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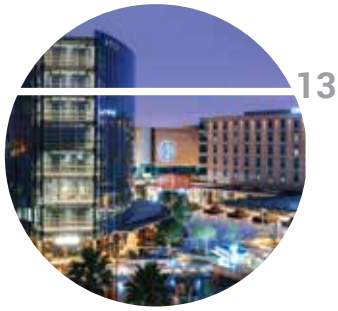
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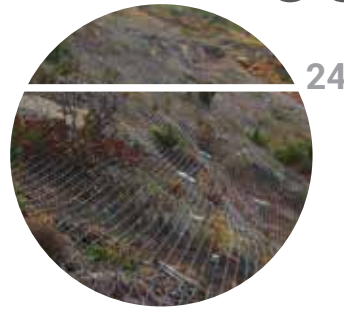
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Makita's HM1812 is a powerhouse with the highest 72,8 joules in its class and Anti-Vibration Technology producing the lowest vibration – 6,5 m/s² (30 kg electronic breaker information correct as of the launch in 2015).

Makita's ongoing research and development continues to produce new and exciting innovative tools in both its corded and cordless range, making Makita one of the global leaders in the power tool industry. See their Back to Business specials running until the end of February 2017 on pages 16 and 17.

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COMMENT

The release of water from the Sterkfontein Dam to replenish the level of the Vaal Dam – the main source of water of Gauteng, South Africa’s economic heartland – highlighted two things: that South Africa is an extremely water scarce country and that the endless delays of Phase II for Lesotho Highlands Water Project indicate that South Africa lacks critical water-planning skills.



The Katse Dam in Lesotho when it overflowed a few years ago. This dam is currently (December 2016) about 40% full. It has a full storage capacity of 1 519 million cubic metres.

► This project will increase water supply from Lesotho to Gauteng, but there have been major delays with starting with the second phase. There is light at the end of the tunnel though. The Lesotho Highland Development Authority (LHDA) recently announced that the engineering design contracts for the two main water transfer components of the Lesotho Highlands Water Project Phase II will be awarded by mid-2017 and that construction will begin 18 months thereafter.

This R23-billion project is being financed by the Trans-Caledon Tunnel Authority. It was expected to have been operational by 2020, but it will now (hopefully) be operational by 2025. The delay has been attributed to the ratification of a 2011 Phase II agreement as well as delays in finalising key policies.

However, the LHDA now maintains that the political, legal, policy, environmental and funding frameworks are in place to ensure that the project is implemented. It also indicates that various projects to support the implementation (roads, power lines, housing, relocation etc.) have already been awarded.

What Phase II will entail

The water transfer component will include the construction of the Polihali dam that will be situated downstream from the confluence of the Khubelu and Senqu rivers as well as a 38 km tunnel that will connect the Polihali dam to the Katse reservoir. The Polihali dam is southeast of Phase I – the Katse and Mohale dams and its related transfer tunnels that enable it to convey water from Lesotho into the Vaal system.

This phase will also have a hydropower component and will generate 1 200 MW. This component will be ready for commissioning when the first water flows to South Africa by 2025.

The LHDA is confident that when the respective contracts for the dam and tunnel are awarded, the process will naturally accelerate.

It is always good to start a new year off with good news. Unfortunately the good in this will be dependent on whether timelines are adhered to.

Wilhelm du Plessis
Editor

 @ConstWorldSA

 www.facebook.com/construction-worldmagazinesa

EDITOR & DEPUTY PUBLISHER
Wilhelm du Plessis constr@crowm.co.za

ADVERTISING MANAGER
Erna Oosthuizen ernao@crowm.co.za

LAYOUT & DESIGN
Lesley Testa

CIRCULATION
Karen Smith

PUBLISHER
Karen Grant

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SCANIA

SOFTWARE FREES

quantity surveyors to add value

By Larry Feinberg, executive director, Association for South African Quantity Surveyors.

Software has disrupted many industry sectors, from travel to insurance, and from retail to real estate. In each case, we were informed excitedly that the new technology would sideline humans. And yet estate agents, insurance brokers and even brick-and-mortar retail stores all still continue to grow. More accurately, those that have embraced the new technology have gone on to flourish.

► When it comes to quantity surveying we are seeing something like the same dynamic unfolding. An added element is that the profession is poorly understood by other players in the public and private sectors. Too often, quantity surveyors are seen simply as providers of Bills of Quantities and drafters of tender documents. In reality, a quantity surveyor

has a much broader and more valuable role to play, especially in these days of mega-projects, strict regulation and, of course, unremitting cost pressure.

It is true that intelligent software can help automate and improve some of the more routine elements of the quantity surveyor's job, such as measurement and the collation of documents.

But to see the role of the software in this light only, or even to see it to some extent replacing a quantity surveyor, is to miss the point entirely. Rather, the software should be seen as providing quantity surveyors with the space to provide the services that have, over time, come to define their real contribution to any project.

This contribution includes the ability to determine the viability of a project from the outset, or to see the project holistically, in order to assist the owner to balance the architect's vision with the realities of meeting cost targets that will ensure that planned returns are realised.

This contribution continues, not only during the actual construction phase but throughout the entire life cycle of the building. I always think of the quantity surveyor's role as one of creating a value

proposition that extends from the design phase, through the construction phase and then ultimately throughout the life of the building management phase. Software alone, would be hard pressed to provide all these vital service solutions to clients.

In addition, the quantity surveyor is able to take the basic data and calculations produced by the software as the basis for exercising his or her judgement – not, as many would have one believe, to bypass it. Software cannot take into consideration many of the long term questions that are of increasing importance to those who fund large projects, and those who will use them.

For example, what are the benefits of spending more during the construction phase in order to reduce costs over the life of the project?

How can certain needs such as air conditioning be met in a way that it is environmentally responsible without compromising operational efficiency – or commercial viability?

These, and similar questions, need the expert judgement of an experienced professional to resolve, not the wired-in certainties of a piece of software. By fulfilling this role, the quantity surveyor



Hope for B-BBEE entrepreneurs

Kaytech has implemented the first of an exciting new B-BBEE initiative to help improve their own customers' business skills. By contracting The Hope Factory to provide a business mentorship programme to four selected small business owners and customers of Kaytech, they are helping them to grow their businesses and become financially stable.

The initiative is the brainchild of Damian Judge, Kaytech's financial director, who assessed the Government's drive to grow smaller businesses thus, "While allocating them specific sized contracts to help secure projects, improve skills and potentially grow their businesses is noble, no one stops to assess whether or not these companies are financially stable, or have good financial structures in place to adequately plan these jobs and manage their cash flows."

Judge contacted The Hope Factory, which specialises in financial and business mentorship of small businesses; helping them to understand the financial aspects of running a business and ensuring that they are legally compliant.

Kaytech hosted a lunch at which The Hope Factory presented their business model and Judge presented their smaller customers with an opportunity for four customers to join the two-month programme. This holistic mentoring programme includes a Business Development Class (12 hours per month) and supplies relevant feedback and measurement reports on the progress of each entrepreneur.

Judge clarifies his objectives as follows, "Big businesses all need to spend money on business development from a B-BBEE perspective and some choose to pay it straight to an organisation like The Hope Factory and get their points. At Kaytech, we chose to use that spending to add value to our customers, by showing an interest in improving their businesses and hopefully they will



Testimonials from some of the first 'graduates' of the Kaytech mentorship programme:

"The Hope Factory, through Kaytech, has provided me with knowledge of business that I was not aware of; such as the accounting aspects and how important it is to keep your personal financial activities separate from business activities,"

– **Abongile Nonkelela, Nonky Civil Construction & Plant Hire.**

"The training was good and I have improved my practical skills and gained knowledge and understanding from all the speakers,"

– **Moses Zondo, Nkangala Construction.**

"The Hope Factory and Kaytech have opened up my eyes on many aspects of my core business and the compliances needed,"

– **Wiseman Motsami Motaung, WM Motaung Civils.**

return the favour by buying more products from us and being loyal supporters of the Kaytech brand. But that's not a given so we are trying to do our bit by improving the industry we operate in."

Jackie Gossman, senior executive at The Hope Factory, shares why they valued working with Kaytech: "We recognize the benefits of partnerships of this nature with the private sector. Collectively we can have a far greater impact on entrepreneurial development in our country". ●

Easier, quicker registrations and returns

To allow member companies to register more easily, as well as to submit levy returns online, the Bargaining Council for the Civil Engineering Industry (BCCEI) has developed a competent and user friendly electronic system.

According to Nick Faasen, BCCEI general secretary, electronic registrations can be accepted through the organisation's website. He also encourages member companies to submit their levy returns electronically rather than using the previous, manual method.

"We are pleased to offer members this quicker system, especially as it will largely eliminate human error," Faasen says. "If the levy return is the same as the one submitted the previous month, it can just be duplicated using a one-click system – saving time and improving productivity for everyone involved."

He says the system has another valuable benefit – to enable BCCEI to further develop its database and to gather verifiable statistics from the industry.

"Certain statistics relating to the civil engineering sector are available, but they are lumped together with the construction industry and do not accurately represent our sector," he says. "We need to build up our own statistics and this electronic system will allow us to do that."

He encourages members to participate in supplying information through the system, so that accurate data could be built up over time. The BCCEI facilitates collective bargaining between employer organisations and trade unions that are party to the council; it also monitors compliance with the agreed minimum conditions of employment. ●

To allow member companies to register more easily, as well as to submit levy returns online, the Bargaining Council for the Civil Engineering Industry (BCCEI) has developed a competent and user friendly electronic system.



More ARBITRATIONS and ADJUDICATIONS in SA

Arbitrations and adjudications are on the rise in the construction industry as companies face headwinds in the domestic market, according to Euan Massey, director at MDA Consulting.

In addition to market pressures, there is likely to be increased demand for trained adjudicators as a result of the implementation of the Construction Industry Development Board's (cidb) proposed Prompt Payment Regulations and Adjudication Standard for contracts. It introduces a mandatory form of adjudication for the construction industry.

Massey says that adjudication has been implemented by the South African construction industry as the preferred dispute resolution procedure. "MDA Consulting recently analysed the adjudications in its firm and found that most disputes handled were between contractors and employers. This may be because subcontractors and contractors tend to resolve disputes without reference to formal dispute resolution mechanisms," he says.

The ability to meet the anticipated rise in construction adjudication relies on having competent and qualified adjudicators to rule on disputes in the construction sector. MDA Consulting director Vaughan Hattingh, together with Professor Maritz (head of the department of Construction Economics at the University of Pretoria) has designed,

developed and facilitated the Certificate Programme in Construction Adjudication presented by Enterprises at the University of Pretoria. This certificate programme, going into its fifth year, produces skilled qualified adjudicators into the South African construction industry.

Bryan Westcott, a construction manager and practicing adjudicator who completed the course, says that the programme is specifically designed for both construction and legal professionals who have experience in the construction industry.

"The course gave me valuable insight into how lawyers think, which has stood me in good stead as a mediator and adjudicator. The class interaction and debates were brilliant, as we had highly experienced lecturers and a group of students who were a mix of legal professionals and construction experts," he says.

The course covers:

- an introduction to South African law and legal theory
- construction practice and technology
- South African and international construction law - principles and application – including an in-depth study of the four CIDB endorsed standard



Euan Massey, director at MDA Consulting.

MDA Consulting is a specialist commercial advisory practice supporting the engineering, energy, petrochemical and infrastructure sectors. It is South Africa's leading adjudication consultancy and also offers a suite of services including legal advice, commercial support and contract drafting.

- form construction contracts
- construction claims and disputes
- dispute resolution and adjudication procedure and practice ●

The programme is presented in monthly modules over a year. Applications are being accepted for 2017.

New CEO for listed Namibian company



Oryx Properties Limited, the only Namibian property company listed on the Namibian Stock Exchange, has announced the appointment of Carel Fourie as its new chief executive officer with effect from 1 March 2017.

Oryx Properties has a premier-quality retail, industrial and office real-estate portfolio valued at about R2,326-billion which generates a dependable, sustainable and growing income stream for investors. These include the major Namibian shopping centre Maerua Mall and office block in Windhoek, plus several industrial properties in South Africa.

Fourie, a chartered accountant, brings to his new

position extensive experience in both Oryx Properties itself and the real-estate industry in general.

He was appointed chief financial officer for Oryx Properties in 2011. In 2014 he took up the position of chief operating officer with the responsibility of participating in the development of the company's investment strategy as well as evolving a management structure for the property portfolio.

Francois Uys, the chairman of the board of Oryx Properties, congratulated Fourie on his appointment, and added, "Oryx is well structured with suitably qualified and experienced staff which gives the board confidence that this is the right way forward. We're completely confident that Fourie is more than capable of taking on his new responsibilities." ●

Speak up – and create an information trail

All parties involved in a building contract should not hesitate to speak up the moment they spot a potential dispute, advises Uwe Putlitz, CEO of the Joint Building Contracts Committee (JBCC).

Putlitz says silence is decidedly not golden when it comes to avoiding strife on building sites. "All signatories to a contract – no matter how low they may feel they are in the pecking order – must immediately give notice when aware of a looming potential problem. The key is to speak up immediately: once resentment has started growing, conflict is difficult to avoid," Putlitz warns.

He says all standard construction contracts include procedures in individual clauses to deal with items that may become a dispute if not resolved timeously. These incidents could include:

- Provision of inadequate or incorrect information to the contractor;
- Delays to the project for various reasons;
- Additional costs;
- Appointment of subcontractors;
- Performance by subcontractors;
- Performance by the principal contractor;
- Changes by the employer;
- Changes for statutory compliance;
- Late or nonpayment by the employer; and
- Late or nonissue of payment and completion certificates by the contract administrator.

"The contract administrators must fulfill their own contractual duties as well as coordinate the obligations and rights of the contractor and employer. If the administrator learns of a potential problem, he or she must act immediately to hopefully resolve the issues raised. Where an identified problem is not resolved, a further notice is generally required before the contractor – and possibly the employer – can invoke the suspension or termination clauses. Similarly, the dispute resolution clauses may be invoked."

Putlitz says it is crucial that the contract administrator, as well as the contractual parties, promptly communicate in writing and keep records of relevant information (site photos, delivery notes) to create an auditable information trail should dispute events need to be proved later. "Keeping minutes of all meetings in an agreed format and the prompt issue of such minutes – and the approval of minutes, or the noting of corrections – are equally crucial. The parties must resolve contractual claims as they occur and the persons involved approached to find a solution. Leaving this to the end of a contract creates uncertainty, and will end up as a dispute as either party are likely to offer a myriad of excuses."

His advice is to keep accurate records in a format that can easily be accessed; agree on communication procedures (and stick to them) and speedily deal with all notifications of any potential problem – and hastily find a solution by consensus. ●



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BUILDING TRUST



Possible industry UPTURN

Predictions that 2016 would be another tough year for the stainless steel industry may be less accurate than originally thought. This after the last three Southern Africa Stainless Steel Development Association (sassda) Short Track Surveys revealed an overall average improvement in market statistics.

Sassda executive director John Tarboton confirms that in the latest survey (October 2016), 38% of the 89 sassda member respondents indicated a positive response to the current order situation, although this is a slight deterioration on last month's 40%. "The improvement in sentiment of our members is also encouraging as 33% of sassda respondents see their current business situation as positive, albeit slightly down from September's 36%.

"So while the year started off pessimistically, we now have systematic survey data from our members, who deal with customers and orders on a daily basis, indicating that business has improved. Our worst months were April, May, June and July of this year but we are hoping that the industry has now bottomed out and we are seeing a gradual recovery."

With this generally more optimistic outlook, Tarboton sees potential for growth stemming from the prospect of increasing per person consumption levels, as well as local supply and imports for stainless steel going into local fabrication markets.

A 'schizophrenic' situation

He adds, however, that the recent survey did suffer from an anomaly of sorts since the first batch of responses received were before National Prosecuting Authority head Shaun Abrahams announced the withdrawal

of fraud charges against Finance Minister Pravin Gordhan, while the second batch were gathered after this announcement. The two batches of responses were also before and after the release of the 'State of Capture' report by former Public Protector Thuli Madonsela. Not surprisingly then, the first set of responses was considerably more negative than the second batch which shows the significant influence of politics on business sentiment.

"That said, and considering the volatile nature of the South African situation and the resultant changeable psyche of its citizens, it will be interesting to see the next set of results which will probably show the effects of the shifting South Africa sentiment yet again. "Overall, it's clear that the new normal in South Africa; is that there is no normal and we therefore must be mindful of the effects of this almost schizophrenic situation when looking at the results of this largely 'sentiment' based survey," stresses Tarboton.

The bigger picture

Looking at the broader performance of the industry over 2016, Tarboton says it's clear that the stainless steel sector is resilient. For example, in 2015 when the global stainless steel production dropped by 0,7%, South Africa stainless steel consumption stayed at the same level as 2014.



Sassda executive director, John Tarboton.

However, a significant shift has arisen this year, when comparing data for the first eight months of this year to the first eight months of last year, the primary product supply into the local market was 6% down. The primary product supply into the local market for the last 12 months was 1,7% down on the previous 12 months.

Prospects

Looking to the end of 2016, Tarboton says there is anecdotal evidence of some improvement for the South African stainless steel industry, but no-one is prepared to predict what will happen in 2017. It is hoped that the stronger performance seen in the last few months will continue into next year and that 2017 will not see a drop in stainless steel consumption.

Sassda members also report that agro-processing, food and beverage, and the pharmaceutical sectors are showing the most promise with regards to consumption. Unfortunately, challenges remain for the manufacturing industry including the ongoing issues of high administered price increases, electricity tariffs, labour instability etc.

To counter the lack of growth in the South African economy, sassda is facilitating members' exposure to a range of African opportunities and together with the Department of Trade and Industry (the dti) and Team Export South Africa (TESA), is exploring several partnership projects that include cross-border training and project development initiatives in other African markets. ●



Engineer of the Year

Danie Badenhorst, dams and hydropower lead at AECOM, won the prestigious title of Engineer of the Year at the 2016 SAICE-SAFCEC Civil Engineering Awards. Badenhorst was honoured for a 40-year career that has seen him working on more than 120 dam projects in Africa.

One of South Africa's premier dam-design engineers, Badenhorst won the Engineer of the Year award at the event held on 13 October 2016 at Emperors Palace, Johannesburg. He has more than 20 years' experience in major water resource and hydropower development projects, involving master planning, feasibility studies and design, totalling a 40-year career in civil engineering.

He has carried out numerous tasks as an approved professional engineer, a requirement in South Africa in terms of the Dam Safety Act. In addition, Badenhorst has contributed to national and international best practice in dam engineering, including safety designs, and has also excelled as a meaningful mentor to many young engineers.

In line with creating awareness for civil engineering in South Africa, Badenhorst has represented the country at the annual meetings of the International Congress of Large Dams for several years. He has been Chairperson of the South African National Committee of Large Dams (SANCOLD) for the past seven years.

Badenhorst's work with AECOM has seen him involved in leadership roles with some of the most prominent current dam projects. These include the Itare Dam Water Supply Project in Kenya, the Mooi Mgeni Transfer Scheme for the Spring Grove Dam and Appurtenant Works, and the Umkhomazi Water Supply Project, together with the rehabilitation of 20 large dams for the Department of Water and Sanitation.

Badenhorst is currently project manager and study leader for the engineering investigations for the bilateral Noordoewer/Vioolsdrift Dam Feasibility Study. On this project, he is training client and sub-consultant staff on various aspects of dam-design considerations at the feasibility level.

He was also involved in managing repair works at the 145-m-high Mohale Dam during Phase 1B of the Lesotho Highlands Water Project, together with his role as Dam Design Engineer. His mentorship on this project saw him win the BKS Prize for Innovative Engineering for the design of a river diversion mechanism using a breaching section for the coffer dam. Badenhorst says his most challenging

project to date was Corumana Dam on the Sabie River in Mozambique, where his project proposal was accepted by the World Bank, resulting in considerable cost and time-savings for the client. Skills development is a key focus, with Badenhorst currently mentoring six candidate engineers at AECOM to build technical and professional skill sets in dams and hydropower.

Badenhorst was also responsible for organising the highly successful 2016 ICOLD annual meeting and symposium in Sandton in May 2016. The symposium was attended by 1 200 public and private-sector delegates from a record 75 countries, with 24 countries from Africa.

The SAICE-SAFCEC Civil Engineering Awards is an annual celebration of engineering excellence, whereby civil engineering companies, projects, institutions and individuals are all honoured for the most outstanding civil engineering achievements during the previous year. ●



Danie Badenhorst, dams and hydropower lead at AECOM.



Stephen Stacey, managing director, Botswana, Project Delivery Group.

Southern African office in Botswana

Hatch has established a new office in the Gaborone CBD on the back of a significant contract win from Debswana, aimed at consolidating its presence in Botswana and the Southern African region.

The consulting engineering company has clinched a five-year contract at Debswana's Jwaneng Diamond Mine in south-central Botswana, about 120 km west of the city of Gaborone, reveals Stephen Stacey, managing director, Botswana, Project Delivery Group.

Although the Debswana portfolio is the catalyst for the Botswana office, it will also be the springboard for pursuing new work, not just in the mining sector, but also in the energy and infrastructure sectors, where Hatch can contribute significant experience.

"We are very excited about the Botswana government's economic stimulus programme, designed to create employment and expand the private sector," Stacey comments.

Hatch's current involvement in Botswana includes work on the North-South Carrier (NSC) pipeline, which conveys raw water south for 360 km to Gaborone. The company is currently tendering on Phase II of this project. "It is our intention to grow the Botswana office to about 10 people by the end of 2017, and to 50 people with five years," Stacey highlights.

Stacey joined Hatch in 2008 as a structural engineer on a three-year project, progressing to structural lead and ultimately engineering director. "This is a different role for me, from being involved in engineering management to business development in a new country, and I find that challenging and exciting."

The Hatch office in Gaborone was launched officially at a function on the evening of Thursday, 27 October 2016. The keynote address at the opening was delivered by minister of infrastructure and Housing Development, Nonfo Molefhi. ●

MARCH 2017 OPENING ON TRACK

Giuricich Bros Construction, a leading South African family-owned construction firm and the main contractor for the prestigious new Springs Mall at Blue Crane Eco Park, has confirmed the mall's construction is progressing on schedule to open on 16 March 2017.

► Giuricich Bros construction industry pedigree goes back seven decades and includes many landmark construction projects countrywide. The regional 48 000 m² Springs Mall is its largest retail development so far as a main contractor. Construction for the R950-million mall broke ground in 2015.

"We are hugely proud to be part of developing the all-new Springs Mall. Not only is Giuricich Bros Construction the main contractor, but Murinda Investments, which is part of the Giuricich Bros Group, is an investor and a proud joint owner of the mall," says director of Giuricich Bros Construction, Nicky Giuricich.

The group has played a key role in helping to unlock the Springs Mall development, which is the brainchild of the Springs-based D'Arrigo family.

Besides the Giuricich and D'Arrigo families, shareholders in the development include leading shopping centre developers and leasing specialists, Flanagan & Gerard Property Development & Investment and JSE-listed retail-focused REIT, Vukile Property Fund.

High level of construction

Unique in many ways, this world-class regional mall development in Gauteng has demanded the highest level of construction skill and expertise from its contractor.

Spring Mall is a feat of engineering as its site is over dolomitic rock, which weathers and erodes when it touches water. This presented some challenges for its construction.

Nicky Giuricich, who is also the site director, explains that Springs Mall is essentially being built on a concrete raft, with its ground floor

comprising a cast slab instead of the normal surface bed.

Usually, drainage would be suspended under a building's first floor, but, with this slab, it isn't possible. Instead, an underground service tunnel running the length of the mall has been created as a drainage spine, with a dual containment system of pipes within pipes to ensure no leakage.

"This is extremely unusual and possibly even the first time it has been done for a shopping centre in South Africa," says Nicky Giuricich.



Director of Giuricich Bros Construction, Nicky Giuricich.

Cogniscent of the environment

He adds the mall's ambitious construction is not only based on a solid foundation of world-class engineering in consultation with specialist dolomitic consultants but is also in keeping with the latest leading international standards and deeply respectful of its sensitive site.

Set amid wetlands, Springs Mall's design is inspired by its setting. So too is its construction. Both target creating an environmentally sensitive structure.

"Most of Springs Mall's construction material and products have been sourced locally, within a 50 km radius of the mall. The steel is local, so are the bricks and mortar. This ensures the local economy gets optimal benefit from the project and reduces the structure's construction carbon footprint, wherever possible," explains Giuricich.

Also helping to lighten its carbon footprint, rebar is one of the recycled materials used in the project.

Among the mall's many green building elements, Giuricich Bros have constructed cavity walls to insulate the building, which reduces its energy transfer so there is less heat loss and heat gain. This will decrease its ongoing energy consumption for cooling and heating.

He adds: "Throughout construction we remain fully focused on the intention of Springs Mall to be environmentally innovative and respectful. For us, this is simply good building practice. We are also pleased that its construction is subject to strict environmental monitoring to ensure peace of mind that the surrounding wetlands remain uncontaminated during building.

"It's great to be associated with the development and construction of this world-class Springs Mall regional shopping centre. It is set to be a well-built quality property and a world-class shopping mall that adds a uniquely innovative and appealing real estate asset to our built environment," says Giuricich. ●

"Most of Springs Mall's construction material and products have been sourced locally, within a 50 km radius of the mall. The steel is local, so are the bricks and mortar. This ensures the local economy gets optimal benefit from the project and reduces the structure's construction carbon footprint, wherever possible."

Giuricich Bros Construction was established in 1940 in Johannesburg by the late Nicolò and Cesare Giuricich, and has become one of SA's largest privately owned and managed construction companies. It has achieved and retained a Level Three BEE rating. With over 76 years in business, Giuricich Bros Construction today is based in Gauteng and Cape Town and undertakes contracts countrywide.

This large-scale retail development adds to Giuricich's impressive portfolio of landmark construction projects. They include, among others, its recent construction of the 6 Star Green Star SA Office Design certified WWF offices in Johannesburg; the redevelopment of the iconic Oyster Box Hotel in Umhlanga Rocks, Durban; building McDonalds restaurants countrywide; the 20 West Street Capital Hotel building in Sandton; the original BMW head office in Midrand; recent motor dealerships for Mercedes-Benz, KIA and Hyundai; switch-centres country-wide for MTN; and, as one of the contractors in the original development of well-known shopping centres such as Hyde Park, Fourways Mall, Southgate and Rosebank Mall.



Rope access for Swazi Property's facilities management

Leading rope-access specialist Skyriders Access Specialists has completed a fast-track facilities management (FM) contract for Swazi Plaza Properties in Mbabane, Swaziland.

The property development company is owner of Swazi Plaza, the largest shopping centre in Swaziland. Marketing manager Mike Zinn explains that Skyriders deployed a five-person team for the 27-day contract, which encompassed a range of FM services, from window and louvre cleaning to signage maintenance and painting, as well as the installation of bird spikes.

"There is a definite upsurge in interest from the FM industry in rope access in terms of cost-effective and flexible maintenance," Zinn comments. "Maintenance budgets are under considerable pressure, and rope access can offer considerable cost-savings."

Rope access is one of the safer means of accessing difficult-to-reach points in a number of applications, especially when the cost of access is disproportionate to the scope of work. The scope of rope-access work includes general maintenance such as cleaning, repair, painting and inspections.

"Rope access provides flexibility, as rope access technicians are able to traverse obstacles in order to carry out numerous tasks relating to inspection, maintenance and surveying, all while they are suspended securely. It is highly-effective for numerous rescue tasks in any application over 2 m above ground," Zinn highlights.

While Skyriders initially cut its teeth on maintenance contracts such as that for Swazi Plaza Properties, the company has since diversified into highly-specialised sectors such as power generation, where rope access is ideal for inspection and maintenance on tall structures such as smoke stacks, cooling towers and boilers.



Skyriders deployed a five-person team for the 27-day contract, which encompassed a range of FM services.

Skyriders boasts extensive experience in all rope-access applications, and also undertakes work in the mining and heavy industrial sectors. It offers services such as non-destructive testing (NDT) and inspection, concrete inspection, maintenance and repairs, application of coating systems, working-at-height safety systems, welding, and confined space rescue and standby. ●



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COMMITMENT to transformation HONOURED

The South African Institute of Black Property Practitioners (SAIBPP) has honoured Growthpoint Properties for demonstrating outstanding commitment to the transformation in the property sector.

► This is the first time that SAIBPP's Annual Awards have acknowledged property sector companies that, through their programmes and procurement policies, display an over-and-above commitment to transforming the property sector.

The award was presented to Growthpoint at the SAIBPP Awards 2016 dinner during its annual convention in Sandton this month.

SAIBPP chief executive officer, Vuyiswa Mutshekwane, says: "Growthpoint has demonstrated its intention and its commitment to transforming the property sector and has gone above and beyond what is required of it."

Chairman of Growthpoint's social, ethics and transformation board committee, Mzolisi Diliza is also Growthpoint's largest individual shareholder with 38,6 m shares. Diliza says: "Growthpoint's commitment to transformation is driven by real intent. It has worked hard to make good progress on its transformation journey, so receiving this significant award from SAIBPP is very meaningful indeed."

Diliza describes Growthpoint as an active proponent of transformation,



Chairman of Growthpoint's social, ethics and transformation board committee, Mzolisi Diliza.

internally and across its industry.

"Growthpoint has earned a track record of driving meaningful change, starting with concluding the first and largest BEE deals in the industry in 2005 that have since earned billions of Rands for black investors," says Diliza.

Besides institutional shareholders, today more of Growthpoint's shares are in the hands of black investors than any other group. In addition, over half of its employees are black.

Growthpoint has invested continuous executive representation on the Board of the Property Sector Charter Council and its executives represented the Property Loan Stock Association, now the SA REIT Association, as a signatory to the Property Sector Charter.

Its ongoing initiatives to boost broader industry participation by BEE players include Growthpoint's high-impact procurement, enterprise and supplier development programmes.

Mutshekwane reports that SAIBPP recognised Growthpoint for its outstanding commitment to transformation for several reasons, including its widely-recognised Property Point enterprise and supplier development initiative.

"But, there are many other examples of its transformative actions, such as Growthpoint giving black acquirers preference in its recent office property disposal programme," she points out.

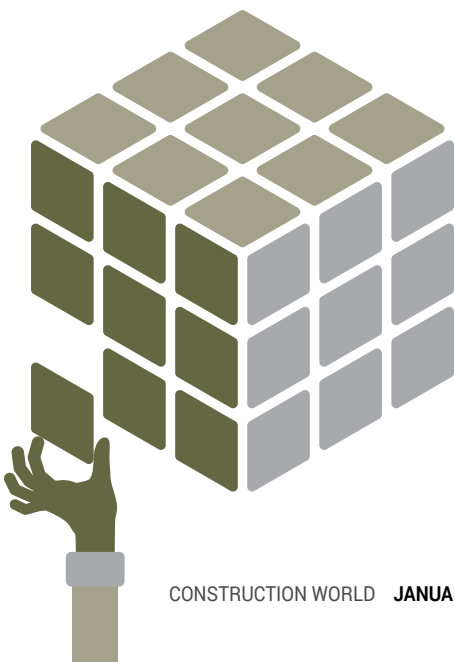
Shawn Theunissen, head of CSR and Transformation at Growthpoint, says:

SAIBPP is the leading property industry association advocating for transformation within the South African property sector. SAIBPP is a member-based organisation that, through its various programmes, facilitates economic participation and skills development for previously disadvantaged individuals and aims to ensure more representative participation in the property industry.

Growthpoint is the largest South African primary listed REIT and strives to be a leading international property company providing space to thrive. It creates value for all stakeholders with innovative and sustainable property solutions. Growthpoint has been in the FTSE/JSE Responsible Investment Index for seven years running. It owns and manages a diversified portfolio of 530 property assets including 467 properties in South Africa, 63 properties in Australia through its investment in Growthpoint Properties Australia (GOZ) and a 50% interest in the properties at V&A Waterfront, Cape Town.

Property Point, a Growthpoint initiative is an award-winning enterprise and supplier development programme that has grown to benefit other industry partners such as Attacq Limited. Founded in 2008, to date 114 SMEs have participated in Property Point's two-year incubation programme. Provided for entrepreneurs operating within South Africa's property sector, Property Point arms entrepreneurs with the skills, coaching and personal development they need to grow their businesses. So far, it has generated over R453-million in procurement opportunities for these SMEs, and helped participating enterprises to achieve a reported revenue growth of 76%, with 1 309 jobs created thus far.

"We believe it is non-negotiable to be diverse, inclusive and transformed. Growthpoint has achieved significant milestones along our transformation journey that clearly demonstrate our commitment. We will continue to drive transformation by investing in people and skills that grow our business, sector and South Africa." ●



CENTURY CITY SQUARE

achieves Green Star rating

The mixed use Century City Square development, which was developed by the Rabie Property Group at a cost of R1-billion, has been awarded a 4-Star Green Star – Custom Mixed Use Design rating by the Green Building Council of South Africa.

► This is the first development in the Western Cape to have been awarded this Custom Mixed Use tool and only the second in the country.

Century City Square consists of a Conference Centre with a total capacity of 1 900 over 20 venues, a 125 room hotel, 15 000 m² of offices, 51 apartments, showrooms and restaurants all set around a public open square. The entire development is set over a super basement and this, together with a structured parking garage, provides under cover parking for 1 330 cars.

Steve Cloete, Rabie project manager, said Century City Square had been a pilot project for the new mixed use rating tool for the GBCSA. "As such our green building

consultant worked very closely with the GBCSA to formulate the rating tool and in future Century City Square will be a benchmark for all mixed use developments going for a Green Star rating."

Rabie's Green Building consultant, Paul Carew of PJ Carew Consulting, said the project posed some immense challenges in getting all the documentation together in that there were so many buildings and so many consultants involved.

"However, in spite of these difficulties we received a very high round one score from the GBCSA who said that the quality of the submission had assisted them in their assessment of the project and that it had been much easier to review than what they

had anticipated."

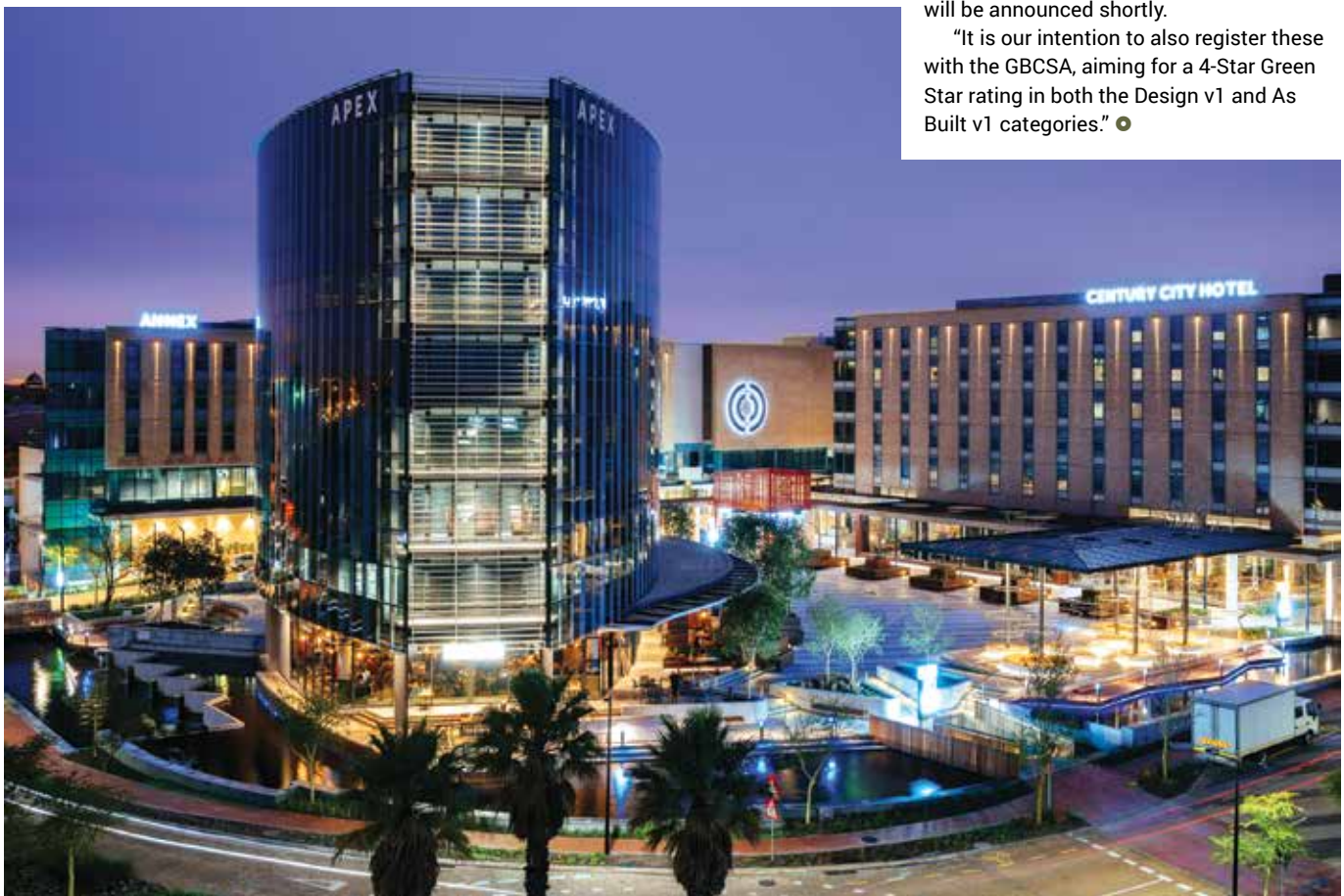
Carew said they would also be applying for Green Star v1 As Built rating for the Square and were currently getting the documentation ready to submit.

Century City Square, which comprises a total of six buildings, falls within the Bridgeways Precinct of Century City which is being developed as a green building precinct and is home to five other green rated office buildings, four of which were also developed by Rabie.

These are the Business Centre and Philip Morris which were awarded 4-Star Green Star v1 ratings in both the Design and As Built categories, Chevron – which received a 5-Star Green Star v1 rating also in both categories – and the 18 000 m² Bridge Park development which is the new home of Absa's regional offices. Bridge Park also has a 5-Star Green Star v1 Design rating and has applied for an As Built rating.

Cloete said planning of the last two office buildings in the precinct is well advanced and details of these 8 000 m² buildings on a site bordering Sable Road will be announced shortly.

"It is our intention to also register these with the GBCSA, aiming for a 4-Star Green Star rating in both the Design v1 and As Built v1 categories." ●



Prieska solar PV plant earns praise

The 86 MW Mulilo-Sonnedix-Prieska PV project, a 125 hectare solar PV project valued at R1,4-billion was completed on schedule, on budget and reached full grid code compliance in good time for commercial operation.

“This is the biggest solar PV EPC project we have ever delivered in such a remote location. We have now entered the Operations and Maintenance phase and look forward to ensuring the guaranteed performance on behalf of the owners,” says Greg Austin, MD of juwi Renewable Energies of the 14-month intensive project, developed on a remote site 50 km south-west of Prieska in the Northern Cape.

“We have received excellent feedback from Eskom’s Grid Access Unit and NERSA’s RETEC regarding our grid code compliance planning and execution.”

The energy from the project, which is capable of powering 86 000 homes, is believed to be the first PV project under the REIPP to gain grid code compliance prior to reaching Commercial Operation.

“Although the Northern Cape is one of the best irradiation areas in the world and

has enormous future energy generation potential, the grid connection here and elsewhere in the country is the issue that everyone’s grappling with.

“You can’t export power without a suitable grid, and hence the limitations of the grid is an inhibitor which the Department of Energy as well as all industry stakeholders should be addressing more urgently,” adds Austin.

“O&M is a juwi core business. We understand that peace of mind for the investors, lenders and owners over the 20-year life span of a project is important, enabling them to achieve their returns on investment. Being the EPC partner on this project together now as O&M operator, we ensure that our O&M team is involved from the initial design: for example, selecting communications technology that gives the optimal interfaces between key hardware such as solar panels, inverters and transformers. O&M is a business model that de-risks the project for the owners,” Austin says.

“The local community benefits in various ways from such a project. Quebar Electrical & Civil Construction, was a small



local business established to provide the quality checks on 275 000 modules, and now provide the O&M service on sight. Through the project period, 1 720 people were employed, of which 911 came from local communities, which has a significant economic development impact.”

According to Austin, big projects are always an opportunity for continuous learning and improvement. “We created many employment and business opportunities in an extremely poor community, and with every project we gain further insight into the socio-economic development aspects.

“Industrial relations management and upskilling of labour for long term community benefit is always a priority. We have 500 MW in our short term pipeline, offering significant job creation and a positive economic impact to local communities.” ●

Wind farm reaches milestone

Loeriesfontein Wind Farm has announced that it has completed the lifting of the first 30 of its 61 wind turbine generators (WTG). The wind farm’s construction teams are pleased with the progress that is being made, achieving an average of 2,5 WTG liftings per week, often with two simultaneous liftings underway.

The wind turbines, which are 100 m tall to allow for optimum energy production, take a couple of days to erect, assuming the weather is favourable and the first two sections of towers have been erected. The three 53 m blades, made from fibreglass reinforced epoxy, are connected to the rotor at ground level before being lifted to the top of the turbine tower. This is a complex lifting exercise, in which one crane raises the assembled rotor whilst another smaller crane and taglines guide the rotor into the correct position. The heaviest component is the nacelle, which contains the generator and gearbox; and weighs 82,5 tonnes. “The process of constructing the turbines requires

two cranes to work simultaneously; the lifting of the massive 108 metre diameter rotor requires great skill and is a really impressive manoeuvre to watch,” says Leo Quinn, project manager of Loeriesfontein Wind Farm.

Siemens Wind Power, along with their subcontractors, Fairwind and BMS, are responsible for the installation of the wind turbine generators. The same teams will move onto the turbine lifting for the adjacent, Khobab Wind Farm, next year. “We are pleased to be working with an experienced crew, who fairly recently managed the lifting for Noupport Wind Farm and will later move onto our sister wind farm,” adds Quinn.

The site was chosen because of its



excellent wind resource, its proximity to national roads for wind turbine transportation, the favourable construction conditions, municipality and local stakeholder support, the straightforward electrical connection into Eskom’s Helios substation approximately 11 km south of the site, and studies showed that there would be minimal environmental impact.

The next major construction milestone will be the arrival of the main transformer and the energisation of the substation. When operating at full capacity, the Loeriesfontein Wind Farm will generate approximately 563,500 MWh of clean renewable energy per year; this is expected to supply electricity to power up to 120 000 South African homes. ●



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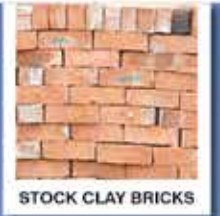
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A R74-million desalination plant was commissioned by South32 in September 2016 at their Hillside Aluminium smelter in Richards Bay, KwaZulu-Natal.

NEW DESALINATION PLANT in Richards Bay

► The plant will remove minerals from seawater abstracted from the Richards Bay harbour, thus enabling the company to maintain operations during a time of persistent drought, where the current water crisis has resulted in the implementation of stringent water restrictions in the Richards Bay domestic and industrial sectors.

In March 2016 Level 4 water restrictions were put in place by the uMhlatuze Municipality and although South32 and JG Afrika had for some months been discussing the need to investigate methodologies to reduce or reuse current water supplies, it then became clear that an alternative to municipal water supply urgently needed to be found to ensure continuous smelter operations. The knock-on socio-economic impacts on the local, provincial and national economies would be dire if the smelter plant were to close: a loss of up to 10% of the GDP in the region, a potential loss of 20 000 jobs in the country directly or indirectly affecting the livelihoods of around 80 000 people, and the need to import aluminium into South Africa at a cost of some R4,1-billion per annum.

The desalination of seawater was identified as the preferred alternative to relying on the municipal water supply.

Fast-tracking the investigations

JG Afrika recommended NuWater as a technology partner and the team soon got to work fast-tracking investigations and conceptual designs for the installation of a desalination plant, utilising membrane technology, to produce process water at

Hillside. The urgency of the project required the engineering team to focus on the existing infrastructure and mechanisms owned by South32, Foskor and Mhlatuze Water, where use could be made of current licences, waste discharge permits and structures.

Foskor, a producer of phosphates and phosphoric acid, uses existing abstraction infrastructure at Richards Bay harbour. This seawater abstraction provides Foskor with an emergency alternative supply of process water for the Mondi effluent it uses under normal operations. The Foskor extraction point is designed for a capacity of 1 250 m³/h. Foskor's current estimated demand for seawater is 700 m³/h and this created the option to partner with them to deliver 280 m³/h to Hillside while remaining within the current licensed approved limit of 1 250 m³/h.

The exiting abstraction infrastructure has two concrete pump chambers of which only one is in use. Foskor and South32 reached an agreement whereby South32 would add a second pump within the vacant chamber, sharing a portion of the existing rising main, to abstract the seawater required to keep the smelter operational during municipal water supply interruptions. A new 2,3-km-long Dia 355-mm HDPE pipeline traversing the area between the harbour abstraction and Hillside was constructed inside and alongside the South32 raw material conveyors.

The upside of this agreement was that most of the infrastructure and some of the pipeline to transfer seawater from the

harbour to Hillside was already in place or could be installed within the existing conveyor servitude, significantly speeding up the implementation and construction programme. The raw water pipeline route was identified, designed, constructed and commissioned in 24 weeks.

Another identified benefit and its positive impact on the implementation programme was the existing concrete slab within the Hillside complex and its relative proximity to the Hillside process water storage reservoir. This, together with a fully containerised modular plant designed, supplied and installed by NuWater, comprising raw water clarifiers, ultra-filtration and finally reverse osmosis kept the civil construction requirements at the plant to a minimum.

As with any desalination technology, the disposal of brine as a waste product was a challenge. Again the lateral thinking of the South32 and JG Afrika team identified an existing 1,5-km-long pipeline between Hillside and the decommissioned Bayside smelter. This existing Dia 300-mm pipeline required minor refurbishment and a 335-m-long extension to connect the Bayside smelter into the existing Mhlatuze Water licensed discharge sea outfall.

JG Afrika was appointed by South32 as the principal agent for the project and was responsible for all civil engineering works, raw water pipeline, pump selection and brine pipeline designs. The project was completed in an astonishing 28 weeks from inception and concept identification to final delivery of 2 Mℓ/day of process water to the South32 Hillside smelter. ●

Durban hotel refurbishment

Well-situated adjacent to the Durban International Convention Centre, the Hilton Hotel is currently undergoing a major refurbishment, which is being undertaken in five phases. The project is scheduled for completion in May 2017.

Midway through phase two, global professional services consultant Turner & Townsend was appointed as project managers for the entire refurbishment programme. With extensive global experience in the hospitality industry, Turner & Townsend has managed previous projects for the Hilton Hotel group in Abu Dhabi, Europe and America.

Well positioned adjacent to the Durban International Convention Centre (DICC), the Hilton Hotel attracts international travellers and delegates attending events at the DICC, with a strong national business following during the week and mainly leisure market on weekends.

First opened in 1997, since then the hotel has hosted numerous national and

international corporate executives, heads of state and celebrities, scooping a number of prestigious awards including South Africa's Leading Business Hotel for four consecutive years (2013-2016) at the World Travel Awards. In 2015 Luxury Travel Guide Awards declared Durban's Hilton Hotel Luxury Contemporary Hotel of the Year as well as the Provincial Winner for Five-star Meetings, Exhibitions and Special Events at the Lilizela Toursim Awards 2016.

Says Markus Fritz, general manager for the Hilton Durban: "The Durban Hilton Hotel refurbishment was initiated in order to align it with the Hilton brand values and architecture, which have changed over the years."

In turn, in managing the project, Turner & Townsend introduced a benchmarking schedule and policy to align the contractor with the client and quality expectations and standards.

This includes a rigorous snagging and de-snagging programme and policy to alleviate delays of phased room handovers to the Furniture, Fixtures and Equipment (FF&E) team to meet the hotel's deadlines,



occupancy requirements and stringent quality standards.

Marc Binns, project manager for Turner & Townsend says the Durban Hilton Hotel project is not without its challenges. "Firstly, this is a working hotel with a high occupancy, which means that noise levels must be controlled and limited to certain hours, while contractors can only be on site from Mondays to Saturdays.

The refurbishment project has already included the lobby and Big Easy Restaurant in phase one, conversion of what was formerly a hotel bar to a business lounge, ripping out fixtures and fittings and restyling suites – including the Presidential Suite – with a fresh, new aesthetic feel, and refurbishment of the executive lounge. Still to be completed are floors one to three which includes refurbishment of the ballroom and meeting and business room levels in 2018. ●

Zip Zap's dream soon a reality

The NMC Construction Group's design and construct portfolio showcases design flare, drawing inspiration from the magical world of the circus. Zip Zap Circus has long dreamed of having a permanent home, now this dream is fast becoming a reality with construction of a R23,5-million circus academy in Salt River well underway.

In partnership with Zip Zap Circus, Tsai Design Studio and Sutherland Engineers, the NMC Design and Construct team collaborated on the design of the new academy which mirrors the magical essence of the circus. Construction of the 2 200 m² structure, comprising of a three storey concrete structure with steel portal structure making up an impressive trapeze hall commenced in September 2016. The new academy is scheduled to open its doors in June 2017.

Sutherland Engineers came on board the project offering a full civils, structural and mechanical engineering service, ensuring a seamless integration of the planning for both the design and construction of the project.

The design, by Tsai Design Studio, captures the essence of the three inherent architectural typologies of the project; the circus, the academy and the theatre. The street façade is designed to generate maximum visual impact with the form sculpted to create an angular street façade, which is clad with brightly coloured steel fins that references the iconic circus tents.

In line with Zip Zap Circus School's unique learning approach of empowering self-discovery, the design aims to immerse the children in the full circus experience. The structure is arranged like a theatre to highlight the drama and excitement of circus training with a triple

The NMC Construction Group is a multi-disciplinary construction group offering design and construct solutions. The NMC design and construct offering simplifies and streamlines project execution through partnering, teamwork and collaboration with key consultants, co-contractors and clients. The collective capabilities and expertise of each stakeholder on the project enable the team to maximise the value of a building, whilst reducing input costs through value engineering and design optimisation.

volume Trapeze Hall taking centre stage. Multifunctional training spaces provide the space and flexibility to host events, while classrooms and offices have direct visual connection with the training spaces.

Zip Zap is a social circus academy that was founded in Cape Town in 1992. Zip Zap is dedicated to supporting and conducting training in circus arts and performance diverse community of children. The Zip Zap's 'dare to dream' philosophy is a powerful tool for social transformation, youth empowerment, team building and community upliftment. ●

An architect's impression supplied by Tsai Design Studio illustrates the new funky design capturing the circus vibe.



LSFB'S 10-YEAR SUCCESS IN SA



Ten years ago light steel frame building (LSFB) was seen in South Africa as a strange new building method that challenged the brick and mortar mindset of local contractors.

Well, perceptions and mindsets do change as new, exciting ideas are gradually proven as viable alternatives to accepted technologies and LSFB in South Africa is no exception. As Southern African Light Steel Frame Building Association (SASFA) director John Barnard said at the association's recent AGM: "LSFB has systematically developed into a viable

alternative building method for a range of low to medium rise buildings during the past 10 years. The steel consumption of this industry has grown from zero in 2006 to some 25 000 t/yr of high strength galvanized steel sheet, as well as facilitate significant growth in the volumes of cladding and lining materials, fasteners and insulation."

Modular building for Mozambican graphite mine

The discovery of large reserves of mineral resources in Mozambique has spurred many companies on to explore opportunities within the country's mining sector. Having expanded its business into Mozambique five years ago, and with the opening of assembly plants in Palma and Tete, Kwikspace Modular Buildings is well positioned to benefit from opportunities that arise in the local market.

As such, when the chance to supply site buildings and infrastructure to a mine site in Northern Mozambique arose Kwikspace was well placed to assist.

Northern Mozambique is touted as having one of the world's largest high-grade graphite deposits – estimated to hold around 81,4 million tonnes at a total graphite content grade of 16,2%. With mining operations set to commence towards the end of 2016, Kwikspace was awarded an initial contract to supply a 12 m x 3 m eye clinic to the site.

While working on the project, Kwikspace identified an opportunity to supply light steel frame roofing for the mine's junior and senior staff accommodation units. This alleviated the need to have timber roofing brought in all the way from South Africa saving the client time and money.

Having proven their ability to deliver high quality solutions in record time, this signified the beginning of a strong working relationship between Kwikspace and the mine.

Kwikspace has since provided the site with a double wide unit to be used as office space, six site accommodation units consisting of 12 bedrooms – each with their own on-suite bathrooms, electrical services and water pipelines, 25 units required for the expansion of the contractor's camp and 24 buildings for the mine's plant area.

These units will be assembled on chassis so that they can be relocated around the site as required. Kwikspace's involvement in this project represents a significant milestone for the company, with this being the first time their entire product offering has been provided to one site.

This includes its mobile units which are fully prefabricated off-site, its site erected units which are rapidly constructed on-site using modular components, its rental units which address the requirement for flexible, temporary space and its building solutions for the provision of roofing, water and electricity.

Mindful of their extensive contribution to the project Kwikspace has its own pioneer camp on site, in which knowledgeable Kwikspace employees reside. This ensures that one of their staff members is always on-hand. ●





He added that LSFB is increasingly being used in multi-storey office and commercial buildings, where it is replacing heavy masonry curtain walls. The most recent example is the façade walls of the multi-billion Rand Mall of Africa, built in Midrand, Gauteng.

Barnard says that there has been an exponential growth in Southern Africa in the past two to three years in the awareness of light steel frame building as an environmentally friendly and sustainable building method. "This improved awareness has been one of Sasfa's primary objectives targeting audiences ranging from the professions – engineers, architects and QSs – to builders, the building material supply chain, building authorities and financial institutions right down to prospective clients," he says.

The proof of the pudding is the response to the steel construction's primary industry event – Steel Awards.

"Fifteen LSFB entries were received for Steel Awards 2016 – almost a third of the total number of Award entries," says Barnard. "Two projects were selected by the judges as joint winners of the Saint-Gobain sponsored light steel frame building category – Façade Walls of Mall of Africa and the Clinic, Mbabane Hospital, Swaziland.

Key to growth

Barnard says that the successful training programmes undertaken by Sasfa have been key in the promotion and growth of LSFB in Southern Africa. "Education is the foundation for getting the advantages of a new method understood as well as

for protecting and enhancing quality through the growth phases and beyond," says Barnard.

SASFA offers a number of training courses, focusing on the designers, building contractors and building inspectors.

- The 6-day LSF training course for building contractors – 342 people have completed this course to date including a number of students from beyond our borders – illustrating the growing interest in LSFB in Sub-Saharan Africa.
- The SANS 517 Code course aimed at architects, QS's and Engineers, Property Developers etc, and the Cold-formed Steel Design course for Engineers – this year alone saw 127 participants in these.

In addition to training, Sasfa has been involving final year engineering students and this year again assisted students to do research into various aspects of LSFB. "Involving relevant professionals in the industry as they embark on their careers has supported the growth of LSFB over the years," says Barnard.

Quality and ethics

Of course, in the construction industry the management of codes and standards and accreditations are crucial to a successful industry and SASFA, being the custodian of the quality and ethics of the local LSFB industry, has been exemplary in these areas. Barnard says that, in this regard, work on a comprehensive revision of SANS codes and standards has largely been completed.

Important aspects of the process include:

- SASFA is represented on the SANS 10400L (Roofs) committee of the SABS,

ABOVE, FROM LEFT:

Mbabane Hospital clinic.

The double storey office block adjacent to the Dabmar manufacturing plant.

Mall of Africa showing packs of 'Cavity Bat' insulation supplied by Isover for use in the LSF wall cavities.

to ensure that LSF is correctly covered in the code revisions.

- SASFA is represented on the SABS committee SC98C, which is responsible for all standards dealing with steel or aluminium in building and construction.
- Thorough revision of SANS 517 is under way, and should be completed by year end.
- Preparations have been made to start the competency assessment of LSF builders.

Overall Barnard says he is satisfied with the progress that SASFA and the LSFB industry have made especially in the tough building industry conditions we have been experiencing in the last few years in South Africa.

"The annual industry survey showed that demand for LSFB increased by 10% in 2015 compared with the previous year. This is an outstanding achievement in view of the Statssa report of an 8% decline in building activity (buildings completed) over the same period," Barnard concluded.

During a short meeting of the newly elected executive committee of SASFA, David van Zyl from Kwikspace was elected as Chairman, replacing Mulder Kruger, CEO of Trumod, who had served in this position over the past two years. ●



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RENEWING Randburg Square

Vukile Property Fund's conversion of its Randburg Square offices into contemporary, compact residential apartments has created a new vibrant urban living option in the heart of the Randburg.

The 180 new apartments are set atop Randburg Square shopping centre, also owned by JSE-listed leading retail-focused REIT Vukile. The new Randburg Square residences create modern, compact urban living ideal for young families, with dedicated security and parking, and built-in social, retail and transport infrastructure.

The redevelopment project responds to the Randburg area which, in recent years, has fallen out of vogue for business. Soft demand for offices resulted in Randburg Square's occupancy levels dropping. In addition, the 40-year-old property had reached the end of its life-cycle as prime offices.

Laurence Rapp, CEO of Vukile, comments: "When considering the future of this asset, we came to believe that converting the building from offices to residential apartments was an opportunity to revitalise and re-energise the building itself and its surrounding community."

He adds: "It seemed a natural step, in sync with the huge demand for residential property in the area, which is a multimodal transport hub served by good schools and surrounded by people-intensive businesses like DSTV, FNB and SARS.

"It also responds to the general rising demand for urban accommodation in Johannesburg and, importantly, supports the trade of shopping centre tenants."

Randburg Square centre originally

opened in 1979 and was recently upgraded. With 32 000 m² of gross lettable area and over 70 stores, the mall forms the podium for the new apartment building.

Randburg Square residences offer direct access to Randburg Square's shopping, banking, gym, leisure, and medical facilities, and more – all within easy walking distance of bus and taxi transport.

With its quality compact living at affordable rentals, which range from R4 200 for a bachelor flat to R6 500 for a two-bedroom unit, Randburg Square residences are leased through Trafalgar Property Management and already attracting strong interest, especially from people falling in the LSM eight and nine band.

Subtle architectural changes

Architect Edmond Batley of Batley Partners explains the building was changed in subtle ways to respond to its new use, such as the columns that were added to its façade to highlight the division between units, but also perform the cosmetic function of hiding the building's services.

"Randburg Square has always been an icon and now, with its tower's new brightly coloured façade, it can stand proud on the Randburg skyline," says Batley. "With the trend of urbanisation, our cities are densifying and buildings need to respond to this. Randburg is a natural centre and Vukile's residential conversion project has helped to produce an affordable and modern live, work, and play environment. Cities need variety and the Randburg Square residences meet a very definite need."

Structural innovation

Repurposing the building required innovation, especially as its structure was originally designed for office loads. To this end, the team found a special light-weight walling system that uses a steel framework with gunite applied on mesh to form a super-strong, more sound-proof and durable alternative to drywall. It also enabled quicker construction – a priority when

building on a trading shopping centre.

Working within an existing building has its own challenges, reports project manager Jamie Raubeheimer of CPDev, with logistics proving one of the biggest obstacles.

"We had to get material and equipment to and from all twelve floors with a goods hoist that ran around the clock," explains Raubeheimer. Another challenge the team faced was creating new windows on the outer sides of the tower block, which required punching holes through 210 mm of solid concrete wall and a further 100 mm of cladding.

The former office lobby was converted to an apartment lobby, providing secure access through double 'man trap' doors.

The building is now future-proofed with a fibre optic backbone that runs to each apartment and currently delivers digital DSTV signal but is upgradable for other uses.

Apartment finishes were chosen to be modern, slick and functional, from brilliant tiles, marble counters and stainless steel cupboards in kitchens to edgy exposed services in passages and ceilings that give a nod to the building's original office use.

A tribute to modern living, Randburg Square residences offer its occupants a quick and easy e-wallet payment system and smart metres, making it easy to buy pre-paid electricity and pay for water. Plus, apartments are designed to be energy efficient with LED lighting.

Ground floor units each have a small garden and there is a dedicated kids' play area with direct access from the building. Residents enjoy the facilities of a dedicated parkade accessed directly from the apartments. The building includes a laundry facility for its residents, in addition to each unit offering space for a dishwasher or washing machine.

Showing how stylish compact urban living can be, the gorgeous Randburg Square show apartment was decorated by Marisca Deminey, a postgraduate student at UJ who decorated the entire apartment with furniture, décor, and appliances from shops in Randburg Square centre on a R55 000 budget.

Johann Pretorius, asset manager at Vukile Property Fund, remarks: "Renewing Randburg Square has given it new life and is having a positive impact on its immediate vicinity. This investment by Vukile shows its confidence in Randburg, its ability to respond to market demand, and provides a catalyst for even more rejuvenation in the area." ●



'SMART PLANNING' to finish extended contract

Master Builders Association North member, J.C. van der Linde & Venter Projects, has completed the addition of a new wing to the Medtronic Africa building on the Waterfall Distribution Campus in Allandale, Midrand.

The leading Pretoria building contractors furthermore also managed to complete an extensive, unscheduled fit out contract without the need for an extension in the construction time period.

The R15-million contract for the new two-storey southern wing that seamlessly blends in with the existing structure, on the corner of Bridal Veil Road and the K101 Old Pretoria Road, was awarded to J.C. van der Linde & Venter Projects by developer, Attacq Waterfall Investment Company, a division of the Atterbury Group, after the project's quantity surveyors, IBP, had added the contractors to the companies invited to tender.

Stefan van Wyk, director of J.C. van der Linde & Venter Projects, says the contract called for the erection of the new two-storey building with a floor area of 1 200 m² and an additional covered parking area of 2 400 m². The ground floor of the new wing consists of a medical training facility, staff restaurant, boardrooms and ablutions; while the first floor comprises mainly open plan offices as well as three separate 16-seater boardrooms.

"The super structure's columns, slabs – including roof slabs – were built with 30 Mpa concrete. An 8 metre high, 28 degrees decorative slanted concrete wall on the southern end of the building called for detailed planning and innovative formwork. Aluminium facades were specified for the eastern and southern sides of the new structure which neatly complemented the existing building's façade," van Wyk states.

Among the challenges the contractors encountered on this prestige project were restricted access to the site because the existing facility was already in full operation during the construction of the additional offices and covered parking area. "Also, four months into the contract, the client added an additional R3-million fit out contract to the interior spaces to meet Medtronic's operational requirements. We were asked that this additional work be completed

within the original construction period. By implementing some smart alterations to our building programme, we managed to deliver the fit out contract to the client on the same date as the original practical completion date," he adds.

Van Wyk said despite the increased time pressure, J.C. van der Linde & Venter Projects maintained its high standard and perfect record in terms of the Health & Safety Act with no incidents occurring on the site as the contractors and client's consultants cooperated closely to ensure safety for all involved. "We also managed to meet the requirements set out by the

Professional team

- Main contractor: J.C. van der Linde & Venter Projects
- Client: Attacq Waterfall Investment Company
- Principal agent: Empowered Spaces
- Quantity surveyor: IBP Quantity Surveyors

environmental consultants and no harmful waste, such as oil spills or any other soil contamination, was recorded during the construction period," van Wyk concluded. ●

Views of the exterior and interior of the new wing of the Medtronic Africa building in Midrand recently completed by J.C. van der Linde & Venter Projects.



MAKING CHAPMAN'S PEAK DRIVE

Background

In March 2013, under contract 799, the latest section of slope stabilisation works and rockfall protection measures was completed along the northern end of the drive, by Penny Farthing.

However, on 15/16 November 2013 an extreme rainfall event triggered a myriad of mud and debris slides which caused extensive infrastructure damage along this section of Chapman's Peak Drive, between SV23 700 and SV24 100, resulting in the closure of the road.

Melis & Du Plessis Consulting Engineers were appointed by the Transport management Branch of the Department of Transport and Public Works of the Western Cape Government

Their brief was to design and manage the implementation of both the emergency measures, for initially re-opening Chapman's Peak Road and thereafter for the stabilisation and protection works for the permanent safe operation of the road.

The initial emergency measures did not entail specialised measures and the required clearing up and traffic accommodation were undertaken by Haw and Inglis, until such time as a specialist contractor could be appointed. On 10 December 2013 the initial clean up was completed and the west bound lane of the road was re-opened to traffic under single lane traffic conditions.

Since the damage event in November 2013 occurred within the defects liability period of Contract C799, the decision was made in January 2014 to appoint Penny Farthing as the contractor for the repairs and additional stabilisation works.

Project details

The start date for the works was February 2014 and the key works items of the contract included:

- The removal of all debris flow material on the slopes above the road and repairs to the damaged roadway and pedestrian walkways.
- The reinstatement/repair/replacement of all structures damaged under Contract C799, which were completed in March 2013.
- The installation of additional slope, landslide and debris flow protection measures on the slopes above the road.

Design innovation

The several slip areas and the unstable gully heads remaining after the debris

flows, were at a considerable height above the road and presented a hazard to Chapman's Peak Drive road users and the local residents, especially during periods of high rainfall.

The geology at Chapman's Peak consists of flat, sedimentary rocks related to those that form Table Mountain at the top over the Cape Granite at the base. The two formations meet at a geological unconformity that is world-famous amongst earth scientists.

Following the study of the high resolution aerial photography specially undertaken, onsite inspections and assessments undertaken by Melis & Du Plessis, it was clear that specialised measures were required to stabilise and protect the road from further geotechnical hazards such as shallow landslide and debris flow events, using specialised high tensile steel products such as rockfall netting and fences. After due consideration, it was decided that the products developed by the Swiss firm, Geobrug, and the technical support they offered, was the preferred solution.

The scale of the design and construction of the works was formidable, specifically with regard to the debris flow fences, which were the first to be installed in South Africa and Africa as a whole.

The digital terrain model, backed up with the findings from the detailed geotechnical walkover surveys and assessment of the November 2013 events, were used to generate three-dimensional simulations or models of possible future landslide and debris flow events. These models were used by Melis & Du Plessis and Geobrug to determine the size, height and positions of the four landslide fences on the slopes and the five debris flow fences in the two main gullies.

The installed slope stabilisation and protection works included:

Stabilisation of the gully heads:

- This involved the installation of 3 600 m² of the Tecco[®] 65/4 high tensile steel mesh at the head of the gullies, supported with 2,5 m to 5 m long bar anchors, drilled and grouted in a diamond pattern. 1 300 anchors were used to support the mesh.
- The Tecco[®] mesh product is made from high-tensile wire that secures loose, blocky rocks, rock spurs, overhangs or unstable rock formations with irregular surface profiles.

Shallow landslide fences:

- Four 3,5 m high Spider SL150[®] landslide fences, 30 m to 64 m in length were installed. These landslide barriers absorb both high dynamic and high static pressures required to arrest and retain the debris from shallow landslides.
- The total length of the fences installed was 180 m.

Debris flow fences:

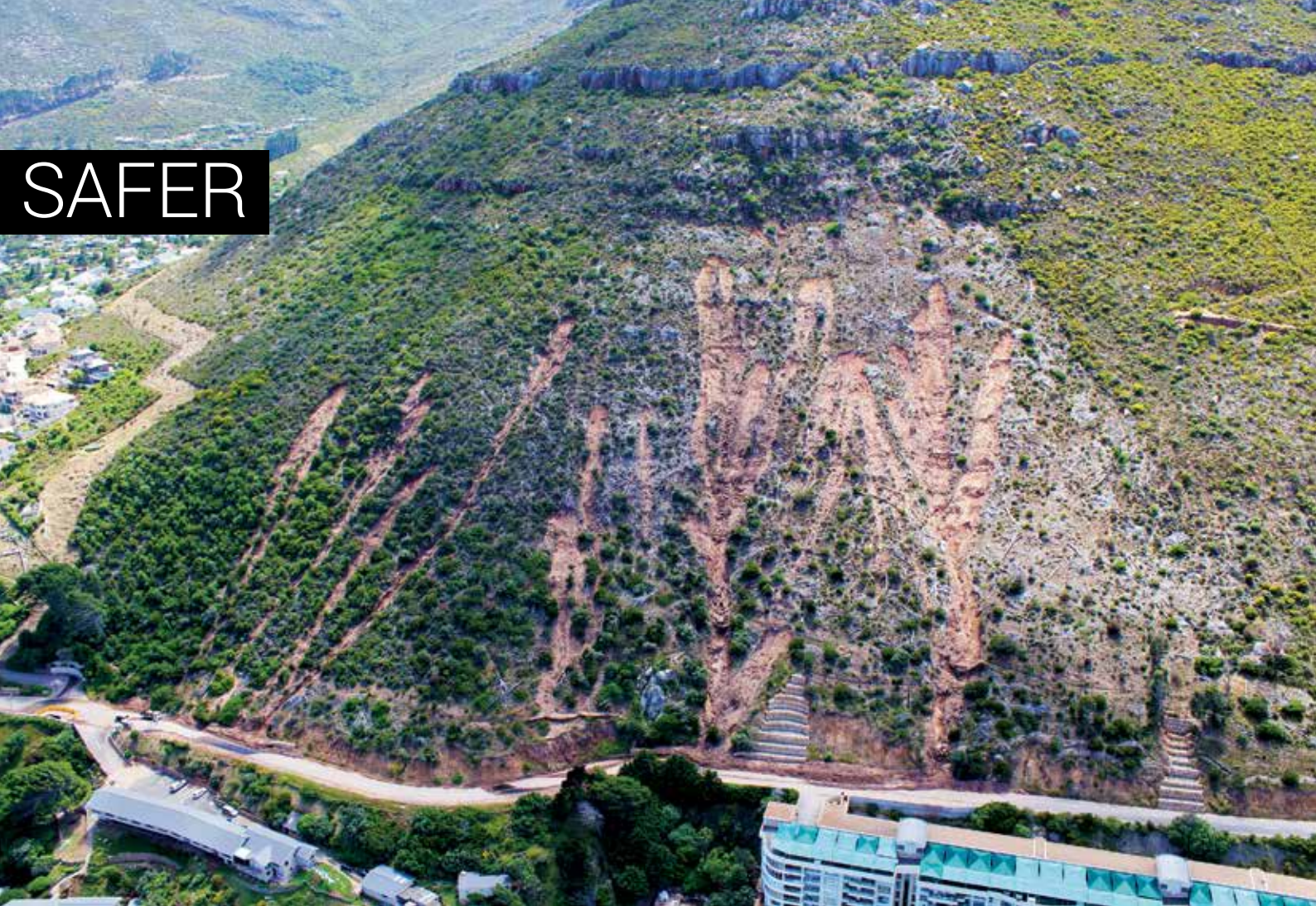
- Five UX 160[®] debris flow fences were installed, three in the southern gully and two in the northern gully.
- The debris flow fence absorbs high dynamic and static loads, allowing the net to be overtopped when filled with debris.
- The debris flow fences comprised Rocco Ring[®] nets reinforced by a series of 22 mm Geobinex support ropes running laterally across the fence and gully.

Construction innovation

Penny Farthing Engineering SA, began operations in 1994 as an engineering management company and now covers a wide range of road maintenance and civil construction projects with an annual turnover exceeding R500-million. The civil engineering department also specialises in slope stabilisation, consisting of rock bolting, catch fences, shotcrete, gabion walls and concrete stabilisation. →



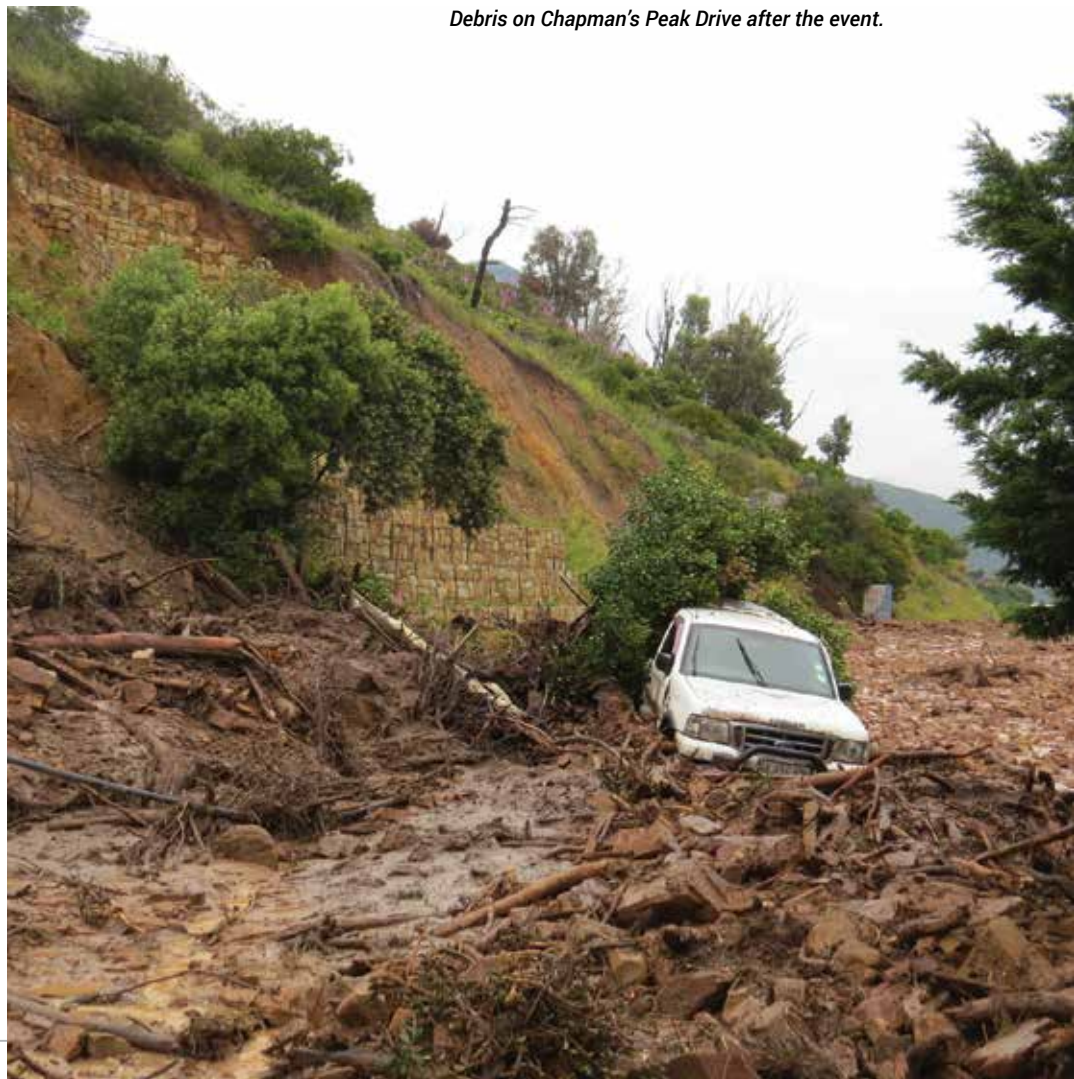
SAFER



ABOVE: Aerial view of slip areas after the event.

Debris on Chapman's Peak Drive after the event.

BELOW: Landslide fence.



→ Although Penny Farthing had completed specialised anchor drilling at height on several past projects, at the Chapmans Peak site, with drilling on slopes up to 45 degrees, at heights of up to 120 m above the road, in variable collapsible talus and colluvium materials while keeping to the precise location and drilling angles, a new and uncharted challenge was set for the team.

This drove the need for innovation and developments in the drilling setup not just to meet the programme and specification, but importantly, also to work within the environmental constraints required.

Penny Farthing used their custom designed lightweight hydraulically operated drilling rigs, with up to five teams working at any one time. The specifically designed hydraulic control tables allowed the teams to drill the 89 mm anchor holes, some up to 14 m deep, through the collapsible talus and colluvium upper strata and into rock with the compressors and hydraulic packs being located on the road below.

A grouting base station was set up on the southern boundary of the site on the SANParks road, with the grout being pumped to all anchor holes, some of which were up to 300 m away at the northern boundary of the site.

Each debris flow fence required in the order of 40 wire rope anchors to be drilled, each with an exact level and allowable orientation into the slope to match the design requirements of the fence support ropes and structures. Where there were two or three support ropes on a fence, each anchor head needed to be separated by only 150 mm.

Due to the limited allowance for road closures and also the risk in terms of weather delays, cranes and helicopters could not be used. Therefore, all fence components, some weighing in excess of 250 kg, were manually carried up the slopes. Although this assisted in Penny Farthing exceeding the target community participation goals on the project and therefore providing additional socio economic benefit to the local community of Imzamo Yethu, it generated several additional logistics and planning constraints on the project.

Health and safety was a critical item on the slopes. Overall the high risk factors associated with projects like this include drilling, working at height, slips and trips, manual handling and public safety. These and other risks in terms of health and safety were mitigated by structured planning of works, innovative construction techniques and effective communication. Through the use of



Head stabilisation.

separate work teams, with daily team talks, regular feedback sessions, and a 'team work' approach environment with the mindset of 'safety first', Penny Farthing managed to obtain high scores from each monthly audit/inspection from the external H&S consultant, Safe Working Practise and also complete the project without any serious injuries.

Over the period of eight months, the nine landslide and debris flow fences were ordered, manufactured in Switzerland, with some parts being shipped to Japan to complete the Geobruigg high specification 'ultracoating' galvanizing, before being shipped to South Africa and finally installed on the slopes at Chapman's Peak by Penny Farthing.

One of the most influential factors in the delivery of the first landslide and debris flow fences in South Africa, to the required design specification and programme, was the partnering and teamwork approach adopted by the project team of Penny Farthing, Melis & Du Plessis and Geobruigg.

Community investment

Over the project Penny Farthing employed a total of 64 local labourers and provided rope access training to 45 local workers. Seven local suppliers and sub-contractors were employed covering project works such as gabions construction, traffic accommodation and environmental services.

Environmental impact

The Chapman's Peak slopes are unique in terms of the biodiversity. A Critically Endangered vegetation type, Peninsula Granite Fynbos, occurs throughout the whole site and corresponds to the granite geological formations. It is endemic to the

City of Cape Town, occurring nowhere else.

The majority of the site is under the management of the SANParks. A project environmental team included the Penny Farthing Environmental Officer, an external environmental consultant (MALA) and the resident engineer.

As a team they undertook permitting requirements, routine inspections and were in regular contact with SANParks with regard the two major items of obtaining permission for site access and the collection of plant material for propagation and rehabilitation.

The environmental considerations on the project can be divided into two components, firstly settling up and implementing an approved working procedure on the slopes during the works, namely protection of key flora (Proteas, Milkwoods etc) and minimising and cleaning up any spills and secondly the post-works rehabilitation and planting.

Alien vegetation is an ongoing problem over the entire Cape Peninsula and the extensive fires in March 2015 stimulated the soil-stored seed bank and exacerbated considerable alien species recruitment on site. From the start of the works through till the end of the project maintenance period, the landscape contractor has been undertaking routine clearing exercises.

The post-works landscaping and planting has been a major operation and started early in the project with seed collection and the sourcing of cuttings.

Once the works were completed, approximately 5 000 plants and over 15 kg seed, were reintroduced to the slopes at key locations around the work sites. All rooted cuttings and seeds were locally sourced to ensure the genetic integrity of the rehabilitation. ●



Debris in flow fence in northern gully.



Difficult drilling in the northern gully for debris flow fence.



Aerial view of the completed fences.

Project details

- Project start date: February 2014
- Project end date: April 2016
- Client: Department of Transport and Public Works: Roads Infrastructure
- Main contractor: Penny Farthing (SA)
- Consulting engineer: Melis & Du Plessis Consulting Engineers
- Project team: Penny Farthing, Geobruug and Melis & Du Plessis



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NEW ROAD UNLOCKS Hemel and Aarde Valley

NMC Civils completed the long awaited new R240 Hemel and Aarde Road which now offers local commuters a quicker alternative between Hermanus and Caledon and brings relief to the heavy congested R43 to Hermanus and surrounding areas.

► The Hemel and Aarde road, located in one of the country's most scenic valleys and nestled between fruit farms and the breathtaking Hemel and Aarde mountains, has been upgraded from a Class 4 gravel to a Class 3 road. The opening up of Shaw Pass and construction of a 16,1 km new road not only allows for a shorter route, but also safer road conditions for all users.

The ceremonial ribbon-cutting ceremony of the R240-million Hemel and Aarde Road was officiated by Minister of Transport and Public Works, Donald Grant, and executive mayor of the Cape Overstrand Municipality, Rudolph Smith on 10 November 2016.

For the local community the expectations of a new road opening was dampened by unforeseen circumstances culminating in project's delayed completion

– construction in the end took 55 months. On termination of the initial contractor's contract in 2013, the project was put to out to tender with only 4,3 km of the 16,1 km surfaced and a large portion of ancillary works left incomplete. In December 2013 NMC Civils, a division of the NMC Construction Group, was awarded the tender for the remaining R120-million portion of the project. The project delay was further extended by severe flood damage caused by the heavy rains over the 2013/2014 Builders' Holiday. The valley's high rainfall impacted severely on the project programme with a total of 118 days normal rain delays recorded.

The scope of works for the 16,1 km road with an 8,8 mm cape seal comprised of earthworks, installation of bulk services

and the construction of layerworks – this includes the construction of a 3 km gravel wearing course road, premix works and stabilising of fills by means of core fill construction. Construction of additional undercuts and pioneer layers were necessitated by unsuitable materials and very wet conditions. Drainage support includes the construction of 16 km of concrete lined drains.

Given the high rainfall in the area, the team's main focus was to get out of the ground with the layerworks and get the site to be free draining, as the water table is very shallow, with ponding and fountains spontaneously occurring almost everywhere.

The local community showed a heightened interest in the project given the ecological sensitivity of the valley with its numerous wetlands and unique, but endangered fynbos species. At the outset of the project an environmental offset was agreed to with the Department of Environmental Affairs prior to the approval of the Environmental Impact Assessment

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Aerial view of the new Hemel and Aarde Road meandering through the scenic Hemel and Aarde Valley.



Minister Grant, mayor Christelle Vosloo (Theewaterskloof Municipality), mayor Andries Franklin (Overberg District Municipality), mayor Rudolph Smith (Overstrand Municipality), and officials at the ribbon cutting ceremony.

(EIA). This was done to mitigate the effect on the highly endangered species through Shaw's Mountain Pass. A 30 hectare reserve on the slopes of Shaw's Mountain was declared and funding provided for the future maintenance of this area.

Construction of the road has unlocked economic potential for local farmers,

Current NMC projects include:

- R127-million Levendal Access Road – Western Cape
- R124-million Bishop Lavis Road Rehabilitation – Western Cape
- R127-million Tarkastad – Cradock R61 Section 3 Special Road Maintenance – Eastern Cape
- R204-million SKA Design & Build of SKA Access Road – Northern Cape
- R18-million Kolomela Min tip area project – Northern Cape
- R130-million Senekal Bucket Eradication Programme – Northern Cape
- R128-million Ficksburg Bucket Eradication Programme – Northern Cape

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New Kasane International terminal building operational

The new terminal building at Kasane International Airport in Botswana went operational by the end of 2016. This is the final stage of an extensive overall upgrade project that will be completed by mid-2017.

AECOM was appointed by the Civil Aviation Authority of Botswana (CAAB) to provide consulting and supervision services for the Kasane International Airport Improvement project. It caters for the future growth of the airport, and boosts its capacity for more frequent international flights.

Construction works for the airside facilities included upgrading the existing 2 120 m x 30 m runway to a 3 000 m x 45 m wide surfaced runway, plus a new apron to accommodate three large aircraft

and several smaller non-scheduled aircraft. The airside construction works were completed in April 2013.

However, passenger flow increased beyond the capacity of the existing 1 300 m² terminal building, which needed to be upgraded urgently. The AECOM design team was appointed for the entire scope of the project, including architecture, project management, structural engineering, mechanical engineering, electrical engineering, fire services and piping.

The approved concept called for a 10 000 m² expandable, smart, aesthetically-pleasing, climate-controlled, functional building, Jaco Theron, resident project manager, project and construction services, Africa for AECOM, explains.

Buildability was an obstacle for the design team due to the remote location within Botswana.

The structure had to be designed in such a way so as to accommodate material availability.

Sourcing aggregates posed a particular challenge for the contractor, with some aggregates imported from neighbouring Namibia, and some trucked in from Francistown, about 500 km away.

In addition, the existing terminal building had to remain functional throughout construction, and also be encompassed into the new building, without demolishing any of the existing structure.

Kasane International Airport is located in north-eastern Botswana in proximity to the confluence of Namibia, Zambia and Zimbabwe, making it a perfect tourism hub, as it borders the Chobe Game Reserve. ●



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TEAMWORK KEY to Kyalami racetrack upgrade

The newly upgraded Kyalami Grand Prix circuit is the first motor racing facility in Africa to be certified by the Federation International de l'Automobile (FIA) as a Grade 2 track, which allows for any racing, except Formula One.

► The Kyalami racetrack has undergone a R100-million overhaul in a bid to attract top international motor racing back to South Africa. The new owner bought the 55 year old racetrack in July 2015.

Refurbishment of the existing 4,522 km Grand Prix circuit included extending the main straight, realignment of three corners and the addition of run-off zones for improved track safety and to comply with international standards. Access to the venue and facilities for spectators have also been upgraded.

WSP Parsons Brinckerhoff was appointed as the consultant for the project, with Lonerock as main contractor and Hammon Road Surfacing as the paving contractor. Much Asphalt supplied the asphalt from its Pomona plant in Kempton Park for both the Grand Prix circuit and general areas such as parking and access roads.

Resurfacing of racetrack

To accommodate the circuit layout modifications, it was decided to strip the surface back to the old asphalt base layer

to create a new uniform surface. The base layer was retained while old asphalt layers were milled to create recycled asphalt that was used in the asphalt mix for surfacing of the service perimeter roads.

The retained base layer was cleaned and an emulsion was added to improve longevity and create a solid foundation for the new asphalt layers.

New extensions to the existing track were built using G1 crushed stone, treated with a bitumen emulsion to increase elasticity to the base.

This treatment process aimed to increase the density with compaction of the treated base to ensure asphalt longevity and help reduce any future maintenance.

Asphalt design

A new base layer was constructed using a grader equipped with a Trimble levelling system which uses satellite GPS to ensure accuracy of predetermined design levels.

The new asphalt design required a 5% polymer modified binder to provide the required strength to cope with the unusual stresses that will be placed on the circuit,

particularly braking areas and corners.

Much Asphalt supplied a Colto Medium design mix with 4,7% highly modified styrene butadiene – styrene (SBS) binder. The purpose was to increase stiffness at high temperatures and to produce more elastic hot mix asphalt that will resist fatigue cracking at intermediate temperatures.

It was important to have a mix that was impermeable with very little deformation. It had to resist creep in the corners resulting from severe forces on the surface.

The modified binder supplied by Bituguard is produced using a high shear type mixer that crushes and dissolves SBS until the morphology required is attained at temperatures of about 190°

“At optimum binder, we managed to achieve Dynamic Creep Modulus of 48 MPa,” says Alex Weideman, Much Asphalt regional technical manager. “This, together with the already low permeability, gave us peace of mind that the mix would conform to all requirements.”

The specialised testing of this mix was done by Specialised Road Technologies (SRT) in Durban.

Challenges

Using SBS-modified asphalt not complying with normal storage stability comes with several challenges:

- Material segregation can occur in the

The joint heater manufactured in Germany for Hammon for this project.

Aerial view of the Kyalami Grand Prix circuit.

Surfacing of the main track showing the joint heater and shuttle buggy.





Surfacing of parking areas.

storage tank of an asphalt plant, which can obstruct binder supply to the measuring tank.

- Asphalt mixtures may vary in performance.
- Hauling the blended product almost 400 km from Bituguard to Much Asphalt's plant was a logistical challenge.

All of these potential issues were

successfully overcome and Bituguard's good track record on storage stable product and was proven again during this project.

SBS modified bitumen

SBS is a co-polymer of styrene and butadiene. "When added to asphalt, SBS polymers significantly enhance the performance and longevity of the asphalt,"

says explains Bituguard Southern Africa plant manager Caroline Marais.

"The strong, three-dimensional network of polymers is impervious to natural extremes of heat and cold. SBS also has excellent aging characteristics. It is not brittle in cold weather and maintains its integrity in hot weather."

The race circuit was completed without any failures and Weideman believes the consistency in all raw materials made it possible to produce an asphalt mix that conformed to all international standards.

Hercu du Preez, pavement engineer at WSP Parsons Brinckerhoff, adds that a shuttle buggy was used for all asphalt when paving the track to maintain the integrity of the asphalt mix and achieve the highest possible level of riding quality.

A longitudinal indirect joint heater was also used to improve the longitudinal joints.

The mix for all non-raceway areas was produced using a 50/70 binder in a Colto Medium design using the specified percentage RA from the milled asphalt on site with great success. Sapref was the bitumen supplier. ●

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Investing in SA's future

Stampede Compaction Equipment, South Africa's only designer and manufacturer of light to medium compaction equipment in its class of walk-behind and ride-on rollers, has recently been acquired by a consortium of investors, including its management, to expand manufacturing and distribution in Southern Africa.

The manufacture of a world-class range of compaction equipment machines, made in Isando – South Africa, has received an injection of fresh capital into the business, in accordance with its strategy for aggressive expansion both locally and into sub-Saharan Africa.

In November 2016 Stampede entered into a landmark distribution agreement with Dezzo Equipment and its consortium of dealerships throughout South Africa to sell and maintain Stampede equipment. The Dezzo Consortium is well-known Level 1 BBBEE distributor of amongst others, Manitou products and have a long standing reputation in the mining, power generation, construction and agricultural industries of high service standards and professionalism. "The Dezzo distributor agreement provides Stampede with a strong national footprint of sales outlets and highly qualified after-market workshops to service

our customers' machines throughout the country," says Marco Capazario, Stampede's sales director.

"It also ties in with our strategy of focusing on developing and manufacturing world-class products, maintaining a high level of customer-centricity while aggressively growing our share of the market in the areas we operate."

Stampede has been building its popular range of walk-behind and ride-on rollers since the early 1990s. The recent capital injection into the production plant and processes has transformed the quality of Stampede machines to match those built elsewhere in the world.

"Our full product range of rollers are designed to ensure simplified operation, yet with robust and quality performance to suit Africa's harsh operating conditions," says Capazario.

Stampede manufactures a wide range of



double-drum roller compactors, from the 39 cm trench compactor, to the 62 cm, 75 cm and 90 cm walk-behind rollers. Stampede's recent addition is the popular 2,7 ton ride-on roller.

Over the past year, Stampede machines have undergone improvements to the hydraulics componentry and assembly processes, along with a new increased vibratory mechanisms for improved compaction performance. ●



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Increasing its WHEEL LOADER MARKET SHARE

With the addition of Doosan's DLA wheel loader series to the range nearly three years ago, Doosan has significantly increased its position in the South African wheel loader market.

“Doosan, which has been manufacturing heavy earthmoving equipment for over 40 years, has an ongoing development programme to manufacture robust machines with advanced design features and high performance materials, for optimum productivity, reduced running costs and low emissions,” says Chris Whitehead, managing director, DISA Equipment, trading as Doosan, part of Invicta Holdings Limited. “The company's investment in the latest technology gives users the guarantee that Doosan machines offer efficient output power, low fuel consumption, minimal maintenance requirements and extended service life. Operator safety, precise control and comfort are key to product advancement.

“Doosan earthmoving equipment – which encompasses track, wheel and mini excavators, articulated dump trucks (ADT's), as well as wheel loaders and various attachments – has been designed to cope efficiently and safely in Africa's harsh operating conditions.”

The DLA series, which encompasses five wheel loaders – DL200A, DL250A, DL300A, DL420A and DL 550A – have bucket capacities between 2 m³ and 4,5 m³, with optimised breakout force and machine balance. The operating weight of these wheel loaders has been increased, with greater tipping load capacities.

Environmentally engines

These environmentally friendly machines are driven by Doosan Tier 2 engines, which are less sensitive to fuel quality than Tier 3 engines, yet still offer reduced fuel consumption and low exhaust emissions. The Doosan air to air intercooler engines offer high torque and low rpm for improved response. High power and torque characteristics, coupled with efficient synchronisation of the drive train with the hydraulic system, ensure optimum productivity, even in tough operating conditions.

These machines have a smooth 4-gear transmission and clutch cut off via a brake pedal. The transmission has three modes of operation – manual, automatic (automatic shift for all gears) and semi automatic (automatic with a 'kick down' for first gear). A large capacity transmission oil cooler ensures durable and stable operation of the transmission.

Local conditions

The DL300A and DL420A units, which are widely used in local conditions, have the flexibility to handle diverse materials, including the loading and transporting of granular materials, as well as bulk loads. The DL300A wheel loader, with an 8 litre Doosan DE08TIS engine (156 kW at 2100 rpm) engine and the DL420A wheel loader, with an 11 litre Doosan DE12TIS engine (210 kW at 2100 rpm), have been designed for advanced digging power and high traction for the penetration and handling of even the hardest materials.

The high strength drawbar pull at the wheels is reinforced by limited slip ZF differentials as standard equipment. This



Doosan's DLA series, which encompasses four wheel loaders – DL200A, DL250A, DL300A and DL420A – have bucket capacities between 2 m³ and 4,5 m³, with optimised breakout force and machine balance. The operating weight of these wheel loaders has been increased, with greater tipping load capacities.

automatically ensures maximum tractive effort and easy driving over soft, muddy ground. This feature also reduces the risk of skidding and prevents excessive tyre wear.

Metal reinforced brake discs are integrated into the planetary reduction gears in the hubs where the rotation speed is lower. As a result, discs are exposed to lower rpm and heat generation is reduced. This ensures improved machine stability, extended hours of operation and reduced maintenance requirements. For user convenience, brake disc wear can be measured without disassembling the hub.

The cooling compartment is separated from the engine compartment to allow better control of air intake and prevents warm and dusty air from entering. A 3-stage air filter is fitted with a turbo 3 cyclone dust separator. A hydraulically driven fan for improved productivity and reduced noise levels, is standard.

These machines have higher static tipping loads at maximum reach with a straight frame DL300A (17 910 kg) and DL420A (22 600 kg). Other quality improvements of the DLA series include a new hose, which is installed in the air breather of ZF axles to prevent breather congestion problems. In other wheel loaders, dust and sand cause clogging of the air breather, resulting in elevated oil temperatures and damage to the seals on the axles.

Buckets have been reinforced for additional strength. Aluminium radiators are installed on rubber mounts to dampen vibration and the radiator grille is made of reinforced steel for increased shock resistance. A cover has been fitted to the propeller shaft to protect the oil seal from dust and foreign objects. This reduces wear and extends service life. The high lift arm ensures an improved dump reach and height at bucket pivot point. The Load Isolation Systems (LIS), which is standard, suspends the bucket using a closed accumulator to reduce material loss.

The design of the DLA series has also been improved for enhanced operator comfort. There is more space in the cab, improved visibility, push button controlled air conditioning and heating, a comfortable air suspension seat and convenient storage space. Features for operators also include precise control levers, a high visibility central indicator panel, sun visor and room mirror, an adjustable steering column and arm rests for added comfort.

These machines have been designed for easy maintenance and thus more uptime and greater productivity. A liquid crystal display conveys information about the ZF transmission and reports the nature of any problem. A laptop computer can be connected at any time for a complete transmission diagnosis.

Features for easy maintenance procedures include the radiator fan which swings out for effortless cleaning and remote drain valves are easily accessible for convenient draining of fluids. The air conditioner condenser is accessed directly by tilting the grille. ●

TOP OPERATORS

meet for 2016 final

The finest construction machinery operators from across Europe, Middle East and Africa gathered at the CASE Customer Centre Paris in October, to compete in the final of the 2016 CASE Rodeo operator challenge.

The CASE Rodeo operator challenge brought together the best machine drivers from across Europe, Middle East and Africa, in a challenge of skill and technical ability that is second to none. Held at the CASE Customer Centre Paris in Monthyon, France, in October, operators from 15 countries grabbed their Stetsons and neckerchiefs, before taking to the controls of a range of CASE machinery.

With an opportunity for the drivers to hone their skills on the Friday, in an atmosphere of friendly yet serious competition, there was a tangible rise in tension as Saturday arrived, beneath a clear blue sky and bright sunshine, as the competitors were put through their paces in front of a cheering crowd to complete four complex challenges.

Wild Wheels called for the operators to take the controls of a CASE compact wheel loader equipped with pallet forks. The pallet had to be transported through two laps of the course and returned to its original position without dropping the cardboard box that was sitting on top of the pallet. Marks were lost for knocking over the cones that marked the course and the pallet had to be positioned precisely within a marked area.

The **Lawless Loader** test involved a compact track loader with an attachment to carry a ball mounted on a cone. After following a set path through the test area, the operators had to throw the ball to knock over a set of nine skittles, before returning to the starting point. Working against the clock, points were lost for dropping the ball, for skittles left standing and for knocking over the cones.

For **Cherokee Crawler**, the operators moved up in size, to a CASE crawler excavator with a hook hanging from a chain at the end of the dipper arm. The contestants had to hook wooden cubes one at a time and position them within a marked area, in the right sequence. With a maximum time allowance of just four minutes the operators were really up against the clock, particularly as time was added for dropped cubes and delivering the cubes to the wrong marked area.

The final competition called on perhaps the most famous CASE machine of all, the backhoe loader. Using the backhoe bucket, the driver had to take five balls from individual bases and place them into a basketball hoop.

After an exhausting but thoroughly enjoyable day, with all of the marks collated, the competition was finally won by Ludovic Fronteau from France.

The country team award went to Denmark for an impressive overall performance. As well as lifting the Rodeo trophy to a round of cheers from supporters and competitors, Fronteau won a Mediterranean cruise for two and a visit to the CASE plant in Lecce, Italy.

A special team award was given to an International group, with operators from Mozambique, Israel and Romania. This additional award was given to recognise their team spirit and enjoyment of the event.



Wild Wheels.



Lawless Loader.



The international team: Mozambique, Israel and Romania.

This was the first time that operators from both Israel and Mozambique have taken part in the Rodeo and they enjoyed it. "Once again the CASE Rodeo operator competition has proven one of the most popular events in the calendar for CASE dealers and customers across our region," said Giampiero Biglia, marketing director CNH Industrial Construction Equipment for Europe, Africa and the Middle East. ●

Equipped for EVERY AREA OF APPLICATION

With three new models, Wacker Neuson is expanding its wheel loader product range for Bauma. All machines are particularly characterised by off-road capability, durability and simple operation.

Whether contractors, in gardening and landscaping, in rental parks or when working in the municipal sector. Wheel loaders are used where a versatile and reliable machine is needed. For many years now, Wacker Neuson has been a reliable partner in this field for its customers. The extensive product range of articulated wheel loaders is tailored to the needs of customers and can be further customised through various options. Any wheel loader can be used in a versatile manner through numerous attachments, such as sweepers, earth buckets, concrete mixing buckets or snow blowers. Using a hydraulic quick-change device, these can be easily replaced from the operator's seat. At Bauma 2016, Wacker Neuson showcased three new models: the WL28 and both allrounders WL44 and WL54.

The WL28, a compact wheel loader specifically designed for application in the

construction industry, scores particularly well due to its very good view of the working area. The height of the front carriage was kept very low for this purpose. Due to the short wheel base, the machine has a high level of stability. With a tipping load of 1,8 tons, the wheel loader can therefore easily transport a pallet of sett paving (paving stones). The optimised parallel guidance and two large sized lift cylinders provide for a powerful load arm. With an overhead loading height of 2,27 metres, even construction site trucks can be loaded. The WL28 is particularly versatile due to the wide range of attachments.

The WL44 and WL54 with bucket capacities of 0,8 and 1 cubic metres are the new powerful allrounders among the Wacker Neuson wheel loaders.

Due to their particularly sturdy design and the

self-explanatory operation, they are aimed at customers who require cost-efficient technology for traditional loading work with frequently changing operators. The WL44 has an operating weight of 4 600 kg and a standard engine output of 35,7 kW (optional 44,7 and 55,4 kW) while the WL54 weighs 5 800 kg and has an engine output of 55,4 kW. With their overhead loading heights of 3 and 3,33 m, both wheel loaders are predestined for material transport and the ongoing truck loading on the construction site. With different operator's canopies and cabin designs, the machines can be outfitted in a very tailored-to-suit manner in terms of function and comfort and allow for applications within buildings, despite their size.

In addition, special attachments, such as snow blowers and asphalt milling machines, can be easily operated with the Highflow option. The articulated pendulum joint allows the operator to drive in a versatile, safe and comfortable fashion, even in uneven terrain conditions. Different tires also provide for optional traction on any surface.

The three new models now expand the Wacker Neuson wheel loader segment to a total of 12 machines, which are available with a bucket capacity of 0,2 to 1,05 m³ and therefore constitute a very diverse offer for customers with different applications. ●



New and UPGRADED COMMUNITY projects in Malawi

Products supplied by a.b.e. Construction Chemicals were extensively used for the repair and provision of three important community structures in Malawi.

Trevor Enerson, a.b.e. Construction Chemicals Development Manager, Exports, says a.b.e. products were used for the upgrading and rehabilitation of Blantyre Water Board's three potable water reservoirs; and for the rehabilitation of grain silos of the National Food Reserve Agency's Kanengo Silo Project in Lilongwe. Products supplied by a.b.e., as well as its holding company, Chryso SA, were used for the Lilongwe Water Board's new Water Treatment Plant.

For the repair of the Lilongwe Water Treatment Plant, carried out by leading Malawi building and civil engineering contractors, the SAWA Group, a.b.e. supplied duraflex flexible cementitious waterproofing slurry for the internal application to the Plant's silt tanks and

One of the three Blantyre Water Board's water reservoirs for which a.b.e. Construction Chemicals supplied several concrete protective products.



water clarifiers. a.b.e.'s durasil SH silane siloxane water repellent treatment was used as external coating of the water reservoir to reduce the ingress of chloride ions and carbonation attack.

Other a.b.e. products used for the 18-month long Lilongwe Water Treatment Plant project included durajoint PVC Waterstop for the joints; durarep QS fast-setting concrete repair and anchoring material; as well as a.b.e.'s precision non-shrink cementitious grouting, duragrout, to provide full bearing support for the plant and machinery installations.

ChrysoCure acrylic emulsion was used to aid curing and reduce the incidence of shrinkage cracks while promoting full strength development. Furthermore, ChrysoPlast Omega 122 water reducing super-plasticiser was used by the contractors to obtain high performance concrete with a low water-cement ratio.

For the construction and isolation joints that formed part of the upgrading of the Blantyre Water Board's three new reservoirs, a.b.e. supplied durajoint PVC Waterstop, and durakol G HM with epidermix 326 epoxy primer as joint sealants. For the reservoirs' internal walls and floors, a.b.e.'s duraflex was used as waterproofing slurry. The external walls and roofs were treated with a.b.e.'s durarep FC, duracote WB primer

Two a.b.e. products were used for the rehabilitation of grain silos of the Kanengo Project at Lilongwe, Malawi.



and duracote WB aliphatic acrylic coating to provide an attractive durable and UV-stable protective coating to the off-shutter concrete surfaces. Finally, a.b.e.'s epidermix 344 wet-to-dry epoxy compound was used in conjunction with a.b.e. duragrout for the grouting and sealing of tie bar holes in the walls.

Offshore Construction India and Fargo of Malawi were the two main contractors on the Blantyre Water Board project.

The third completed Malawian construction project for which a.b.e. supplied products was for the rehabilitation of the grain silos of the National Food Reserve Agency's Kanengo Project in Lilongwe. The repair and upgrade was carried out by the country's respected civil engineering contractors, Plem Construction who used a.b.e. silocoat - an elastomeric cementitious waterproofing coating that cures to form an impermeable membrane - and also a.b.e.'s duraflex waterproofing slurry for this project.

Enerson says the successful completion of the three large-scaled construction projects outside South Africa's borders testify to a.b.e. and Chryso SA's growing influence and operations in sub-Saharan Africa. "These are all projects that provide essential community benefits and the successful application of the Chryso Southern Africa Group's products, plus the assistance and advice we could provide to the Malawian contractors and professional teams, augur well for the future of the Chryso Group's export operations into Africa," he adds. ●

Preventing corrosion and condensation

The extensive range of Fibertex geotextiles, which is designed for use in the construction sector, encompasses Absorex – a non woven material, that enhances the value of a building and protects its contents by preventing condensation and limiting corrosion.

“Absorex is designed to control condensation and corrosion problems on metal and steel roofs in all climate conditions, including installations in harsh coastal environments,” says Lance Woolley, business development manager, Fibertex South Africa.

“This durable material prevents water from dripping into buildings causing damage to furniture, equipment and stored goods. Absorex also protects against mould growth and reduces reflective noise from rain. In addition to protecting the roof against corrosion and keeping the building’s contents dry, the polyester layer improves aesthetics of the ceiling.”

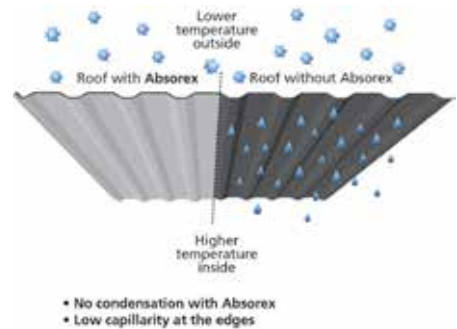
When temperature and humidity of the roof structure reach dew point, Absorex applied on the roof panels absorbs moisture and contains it until conditions are back

above dew point. The moisture is then released back into the air as vapour.

Absorex is designed for easy application directly on the roll forming line of the steel metal at the roof manufacturer, where it is cut into sheets. This material, which is resistant to tearing and cutting through, has a self adhesive coating and a siliconised foil protection layer which is removed before application.

There are three different materials in this range, with various qualities for water absorption – Absorex 416 09,5 CF 95 g/m³, Absorex 416 09, 11 CF 110 g/m³ and Absorex 416 09, 14 CF 140 g/m³.

This range is tested to stringent EN ISO 13501-1 specifications for fire retardancy, to meet new global standards for fire resistance, smoke development and burning



The Fibertex range of geotextiles includes Absorex, which is designed to control condensation and corrosion problems on metal and steel roofs in all climate conditions. This durable material also prevents mould

drops. All roof panels applied with Absorex can be classified B-s1, d0. Absorex is also fungus tested to EN 14199 method A2 as a guarantee against mould growth.

Absorex materials are currently produced at the Fibertex manufacturing facility in France, with localisation plans in place to manufacture this range at the Hammarsdale plant. Fibertex offers support to its extensive range of woven and non woven geotextiles with a technical advisory and back up service throughout Africa. ●

Cordless impact drill

Like all Makita’s 18V cordless range of tools, the DHP482ZJ Impact Driver Drill has been engineered using the latest technology.

This model has a protective seal inside the tool which provides improved water resistance and dust protection to the internal components – engineered to improve operation in harsh conditions (XPT). The twin LED lights on the front of the tool provide good illumination even in dark places, with a preglow and after-glow function.



This model includes the following: Variable speed, electric brake, reversing, mechanical 2-speed, keyless chuck, 21 torque settings and is supplied in a compact system case.

The DHP482ZJ is compatible with the Makita 5 Ah (45 minutes charge time), 3 Ah (22 minutes charge time) and 1,5 Ah (15 minutes charge time) batteries.

The batteries and the charger are sold separately. The

Capacity

Steel	13 mm	
Wood	38 mm	
Masonry	13 mm	
Impact per minutes	Hi: 0 – 28 500	Lo: 0 – 9 000
No load speed (r/min)	Hi: 0 – 1 900	Lo: 0 – 600
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THE POWER OF MICRO FIBRES

Fibres have been used as reinforcement since ancient times. In the early 1900s asbestos fibres were used in concrete, but as concerns over asbestos' health risk grew, it was replaced in the 1960s with steel, glass and synthetic fibres (such as polypropylene). The local construction industry is increasingly realising what benefits the use of fibres in concrete has.



LEFT: Concrete bleed and plastic shrinkage crack. RIGHT: CHRYSO® Macro Fibres (pictured) provide effective post crack control in concrete once it has hardened while CHRYSO® Micro Fibres provide effective crack control in concrete during the pre-hardening phase. BELOW: CHRYSO® Macro Fibres were used in all of the surface beds for the basement and parking areas of the new consulting rooms for the Zuid-Afrikaans Hospital in Pretoria.

In an effort to underpin CHRYSO Southern Africa's position on the African continent, the Adfil Construction Division of the UK based Low and Boar Group has announced it is partnering with CHRYSO to grow its fibre business into Africa.

This leads to CHRYSO Southern Africa distributing a growing range of polypropylene fibres to suit every concrete application. CHRYSO has a range of macro and micro polypropylene fibres that are suited to a large variety of concrete applications.

CHRYSO Southern Africa can tailor the right fibre-reinforced concrete mixes in its laboratories by selecting the most suitable fibre and optimising the fibre dosage to suit the particular application. CHRYSO will also be able to utilise a design service offered by Adfil for concrete slabs and precast concrete elements – with both professional indemnity and personal liability insurance.

"Adfil recognises the growth opportunities and chose CHRYSO as its preferred partner with the view to increase our fibre market share in Africa," says Mark Mitchell, technical sales manager for Advil Fibres. He recently flew to South Africa from the UK to train the CHRYSO Southern Africa sales personnel as well as a few customers.

Mitchell maintains that fibre reinforced concrete is increasingly specified by engineers. "There is an increased number of project references, case studies and test results that prove that the use of fibres in concrete can save costs, give good performance results, have safety benefits and leads to a reduced carbon footprint," Mitchell says.

Hannes Engelbrecht, CHRYSO Southern Africa's general manager, marketing and inland sales says that distributing Adfil fibres will bring benefits to CHRYSO's customers.

Initially the company will distribute Adfil's micro fibres and then roll out their macro fibres as well as a concrete slab design programme

The benefits of fibres

Plastic shrinkage and plastic settlement cracking can on occasion penetrate the full depth of the slab.

Fibre reinforcing of concrete addresses this problem. CHRYSO® Micro Fibres provide effective crack control in concrete during the pre-hardening phase while CHRYSO® Macro Fibres provide effective post crack control in concrete once it has hardened.

Compared to using reinforced steel, fibres have the benefit of lower cost, less labour, and less construction time. In addition there is a saving on storage and transport and a lower health risk as there is no handling, cutting and placing of mesh.

It also improves the durability of concrete. In order to resist corrosion, CHRYSO fibres make concrete less permeable, so that water and harmful chemicals do not permeate the concrete. It makes it more resistant to abrasion as the water/cement ratio is improved – fibres promote the efficient hydration of cement and improves bonding of the cement matrix.

Yet a further advantage is impact resistance: slabs become more resistant to freezing and thawing as the fibres prevent an influx of water. In terms of handling the wet concrete, the use of fibres make for a cohesive concrete mix as it mechanically binds the cementitious material together, reducing waste and avoiding balling and clogging in pumps.

Embracing the use of fibres

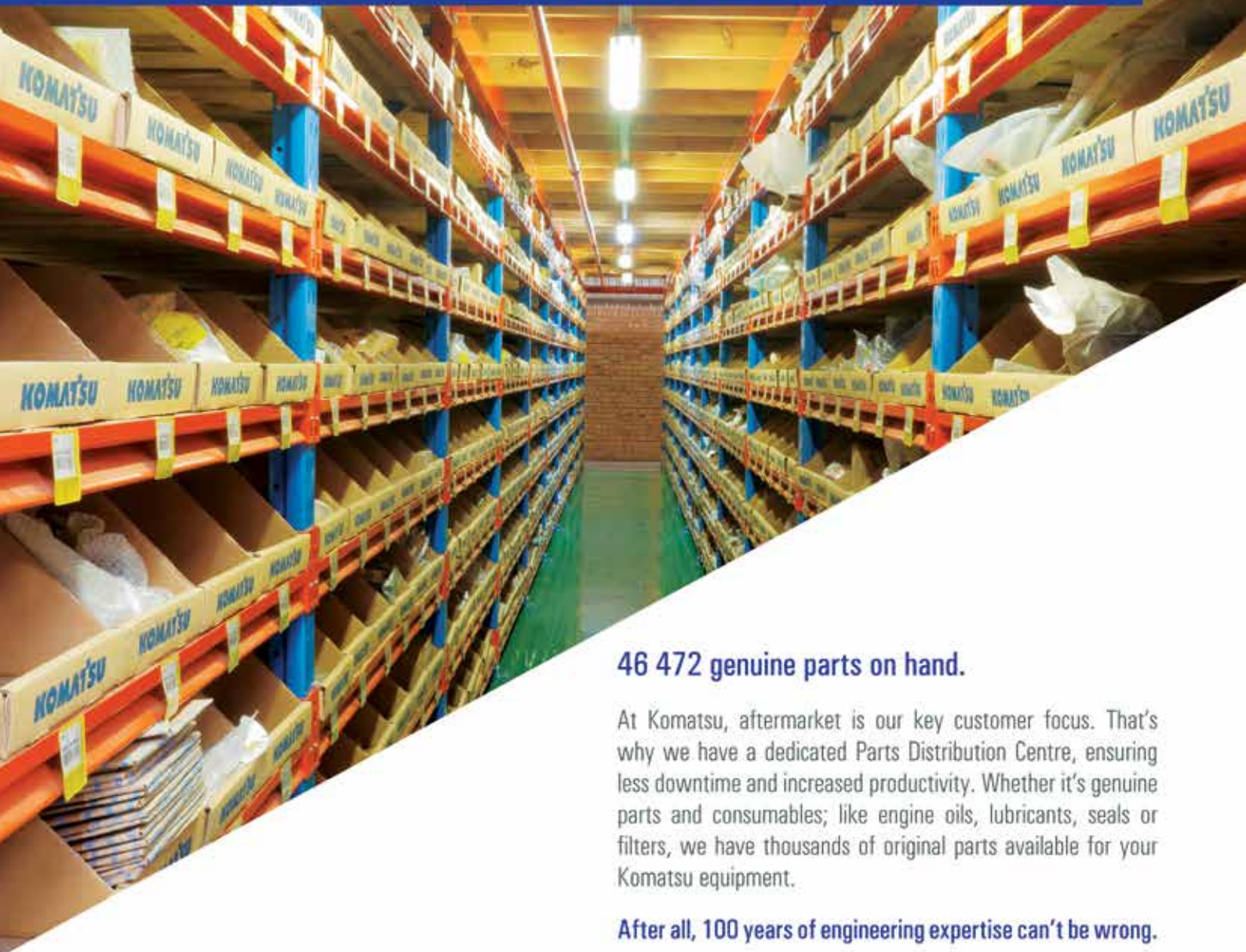
CHRYSO® Macro Fibres were used in all of the surface beds for the basement and



parking areas of the new consulting rooms for the Zuid-Afrikaans Hospital in Pretoria. This R94-million project is currently under construction. It comprises four levels with about 8 000 m² of slabs and 6 000 m² of surface beds. The project has a completion date of 27 February 2017.

"There is a cost benefit to using CHRYSO® Macro Fibres. It is about 50% cheaper than using mesh in concrete floors. Furthermore, CHRYSO® Macro Fibres are a lot more practical and easy to use because you are not working over steel when you are trying to place concrete with readymix trucks. There is also limited cracking and the bearing capacity is a little bit better than conventional mesh. Less human error is involved for the contractor as the concrete is batched at the batching plant," says Jayson Buyskes from Mike Buyskes Construction, the main contractor for the ZA Hospital's consulting Rooms. ●

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The **CHRYSO®Fibre** range offers the following benefits to concrete:

- Provides post-crack control strength similar to mesh reinforcement
- Reduces the occurrence of plastic shrinkage and plastic settlement cracking
- Enhances the long term durability of concrete

Through its technical partner, Adfil, **CHRYSO** will offer a design service that creates the most cost effective and optimum solution by looking at parameters specified by engineers and fibre dosages.

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