult to permanently mark the surface with knives, keys and screwdrivers. Unwanted graffiti and spray paint can easily be removed;
- Non-combustible: Classified as 'Non-combustible (A1)' in accordance with ISO Standard EM 13501-1, the panels will resist heat of up to 650 degrees Celsius and continuous temperatures of up to 400 °C;
- Thermal shock: Resists extreme temperature differentials and will withstand rapid cooling by water spray from 400 °C to room temperature over a 30-second period;
- Vermin-proof: The surface is impervious to attack by rodents and boring insects;
- Acoustic and thermal insulation: Specific performance requirements can be addressed at the design stage.
- Environmentally friendly: The panels have a working life of over 30 years with minimum maintenance required. They also do not need strong chemicals for cleaning, and are fully recyclable. ☑



Historic Hamilton Square Station has become the fourth Liverpool tube station to be clad with vitreous enamel steel cladding supplied by the South African company, Vitrex.

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Malan says the in-situ concrete columns and flat floor slabs without beams inside the office ceiling voids, leave optimum space for services reticulation. Galvanised steel members span between the concrete fins to support window shading panels and planter boxes.

"To minimise the cost and size of the structural concrete elements, a lightweight external walling system was employed. It consists of pre-coloured steel sheeting to the outside, insulation in the middle and drywall boards on the inside: all fixed to lightweight steel studs fixed between the floor slabs. Window opening widths of over 5 metres are achieved without heavy concrete or steel lintels.

"Flashing details around windows and joints are meticulously detailed. The drywall system helped to speed up construction by J.C. van der Linde & Venter Projects and avoided the complications of wet trades at heights," Malan stated.

The bulk of office windows are orientated

north or south and are sheltered by expansive aluminium filigree shading panels. Openings on east or west facades are minimal and fully protected by the aluminium filigree panels over their full aperture.

Sustainability

"In the interests of further sustainability, energy-efficient fluorescent and LED lights are used with movement sensors to control the lights to further reduce energy use. The large, shaded glazed areas provide natural light to supplement electric light. Dual flush concealed cisterns and waterless urinals reduce water use, and rainwater is collected into roof tanks for irrigation of the planters on the building."

Malan concludes: "The use of fair face concrete, face brick, galvanised steel and pre-coloured sheeting makes for durable, low-maintenance external finishes. External plaster and paint is limited to a feature wall at ground level. The building is designed to

withstand the local climate and age gracefully with the minimum of maintenance costs.

"The role of the contractors, J.C. van der Linde & Venter Projects, in the completion of a dream project must be mentioned. The builders met the high quality requirements despite limited time and site space and were part of the professional team from the outset to final completion," he added. ☑

- **Client:** Duncharl Investments
- **Main contractor:** J.C. van der Linde & Venter Projects, represented by Stefan van Wyk (contracts director), Ivan Fick (site agent), and Elliot Tsotsetsi (foreman)
- **Architect:** Jeremie Malan Architects
- **Consulting/structural engineer:** Otec
- **Quantity surveyor:** Taljaard QS
- **Electrical engineer:** C.A. du Toit



Vanguard discharging the vessel and storage at the Port of Ngqura.

WIND TURBINES at NOJOLI

Locally based international heavy-lift, specialised transport and plant installation company, Vanguard has been awarded the transport and crane erection contract for the Nojoli Wind Farm near Cookhouse in the Eastern Cape, once again showcasing its experience in this sector and its specialised engineering solutions.

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The Nojoli project comprises 44 Vestas V100 2 MW wind turbine generators, which have the capacity to generate more than 275 GWh per year or enough for 86 000 South African households.

“In recent years we have transported and erected over 160 turbines at wind farms around South Africa,” said project and mechanical engineer, Robbie Boshoff.

The company’s contract commenced with discharging the vessel in December 2015 at the Port of Ngqura near Port Elizabeth, and storage at the port. “The team on this tight-deadline project had an early start to the year, arriving back to discharge a second vessel on 2 January 2016 with further vessels to be discharged throughout the project.”

According to Boshoff, the contract will run until 23 June 2016, and

involves not only the discharge and storage at the port, but also specialised transportation of all components to site, about three and a half hours away, followed by the erection of the turbines utilising Vanguard’s GTK1100 crane.


A fleet of extendable and multi-axle trailers transports the components, which include nacelles weighing 72 tonnes, hubs of 21 tonnes, and turbine blades of 50 metres in length.

“Among the challenges to be managed on this route to site is a mountain pass with very narrow turns,” said Boshoff. “We work with the traffic authorities to close off the pass entirely, so that our extendable trailers can safely use the whole road to manoeuvre the blades through the turns.”

On site, the GTK crane is assisted by a dedicated and specialised team, including two qualified Red Seal riggers, who lead the team to assemble and break down the crane, so that it can be moved and positioned for the next turbine – each process taking around 10 hours. “Another team pre-populates the handstands with the components in advance to ensure that no delays occur with the main build,” he said.

With every aspect of the job, detailed method and risk assessments are done, including environmental assessments.

Once operational, Nojoli Wind Farm’s environmentally-friendly electricity supply will save the atmosphere from more than 251 000 tonnes of carbon dioxide each year, which would have come from coal-powered stations.

The wind farm is being constructed by Enel Green Power, which has about 740 plants operating in 15 countries in Europe, the Americas and Africa; EGP’s total installed capacity is 9 600 MW from a range of sources including wind, solar, hydroelectric, geothermal and biomass. 

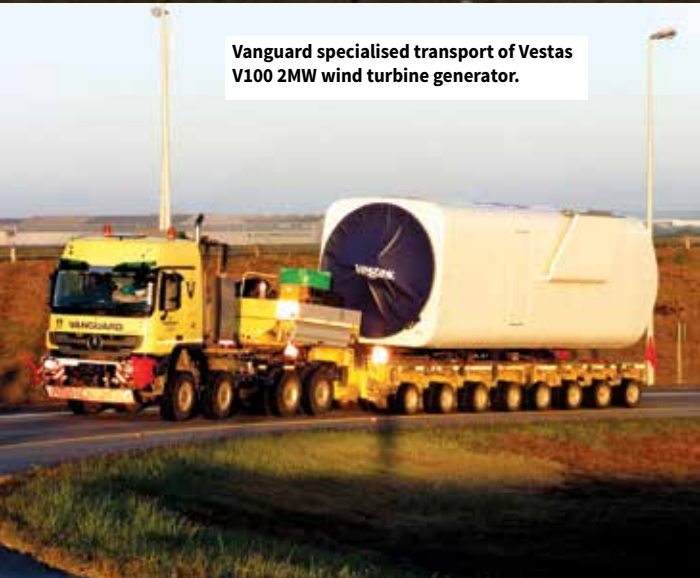
Vanguard GTK Crane is assisted by a dedicated and specialised team.



Vanguard GTK Crane on site at Nojoli Wind farm for erection of Vestas V1.



Vanguard specialised transport of Vestas V100 2MW wind turbine generator.



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Construction on the R950-million Springs Mall at Blue Crane Eco Park development is well underway, according to main contractors Giuricich Bros, with the 46 000 m² regional shopping centre right on schedule to open before Easter 2017.

The landmark mall located in Springs, east of Gauteng, is a joint-venture between the Giuricich Bros Group; Blue Crane Eco Mall, Flanagan & Gerard Property Development & Investment; and Vukile Property Fund, a leading JSE-listed retail focused SA REIT (real estate investment trust).

“We are immensely proud to be involved in this new development, which is creating a valuable asset for Springs and its surrounding community. It will also serve to strengthen our portfolio in the retail sector,” says Gerard Giuricich, a director at Giuricich Bros Construction.

Giuricich Bros Construction – a leading South African independent and family owned construction firm – has increased its presence in the retail development sector by securing

the building contracts for both Springs Mall and the major expansion of the well-established Vaal Mall in Vanderbijlpark.

A pivotal component of the broader Blue Crane Eco Park development, Springs Mall will form the anchor of the development, with further commercial and retail development expected on the 10hectares of land surrounding the mall.

Springs Mall is already 85% let, with anchor tenants signed up including Pick n Pay, Checkers, Woolworths and Edgars, and other major national retailers including the Foschini Group, Truworths, Mr Price, Hi - Fi Corporation, Clicks, Dis-Chem and Incredible Connection set to join the mix. The mall will also boast family entertainment and restaurants.

“As a retail development of almost R1-billion, with over 150 stores, the mall is a major investment in Springs. Once completed, Springs Mall is going to be a world-class regional shopping destination in the area, opening up many new opportunities for the surrounding community,” says Giuricich.

Fellow Director Nicky Giuricich believes the company’s involvement as the main contractor in construction of Springs Mall puts it in good stead for the future, by increasing its expertise in larger scale retail developments. “We are one of the oldest family-controlled companies in the South African construction industry, with a pedigree going back over seven decades and has been


involved with several landmark construction projects across South Africa.

These include, amongst others, the redevelopment of the iconic Oyster Box Hotel in Umhlanga Rocks, Durban; building over 75 McDonalds restaurants when it first entered the country in 1994; the 20 West Street Capital Hotel building in Sandton; dozens of motor dealerships, and being involved as joint contractors in the original development of well-known shopping centres such as Fourways Mall and Southgate. The new WWF offices in Johannesburg is one of the group’s latest construction projects.

“Our reputation in the industry is built wholly on the quality of our work and our hands-on approach to ensuring we deliver projects successfully,” says Nicky Giuricich, who is the on-site director managing the Springs Mall project.

“We pride ourselves in this active role, in that there is a family member directly responsible for every contract in our company”.

“As an independent, family-owned construction company, we are committed to investing in and enriching our country, as well as the lives of its people.”

Marking 75 years in business, Giuricich Bros Construction today undertakes contracts across the country and has a Level Three rating in terms of the Broad-Based BEE codes. 

“As a retail development of almost R1-billion, with over 150 stores, the mall is a major investment in Springs.”



WALVIS BAY MALL

Atterbury announced the development of a new R650-million mall in the key Namibian port city of Walvis Bay.

➤ Atterbury is the joint developer and co-owner of the newly named Dunes Mall, previously called the Erongo Mall development. Bulk earthworks on the mall began in November 2015 and its doors are set to open to the public late in 2016.

Louis van der Watt, CEO of Atterbury, comments: "We are delighted to launch this development that will be the only one of its kind and size in Walvis Bay. Dunes Mall will be the largest mall in the city and the second largest in Namibia, after Atterbury's The Grove Mall of Namibia. Our investment continues Atterbury's African expansion and our commitment to the continent."

Atterbury is a leading developer of retail property in Africa and beyond. Its motto 'a matter of association' expresses its belief in beneficial partnerships with best-in-class businesses. For the Dunes Mall project, it has partnered with Safland, the dominant retail mall developer in Namibia. The two joined forces previously to develop The Grove Mall of Namibia in the country's capital Windhoek, which has become Namibia's icon of world-class retail.

At 30 000 m², the new Dunes Mall development in Walvis Bay is larger than originally envisioned. It will offer a comprehensive and exciting variety of shopping and entertainment for Walvis Bay residents and visitors, as well as people from throughout Namibia's greater Erongo region.

Cobus van Heerden, Atterbury's director of retail notes that Dunes Mall is excellently positioned to meet both retailer and consumer demand in this popular and important city. It benefits from a prime location at a major road intersection close to the city's airport and the iconic tourism area of Swakopmund. Dunes Mall is designed to take best advantage of its superb site.

In addition, the prime site chosen by Atterbury for Dunes Mall also forms part of a development node that serves a rapidly growing market and offers future expansion possibility.

Van Heerden says: "Dunes Mall is expected to be a catalyst for even more development and investment in the area. It will be a boost for the local economy in Walvis Bay and its surrounding region. On completion it will create around 700 sustainable jobs. Importantly, it will give the people who live nearby a first-class and all-inclusive shopping experience, conveniently located right on their doorsteps."

Dunes Mall will be anchored by leading retail brand Shoprite, while negotiations with two other major anchors are at an advanced stage. In addition it will feature an appealing selection of stores, services, fast food outlets, restaurants and entertainment. ■

Atterbury CEO, Louis van der Watt.



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CADIZ BAY BRIDGE

Two Linden Comansa tower cranes model 21LC400 have been working for eight years in the construction of the Bridge of the 1812 Constitution, which connects, since September 2015, the city of Cadiz with the town of Puerto Real, in Spain.



Popularly known as 'Bridge of la Pepa', the project has been an important social and economic benefit for Cadiz, which until now

had only two narrow and outdated routes out of the city and for crossing to the other side of the bay. In addition, the bridge is one of the major infrastructures built in Spain in recent years and has been a challenge of engineering.

Cranes for cable-stayed bridge

With its imposing dimensions, this cable-stayed bridge dominates the views from anywhere in the bay. It has a total length of 3 092 metres, and its two main pylons reach 185 metre high, leaving a main span of 540 metres between them, and holding the deck to a height of 69 metres above sea level.

Belonging to the machinery fleet of construction company Dragados, the two Linden Comansa 21LC400 tower cranes worked from the two huge pylons, one of them located on the edge of the bay at Puerto Real, and the other in the middle of the sea. The team of Eleva Grúas Torre, based in Seville, has been in charge of the complicated assembly and dismantling of the cranes, as well as of all the maintenance works. "The two cranes have reached a maximum height of 195,6 metres. Strong wind gusts are very common in the Bay of Cadiz, with

much greater strength at such height, which hampered a lot all the tasks carried out by our team", said Tomás Criado, manager of Eleva Grúas Torre.

Erecting the two cranes was quite a challenge, especially the one situated in the middle of the bay. A mobile crane on a pontoon (barge) helped to assemble the crane with the minimum height to install a hydraulic climbing cage: 14,2 metres under hook. With this configuration, the Eleva Grúas Torre team could start with the climbing works and add the remaining 10 sections to reach a freestanding height 69,2 m. From this initial height, the crane began work on the construction of the pylon. As the pylon was gaining in height, the crane was also climbed until it reached a final height of 195,6 m. As well as the land-based crane, this 21LC400 needed four ties to the pylon to ensure that it could work without a problem at such impressive height.

The work of the 21LC400 cranes, both with maximum load capacity of 18 tonnes, consisted in the lifting of all the pylons' steel structures and concrete, and afterwards, the lifting of the cables that support the deck of the bridge. The 110 kW hoisting engines allowed the cranes to work at a great speed and efficiency during these eight years.


During the works, a change in the design of the metal anchors that attach the cables

to the pylons forced Linden Comansa's engineering team to quickly find a solution to an important unexpected situation. The anchors, which initially had to weigh less than 18 tonnes to be elevated and fit into place by the cranes, became pieces of more than 23 tonnes. The construction management used a mobile crane of enormous dimensions for placing the anchors on the pylon located ashore, something that was impossible for the pylon located in the sea. In this case, so that crane could load these anchors, Linden Comansa's R & D department had to review and reinforce the crane's kinematics (pulleys, trolley/hook set, hoisting cable, etc.) and counterweights to enable the 21LC400 to lift this 'extra' load in a timely manner and under the supervision of technicians from Eleva Grúas Torre.

Disassembly, the greatest challenge

Once the Linden Comansa tower cranes ended their tasks in the summer of 2015, the Eleva Grúas Torre team had to face the removal. While both cranes had been erected with the same configuration, different setbacks appeared in their takedowns.

The crane in the middle of the bay was the first to be removed once the most important works on the bridge were completed. The crane had four ties to the pylon, having the highest one a weight of 10 tonnes and a length of 23 metres.

The 21LC400 installed inland was erected closer to the pylon in comparison to the one in the middle of the water. When it came to remove the jib sections of the tower crane, the articulating crane located at the top of the pylon was not able to reach the jib-end of the 21LC400. It was necessary to use a jib section dismantling device, designed by Linden Comansa's engineering team, to reduce the jib length of the 21LC400 from 50 to 30 metres (two sections). With this new configuration, the articulating crane was able to dismantle the last jib section and leave the 21LC400 with a reach of 20 metres. In addition, to achieve this jib-length reduction, it was necessary to study a new disassembly sequence, move the trolley winch 20 metres through the boom, and change the jib end. Finally, the 21LC400 was able to remove the ties 4 and 3, leaving the lowest two to a mobile crane, which had to remove them by placing its boom between the cables of the bridge. 

The work of the 21LC400 cranes, both with maximum load capacity of 18 tonnes, consisted in the lifting of all the pylons' steel structures and concrete, and afterwards, the lifting of the cables that support the deck of the bridge.





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ORAPA'S rockfall MITIGATION

Geotechnical contractor Wepex completed a rockfall mitigation installation at Debswana's Orapa diamond mine in Botswana. In November 2015 the project received a 'Special Mention' in *Construction World's Best Projects Awards*. This article, based on the submission for the project that was entered into the awards by specialist supplier Maccaferri, illustrates just how challenging and innovative this project was.

> How do you limit rocks from being dislodged from the upper areas of degrading slopes in open-pit mines? The answer is simple ... you cover the 'guilty' slopes of the opencast mine with a big 'fence'.

This was the solution adopted at Debswana's Orapa diamond mine and it allows the continuation of mining in areas that were previously considered too unsafe to mine.

Safe mining conditions

In 2013, Wepex, a specialist geotechnical contractor based in Durban, South Africa, partnered with global steel manufacturer and supplier Maccaferri and consulting engineers Melis & Du Plessis of Somerset West to undertake the rockfall mitigation installation at Orapa.

One of Debswana's flagship opencast diamond mines, Orapa was facing some challenges with rocks falling down some of its slopes, particularly during the rainy season. Situated 240 km west of Francistown, Orapa is currently mining at a depth of 250 m and is expected to reach 450 m by 2026.

The project – known as the 'Rockfall Support of Orapa Mine AK1 Pit 805 Ramp and North Eastern Ramp via Drapery Wire Mesh Support project' – addressed two areas of concern on Orapa's highwall pit slopes. Both

these highwalls were above active haul roads that allow vehicular traffic into and out of the open pit.

One of the slopes that required rockfall mitigation extends over an area of 57 040 m². The linear horizontal length of the area is 320 m, with the average height of the highwall slope being 178 m. The second slope extends over an area of 34 960 m², with a linear horizontal length of 330 m, with the average height in being 106 m.

Previous experience with rockfall problems

Wepex had previous experience in providing viable solutions to rockfall problems at mines, having completed similar projects at Debswana's Jwaneng mine (a first project in 2010 of 54 000 m² and a second in 2013/2014 of 135 000 m²), as well as Anglo American Platinum's Mogalakwena mine in Limpopo (where the area involved was 40 000 m²).

With all three of these projects, Maccaferri's products and Melis & Du Plessis' innovative design were used, achieving the desired results, with visible, quantifiable success.

Why a drapery mesh system?

Rockfall mitigation is not a recent requirement for open-pit mining activities. Various factors such as natural degradation of the rock mined, insufficient catchment areas, poor mining practices and rainfall cause rockfall hazards to develop.

There are a number of mitigation options available and all have variable time, cost and quality implications. One of the primary reasons a drapery system was chosen for Orapa was the height of the highwall slopes that required mitigation which extended to over 180 m above the haul road.

The drapery mesh solution that Wepex adopted prevents a significant number of rocks from falling or, alternatively, in the case of rocks which have become loose, intercepts them, allowing a significant number to work their way to the bottom of the drape wire

mesh without impacting the normal operation of the haul road.

Many alternative solutions adopt the approach of trying to 'catch' the rocks on their way down to the pit floor or haul road. By the time these rocks have reached the catchment devices (or missed them and hit the pit floor or haul road) they have reached a significant velocity.

Benefits

Benefits of the drapery mesh system include minimal to no environmental impact and the fact that the quality and construction of the Maccaferri drape wire mesh product used offers a longevity that exceeds the projected requirements for mitigation of the areas.

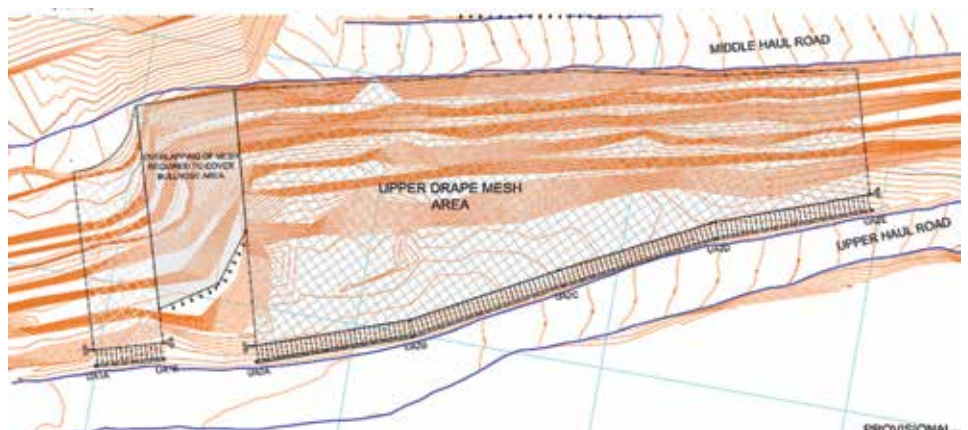
The mesh's requirement

The wire mesh chosen for the project needed to be strong, long lasting, and of a correct weave to restrict the size of the smallest rocks that might pass through the apertures of the drapery mesh system.

Maccaferri's Steelgrid HR 50 was selected. The Steelgrid mesh is a new woven geocomposite comprising interwoven steel wire and ropes inserted in place of the conventional selvedge wire during hexagonal double twisted wire mesh production. This product is especially useful for high strength simple revetment drapery applications and for many challenges in rockfall protection.

The Steelgrid HR (high resistance) is provided with 8 mm diameter straight steel ropes, inserted at 0,50 m distances longitudinally in the woven mesh. The product has a nominal longitudinal tensile strength of 120 kN/m. The steelgrid geocomposite is particularly suitable for rockfall protection as a drapery system for surface or soil veneer slope stability.

It has the big advantage of connecting the longitudinal ropes to the top anchor rope: the weaving of the ropes inside the steel mesh increases the lining's vertical pull strength, resulting in a more effective anchoring ability.



PHOTOS OPPOSITE: The slopes that required rockfall are respectively an average of 178 m 106 m high.



The Decoiler, 'walking' down the highwall's slope, decoiling the rolls of drape wire mesh.
BELOW: The 'Decoiler', as the machine has been named, is able to handle drape mesh rolls up to 200 m in length, and 8 m wide.



The project depended heavily on rope access technicians operating the Decoiler, as well as stitching close the drape wire mesh panels.



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☛ The steel wire used in the manufacture of the double twisted wire mesh, as well as the steel rope, is heavily galvanised with Galmac, a zinc (95%)/aluminium (5%) alloy. The aperture on the opening of mesh is only 80 mm, ensuring that only very small rocks are able to pass through the mesh.

Anchoring system

The double twist prevents unravelling of the mesh should any accidental wire rupture occur. The design required an anchoring system at the crest of the highwall slopes. The drape wire mesh had to cover the entire extent of the project scope and be weighted at the toe to limit the runout distance of falling rock onto the haul road.

The anchoring of the drape wire mesh had its own unique challenges, as there are two different types of bedrock at the crests of the two drape wire mesh installation areas.

The upper drape mesh area required a 'deadman' anchor system due to the fact that the crest area consisted of previously blasted material. A buried gabion wall system was used for this area, with the gabion baskets supplied by Maccaferri. Grouted thread bars were used for the anchoring system at the crest of the lower drape mesh area. The anchoring system for the drape wire mesh also has to be strong enough to anchor the weight of the drape wire mesh and hold back any blocks of rock that worked themselves

loose on the slope highwall and keep them trapped behind the drape wire mesh curtain.

Wepex constructed all elements of the project. These elements included levelling and trimming of the crests of the two installations and construction and installation of the anchoring systems at the crests of the installations.

Installing the drape wire mesh curtain

Rolls of Steelgrid HR 50 needed to be anchored to the anchoring system at the top of the crests. The mesh then needed to be installed down the length of the highwall's slope. The average height of the upper drape mesh area is 178 m and the lower mesh area 106 m.

Historically, two methods have been used to install drape wire mesh down similar slopes. The drape wire mesh is draped over the slope by helicopter or simply anchored to the crest and then pushed over the crest, allowing it to unroll to the toe of the slope.

Due to the massive area of drape wire mesh to be installed, the helicopter option would not have been financially viable. The alternative method of 'pushing' the mesh rolls off the crest would have resulted in the mesh rolls twisting on themselves on the way down the slope due to the heights of the highwalls.

In a mining environment, there are also

catchment areas down the length of the highwall slopes ('benches') to serve as catchment platforms for rockfall. These benches would have stopped the drape wire mesh rolls from reaching all the way to the bottom of the slope.

Mesh decoiling machine

Bertoe Meyer, a mechanical engineer and one of the directors of Wepex, designed and constructed a drape wire mesh decoiling machine which is able to anchor to the anchor system at the crest of the drape wire mesh installation areas, and then be remotely operated to 'walk/ drive' down the highwall's slope, decoiling the rolls of drape wire mesh.

The 'Decoiler', as the machine has been named, is able to handle drape mesh rolls up to 200 m in length, and 8 m wide. The Decoiler has been internationally patented. Two of these Decoilers were built by Wepex at its fabrication workshop in Durban and deployed at the project.

Safety

Working on unstable slope highwalls, suspended on ropes 180 m above the ground, is potentially a dangerous activity. Ensuring that a fully wire mesh laden 12 tonne Decoiling machine does not plummet uncontrolled down to the bottom of the highwall slope required innovative engineering design. Wepex employed primarily local Botswana citizens in its workforce.

The project depended heavily on rope access technicians operating the Decoiler, as well as stitching close the drape wire mesh panels. Due to the rope access industry in Botswana being virtually non-existent, Wepex brought in a rope access instructor from South Africa to present two courses in Botswana. As a result, Botswana now has 10 new rope access technicians. <



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Old challenges – NEW SOLUTIONS

In a world where time is money, it is not worth the effort to re-invent the wheel. But sometimes the wheel needs to be changed. Historic solutions for slope stabilisation can be improved with innovation.

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MAIN: Franschhoek Pass midway through the project. **INSET:** High-tensile steel wire mesh with newly developed large spike plate.

> Geobrugg's TECCO system offers safety, cost effectiveness and sustainability. The TECCO system can be applied to nearly any slope, regardless of whether it is solid rock, soil or anything in-between. Two new spike plate sizes further expand the range of application and allow optimisation of anchor spacing.

TECCO System

The key to the success of the TECCO system lies in the large-scale field experiments performed by the Geobrugg Group in the last three years in collaboration with the University of Bern. The full-scale testing provided detailed, scientific proof of the key to the success of TECCO mesh – the high tensile wire. Tests showed that success or failure of the stabilisation system is completely dependent upon the ability of the mesh to transfer forces from the slope to the nails. The only way to achieve this

efficiently and safely is to use mesh with a high tensile wire that enables this critical load transfer from the mesh to the spike plates.

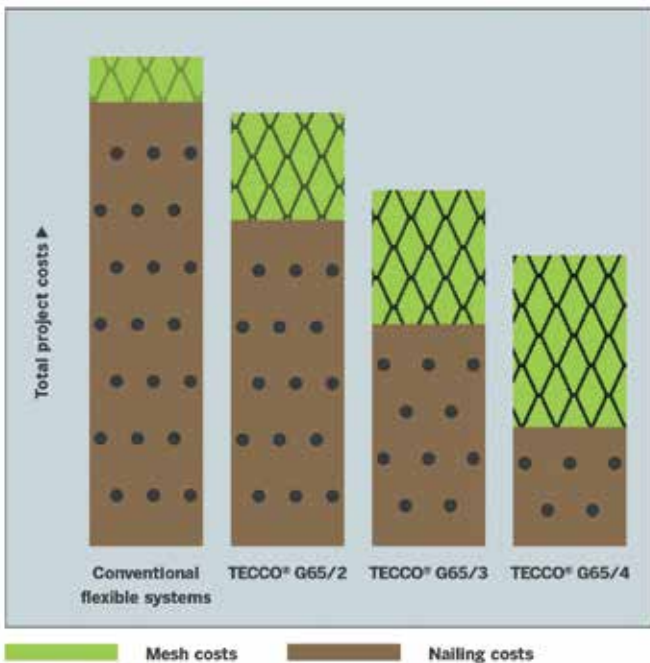
TECCO high tensile steel mesh is available in 2 mm, 3 mm and 4 mm wire size. The tensile strength of the steel wire is at least 1 770 N/mm² for all three wire diameters. With the special Geobrugg Supercoating or Ultracoating of the wire, TECCO provides up to three times longer life-time than conventional zinc wire. Geobrugg has also recently launched its TECCO stainless products. This mesh, made of stainless steel, offers even a wider range of possibilities for slope stabilisation. The mesh is ideal for use in all situations where aggressive environmental conditions prevail. TECCO stainless was designed for use in extremely salty and moist conditions.

In many projects, geotechnical engineers are forced with challenges and always want a solution that offers less time on site, with fewer materials and the least impact on the environment. Solutions need to



Experimental setup for testing flexible facing systems in large scale.





be effective while minimising the disturbance of the vegetation. Thanks to the aluminium zinc coating on the TECCO mesh, the mesh blends into the landscape. After vegetation has grown through the mesh, it is barely visible. The vegetation process can also be accelerated with the TECMAT erosion control seed mat. The TECMAT stabilises the topsoil layer and prevents seeds from washing away.

A cost-effective solution

The TECCO and SPIDER systems of GeobruGG, can provide the same level of protection as a conventional protective covering but using only half as many nails. This can significantly reduce the total project costs and the installation time. Studies provide proof of protection and take into account factors such as perforation of the mesh, combined load on the nails and shearing of the mesh on the edge of the spike plate.

RUVOLUM software

The TECCO system is completed with the RUVOLUM online dimensioning software. RUVOLUM, is a programme that allows designers to assess forces affecting anchor points in relation to geotechnical parameters and verify performance of the system as a whole. RUVOLUM is available to planners free of charge at <http://applications.geobruGG.com/application.htm>. GeobruGG Southern Africa offers special user workshops for interested parties to teach the proper use of the system. In these workshops, planners learn how to use the dimensioning software purposefully, efficiently and reliably. <

During 2014 emergency work had to be done on a section of Franschhoek Pass, Western Cape. Slip failures caused traffic disruptions and road closures. A combination of TECCO G65/2, TECCO G65/3 and TECCO G65/4 mesh and TECMAT had successfully been installed on the face. The project was designed by SMEC.

A PLACE TO GATHER

Revived in the last decade as the social heart of Doha, Qatar, Souq Waqif, a historic shopping hub, is a must-see highlight of the city. There has been a souq on this site for centuries; the Bedu would bring their sheep, goats and wool here to trade, and the entire market area has been skillfully redeveloped to look like a 19th-century souq, with mud-rendered shops, exposed timber beams and some beautifully restored original Qatari buildings.

> To provide parking for large numbers of visitors, an underground parking facility, located opposite the Msheireb, Downtown Doha, Qatar, became necessary. The design of the car park offered architects some extra space aboveground to facilitate place making, a collaborative process that shapes the public realm in order to maximise shared value. With this in mind, Dragana Latic Djokic, landscape architect at Parsons Qatar, contacted Consent LLC (Terraforce Licensees in the UAE) in 2012, requesting an Amphitheatre design. Specifically, the engineers at Parsons were in search of a product that can be used both for retaining and seating purposes.

Consent subsequently proposed an arena design with the Terraforce 4x4 Multi Step Block, a light, dry-stack concrete unit, generally used for constructing low terrace walls, stairs and seating arrangements. Aimed at providing efficient and economical steps in conjunction with the original Terraforce retaining blocks, in this case the L16, they have become very popular (in South Africa and abroad) not only for stairway access, but comfortable, practical stair and seating arrangements at leisure amenities and school sports facilities.

Initially Djokic specified another precast system for the proposed Amphitheatre design, but after a presentation by Consent on the Terraforce 4x4 Multi Step Block and L16 retaining block and their colour options, the design was re-rendered with Terraforce blocks.

The final design, completed by Fred Laker of Terrasafe, Terraforce's international retaining wall design service, was approved by Parsons, and in October 2013, Palmera Agriculture Business L.L.C put in the order for the 4x4 Multi Step and L16 blocks. Approximately 5 100 4x4 Multi Step blocks and 4757 L16 blocks were used, and LED lighting installed at intervals for nighttime ambiance. The amphitheatre was completed 2014. ■

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- **Client:** Private Engineering Office (PEO)
- **Project consultant:** JAIN Sustainable Engineering Solutions
- **Design consultant:** Parsons, Qatar
- **Main contractor:** UrbaCon trading and contracting
- **Subcontractor:** Palmera Agriculture Business LLC
- **Wall design:** Terrasafe
- **Block supplier:** Consent LLC



CTICC EXTENSION

Maintaining its global competitiveness relative to other international convention venues, the Cape Town International Convention Centre (CTICC), which has reached its capacity, needed to make structural enhancements. The extension plans were announced in 2013. Franki Africa was contracted to implement a range of geotechnical works in various phases.



TOP TO BOTTOM:
Installation of the sleeves to protect services from damage.
Layout of jet grouting columns.
Exposed trial column with a diameter of 2 600 mm.

In February 2015, the CTICC East contract was awarded to Franki Africa by Aveng Grinaker-LTA Building Cape, following on from the basement lateral support for the first phase of the CTICC extension which had been successfully completed in 2014, with WBHO as the main contractor.

The CTICC East contract consists of lateral support in the form of Continuous Flight Auger (CFA) piles with gunited arches for the underpass, connecting to the existing CTICC, together with piling for the access ramp from the basement, which required piled lateral support and anchors.

working around utilities without having to disrupt their operations,” he says.

With the aid of high pressure cutting jets, the soil around the borehole is eroded, rearranged and mixed with the grout. The columns can then be arranged and combined in any way to form each type of element. All service lines had to be identified and completely exposed beforehand, and to prevent possible damage during the installation of the jet grouting columns, they were wrapped and encased in wooden boxes.

Franki Africa recommended that temporary 165 mm diameter ducts be installed to guide the jet grouting process and protect the service lines during drilling and jetting. These sleeves were placed at a minimum depth of 500 mm below the service lines.

Thereafter, the exposed lines were backfilled and compacted up to the existing ground level to create access for the jet grout rig. After all the preparatory work, the installation of the gravity wall could start with the execution of three test columns to verify the pre-determined jetting parameters.

“Thanks to the additional support from Ralf Junker, a highly-experienced supervisor from Keller Germany, we were able to complete the trial phase and prove the maximum required column diameter of 2 600 mm, after which the actual execution of the gravity wall could begin,” Stoll says.

The drilling rod was guided within the sleeves and overlapping columns were plotted and set out to create a mass gravity wall below the service lines.

During the process, a soil-cement mix (sludge) was partly flushed out to the top

of the borehole through the annular space between the jet grouting rods.

Stoll says that pumping the sludge to a temporary storage facility and then disposing of it always poses a challenge, especially when working in areas with restricted space. “Sludge management is often crucial for a successful jet grouting site, as it can dictate the production rate. This also applied to the CTICC project. However, after two weeks we managed to complete the two gravity walls, on which a slab could be cast, as well as spanning the walls and forming the roof of the exit and entry ramps on which the service lines could be supported,” he concluded.

The entire contract consists of piling, jet grouting and lateral support, which include oscillator piles for future developments, CFA soldier pile walls, a Berlin Wall for temporary support and bored piles for cranes.

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Jet grouting gravity wall

However, Franki Cape Town’s Anton Stoll points out that conventional lateral support could not be installed everywhere due to the highly sensitive service lines feeding the city centre and overpass headroom restrictions. “In order to create the necessary lateral support under this major servitude of cables, a jet grouting gravity wall was considered to be the safest solution, with the lowest risk of damaging these vital services,” he says.

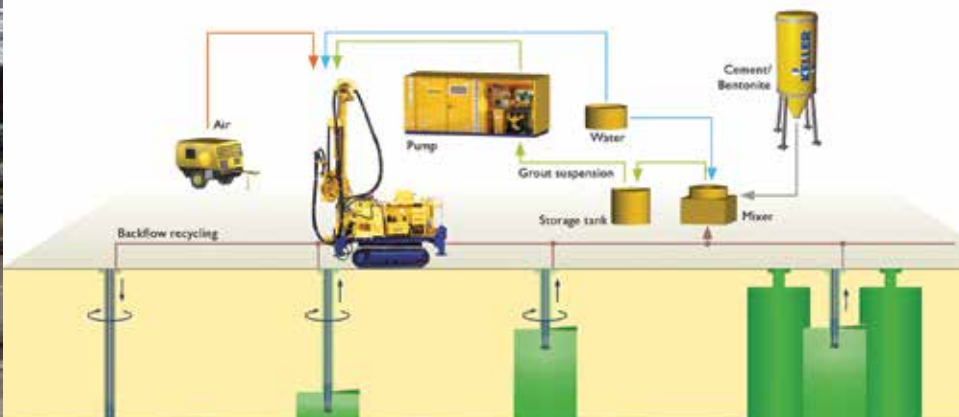
He adds that the existence of all the electrical cables, water ducts and optic fibres feeding Cape Town posed the greatest challenge on this project.

“These lines were so closely laid that piling between them for lateral support was just not possible. However, jet grouting allows the installation of soil cement columns (with diameters of up to 3,5 m) through a small diameter borehole of less than 200 mm, which makes this technology exceptional for

Boxed services suspended between the gravity walls awaiting slab construction.



The different sequences of the jet grouting process.



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PUSHED to the LIMIT

MBA North member, Gauteng Piling, had to resort to exceptionally rare measures to cope with extreme rocky terrain encountered while providing the auger piling foundations for the expansion of the Fourways Mall shopping centre, north of Johannesburg.

Established 20 years ago, Master Building Association (MBA) North member Gauteng Piling, has already completed over 1 500 major piling projects in many parts of South Africa. Included in prestige contracts handled was the piling for the construction of Southern African's largest single-phase retail centre, Mall of Africa, now under construction in Midrand, which called for over 500 piles.

Other recent contracts handled by Gauteng Piling include the piling for the massive Value Logistics warehouse in Kempton Park, the Fire & Ice Hotel in Pretoria, The Grove Shopping Centre in Pretoria, and the Bon Accord Police Station, also in Pretoria. The company also handled the piling requirements for a new FAW auto dealership in Croydon in Ekurhuleni, as well as the piling for extensions to the Market Theatre complex in the Johannesburg CBD as well as the I'langa Mall in Mbombela (Nelspruit).

> Kobus Geyer, site manager for Gauteng Piling, says the contract for the piling – required to erect a new five-storey parkade on the tarred open-air parking area on the north-eastern wing of the shopping mall – produced formidable challenges right from the outset.

“We almost immediately encountered shallow, very hard rock which was to take a heavy toll on our piling rigs and delay the completion of the contract. In fact, as soon as drilling commenced, we knew that the stipulated piling depths were just not going to be feasible.

So Gauteng Piling had to commission geological tests of the soil bearing capacity to obtain an indication of the the depth of the rock and, based on the results of the tests, it was decided that 59 holes that we had already drilled had to be converted into mass rein-

forced concrete bases which, basically, is the only solution when the ground bearing strata is too deep for traditional piling,” Geyer states.

Because of the varying rock bearing strength and depths, it was also decided that the number of piles Gauteng Piling had to provide had to be reduced from 160 to 42. But more problems emerged.

“Once these piles were drilled, it was discovered that the bearing capacity of the rock varied from hole to hole. So, to overcome this, smaller flights were used to re-drill all the holes to refusal, i.e. as deep as possible. A rock core barrel was then used to trim the harder rock to the same level. Needless to say, all of these special measures proved extremely time-consuming and frustrating,” Geyer added.

The piling operations took place on a 10 950 square metres area with most of the piles

3,7 metres deep, and the diameter of the holes varying between 1 200 mm and 1 600 mm. The steel reinforcement cages for the piles varied between 1 050 and 1 450 mm in diameter.

Mota-Engil SA Construction are the main contractors for the erection of the parkade, but Gauteng Piling secured the contract following a direct appointment by SIP Project Managers. The project started in September 2015 and was completed in about three months. Two piling rigs were initially employed but, as site problems began to mount, the fleet had to be expanded to four: Hendrickson 80 and 120 diggers, an IMT digger, and RTSA Soilmec unit. ◀



Pictured at the start of piling operations for the extension of Fourways Mall – a project that struck soil so rocky that exceptional measures had to be employed.



PROJECT NEARING COMPLETION

The Kusile Power Station has been under pressure to be in commercial operation by 2018 in order to start contributing much-needed power to the South African economy. However, the construction of any power station comes with environmental implications, which can only be neutralised through geosynthetics.

➤ To this end, construction and engineering group GAST was awarded the contract to manage the geosynthetic requirements of the Kusile Power Station. The contract was awarded via WBHO, based on GAST's incredible record of 11 500 successfully completed projects and its accreditation from the United Nations and the World Bank, both achieved through its trademark quality and performance across the board.

The Kusile Geosynthetics project, which is entering its closing stages, has been seen as one of the largest and most complex geosynthetic projects in the Southern Hemisphere due to its volumes and intricacy, providing an environmentally friendly and secure platform for Kusile ash and coal over 6 ha of geosynthetic solutions.

A project of this size and complexity required the expertise of a company with an exceptional track record and vast experience, as explained by GAST Group CEO, Kevin Gast: "Geosynthetics has become the standard solution in relation to environmental protection over the last ten years in South Africa, taking guidance from International Standards and the hard work of organisations like the Geosynthetics Interest Group of South Africa (GIGSA). GAST, as one of a handful of entities specialising in this field, is proud to have been involved with such a significant project, assisting Eskom and various other entities in completing such a challenging project."

Over the past four years, GAST has supplied and installed a significant amount of advanced geosynthetic solutions to help minimise the environmental impact of the power station. Geomembranes, geotextiles and various drainage layers were required to help create a barrier between the environment and Kusile's multiple ash dumps and dirty dams.

GAST employed over 50 community members during this project and transferred much needed skills in this specialised field. As new legislation calls for geosynthetics in most environmental protection systems, the Kusile Ash Dumps have provided a much needed springboard for future job creation.

"Kusile was a complicated project not only from a technical perspective but also from a commercial perspective, we are looking forward to handing over the keys to Eskom on this R180-million project in due course," said Gast.

Thanks to the geosynthetics project and GAST, the Kusile Power Station project, which has been fraught with delays and various other problems, has experienced much-needed impetus as it moves towards operational status, and will be able to function with a minimal environmental impact. ■



L13, L18, L22



Terrafix



Terracrete



4x4 Multi



L11, L12, L15, L16

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FIBRE DISTRIBUTOR in Africa

In a considered move and one which underpins the strength of Chryso Southern Africa's position on the African continent, the Adfil Construction Fibre division of the UK based Low & Bonar Group has announced it is partnering with this leading supplier of concrete and cement admixtures and ancillary products as a vehicle for the growth for its fibre business into Africa.



Initially Chryso will distribute Adfil's micro fibres and then roll out their macro fibres as well as a concrete slab design programme in the next few months.



Mark Mitchell, Adfil technical sales manager and Izak Louw, operations manager of Oxyfibre.

almost three decades of experience in the development, production and distribution of fibres in over 60 countries.


Adfil will also be doing a lot of development work with a South African company called Oxyfibre – who has treated and supplied fibres to Chryso Southern Africa for nearly 20 years. Oxyfibre has developed patented surface technologies and nano technologies for polypropylene fibres thereby offering the construction and mining markets bespoke fibre solutions for every application.

Oxyfibre and Chryso will also be able to utilise a design service offered by Adfil for concrete slabs and precast concrete elements. This programme looks at certain parameters specified by engineers and fibre dosages for cost effective and optimum performances.

"Fibre reinforced concrete is increasingly specified by engineers. There are an expanding number of project references, case studies and test results that engineers can consult proving that the use of fibres in concrete can create cost savings, good performance results, safety benefits and a reduced carbon footprint. However, it is important that concrete is designed to accommodate fibres and this brings in Chryso's much needed admixtures

and technical expertise with regards to concrete mix design," Mitchell adds.

Chryso Southern Africa's Hannes Engelbrecht, general manager: marketing and inland sales, believes that distributing Adfil fibres will bring significant benefits to the company's customers. "Initially Chryso will distribute Adfil's micro fibres and then roll out their macro fibres as well as a concrete slab design programme in the next few months. We believe that Chryso now has a fibre solution that no other admixture company can offer. Both Chryso and Adfil are respected brands synonymous with quality and Adfil will provide technical backing and resources to support our customers with any fibre related requirements. We have already supplied technical fibre training to our own sales staff as well as a few of our customers," he says.

Part of the performance materials company, Low and Bonar PLC, Adfil Construction Fibres has access to and draws from many areas of expertise, including concrete technology, design, production, quality engineering, logistics as well as health and safety. 

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➤ "Many countries in Africa have huge infrastructure programmes to build roads, water systems and power stations to meet the demands of the world's second most populous continent. Adfil recognises the growth opportunities and chose Chryso as its preferred partner with the view to increase our fibre market share in Africa," Mark Mitchell, technical sales manager for Adfil Fibres, explains. Adfil has


UNIQUE CONCRETE GATEWAY

The African Construction and Totally Concrete Expo provides a unique gateway into doing construction business across the continent's high growth and high risk markets. The subcontinent requires 40 million tonnes of new cement capacity alone in order to meet rising urbanisation and growth rates with the region's population forecast to grow from 1.1 billion people in 2013 to 2.4 billion by 2050.

➤ Both industry titans and new entrants into the local marketplace find value in the African Construction and Totally Concrete Expo experience because the platform provides an outlet for construction business development alongside practical insight into managing daily operations in the African context. The event unites the world's leading pioneers of cement, concrete and construction, bringing together African and international expertise with more than 80 world-renowned expert speakers that share their expertise into new insights and aspects of cement, concrete, building and construction. The 2016 edition of the event has new and exciting features that includes an indoor and outdoor expo featuring nearly 200 exhibiting companies.

One of the featured spotlight speakers at the 2016 event is Thierry Bogaert, CEO of Bogaert

Architecture in France and pioneer of industrial architecture. With more than 80 major schemes in 20 countries, Bogaert participates regularly in the design and modernisation of industrial facilities or, more prosaically, in their visual regeneration. Some of his flagship projects of honourable mention include the complete modernisation of the Befes cement plant in France, the spectacular face-lifting of a factory near Istanbul in Turkey, the design of grinding plants in La Rochelle, France and in Kampala, Uganda, as well as a central and operation building for a gas plant in Qatar.

"My specific expertise has naturally led me towards theoretical research into the factory of the future for the benefit of large industrial groups on the margins of COP 21 in Paris," says Bogaert of his contribution to both architecture and industry. In addition to his extensive 

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The PERFECT FLOORING blend

Bright, full bodied, colourful and resinous doesn't just describe the coffee at Starbucks' latest Hong Kong outlet – as Flowcrete has blended together a luxurious and vibrant resin terrazzo floor that meets the store's crucial hygiene and brand criteria.



The city's new Starbucks Reserve™ Coffee Experience Bar, located in Gala Place, Mong Kok, commemorates the iconic coffee seller's 15th year in Hong Kong and has been designed to be both a centre for premium coffee and a creative hub for local artists. As one of the most densely populated places in the world, Mong Kok has an energetic, bustling atmosphere and Starbucks was eager that its new store tapped into this spirit.

This commitment to providing quality produce alongside an interesting and engaging customer experience meant that every public-facing element of the site had to be able to reflect the store's style despite wear and use from large numbers of people.

To achieve this, Starbucks required a floor that would maintain a clean, attractive and on-brand finish despite constant foot traffic, frequent cleaning and the inevitable coffee spillages. By installing 280 m² of both the semi-dry cementitious screed Isocrete K-Screed and the seamless epoxy resin terrazzo system Mondéco Earth the store was able to create a visually appealing and highly durable floor build-up.

An almond coloured Mondéco Earth finish was chosen to complement the cool, contemporary and urban interior design scheme – a look that is critical to Starbucks' strong brand image. Light reflective granite and flint aggregates were incorporated into the epoxy coating to create a glittering lustre across the floor area.

Mondéco Earth's seamless, impervious and easy-to-clean finish meant that it would be easy for Starbucks to keep the floor area looking fresh and unblemished and its durability means that it will be able to maintain these properties for an extended period of time. This is a considerable advantage when compared to the traditional tiles

Flowcrete Group is a world leader in the manufacture of seamless industrial and commercial flooring with international manufacturing facilities in Europe, the Americas, Asia and Africa.

Flowcrete supplies world-class seamless flooring solutions to transform environments across the globe including; decorative seamless resins, waterproof car park deck coating systems, seamless resin terrazzo, durable antimicrobial flooring, corrosion protection, self levelling underlayments, underfloor heating and now underfloor acoustic insulation.

Flowcrete's ambitious and dedicated team is inspired by excellence in people, products and service as well as continual innovation and sustainable growth. Flowcrete continues to use its global expertise to introduce environmentally friendly, hygienic and aesthetically attractive floors to create a better and more sustainable world.

used in coffee houses that have cracks or joints where dirt and dust can get trapped.

Isocrete K-Screed's exceptional drying and curing speeds was a significant advantage for the store, as it sped up the flooring project and allowed for an earlier opening date. Isocrete K-Screed is able to provide these application benefits without compromising on functionality, as it delivers a strong, level and reliable platform that is perfect for the application of a Mondéco Earth finish.

The general manager for Flowcrete Hong Kong, Francis Tang, said: "This project exemplified the ability of our Mondéco range to create flooring that both ties into a brand's visual persona while simultaneously being robust and practical so that it will shrug off the on-site challenges and facilitate a clean, pleasant environment.

"Every aspect of Hong Kong's new Starbucks outlet has creativity and excellence at its core, local urban street artists painted murals on the walls and the best Starbucks baristas in Hong Kong were brought in to make elite coffee. Mondéco Earth was ideal for creating a floor that reflected this deluxe style thanks to its high-end, cosmopolitan appearance."

The global resin-flooring manufacturer Flowcrete has developed its high performance screeds and decorative flooring solutions to provide developments with a wide range of aesthetic possibilities that will be able to withstand even the most demanding commercial environments. ◀

Isocrete K-Screed's exceptional drying and curing speeds was a significant advantage for the store, as it sped up the flooring project and allowed for an earlier opening date.

architectural expertise, he is full of passion for concrete and its unlimited design opportunities. Thierry Bogaert has also created a luxury perfume, Voile de Béton, to capture the mineral and urban beauty of concrete in a light, fresh scent and promote the endless possibilities of the world's most widely used building material.

Every year the conference content is informed and overseen by an Advisory Board whose members represent expertise across the cement, construction and concrete markets, thus creating an event designed for the industry by the industry.

The 2016 Advisory Board includes a comprehensive range of 22 international experts from Dr David Lambertin, Researcher in the Laboratory of Physical Chemistry of Cementitious Materials at the French Alternative Energies and Atomic Energy Commission to Joe Osae-Addo, CEO of

Constructs LLC in Ghana and Prof John Provis who specialises in cement materials science and engineering at the University of Sheffield in the United Kingdom.

Over the course of three days, the 2016 edition of the event brings together more than 6 000 construction experts from more than 40 countries worldwide to facilitate an interactive exchange of knowledge and promote public and private sector collaboration within the industry. The conference offers innovative and interactive content delivery that addresses strategic issues affecting infrastructure delivery and discusses the latest developments and technologies associated with the cement, concrete and construction industries.

"African Construction and Totally Concrete Expo, with endorsement from the Concrete Society of Southern Africa, is Africa's leading platform where concrete innovation trans-

forms research into practice," says John Sheath, CEO of the Concrete Society of Southern Africa (CSSA), of the event. An indoor-outdoor exhibition showcases the latest products and solutions available to deliver projects on time and on budget and offers free technical training workshops aimed to promote capacity building and skills development for the local built environment.

Endorsed by more than 80 media and association partners and sponsored by Marley Building Systems, PPC, AfriSam, FAW, Pan Mixers South Africa (PMSA), Bosch, Carmix, Elkem, MEKA, Priedemann, Stihl and Wall-Ties & Forms Inc., African Construction and Totally Concrete Expo is the only all things cement, concrete and construction event in Africa that provides the entire industry ecosystem with the tools and solutions to navigate Africa's high growth markets and ensure ROI on projects of all sizes. ▶



PPC APPOINTMENT

Kelibone Masiyane has been appointed the new managing director of PPC Zimbabwe. His leadership of the country's executive team will be supported by new commercial director Iain Sheasby and new general manager of finance Karen Mhazo, as well as by Trust Mabaya – who assumed his role as group human resources manager in March 2016.

Following the recent re-deployment of former managing director of PPC Zimbabwe Njombo Lekula as the managing director of PPC's international operations, the country's executive team has been further strengthened through a number of new appointments. Most notable is that of former General Manager of Colleen Bawn and the Bulawayo Factory Kelibone Masiyane as PPC Zimbabwe's managing director.

"Masiyane's promotion will see him assume overall responsibility for PPC Zimbabwe's business, with his key focus our Harare factory," notes Lekula. "His extensive operational experience in the business is sure to stand him in good stead in his new role, and we are confident that his leadership will see the company work to implement its strategy effectively against the back of PPC's new group vision."

Lekula added that the complementary promotions of Iain Sheasby and Karen Mhazo to the roles of commercial director and general manager of finance respectively, and that of current group human resources manager designate, Trust Mabaya in March have further strengthened the country's executive and management teams. "They are also a clear indication of the Group's succession planning

strategy in action – and our ability to develop and groom internal members of PPC Zimbabwe's family to assume vital leadership roles.

"As we take the reins and engage with the ExCo and management teams already in place, we're looking forward to building the legacy of PPC Zimbabwe in our new positions," comments Masiyane. "We invite government and our customers and suppliers to continue partnering with us on this journey as we strive to bring PPC's brand promise of 'Our strength. Your vision' to life."

Your vision' to life." ■



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Sewament 10 is the ideal choice for the restoration of deteriorated concrete in effluent and sewage and in water purification plants for effluent urban water. It can be applied to the interior corrosion-inhibiting lining of concrete tanks that have been damaged by the chemical aggression of effluent from urban or mixed urban and industrial waters. In addition, applications include anti-acid and wear-proof lining or reinforced concrete manifolds, construction or reconstruction of impervious coverings, the filling of joints and precast concrete sewerage elements and filling of joints of poured concrete for tanks and purification manifolds.

“The applications for Sewament 10 are extensive and the product is extremely versatile thanks to the research and development that has gone into its creation at the Mapei Research and Development Laboratory,” says Paul Nieuwoudt, Mapei South Africa’s product manager for building systems.

“It has an exceptionally high level of resistance to the chemical aggression that comes about as a result of the anaerobic fermentation of civil and industrial sewage, which is unusual for a cementitious mortar. This has even been verified by the Department of Microbiology at the Botanic Institute of the University of Hamburg.”

The university subjected Sewament 10 to conditions that were eight times higher than those found in standard sewerage systems. The accelerated tests ran for a period of nine months in biological chambers and the results confirmed the product’s capability in repairing damaged sewerage systems.

Sewament 10 comes as a powdered mortar with special hydraulic binders, selected graded aggregates, additives and synthetic fibres prepared to a specific formula. When blended with water, the consistency is easily workable and can be applied manually or by spray at a maximum thickness of 20 mm per layer. When using Sewament 10 manually it is recommended to use Sewament 3 Primer, a one-component cementitious mortar that improves the adhesion of Sewament 10.

“Sewament 3 must be used as a bonding bridge for manual application in concrete and masonry vaults, walls and beds in sewer trunk lines,” adds Nieuwoudt. “Water deputation plans and canals for the collection of black



Sewament 10 being applied via spray application.

water of zootechny industries also require its use when manually applying Sewament 10.”

The one-component prepacked mortar is crafted from selected graded aggregates and special additives prepared according to Mapei research laboratory formulae. It provides superb adhesion for Sewament 10 and can be applied using a brush once mixed with the requisite amount of water.

Sewament 3 Primer must be applied to a substrate without loose parts and preferably after hydroscarifying to remove dirt, contaminated concrete and rust. Sewament 10 must be used within ten minutes and prepared in accordance with its given instructions. Both products require that blending and application guidelines are followed closely to ensure of the right end results.

“Sewament 10 can be applied with a spray and without the use of the Sewament 3 Primer, but the substrate must be prepared carefully prior to use,” concludes Nieuwoudt. “These products have been designed to handle demanding environments and therefore must be managed precisely. Mapei South Africa is on hand to provide expert guidance and support to assure of seamless application and superb quality to any of our clients looking to invest in the long term protection of their sewerage systems.”

About Mapei South Africa

Mapei South Africa is part of the Mapei Group, an Italian-based multinational that is a leading manufacturer of chemical and adhesive products for the construction industry. As part of the multinational group, Mapei South Africa passes numerous benefits onto its client base by having access to knowledgeable technical experts, research capabilities and product specialists. Mapei South Africa distributes its products throughout sub-Saharan Africa.

Preparing the wall for Sewament 10 application.



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FAST-TRACK SEAMLESS concrete flooring

Concrete Laser Flooring (CLF), specialists in the construction of jointless concrete floors, has in conjunction with a.b.e. Construction Chemicals, introduced a new innovative spreader machine to meet the growing demand for harder, flatter, and more abrasion-resistant concrete surfaces.

56

> a.b.e. Construction Chemicals – part of the Chryso Southern Africa Group – is supplying CLF with Titan Top, a dustless, non-metallic floor surface hardener for use with the Titan Top Dry Shake Spreader machine imported for use by CLF. The dry shake surface hardening powder, which combines high strength Portland cement with selected aggregates, achieves maximum suppression of steel fibres where these are used to reinforce a floor.

Brian Norton, director of CLF, says the unique, versatile design of the imported Dry Shake Spreader features low dust loading technology with inlet brushes, storage for twenty 25 kg bags of surface hardening powder, all contained in a compact machine which is easy to transport.

“The spreader’s high manoeuvrability allows effortless close work around columns and other obstructions during flooring operations. It also provides exceptional spreading accuracy, allowing for the appli-

CLF's new Titan Top dry shake spreader machine in action providing strong, abrasion and slip-resistant flooring for a new warehouse in Boksburg.

cation of fine materials as well as large aggregates. With this high-tech machine, CLF is now able to increase productivity and efficiency by covering larger areas in shorter time while reducing labour cost and worker fatigue,” Norton states.

He says among the other advantages of the Titan Top Dry Shake Spreader when used with the a.b.e. surface hardener, are:

- Optimised distribution of the surface hardener to ensure a uniform and homogenous layer,
- Floor surfaces with increased strength as well as abrasion- and slip-resistance,
- Improved surface quality as a result of the suppression of steel fibres;
- Double the serviceable life of the concrete floor,
- Uniform colour that enhances the appearance of the high-density floor, which is also easy to clean,
- Improved floor tolerance levels because flatter floors are more efficient and require low maintenance,
- Increased resistance to liquid penetration,
- Improved light reflection to conserve energy; and
- Dustless application.

“CLF, as a leading flooring contractor, is committed to innovation and constantly striving to develop products that provide greater value and benefits to the end user. By joining forces with a.b.e. Construction Chemicals, CLF now has the equipment and material to provide seamless factory and warehouse flooring that could match the best in the world,” Norton adds.

Michelle Fick, executive relationship & project manager of the Chryso Group, says the dry shake surface hardener supplied to CLF by a.b.e. is one of a growing number of dustless cementitious products manufactured by the company, all welcomed by the South African construction industry which is increasingly aiming for 'green' building.

“The surface hardener, developed and marketed by a.b.e. as 'abecron LA Dustless', provides a low cost solution for hardening new industrial, commercial or residential concrete floors. Used conventionally, the self-leveller greatly assists the power-floating process and, when applied with CLF's innovative Dry Shake Spreader, the benefits are enormous.

“The surface hardener requires less water which substantially reduces lamination risk, while the dustless technology reduces health risks and area contamination. The product, which is supplied in 25 kg bags, is helping CLF to provide floor surfaces with increased strength and exceptional wear resistance,” Fick adds. <

TOP CONCRETE TECHNOLOGY COURSE

The Concrete Institute's School of Concrete Technology is this year again presenting what is generally acknowledged as 'the pinnacle in concrete technology education': the Advanced Concrete Technology (SCT50 ACT) diploma course.



The 2016 intake of delegates: pictured are (from left, at the back): Lindsay Engelbrecht (Sephaku Cement), Matthew Dalton (private student), Jake Riley (Aveng Grinaker-LTA), Siphon Modzuka (Gibb), Jacques Steyn (Roadlab Prehab JV), Xolani Gumbi (Afrisa SA), Matthews Magwaza (The Concrete Institute, who is a student for the course), Jurgens Nel (Pennypinchers, Windhoek) and Amith Ramkilawan (Lafarge SA). Seated in front (from left): Prof. Pilate Moyo, (course lecturer from UCT), Bryan Perrie, (MD: The Concrete Institute); Nyaradzai Makwinda (private student from Maseru), and Mantwa Morake (Lafarge SA).

> This internationally acclaimed qualification is presented by the SCT and examined by the Institute of Concrete Technology (ICT) in London.

The SCT presents the course every two years and over the past 24 years, 77 delegates have passed it and received diplomas. John Roxburgh, lecturer at the SCT, says South African students have, in fact, often excelled in this formidable course, with this country producing top global students in the past.

"The ICT is a professional affiliate body of the UK Engineering Council and it promotes concrete technology as a recognised engineering disci-

pline. It also sets high standards and requires its members to abide by a strict Professional Code of Conduct, thereby enhancing the engineering profession further.

"Delegates who pass the two ACT examinations this year, as well as an intensive research project that will benefit the concrete industry, will receive the coveted ACT Diploma.

"This qualifies them for Corporate Membership of the ICT and entitles them to write the letters 'MICT' after their names.

"Several of South Africa's leaders in concrete technology have had careers launched and boosted through successfully completing

this fairly challenging course," Roxburgh added.

He says it is recommended that students wishing to enrol for the 2018 Advanced Concrete Technology course use 2016 to complete the SCT41 and SCT42 Concrete Technology and Construction correspondence courses. "Passing these courses will not only ensure that the student meets the entrance requirements for the ACT course, but the training is also excellent preparation for the ACT course," Roxburgh adds.

For further details, contact Rennisha Sewnarain on email rennisha@theconcreteinstitute.org.za or telephone 011 315 0300 or visit the website www.theconcreteinstitute.org.za ❏



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St Helena **RUNWAY PROJECT** successfully **COMPLETED** on **TIME**

After decades of relying on one passenger ship as the only means of access to and from its shores, the remotely-located South Atlantic island of St Helena will welcome its first air travel guests in 2016, following the much anticipated completion of its £200-million airport construction project, in which South African companies have played a vital role.



Johannesburg-based concrete specialist KP Projects formed part of the team working on the six-month-long runway portion of the St Helena Airport construction project, which officially started in March 2015 and was completed in September 2015. The company grooved approximately 77 000 m² across the St Helena airport runway and saw-cut approximately 61 000 linear metres and sealed the concrete joints.

KP Projects project manager Darin Phillips explains that grooving of a runway removes surface water and ensures surface adhesion to increase control during the aircraft's braking action. "The special grooves made are 4 mm deep x 4 mm wide and are spaced at 28 mm and 23 mm apart. The grooves were spaced unevenly to avoid causing any resonance."

The grooves were made using blades supplied by Diamond Products – a leading specialist in the manufacture, assembly and sale of diamond tools and equipment for industrial applications – which supplied a custom-made 368 mm diameter Arix-blade for use on the grooving machine. A Diamond Products 300 mm GC77 cutting blade was used for saw cutting all the joints.

Phillips indicates that slight adjustments had to be made to the blade, in order to achieve the 43-lines-per-cut that was specified. "The work also involved cutting off the corner or edges of the longitudinal joints (Chamfering) using Diamond Products' 30 degree chamfering

KP Projects formed part of the team working on the six-month-long runway portion.

About St Helena Airport

Saint Helena Airport has been under construction since early 2012. South African airport operator Lanseria Airport is the appointed airport operator, and scheduled air services from Johannesburg are expected to commence in May 2016. The official opening of the airport will result in the retirement of the RMS St Helena, the only transport that regularly serves the island.

They saw-cut approximately 61 000 linear metres and sealed the concrete joints.

blade. Our scope of work took a trained 22-strong team to complete the task, four from KP Projects and 18 local workers."

According to Phillips, inferior diamond blades would have compromised the contract deadline, in addition to negatively affecting machine availability too. "Higher grade blades, such as those supplied by Diamond Products, are more efficient and therefore increase productivity, while minimising the risk of unnecessary downtime," he continues.

The British Overseas Territory of Saint Helena is located approximately 4 000 km east of Rio de Janeiro and 1 950 km west of the Kunene river, which marks the border between Namibia and Angola. Phillips admits that the secluded location, together with wet and windy conditions, proved to be a major challenge to KP Projects.

"There is limited technical support on the island, and tools have to be sent back to South Africa for repairs and servicing, which impacts negatively on uptime. Diamond Products' blades were able to efficiently cut through everything that we needed them to. Another benefit is that the blades have a 30 percent longer wear rate, allowing us to complete tasks more efficiently. KP Projects has been using Diamond Products for more than a decade, and is highly satisfied with the overall offering." ❏

The company grooved approximately 77 000 m² across the St Helena airport runway.





NAMIBIAN WATERPROOFING

When a Russian billionaire with a passion for nature and wildlife recently purchased almost 30 000 ha of land in Namibia, it resulted in the construction of the luxury Marula Game Ranch. It was here, 80 km southeast of Windhoek in the Khomas region, that RBL Architects specified several of Sika's high performance waterproofing products for the lodge's one million-litre swimming pool.

➤ NMC Construction Namibia was awarded the contract to apply Sika Waterbars, SikaSwell S-2, SikaPrimer-3N and Sikasil-Pool. The waterproofing process commenced with the application of SikaSwell S-2 to the 60 m of construction joints on the floor of the pool. Highly economical and easy to apply, SikaSwell S-2 is a one-part polyurethane waterstop that swells in contact with water. It provides permanent water resistance and its optimised expansion rate prevents damage to fresh concrete during curing.

Sika Waterbar Type O-20 was used as a centrally placed waterbar in all the expansion joints. Manufactured from virgin thermoplastic PVC for easy, on-site welding, internationally tested Sika-Waterbars are used to seal construction and expansion joints in all water retaining structures. They are designed to withstand high water pressure and are supplied in rolls of various widths and types.

Sika Waterbar Type DR-20 was placed in the external wall joints of the pool while the 135 m pool perimeter, between the wall and floor, was sealed with SikaSwell S-2. All expansion joints were subsequently primed with SikaPrimer-3N, a one component, epoxy-polyurethane solvent-based primer for porous substrates. Suitable for use on matt-moist substrates, it is easy to apply and provides good wetting out properties.

To complete the waterproofing process, Sikasil-Pool, a one-part, neutral curing silicone sealant especially designed for swimming pools and any permanently wet areas, was applied to the joints. Sikasil-Pool is highly resistant to chlorine and fungal attack; it also provides excellent weathering and UV resistance. Its elasticity and flexibility provide high tear resistance.

To complement the many luxurious finishes at Marula Game Ranch, including Oggie oak flooring and suede paint on the walls, the swimming pool was completed with a layer of granite tiling. With more than 7000 species of wildlife roaming its vast lands, Marula Game Ranch is destined to become a top tourist attraction in Namibia and Sika is proud to have been part of its construction. ■



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DEFYING THE ODDS

Since the company was constituted in 2006, Isuzu Truck South Africa has been the headlight in the local truck industry, having forged a niche, despite underlying odds that have seen the demise of many manufacturers.

> The company, with chief operating officer Craig Uren at the helm, has embraced all the uncertainty prevailing in the market and managed all the variables in order to remain competitive, whilst not losing sight of the customer-centred approach to providing solutions that increase productivity and profitability.

“The industry has been through declines in 2001 and 2009 and the strategies we applied then are no different to what we require today to keep our business on track and even to grow. Success comes with being able to analyse the problems and institute growth and development strategies without pressing the proverbial panic button,” said Uren.

“The perspective of the rest of the world is that the demand for trucks has not been severely impacted as they have faced similar pitfalls such as fuel prices, political upheavals and immigration crises. The drought and our internal politics with load shedding, bad administration and labour unrest make our

situation unique compared to the rest of the world. We have had the same problems for years now but our businessmen continuously find a new operational level and a paradigm that is always positive about the economy,” added Uren.

Best year yet

The year 2015 can be considered as the best ever in the short history of Isuzu Truck South Africa, for not only was it the most challenging but also the most rewarding as the results anticipated for the ten-year plan were achieved one year earlier than expected.

The 4 550 units sold in 2015 and corresponding 14,9% overall market share ensured that Isuzu Trucks ended as the number one supplier for the third year in a row. In all, the full spectrum of the product range contributed to the overall results, each having increased their market share, the N-Series from 23% to 27% and the F-Series from 29% to 33%.

“We have now positioned the brand where we want it to be and have strategies in place to maintain that level as we are still in a growth stage of that strategy. The results we achieved in 2015 are definitely not the end point but merely part of the journey. I cannot foresee any major hurdles to hinder our progress, except perhaps some major global or local events. The market will, however, dictate where the level will be, if any,” said Uren.

The acquisition of Kanu and ACT in the Eastern Cape was a bold move for ITSA and the results in the four months since the acquisition endorsed the economic value of the move, which enabled the company to meet and exceed its targets for the year. The production at Kanu/ACT is not totally devoted to Isuzu Truck as it also supplies the general market where necessary.

“Kanu/ACT is doing well and so far is filled to capacity. This acquisition has enabled us to get the solution to the market in the most effective manner possible. As we grow in volume, Kanu/ACT grows with us. This has meant great savings for the dealer, who receives a complete vehicle from the factory and eliminates the need to move the vehicle around for the fitting of the various accessories, thereby eliminating unnecessary expenses and shortening the turnaround time once the sale has been concluded. As far as the specialised market is concerned, Isuzu Trucks continues to maintain a high level of activity

NEW PRODUCTS AT BAUMA 2016

Doosan Construction Equipment is presenting every aspect of the company's business at Bauma 2016, encompassing many new Doosan Heavy, Bobcat and Doosan Portable Power product launches as well as the very latest initiatives from the company's attachment and aftermarket support operations.

> The Doosan Heavy display includes the new 5 tonne DX57W-5 wheeled excavator which, in addition to complying with the latest Stage IIIB emission regulations, incorporates many new features that increase performance, operator comfort, durability and fuel efficiency.

The DX57W-5 has increased power from the 42,5 kW (52.3 HP) Doosan D24 4-cylinder engine which also offers convenience and lower costs by meeting Stage IIIB emission regulations without the need for a diesel particulate filter (DPF). Factory tests show a 15% increase in fuel efficiency, depending on the mode of operation and the work being done.

New Stage IV excavators and wheel loaders

The new Stage IV compliant DX140LC-5 14 tonne and DX140LCR-5 15 tonne crawler excavators set new benchmarks for this size of machine worldwide, providing greatly improved performance compared to the previous '3' Stage IIIB models. Both new excavators are powered by the Perkins 1204F engine, which combines reduced fuel consumption with the power and torque of larger engines with a smaller displacement.



New 3-year warranty for Bobcat rigid telehandlers

There will be a comprehensive display of Bobcat new generation compact loaders, compact excavators, telehandlers and attachments.

The company has launched a new standard three year warranty for the complete range of Bobcat rigid telehandlers manufactured at the company's plant at Pontchâteau in Loire Atlantique in France. It is available as standard in Europe, the Middle East and Africa on all the models in the Bobcat telehandler range from the T2250 5 m telehandler to the top-of-the-range T40180 18 m model.

At Bauma, Doosan Portable Power is launching the G400-III A (400 kVA prime power) and G500-III A (500 kVA prime power) generators, meeting the EU Stage III A engine emission regulations. As well as incorporating the changes required to meet the Stage III A regulations, the new generators have been redesigned to offer increased reliability, high performance and a wider choice of features to meet the needs of temporary power applications. ■



Isuzu Truck South Africa's, CEO, Craig Uren.

in the tipper business and dominates in the compactor business as well," explained Uren.

African market

"For Isuzu, Africa is a huge market opportunity. Around the world Isuzu does well, but Africa needs a lot more work to entrench the product. We have established a good customer base in neighbouring territories and in 2015 we exported more vehicles there than we had done in the last five years. Generally, Isuzu Trucks footprint in Africa is expanding, especially at the assembly facilities in Egypt, Kenya and South Africa. Isuzu Motors Limited Japan sold more than 20 000 new trucks into Africa last year and it is anticipated that this number will grow considerably in the next five years," said Uren.

The increase in market share and the expansion of the variants in the Isuzu Trucks range have brought a new dimension to the support structure for the product. The parts and service backup has been simplified with the introduction of common components that fit the range of vehicles. There are only four engine derivatives and four transmission models used in the entire range. Also, common components have been incorporated in the cab design, simplifying the replacement of body parts.

Into the future

"Looking ahead, we have not changed the game plan but require mastering the plan to

build on the base that has been set to support the client, from body building, parts and service, and warranties. Our results are there but we require extending the journey further. Extending the journey for our customers means also extending the economic life of their vehicles.

"For this purpose we have a component replacement exchange programme in place called 'ISUZU DRIVETRAIN' for dealers to utilise. The product range will not undergo any major changes, except for some minor cosmetic adjustments, so the emphasis will be on extending the value of the brand 'For the Long Run,'" concluded Craig Uren.

In 2015, Isuzu Trucks achieved another milestone in the next phase of their Southern Africa strategy when they moved from a commercial OEM to an entrepreneurial-type business entity on acquiring a 100% stake in two Port Elizabeth-based entities, Kanu Commercial Body Construction and Automotive Chassis Technologies (ACT).

These acquisitions will enable ITSA to

initiate and build products according to client specification, enabling them to have a more integrated relationship with current and future customers in the life cycle of their trucks.

"The acquisition complements our growth strategy as we believe that Kanu and ACT will definitely enhance our business structure. The move to acquire these entities will centralise the process of buying our trucks, where everything will be processed from one central point of contact," said Craig Uren, chief operating officer of Isuzu Truck South Africa.

"The next few years will be even better for us as the platform we have created with the new strategies in the pipeline, which is one of consolidation and enhancement. We can now focus on people skills development and concentrate on attaining leadership in aftermarket support factors for Southern Africa. Isuzu Trucks will also expand its footprint in the sub-Saharan African market," concluded Uren. ◀

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NEW ELECTRIC SCREEN



Commenting on the line-up, Colin Clements, Powerscreen global product line director said, "This is a very important year in Powerscreen's history. In 2016 we mark 50 years of power and success and what better way to start the celebrations than with a global machine launch at Bauma on the industry's largest stage. Our team of crushing and screening experts look forward to meeting new and existing customers at the show to share how our equipment and features can add real value to their businesses."

Product manager for Powerscreen, Oliver Donnelly, explains some of the thinking behind the new model. "The electrically driven Warrior 1400XE shows our response to customer demand and our commitment to embracing a more environmentally aware approach to innovation."

"This latest development utilises a combination of highly efficient electrical components and clever design to deliver the lowest possible cost for every tonne of material processed through the machine. While we are excited about the low running costs, we are proud to have produced a machine where customers will also quickly see dramatic savings in the costs associated with maintenance and servicing. Versatility has definitely not been compromised."

Powerscreen® Warrior 1400XE Electrically Driven Screen

The Warrior 1400XE has been designed to meet the needs of customers for whom electricity is a preferred power source and opens up the possibility to run the machine indoors. It can be powered by electricity generated by other Powerscreen models.

The Warrior 1400XE builds on the success of the standard Warrior 1400X model with its single shaft, high amplitude 3,6 m x 1,25 m screenbox and the chassis riser option giving excellent stockpiling capacity. It also has several important service and maintenance features including the Powerscreen 'Stay-Clean' system under the feeder and a jack-up screen system allowing easy access for screen media changes.

The main benefit of the Warrior 1400XE is the variety of power options available. It can be self-powered with its own 72 kVA generator, or be connected to a mains electricity supply for even further reductions in cost of ownership.

For customers who understand the advantages of a packaged solution, the Warrior 1400XE can also be powered from an electric drive crusher with a barely noticeable effect on the crusher fuel consumption.

Similarly in regions of the world where it needs to operate in high altitude or in high ambient temperatures, the Warrior 1400XE can be powered as part of a machine train from a single gen-set which can be oversized to handle any de-rating caused by the operating environment.

Powerscreen® Premiertrak 600 Jaw Crusher

The ground-breaking Powerscreen® Premiertrak™ 600 is a high performance primary jaw crushing plant which is easy to set up, versatile and engineered for quarrying, demolition and mining applications that require high production capabilities. At the heart of the Premiertrak 600, is a 1 200 mm x 820 mm modern jaw chamber incorporating a robust construction with many user-friendly features.

Underlining the ease of set-up Ed O'Donohue, an operator in Ireland said, "When the machine first arrived, we were hugely impressed with the modern design and robust construction. For a machine in that class range at more than 70 tonnes, we expected it to be quite complicated to set up and get operational, but in fact the opposite was true. The machine was crushing within minutes of being tracked off the transport truck." ◀

The Powerscreen Premiertrak 600 and the new Warrior 1400XE.



The Powerscreen Warrior 1400XE – powered by a Premiertrak 600 jaw crusher.



CRANES AT BAUMA 2016

Tower crane manufacturer Linden Comansa will show three of its most successful models at the upcoming Bauma trade fair, which will take place in the German city of Munich from 11 to 17 April. A luffing-jib crane and two with flat-top design will be exhibited.

> The demand of luffing-jib tower cranes demand is rising in many parts of the world, and one of Linden Comansa's goals in Bauma will be to continue promoting its extensive range of luffers, which consists of 12 different models, with maximum load capacities between 8 and 30 tonnes. For this purpose, the brand will expose a LCL280 luffing-jib crane with maximum load of 18 tonnes, a model which also has versions of 12 and 24 tonnes. The LCL280 is one of Linden Comansa's the most popular luffing-jib models.

Flat-top crane 21LC750 is probably the model of greater success in the recent history of Linden Comansa, and will be also showcased at Bauma 2016. This crane of large capacity (24, 36, or 48 tonnes of maximum load) is suitable for work in industrial, infrastructure and mining projects. Launched in 2009, this crane has been recently revised and optimized, and returns to Bauma after being exposed in the 2010 edition. All its features (ease of erection, high speed hoist engines, reliability, etc) make this crane a favourite among customers of Linden Comansa from around the world. In fact, the 21LC750 has been sold in all continents and regions: Europe,

North America, South America, Africa, Middle East, Asia and Oceania.

Linden Comansa will also be exhibiting at the Bauma show the flat-top model 11LC160, with maximum load of 8 tonnes. The crane is part to the LC1100 series, which has been reviewed by Linden Comansa's R&D Department and includes numerous improvements, such as the frequency control on the slewing movement or the space optimisation on the slewing part.

The three cranes to be exhibited are just the tip of the iceberg of what Linden Comansa wants to show to the market during the trade fair. Attendees to the Bauma show will also want to learn more about the new 21LC450 flat-top crane, the redesign of the cabins, the improvements in the LC2100 series, the launch of a new luffing-jib crane by the end of year. ☒



Luffing-jib crane model LCL280 from Linden Comansa in Dubai.

A Linden Comansa 21LC750 working in a mining project.

Linden Comansa's 11LC160 flat-top crane has a great Market in the Central European countries.



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GaNala Plant Hire undertakes loading operations mainly at the coal fields and power stations in and around Middelburg.

CELEBRATING machine NUMBER 8

To fleet managers the big Kawasaki ZV90 wheel loader working for GaNala Plant Hire is just a number, one of a fleet of 19 similar loaders on hire to power stations and mines in the Mpumalanga region.



Christo Venter of GaNala Plant Hire.



But to Christo Venter, GaNala Plant Hire founder, the machine means so much more as the machine that started his business and whose powerful frame has carried so much of the workload of his growing operation. Even despite clocking more than 72 000 hours of back-breaking production work, No 8 is still working as hard as ever fulfilling round-the-clock production duties at Black Wattle Colliery and to Venter's delight is showing no signs of slowing down.

He says that No 8 has been a stalwart that has worked on numerous different sites loading everything from chrome, to rock, coal and anything else required. Thanks to its work rate, reliability, fuel consumption and high levels of support received from equipment supplier, ELB Equipment, it has spurred him on to standardise his entire loader fleet on Kawasaki's.

Loading experts

Venter continues, "As loading specialists we supply services mostly for mines and Eskom power plants. Due to the mission-critical

nature of these operations we cannot afford downtime and as a result require the most reliable machines for the job that can deliver the highest possible levels of availability around the clock.

"In my years of experience Kawasaki loaders have proven to be the best machines for production loading and our fleet of 19 machines including No 8 have seldom let us down.

"Apart from work rate and reliability I have also found that the machines use up to 10 litres of diesel less per hour than comparable machines from other premium brand manufacturers. What's more we receive complete support from ELB Equipment with the Middelburg and JHB branch staff always available to us when we need them or, if we need head office expertise, it is just a call away."

Silo collapse

Perhaps the company's proudest moment came in a time of crisis last year, with the collapse of the main coal silo at Majuba Power Station. GaNala Plant Hire was called upon

to supply nine loaders equipped with 6m³ buckets to load the massive coal feeders that supply the stations' six giant turbines.

Where high volume conveyors had supplied the station, the loading work would have to be carried out by the loaders until such time as an alternative arrangement could be made. The loss of just one machine for just two hours would have been sufficient to shut the power plant down so required utmost commitment from the part of the loading crew.

"We worked hard and to the credit of all of us we managed to keep the lights on. Once again No 8 was at the forefront of our efforts and leading from the front as has been the case for all these years. But, at least, No 8's time with us is not done."

More to come

"We have just completed its third life rebuild and judging by the soundness of the frame and main components am expecting to get at least another 20 000 hours of production work out of this old guy. I estimated that it has already loaded more than 20 million tons of materials in its time and by the time it gets retired I imagine this figure will be closer to 30 million. Our younger machines are also clocking up the hours with many of them already clocking over 30 000 hours and remaining reliable – just like No 8," says Venter.

He concludes that as the third generation of a 'plant equipment family' the Kawasaki machines represent the best of engineering to be tough, reliable, economical and easy to maintain. "As a qualified mechanic it is simple to see why the machines are so successful. In partnership with the team from ELB Equipment we plan to keep growing the business and procuring the right Kawasaki machines to take our operation forward." ◀

Machine No 8.



FLEXIBLE SOLUTIONS

Goscor Cleaning Equipment, previously known as Tennant SA, has 32 years of experience in the cleaning industry, focuses on providing complete, superior quality sales and rental industrial cleaning equipment solutions to mines and industries in the Southern African and SADC markets.

> The company stocks one of the largest ranges of cleaning equipment and consumables including commercial and industrial vacuums, single disc machines, scrubbers, sweeper scrubbers, beach cleaners, high pressure cleaners, vacuum trucks, road sweepers and escalator cleaners.

Highly competitive, flexible daily, weekly monthly rental packages from the cleaning specialist's Rental Division ensure optimum customer convenience across diverse cleaning applications and market sectors throughout Southern Africa including mining, construction, power generation and contract cleaning.

General manager of Goscor Cleaning Equipment, Gregory Venter, points out that equipment rental presents a highly affordable option, "and even more so in a tough economy when stringent budget cuts are the norm rather than the exception. Cleaning equipment rental makes sound business and financial sense for Contract Cleaners, for companies that do not have the funds for large capital expenditure as well as for organisations where cleaning is not their core business."

Customers can select from Goscor Cleaning Equipment's comprehensive monthly, weekly or even daily rental packages which include machine service and maintenance. "We have established strong and solid relationships with Contract Cleaners who are able to conveniently rent machines to suit their contract commitments, handing back the equipment



Gregory Venter, general manager (back right) and Benith Machaba, rental controller (back row second from left) with the Goscor Cleaning Equipment's Rental Division team.

at the conclusion of the respective contract periods," continues Venter.

"After assessing our customer's respective cleaning requirements, our highly trained personnel who understand the customer's needs and expectations, will recommend the best rental machine for the job," states Venter. He adds that in the event of a breakdown, the machine will be repaired by one of the company's qualified technicians or the unit will be replaced to ensure minimum customer downtime.

In addition, customers have the option of using one of Goscor Cleaning Equipment's experienced machine operators. This avoids having to train an employee which not only has cost implications but also removes the employee from his or her daily job responsibilities.

Goscor Cleaning Equipment is part of the Goscor Group of Companies and represents world leading brands including Tennant, Ghibli, Delfin, Maer, Green Machine, Elgin, and Vacuum-Trucks that have earned their reputation in the market place for quality, reliability and performance.

With offices in Johannesburg, Durban, Port Elizabeth and Cape Town and reputable agents in Polokwane, Nelspruit, Richards Bay, East London and Bloemfontein, and excellent stock holding of equipment, parts and spares, Goscor Cleaning Equipment customers are ensured of minimum downtime. ❏

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TAILORED TIPPER TRUCKS

Construction World spoke to Theuns Naude, Scania South Africa’s key account manager: construction, about Scania’s six robust tipper models and why its tipper application is gaining support in a tough construction market.

The models

These six models are: P310CB6x4MSZ; P310CB6x4MSZ, P310CB6x4MSZ, P360CB6x4EHZ; P410CB8x4HHZ and the P410CB8x4MHZ.

Scania’s P-series gives drivers ample working space, easy cab access while its compact dimensions ensure optimal manoeuvrability, reduced weight and space for extra payload. Naude says that the P-series chassis can achieve the optimal payload without fear of overloading.

The smallest tipper (P310) is fitted with a 310 hp, 9 litre five cylinder engine. This is stepped up to 360 hp, 410 hp and 460 hp.

“The whole powertrain combination is used for the optimisation of the vehicle though – the engine in combination with the gearbox, rear axle pack, as well as the diff ratio,” explains Naude.

Naude says that the three models in Scania’s tipper range currently doing well are the P410CB8x4MHZ (the best seller) with the P310CB6x4MSZ also popular. Scania’s high end tipper model, the P310CB6x4MSZ is also in demand. “We are doing well in KwaZulu-Natal (Khans Transport and Multi-Sands), Cape Town (Haw & Inglis) and in Limpopo (Hillary Construction),” explains Naude.

“The high chassis for improved ground clearance, the belly plate

which protects the intercooler, sump and gearbox and the good fuel consumption, are differentiating features of Scania tippers,” says Naude.

“Most of our construction vehicles are manufactured with hub reduction axles, crawler gears, diff locks, as well as traction control – so these vehicles are optimised for total off-road use,” he says but adds that the usual split for general construction vehicles is 80 (on-road) and 20% (off-road).

Payload

The vehicle arrives in South Africa with a standard factory fitted power take-off (PTO) for the hydraulics – “basically a plug and play for the bodybuilder,” says Naude. “Based on what will be transported, hydraulics to unload lighter or heavier loads are fitted by the bodybuilder. Scania has agreements with these bodybuilders for meeting quality and warranty standards. Scania also assists by doing inspections once a body has been fitted to the chassis. “With regards to general construction, the specific gravity (SG) of sand and stone is approximately between 1,4 and 1,6 tons per cube and normal tar weighs about 1 ton per cubic metre. The 8x4 tipper can carry a payload of 19 tons, and the 6x4 (depending on the body) 13,5 to 16 tons. Due to the lighter SG of tar, 20 to 22 cubes could be loaded on to a tipper.

Total tipper solution

“Scania tippers are robust and offer exceptional fuel consumption,” answers Naude when asked why Scania tippers are increasingly popular.

The quality of the tipper is combined with Scania’s philosophy that it is not selling a truck but a solution. “In addition to the truck, we offer driver training, onsite servicing, a 24/7/365 break down service, full repair and maintenance contracts, customised finance and insurance solutions.

“Scania trucks have a 450 000 km or 5 000 hour warranty. The first year covers the vehicle from bumper to bumper and in year two and three only the powertrain (engine, gearbox and axles) is covered. <

The more powerful P410 is ideal for use in road construction where tippers, due to the lighter SG of tar, can carry between 20 to 22 cubes.

PICTURED ABOVE LEFT: The P410CB8x4MHZ, P360CB6x4EHZ, and P310CB6x4MSZ ready to be fitted with a tipper body.

ABOVE RIGHT: A P310CB6x4MSZ tipper, one of the best sellers in the Scania tipper range, has a high chassis for improved ground clearance, a belly plate that protects the intercooler, sump and gearbox and superior consumption.



The six Scania tipper models

- G460CB8x4MSA (with Scania hi poïd axels and 12 speed Scania opti cruise gearbox and retarder)
- P310CB6x4MSZ (with Scania light hub reduction axels and 8 speed Scania manuel gearbox)
- P310CB6x4MSZ City Tipper (with Scania hi poïd axels and 8 speed Scania manuel gearbox)
- P360CB6x4EHZ (with Scania light hub reduction axels and 12 speed Scania opti cruise – or 8 speed manuel gearbox)
- P410CB8x4HHZ (with Scania heavy hub reduction axels and 12 speed Scania opti cruise gearbox)
- P410CB8x4MHZ (with Scania light hub reduction axels and 12 speed Scania opti cruise gearbox)

NEW RENTAL FLEET INVESTMENT

SkyJacks™ is a leading access systems provider in South Africa and since its inception in 1978, has been supplying the construction, mining, building and maintenance industries with powered suspended platforms, aerial work platforms (cherry pickers) and aluminium scaffolding.

> In January 2015 SkyJacks™ joined the global rental equipment and industrial services group Waco International and the acquisition has seen Waco add further depth to its existing portfolio, which spans industry specialists Sanitech, Form-Scaff, SGB-Cape and Abacus Space Solutions.

As part of an international group, SkyJacks™ is well positioned for growth and has recently awarded a contract for the supply of new aerial work platforms for its rental fleet to Zhejiang Dingli Machinery in China.

The deal was concluded in January 2016 by Stephen Goodburn, CEO of Waco International and Xu Shugen, chairman of Zhejiang Dingli Machinery Company.

"Dingli products are sold in 80 countries across the globe including Germany, USA, Australia, New Zealand and Japan," says Goodburn. "I was extremely impressed with both the capacity of the factory and the quality of machines being produced and all Dingli products have international safety certifications such as European CE issued by TUV in Germany and ECM in Italy, ANSI in the USA and AS/NZS 1418 in Australia."

Commenting on the new fleet, SkyJacks™ managing director Alistair Bennett says that they have ordered all their new Dingli booms with load cells as standard. "This is a safety critical item and SkyJacks™ will be the only rental company in South Africa to have load cells fitted on new machines as standard."

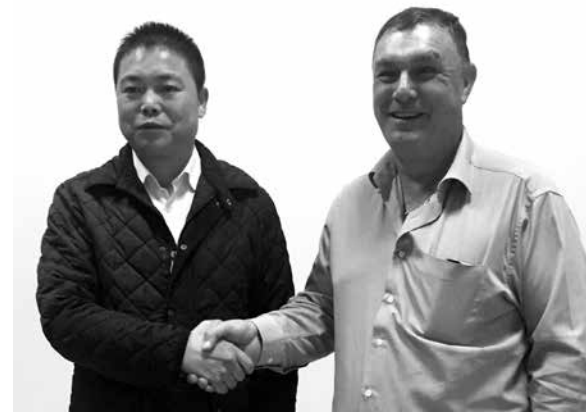
He adds that all the new electric booms will have non marking tyres and the rough terrain diesel scissor lifts will have hydraulic levelling outriggers. He goes on to say that the JCPT1614DC model with a working height of 16 m, will give SkyJacks™ the compact electric scissor with the greatest working height currently available in South Africa.

Gregory Bloom, sales manager at SkyJacks™ says that although they currently have a wide range of diesel and electric booms, scissors and trailer mounts in their rental fleet, the new Dingli machines will greatly increase SkyJacks™ ability to service its customers.

He adds that SkyJacks™ has recently opened a training school that offers Unit Standard training for aerial work platforms and telehandlers as required by the Driven Machinery Regulations 2015.

In addition to its Aerial Work Platforms, Skyjacks™ has over the years designed, manufactured and installed suspended platform systems for mines, power station boilers, bridges, industrial plants and buildings. SkyJacks™ is a proud partner of Sky Climber® in Belgium and the sole distributor in South Africa of their world-renowned Alpha and Compact hoists.

*SkyJacks™ is a Level 2 BBBEE contributor with branches in Johannesburg, Durban, Cape Town and Nelspruit. ■



Xu Shug (Dingli) and Stephen Goodburn (Waco).



AIRCRAFT WARNING LIGHT MASTS

67

Rope-access specialist Skyriders was recently tasked with designing, supplying and installing 6-m-long aircraft warning light masts onto a 212-m-high smoke stack at a power station in Mpumalanga.

> Aircraft warning lights are used to make structures more visible during the day and night time. With the help of RedPro, a designer and manufacturer of engineering products across a wide variety of industries, Skyriders was able to replace the light masts used at the power station.

The project began in November 2015 and was completed in mid-January 2016. The masts were designed for the relatively harsh environment of the power station, where wind loading and various other factors had to be taken into consideration.

Skyriders marketing manager Mike Zinn explains that the new light masts are longer than before, and required a different structural design to withstand the various loads and stress. The masts were made from SSAB Domex and Docol steel.

"Each mast was 6 m in length and designed with a 3-m-long T-piece that can be lowered and raised in a controlled manner to carry out maintenance on the lights if necessary," Zinn elaborates.

The light masts provided by RedPro were lightweight but also incredibly strong, which made them ideal for local conditions at the power station. According to Zinn, the lightweight



design made it easy for the five-man team to use rope access for the installation.

"The light masts were easy to secure onto the concrete structures and are sufficiently high for aircraft visibility," he concludes. ■

40 YEARS OF LEADERSHIP AND EXPERTISE

As part of its automated brick, block and paving manufacturing equipment, PMSA also offers locally-developed automation and handling systems for large-scale brick and block plants to increase productivity and improve the end quality of the final products.

> "We have been building on our technology, leadership, expertise and experience in the concrete products sector for the past 40 years and have an array of options to suit all client needs without compromising on end product quality," MD Walter Ebeling comments.

An example of PMSA's ongoing product development is its new Eco range of automated handling systems, which will be officially unveiled at Totally Concrete 2016. This latest technology gives customers the option of automated handling plants at a far more affordable price compared to the more costly top-of-the-range systems. The new Eco range of handling systems includes forklift options as opposed to more conventional but higher-cost finger and transfer car systems.

"With the building and construction sector in particular facing pressure from reduced margins and a dearth of new products, PMSA is ideally positioned to help its customers fine-tune their existing assets in order to boost productivity and final quality," Ebeling stresses.

"We are unique in the industry in being a specialist manufacturer that is able to cover the



Silver Sponsor PMSA will use Totally Concrete 2016 as a platform to launch a range of new products and technologies.

entire business spectrum, from establishing a business to boosting the bottom line through the application of appropriate technology."

PMSA will use Totally Concrete 2016 as a showcase to launch various new products, including a new range of vibrators for its entire range of brick-and-block machinery. These vibrators are subject to arduous working conditions and resultant high fatigue, which reduces the lifespan of the bearings.

"Our new vibrators, all designed and built locally, will be sealed units with a three-year lifespan, thus enabling us to offer an extended warranty on our manufacturing equipment, thereby giving our customers even greater peace of mind," Quintin Booysen, sales and marketing manager at PMSA, comments.

Booyesen adds that Totally Concrete 2016 provides an important platform for PMSA, a Silver Sponsor of this flagship expo, to showcase both its technology and customised solutions for the African continent.

Co-located with African Construction, Totally Concrete 2016 is an all-encompassing cement, concrete and construction event in Africa that not only focuses on innovation, but how to achieve sufficient return on investment with existing products and customisable solutions.

The expo takes place against a background of the subcontinent requiring 40 million tonnes of new cement capacity to meet rising urbanisation and growth rates. The region's population is expected to grow from 1,1 billion people on 2013 to 2,4 billion by 2050. ■

LONG LASTING AND EFFICIENT

The 5-star resort, Fairmont Zimbali Lodge, on the KwaZulu-Natal North Coast chose to install the natural-looking Easigrass™ in shaded areas around the pool to accommodate guests looking to relax in comfort.

> Easigrass™ is the world's leading artificial turf brand with headquarters based in London. The South African branch of Easigrass™ forms a unique brand within Durban-based Van Dyck Carpets' portfolio, part of the PFE International Inc. Group of Companies.

Commenting on the decision to use Easigrass™, director of operations for Fairmont

Zimbali Resort, Evan Harrington, said: "We wanted to investigate the use of artificial grass due to the difficulties our landscaping team was experiencing in getting grass to grow lushly within the shaded areas surrounding our main swimming pool.

Fairmont had 170m² of Easigrass™ installed – in only three days – because of its many associated benefits including longevity and minimal maintenance.

Mehran Zarrebini, head of Easigrass™ South Africa, said they were seeing more hotels and upmarket estates opting for Easigrass™ over lawn, particularly in the common areas such as pools and children's play areas.

"There are infinite cost-saving benefits

because the grass does not need to be cut or tended to in any way," explained Mehran. "Common areas at hotels and estates are used often, and lawn tends to get worn away quickly, whereas Easigrass™ will retain its fresh look for years."

Zarrebini said that the severe ongoing drought being experienced across the country, with areas such as the KwaZulu-Natal North Coast being particularly hard-hit, many people were opting for Easigrass™.

Easigrass™ Durban is currently installing Easigrass™ at The Maharani Hotel on their rooftop garden for that beautiful-looking grass finish.

There are so many uses for artificial grass, ranging from garden landscaping to multi-playing sports' fields, boardrooms and display areas, the possibilities are endless.

All Easigrass™ products have been designed and built to last for several years and the product is completely environmentally friendly.

Easigrass™ comes with an eight-year warranty backed by Van Dyck Carpets, specialists in flooring for more than 68 years. ■



The Pool area at the Fairmont Zimbali Lodge's Easigrass.

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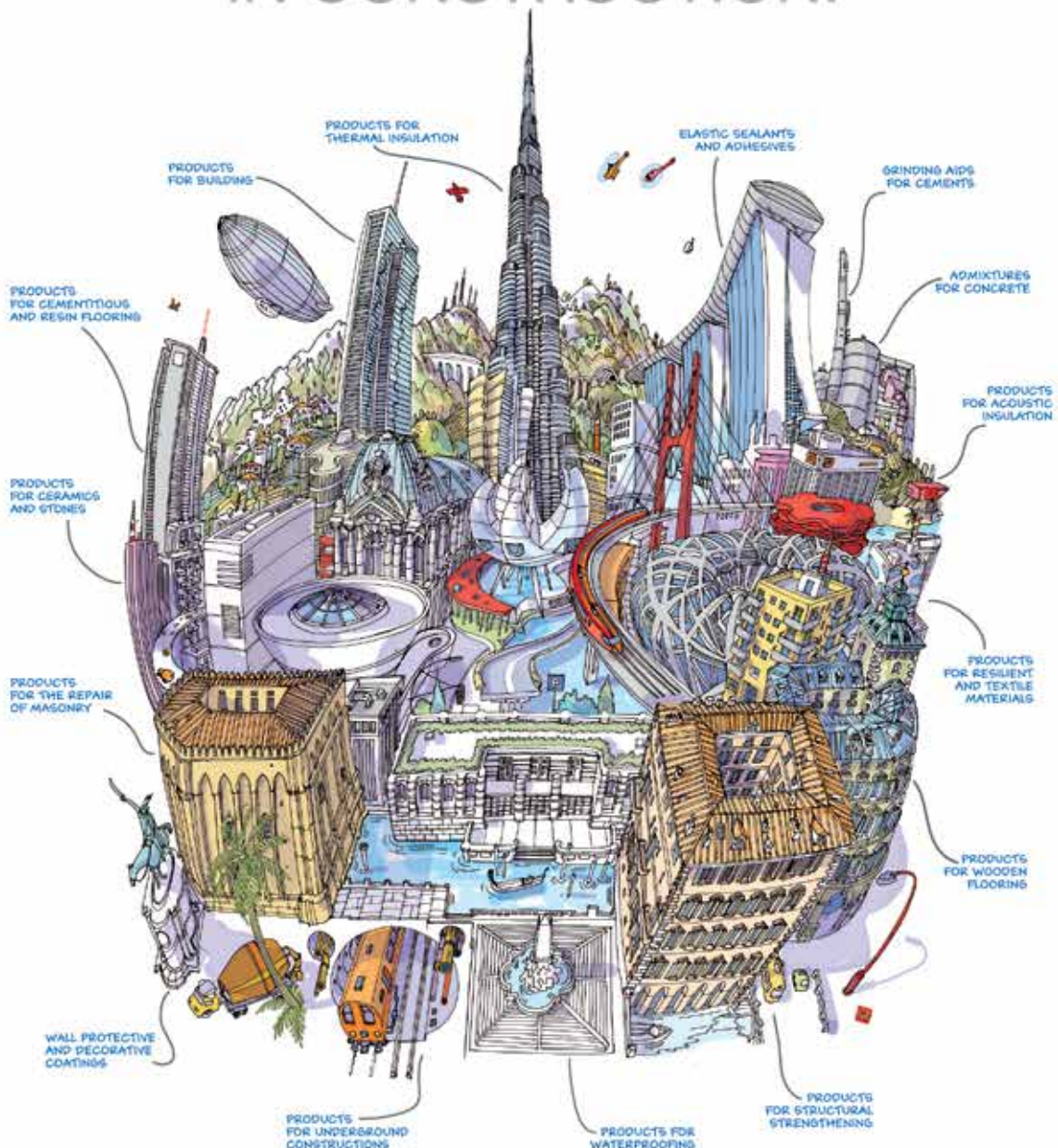
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