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EDITOR'S  
COMMENT

**Future growth in African construction will be in cities. By 2050 the world's urban population will have increased by two thirds, up from 3,9 billion to a projected 6,3 billion people. This is according to the United Nations' estimates. Nearly 90% of this growth will take place in Africa and Asia, resulting in over 20% of the world's urban population living in African cities.**

In sub-Saharan Africa the population will increase to 2,4 billion by 2050 (in 2013 it was 1,1 billion) – most of this growth will be in cities. Estimates indicate that the area will need some 40 million tonnes of new cement to meet the infrastructure needs of this escalating urbanisation.

### Getting it right

This is, however, dependent on whether local governments can focus on more effective infrastructure delivery procurement. So says professional services firm, Deloitte Africa. The company's Jeanne-Pierre Labuschagne – the infrastructure and capital projects lead, spoke at the recent African Construction Expo in Midrand. This expo has the specific aim of promoting public and private sector collaboration with the construction industry.

Urbanisation will create the biggest opportunities for infrastructure investment, construction and growth – this will influence the economies of countries directly. However, Labuschagne maintains that the connectivity of cities to smart corridors will determine future growth – and this connectivity can only be achieved with infrastructure: roads, airports, harbours, etc.

The reality is that infrastructure procurement is not well executed – government systems, especially in South Africa, are not well designed which leads to delays in the planning and approval of vital projects.

To solve this, tender specifications, procurement processes, the monitoring of these and the evaluations of existing governmental projects have to be improved.

There has been improvement. According to Deloitte's *Africa Construction Trend Report 2015* the number of infrastructure projects that qualify for inclusion in this report increased from 257 in 2014 to 301 (17% increase).

Southern Africa is significantly behind North Africa in terms of the number of new projects. Notwithstanding this, South Africa has spent R2,2-trillion on infrastructure between the 1998/1999 and 2014/15 financial years. The big spenders locally are PRASA, SANRAL, Eskom, Transnet – it is no surprise that they are state-owned enterprises.

Over the next three years the South African government has committed to spending some R800-billion on various infrastructure projects



**Africa is home to seven rapidly growing megacities: Cairo (Egypt), Accra (Ghana), Johannesburg-Pretoria (South Africa), Khartoum (Sudan), Kinshasa-Brazzaville (Democratic Republic of the Congo and Republic of the Congo), Lagos (Nigeria) and Nairobi (Kenya). PICTURED: the Johannesburg CBD.**

Sustainable Construction World, our second sustainable supplement, will be published in October. Although green building is still very much in its infancy in South Africa, it is becoming vital. Support this supplement with advertising or editorial.

– power stations, roads, dams, water supply pipelines, rail and port facilities, schools, hospitals etc.

### Making Africa less exposed

The adverse global economic environment has not helped the situation. It is, however, generally accepted that in such times, the need for broad-based economic infrastructure is not diminished. In fact, it increases. It is now that Africa can move forward to become competitive globally. This will only be achieved by reducing the cost of doing business in Africa, improving the quality of labour so that manufacturing and service industries can be improved. If these are achieved, it will make Africa less dependent on the highs and lows of the global economy as it will have its own diversified and resilient economies.

At the core of this is efficient infrastructure. Without it Africa will always be seen as the Dark Continent and it will always be maximally exposed to adverse global economy cycles.

Wilhelm du Plessis

Editor

#### 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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# Building **CONFIDENCE FALLS** again

The FNB/BER Building Confidence Index fell for the second consecutive quarter in 2Q2016, by 5 points to 34. The current level of the index indicates that more than 65 per cent of respondents are dissatisfied with prevailing business conditions. In addition, all of the six sub-sectors surveyed registered lower confidence.



The largest fall in confidence – for the second consecutive quarter – was registered by retail merchants a drop of 9 index points to 30. The fall in confidence was due to a sharp deterioration in sales and consequently, profitability. “The marked slowdown in hardware sales seems to point to the end of the DIY boom which has boosted the building (and retail) sector since the latter part of 2014”, said John Loos, property economist at FNB.

The index measuring the confidence of main contractors shed 5 points to register a level of 38 in 2Q2016. This is the lowest level of the index since the first quarter of 2013. However, building activity was marginally better compared to 1Q2016. Moreover, there was a distinct difference in the performance

**John Loos, Property Economist at FNB.**



of the residential and non-residential sectors. While the confidence of both residential and non-residential contractors edged lower in 2Q2016, residential building activity rebounded nicely. In contrast, the slowdown in non-residential activity reported in 1Q2016 intensified.

According to Loos, “The difference in performance of residential and non-residential building activity confirms our view that the non-residential market is under significant pressure while there is still some life in the residential market.”

Furthermore, there was a stark difference in the performance on a provincial basis. The Western Cape fared significantly better than the rest of the country both in terms of confidence and building activity during the quarter. “This is likely due to increasing inward migration to the Western Cape by residents from other provinces”, noted Loos.

Keener tendering competition along with a deterioration in overall profitability during the quarter likely explains the fall in confidence. Sentiment regarding building material manufacturer edged lower to 18 index points in 2Q2016. However, the underlying

data suggests a significant improvement in domestic sales and production in the quarter.

As a result of lower activity, the confidence of architects and quantity surveyors fell to 42 and 35 index points respectively in 2Q2016. For quantity surveyors, this marks the lowest confidence since the fourth quarter of 2012. “These figures suggest that the marginal improvement in building activity registered during the quarter may not be sustained over the short to medium term”, commented Loos.

Subcontractor confidence was also lower at 40 index points, from 43 in 1Q2016. However, the outlook is marred by a moderation in activity at the start of the building pipeline and persistently poor growth in non-residential building activity. In addition, the weak retail environment suggests that a key support to the sector in 2015 is no longer there.

As mentioned in previous statements, developments in the broader economy such as higher interest rates, rising household indebtedness and soft domestic demand will also weigh on the building sector”, added Loos. <

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## NEW LEADERSHIP APPOINTMENTS

The CEO of engineering and infrastructure advisory firm Aurecon, Giam Swiegers, announced a number of new leadership appointments as the global firm ramped up its investment in its advisory practice to support a growing demand for optimised infrastructure, digitisation and asset consulting services across the built environment, energy and resources and infrastructure sectors.



Two senior advisory leaders Brad McBean and Stuart Cassie have joined the firm; Brad McBean as Aurecon’s global advisory managing director and Stuart Cassie as its ANZ advisory market director. McBean joins Aurecon from his previous role as partner within the Strategy Practice at PwC Management Consulting and Cassie as PwC managing director capital projects.

Swiegers has also commissioned independent consultant Gerhard Vorster, most recently Deloitte’s chief strategy officer and previously Deloitte’s consulting leader in

Australia, South Africa, and South East Asia, to advise on the growth of Aurecon’s global Advisory business.

McBean, Cassie and Vorster will join Matt Coetzee (ANZ) and Dr Chris Von Holdt (South Africa) to form the leadership team of Aurecon’s Advisory Practice.

Giam Swiegers said, “As one of Australia’s biggest providers of infrastructure and engineering services, Aurecon is seeing an increasing demand for consulting advice around supply chain, asset optimisation, portfolio, programme and project optimisation and the digitisation of infrastructure across



# FROM GARDENER TO ASAQS PRESIDENT

## Dr Stephan Ramabodu has been elected as president of the Association of South African Quantity Surveyors (ASAQs).

➤ Dr Ramabodu's first practical experience of the QS profession was as QS student at B&L Bloemfontein while studying for a BSc Quantity Surveying degree at the University of the Free State (UFS).

After graduation, he became a junior lecturer at the university and did private work for contractors or QS firms to gain further experience. In 2006, he joined the construction consultancy, Davis Langdon, as a director and in 2008, left to start his own business, Ramabodu & Associates. He was also reappointed as lecturer at UFS where he completed a Master's degree in 2005.

Thereafter, he was promoted to Senior Lecturer at UFS, and also elected as senior vice-president of ASAQs, Fees Chairman of ASAQs, and Editorial Board Chairperson of Acta Structilia, a national journal for research articles in the physical and development sciences, published by the UFS Department of Quantity Surveying and Construction Management.

He is now senior lecturer at the Univer-

sity of Pretoria's Department of Construction Economics and has established a new personal company, QS-Online.

The new ASAQs president came from a particularly disadvantaged background and had to do gardening work to pay for his high school studies.

Spurred on by the promise of a bursary if he managed to matriculate, the young Stephan managed just that and enrolled at UFS for a generic BSc degree which he changed to BSc QS studies after an uncle who worked on a building site – and gave his young nephew money for transport and food – had introduced him to the quantity surveying profession.

Dr Ramabodu, who obtained a PhD at UFS in 2014, includes in his main aspirations as leader of ASAQs transformation, including gender equality; marketing the profession; research; and "providing the ultimate service to ASAQs members".

Bert van den Heever, immediate past president of ASAQs, comments: "Stephan is the first black South African quantity surveyor to be awarded a doctorate in his field. This is a tremendous achievement when you consider there are very few doctorates in the QS profession worldwide."

Lydia Carroll, director of the Irene-based company, Quantity Surveyors & Contracts

Consultants, has been elected as vice-president of ASAQs; and Yunus Bayat of Bayprop Projects in Pietermaritzburg, as deputy vice-president. ■

**Dr Stephan Ramabodu.**



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**Brad McBean as Aurecon's global advisory managing director.**



**Stuart Cassie, ANZ advisory market director.**

both our private and public sector clients."

"With a focus on the rapidly changing face of key areas of infrastructure such as Transport and Cities, these leaders will work closely with Aurecon's chief digital officer Dr Andrew Maher to develop Aurecon's solutions to support the digitisation of infrastructure."

"Aurecon is responding to the enormous demand around the world to improve connectivity of people and freight.

"This is driving a surge in infrastructure investment in places like Sydney and Melbourne, as well as focus by organisations to drive productivity improvements and work their existing assets harder. This is delivering growth in our AUD100-million core advisory business, underpinned by the demand for technical and engineering expertise, as infrastructure stakeholders navigate an increasingly digitised world.

"Responding to these market trends is already seeing Aurecon enter into strategic partnerships, rather than competing, with established advisory firms," he said.

"All three trained as engineers and have built and sustained world-class supply chain and procurement capabilities as well as advisory practices across a number of industry segments. I am delighted to welcome them to Aurecon."

"The engineering and infrastructure industry faces huge change and challenges over the next few years. In a commoditised market, subject to disruptive technology, we must respond to the constantly shifting business landscape. This means knowing our clients and their businesses better than our competitors and excelling in bringing innovation and expertise to the table to help solve their most difficult problems," Swiegers said. ◀

*"Aurecon is responding to the enormous demand around the world to improve connectivity of people and freight."*

# Partners to **CREATE ENTERPRISE** development opportunities

At a ceremony held at Phokeng, North West Province, AfriSam and New Business Consulting, a 100% Broad-Based Black Economic Empowerment (B-BBEE) Bafokeng-owned company, signed a Memorandum of Understanding (MoU), cementing a partnership aimed at facilitating enterprise development and creating job opportunities for the Royal Bafokeng Nation.

As the leading black-controlled construction materials group in Southern Africa and the only established cement manufacturer with a Level 4 B-BBEE rating, AfriSam is committed to enabling economic development on the African continent. It believes in contributing in a sustainable and meaningful manner to communities surrounding its operations.

New Business Consulting, comprising a number of entities including local entrepreneurs, a women-owned company as well as the B-BBEE Makgotla Trust representing clans exceeding 2 000 members, strives to empower mining communities through its economic development model.

As part of the MoU, a number of enterprise development opportunities within the Bafokeng area have been identified and are currently being investigated. Amongst these is the establishment of containers as cement sales outlets as well as a premix bagged product manufacturing facility. The goal is to establish sustainable local enterprise development businesses that will directly benefit the Bafokeng people.

“All the projects we have identified strongly align with, and support, the strategic objectives and enterprise development goals of the Royal Bafokeng Group and should create shared value for all parties involved, including the local community”,

says Roshni Lawrence, strategic growth executive at AfriSam.

Cement and construction related products are a fundamental requirement for infrastructure development and broader economic growth. It is for this reason that AfriSam is proud of the positive contribution it can make to society through the products it manufactures.

In addition to its products, AfriSam's geographical footprint also enables the company to create value for local communities through its community upliftment initiatives and by providing employment opportunities. AfriSam has an extensive network of cement, aggregate and readymix operations, which enables the company to play an active role in the growth and development of most regions in Southern Africa.


It is this very network that gives the company access to some of the most remote locations in regions around the country and allows it opportunities to build relationships with communities surrounding its operations. In fact, because of its expansive footprint, AfriSam is the only concrete materials business that is positioned to partner meaningfully with small businesses to create possibilities for local communities.

“We welcome AfriSam in the land of the Bafokeng. Our journey is on course to claim the Royal Bafokeng Nation's Vision 2035 as our own. We are on track to offer commercially sound services and quality products at competitive prices to the mines that we, as the Royal Bafokeng Nation, own and those operating in our land through land leases.

“We aim to further assist our neighbours from other mining communities and local municipalities to set up enterprise development projects with them.

“We invite Provincial Government, the National Youth Development Agency (NYDA), private equity partners and construction companies to leverage our model to empower women and people living with disability through setting up of cooperatives and CSR initiatives that can benefit from this initiative.

“This is a beneficial model to initiate Public-Private Partnerships and create value for our people. We want to bring real change through B-BBEE empowerment to all previously disadvantaged South Africans by offering them a tool to empower themselves”, says Ernest Mogopodi, the chairperson of New Business Consulting.

“We are extremely proud of our association with the Royal Bafokeng Nation. We look forward to contributing towards the continued growth and development of the Bafokeng region and its people,” concludes Lawrence. 

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**Back from left:** Ian Venter (MD of Royal Bafokeng Enterprise Development), Moss Ramatja (New Business Consulting), Itu Diala (Women Group of New Business Consulting) and Damarisa Masilo (Women Group of New Business Consulting).

**Front from left:** Gerhard Maree (AfriSam), Roshni Lawrence (Strategic Growth Executive, AfriSam), Ernest Mogopodi (Chairman of New Business Consulting) and Kgosana Phillimon Rabyae (Tau Bashiga Community Development Trust).

**Absent from photo:** Steve Mputle (New Business Consulting).





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## UJ STUDENTS SHINE

Miguel Carvalho, James Russwurm and Tiago Vasconcelos from the University of Johannesburg have achieved second place in the ISOVER Global Multi-comfort design Student's competition. They also achieved the highest scoring first time entry for any country in the history of this competition

➤ The ISOVER Students competition has been an annual highlight on the event calendar of ISOVER Global for the past 12 years, and 2016 saw South Africa participate for the first time. In just six short weeks, 24 entrants from the University of Johannesburg's Architecture Department jumped in with great enthusiasm, and astounded the judges with their ingenuity, commitment and skill.

The setting for this year's competition was Brest in Belarus. Leading up to the millennial celebrations of this city in 2019, students were offered two plots in the city to propose urban multi-purpose building design, with a key focus on energy efficient building techniques, and of course designing Multi-Comfort spaces, taking all elements of comfort into consideration, and correctly applying Saint-Gobain and Isover products to achieve optimal performance. With the drastic climate changes throughout the year, this was a task that demanded focus, fine consideration and a deep understanding of how to use the environment as part of your design.

Our ambassadors from South Africa won the South African leg of this competition and were given the opportunity to present their proposal on a global stage in Belarus among 54 other teams from 23 countries, South Africa being the only country from the southern hemisphere. This prestigious event was hosted in Brest from 25 – 28 May 2016.

"It was an exceptionally proud and surreal moment when we realised that we had won the second prize. The contestants faced a number of challenges; they only had six weeks to prepare, as opposed to six months for their northern counterparts. Also, their inherent frame of reference when designing talks to the southern hemisphere and not that of the



From left: Mikalai Ulasiuk (chief architect, Brest Executive Committee), Tiago Vasconcelos, Miguel Carvalho, James Russwurm (second prize winners, UJ), Giles Leva (international marketing director Saint-Gobain Insulation Activity).

northern hemisphere where these plots are situated. They had to change their whole perspective and keep it in mind during design stages. I am indeed astounded by the quality of work they have produced within these circumstances, and was very proud to showcase our talent on the global stage," says Sibusiso (Sibu) Mthembu, business development manager for ISOVER SA, who co-ordinated the South African leg of this competition.

Mthembu has been the driving force behind this achievement. His commitment to this project has been highly commended, and the students all agree that this has been the highlight of their studies so far.

"Our aim for the trip was to leave a truly positive South African mark on the global architectural community. We can say for sure that the community has left its mark on us. The experience of sharing and learning from such a vast mix of cultures and minds, coupled with the opportunity to compare and critique a mixture of projects, literally a world apart.

"This has been something we will always keep in our minds. It has, without a doubt, been an experience of a lifetime, one which we've proudly represented our country and continent to the best of our ability. An experience we are above all proud to have had, and thankful to have been a part of," they said. ■

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## AUDITOR GENERAL – THE AGONY AND THE ECSTASY

The South African Institution of Civil Engineering (SAICE) recognises the mammoth task of the Auditor General to establish the financial status of the almost 300 municipalities in South Africa.

➤ It is heartening that there were more clean audits than in the previous report. The Western Cape with 73%, Gauteng with 33% and KwaZulu-Natal with 30% clean audits, is encouraging, but it does not detract from too many municipalities not doing their jobs properly. Of particular concern is the irregular expenditure, fruitless

and wasteful spending and unauthorised spending accounting for R41,41-billion. Even if the Auditor General can recover R10-billion from the irregular component, it still leaves R31,4-billion unaccounted for.

How many hours of ordinary working citizens, paying income tax, go into making up this sum? And, how many houses could have been built for desperate citizens with this kind of money?

The issue of filling key vacant positions, where minimum competency requirements are good enough, leaves one dissatisfied in a country striving for excellence. Surely the benchmark should be set much higher to effect a positive audit outcome.

Much has been made of municipalities depending on consultants. An excellent outcome can only be established if there is a knowledgeable, competent client who is capable of managing the service provider. If this is not the case, the process is set up for failure. This is exactly the problem, for instance, where the client (government department) is often not informed and expert enough to liaise with highly

qualified engineering consultants on tenders for civil engineering projects, often worth billions of rand.

In local government, especially, one needs appropriately qualified, experienced civil engineering practitioners for the many infrastructure projects necessary to deliver services such as water, sanitation, roads, stormwater, waste, etc. to communities. In this regard SAICE offers to assist, as a large number of its members have indicated that they would be willing to work in the public service if a few conditions were met. On top of this, a large number of civil engineering practitioners have been retrenched since last year, and it is still happening, making the pool from which to choose so much bigger.

Could the Auditor General appoint a competent person to do an audit on current and future civil engineering infrastructure projects necessary to make a difference in municipalities? Perhaps then the increasing number of violent protests would subside. SAICE is more than willing to be part of such an initiative. The compilers of the SAICE Infrastructure Report Card for South Africa 2011 are busy working on the next report card to be released in a year's time. Their expertise could be invaluable.

To change the agony into ecstasy, please look at competent, highly experienced and qualified civil engineering practitioners and employ them. ■







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## LIFTING ITS FINANCIAL PERFORMANCE

**PPC Ltd recently announced its reviewed provisional results for the six month period to 31 March 2016, after the Board approved the change of financial year end from 30 September to 31 March.**

> Group EBITDA was up 2% to R1,1-billion largely due to improved efficiencies and cost savings which resulted in reduced administration and other operating expenditure. The Profit Improvement Programme (PIP), which aimed to deliver R400-million by 2017, generated R178-million for the period after providing R212-million by September 2015.

PPC's total cement sales volumes for the six-month reporting period were 1% below last year. In South Africa, cement volumes were up by 1% although lower selling prices reduced revenue. While revenue in the lime business declined 12%, aggregates and readymix operations contributed positively to group revenue. CIMERWA, PPC's new operation in Rwanda, achieved sales volumes of 124 000 tons at the expected EBITDA margin, adding nearly R200-million to group revenue for the reporting period to 31 March 2016.

Group cost of sales were only 2% higher following the inclusion of CIMERWA in Rwanda, with cost increases particularly well managed in the South African and Botswana cement businesses as well as in the lime division. Cost of sales in the South African cement business was

down 3%, on a per ton basis, while administration and overhead costs fell 12% for the period.

PPC's expansion strategy, embarked on in 2010 to extract value from high-growth economies, is progressing well. Projects in the DRC, Zimbabwe and Ethiopia are all over 70% complete and due to be commissioned in the next 12 months with ramp up to the required production capacity to take approximately three years.

Darryll Castle, CEO of PPC, commented: "We are pleased with the cost savings achieved across the business during this period. We have a deliberate approach to navigating the current economic landscape by driving cost efficiencies and leveraging our capabilities to achieve operational excellence.

"Our strategy to expand into a diverse pan-African player is starting to bear fruit as evidenced by CIMERWA's positive contribution to group revenue. The three African expansion projects to be commissioned in the next 12 months will provide us with the necessary headroom to cushion us against macroeconomic movements and operational risks including increasing competition."

To enable PPC to effectively execute its new strategy, a few changes have been made to the group's operating architecture. PPC Aggregates, Pronto Readymix, Ulula Ash and PPC Lime have been consolidated into a materials business and a new commercial division with a dedicated project management office has been introduced.

The materials business division which is focused on expanding PPC's product range and service offering in aggregates, readymix, fly ash, lime and related businesses has made good progress including the imminent acquisi-



**Darryll Castle, CEO of PPC.**

tion of 3Q Mahuma Concrete, the largest independently owned readymix concrete supplier in Southern Africa.

"PPC is fundamentally strong and profitable with a solid operating base. We have a deliberate approach to navigate the current economic landscape by driving cost efficiencies; leveraging our capabilities to achieve operational excellence and completing our sizeable projects.

"With a view to the long term, we are equally deliberate about getting the company future-ready to partner with and enable economies across Africa achieve their growth imperatives," added Castle. ■

## SPECIALIST RECEIVES INTERNATIONAL RECOGNITION

**Stefan Müller, managing director of the construction claims specialist company, GibConsult, is the first South African member of the international Institute of Construction Claims Practitioners (ICCP).**



**Stefan Müller, managing director of GibConsult, specialist in claims management, and first South African member of the Institute of Construction Claims Practitioners.**

> Membership is only given to those construction claims professionals who have the necessary education, qualifications, experience and competence that meet this industry's high standards. Müller is a specialist in preventative claims management and preparation with more than 16 years of experience and has been supporting clients on different types of large esteemed projects in Brazil, Dubai, Lebanon, Qatar, all over Europe and Africa.

The primary goal of the ICCP is to create professional standards for its members so that they can gain recognition within the industry as qualified and experienced professionals who deal with construction claims. Construction claims have become an integral part of the international construction industry.

Dealing with these claims requires a significant amount of experience and expertise. "On average, all projects have a claim potential of approximately twenty percent of which fifty percent are recognised too late or not at all", states Müller.

"The level of claims administration applied impacts directly on the level of success in identifying and addressing the risks and chances inherent in any given project", he adds.

Claims managers that prepare or respond to claims have a well-established knowledge of construction methods and are knowledgeable in contract interpretation and contract law.

Various international professional bodies exist in the construction industry such as the ICE for civil engineers (SAICE) and CESA for civil engineering companies, the Project Management Institute for project managers, RICS for chartered surveyors, RIBI for Architects and Quantity Surveyors International.

The Institute of Construction Claims Practitioners' goals specifically are to give recognition to construction claims specialists but also to establish and develop international standards for the management of claims. ■





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Continuous rating input:	2,000W
Vibration level:	$14\text{m/s}^2$
Impact energy:	71.4J
Blows per minute (b/min):	870
Noise:	108dB(A)

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CLOSEConstruction<sup>WORLD</sup>2<sup>BEST</sup>  
PROJECTS 16

## CALL FOR ENTRIES

*Construction World's* Best Projects showcases excellence in the South African building, civil engineering and project management sectors.

In its 14<sup>th</sup> year, the aim of *Construction World's* Best Projects is to recognise projects across the entire construction industry: from civil and building projects to professional services to specialist suppliers and contracts.

There are seven categories in which to enter. Projects may be entered in several categories, provided they meet the prerequisites for entering each one, as well as meet the entry criteria.

### Judging

A panel of independent judges from the construction industry has been appointed. These judges represent ECSA, SAICE, MBA and CIOB. They are Trueman Goba, chairman of Hatch Goba and former ECSA and SAICE president; Nico Maas, chairman of Gauteng Piling and former president of the Master Builders' Association; and Rob Newberry, managing director of Newberry Development and founding president of the Chartered Institute of Building.

Each criterion as set out for the various categories will be scored out of 10 – with 10 being the highest score and one being the lowest – **it is therefore VERY important that entries address the criteria for the particular category it is entering.**

In each category an Overall Winner Award and one or two Highly Commended Award(s) will be made. A 'Special Mention' award may be given.

### Awards evening

The awards ceremony will be held on **Wednesday, 9 November 2016**. The venue and format will be finalised in due course.

### Entry criteria for each category

- Construction innovation technology
- Corporate social investment
- Design innovation \*
- Environmental impact consideration
- Health and safety
- Quantifiable time, cost and quality \*
- Risk management \*
- Motivating facts about the project

*(The same criteria pertain to all categories except for 'Category B: Specialist Contractors or Suppliers' where the following do not apply: Design innovation; Quantifiable time, cost and quality; Risk management.)*

### Category A1: Civil Engineering Contractors

#### Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

### Category A2: Building Contractors

#### Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

Bronze sponsor:



REFER TO ENTRY CRITERIA

### Category A3: Civil Engineering and Building Contractors (outside South Africa)

#### Prerequisites for entries

- Projects outside South Africa, executed by a South African contractor.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA





## Submitting entries

- Each entry must be accompanied by the completed entry form; available on [www.constructionworldmagazine.co.za](http://www.constructionworldmagazine.co.za) or by requesting it from [constr@crowm.co.za](mailto:constr@crowm.co.za).
- The maximum length for submissions is 2 000 words
- Each submission must clearly state which category is entered for\*
- **IMPORTANT** It is to the entrants' own advantage to address ALL the criteria as set out in the category being entered. If a criterium fell outside the scope of the contract, please state this.
- The written submission must be accompanied by up to six high resolution photographs with applicable captions.
- The photographs and copy must be submitted separately – NOT in PDF format.
- The submission must also contain a summary list of important project information such as client, main contractor etc. – i.e. the professional team involved in the project.
- Electronic submissions are acceptable – entrants do not need to produce hard copies of entries.

\* *Construction World* retains the right to move entries into a more appropriate category.

## Deadlines

Deadline for entries is **Friday, 9 September 2016** at 17:00.

## Contact

For further information contact the editor, Wilhelm du Plessis on 011-622-4770 or [constr@crowm.co.za](mailto:constr@crowm.co.za)

## Special issue

The December issue of *Construction World* is dedicated to the various winners and entries and is thus an overview of activity in the built environment during the past year.

## Category B: Specialist Contractors or Suppliers

### Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

### Criteria for category B

- Construction technology innovation
- Corporate social investment
- Environmental impact consideration
- Health and safety
- Motivating facts about the project

## Category C: Professional Services\*

### Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

\*Depending on the entries received, an award for both consulting engineers AND architects will be made.

## Category D: Public Private Partnerships

### Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

REFER TO ENTRY CRITERIA

## Category E: The AfriSam Innovation Award for Sustainable Construction

Description of category: Working with the community on a project that has socio-economic impact.

### Prerequisites for entries

- Only South African construction and civil projects executed by locally based companies.
- Projects are eligible during the execution of the project and up to 12 months after completion.
- Projects must be 50% complete at time of entry.

This category will be judged on the project's

- change and transferability
- ethical standards and social equity
- ecological quality and energy conservation
- economic performance and compatibility
- contextual and aesthetic impact

REFER TO ENTRY CRITERIA

**TWO MONTHS LEFT TO SUBMIT**

# The benefits of ‘EAST-WEST’ solar PV installations

By Bevan Jones, Soltra Energy MD

In what direction should roof-mounted solar photovoltaic (PV) panels be sited for optimum energy production?



Conventional wisdom says the panels should be orientated towards north in the southern hemisphere to gain maximum benefit from the sun’s arc. More specifically, solar panels should be pitched between 25 and 35 degrees (approximately equal to the site’s latitude) to allow for the most efficient power generation.

The result, from a power production standpoint is a true ‘bell curve’ reflecting power increases throughout the day peaking at midday and gradually falling again to zero at sunset.

However, in certain circumstances it may be advantageous to point the panels eastwards – or westwards.

In one such instance – a grid-linked hybrid application in Johannesburg – an east-west orientation was found to be advantageous. The motivation was the limited electrical power supply from the local provider which was unable to meet full demand at the business facility. Another challenge presented to the solar PV design team was the need to reduce the aggregate electricity cost for the facility.

An iterative evaluation process was undertaken which focused on testing various solar PV system configurations. The tests initially evaluated power production from traditionally north-facing panels. Subsequently, various directions were tried culmi-

nating in a convention-breaking east-west configuration.

The initial goal of the test programme was to match energy production to the measured load profile, while the second objective was to maximise the financial benefit.

For simulations conducted with an equal number of panels and inverters, the east-west configuration showed immediate advantages as it provided power production earlier in the day, with a slightly lower peak. It was thus a better match for the facility’s demand curve.

While a more advantageous match was achieved, concerns were nevertheless raised about the loss of yield. A number of different angles of inclination were subsequently tested and eventually an angle of 20 degrees from the horizontal was chosen as the best compromise between ‘flattening’ the production curve and loss of yield.

That said, the east-west facing solution, with a 20 degree inclination, showed a total loss of yield of approximately 2,5% when compared to the north-facing alternative.

Nevertheless, when this is compared with the facility owner’s electricity tariff/billing structure from power producer Eskom, the east-west installation demonstrated the following financial performance:

- In summer months a nett R6,50 per day saving was achieved.

- In winter months a nett R8,50 per day loss was returned.

It is noteworthy that, as the summer tariff benefits apply for nine months of the year, the result is an approximate R1 050 per year additional saving over a traditional north-facing system.

When the capital cost of the system is considered, this is a relatively small saving and could be considered as a ‘break-even’. However, there are a number of other advantages presented by the east-west orientated installation. These include:

1. The lower peak output of the system means that the inverters can be over-panelled by approximately 10% without any change to the inverter system or balance of plant. In a typical rooftop system the panels and installation comprise 70-80% of the turnkey cost.
2. The east-west installation results in approximately 5% lower installation cost because the brackets and mounting material are used more effectively.
3. The panel density on the roof can be as much as 30% higher, allowing for a higher yield per square metre.

When the above factors are taken into account, it is clear that the east-west oriented system is comparable to a north-facing system on a ‘cost of energy’ versus a ‘kilowatts peak (kWp) installed’ basis. (kWp is essentially the rate at which a solar PV installation generates energy at peak performance.)

Furthermore, when the added advantages of over-panelling the inverters at a fraction of the cost of the entire system is maximised, and the lower cost of installation is taken into account, an east-west orientated installation is seen to provide significant cost advantages over a north facing system.

One of the keys to the success of similar installations going forward lies with their management. Sophisticated ‘smart’ power management solutions can now be installed and tailored to users’ needs.

These systems will, for example, complement grid power with solar power when necessary (at peak times), divert excess solar power to possible battery storage for later or after-hours use as appropriate, and fire up a petrol or diesel generator to integrate seamlessly into the power supply grid should battery storage become depleted.

A range of micro smart-grid solutions that measure the generated solar power on a minute-by-minute basis, compare it to current grid power availability and assess current load states is available. <

Soltra Energy technical director, Bevan Jones.





# LEAVING LEGACY OF GROWTH

After five trailblazing years at the helm of the Green Building Council South Africa (GBCSA), CEO Brian Wilkinson has announced his early retirement.

Wilkinson steered the organisation through an exponential growth phase corresponding with the remarkable upsurge in the green building movement in the country.

The *World Green Building Trends 2016: Developing Markets Accelerate Global Green Growth – SmartMarket Report* shows that South Africa is the country with the highest share of green building projects out of a global sample of 69 countries. More importantly, it also has the highest share of expected green building projects leading up to 2018.

Seana Nkhahle, chairperson of the GBCSA, attributes this incredible recognition to Brian's energetic leadership and to the team he has put in place. Brian, while proud of the organisation's role, prefers to credit the success to the manner

in which the South African property sector has stepped up to assume the vital role the built environment plays in climate change mitigation.

Commenting on the significant progress of green building in the country, Brian says the property industry has been swift to recognise the simultaneous opportunity to 'do well by doing good', referring to the well-established and proven business case for green buildings.

He adds: "Our purpose is to inspire property owners to design, build and operate better, greener buildings. Formal Green Star SA certifications are rapidly approaching 200 projects, up from only six certifications five years ago. I believe we are on the cusp of green buildings becoming standard, rather than limited to leading practice."

The GBCSA is already forging ahead with its latest initiatives. It is driving green building in the residential property sector with its My Green Home toolkit, anchored by the EDGE (Excellence in Design for Greater Efficiencies) residential green building rating tool.

GBCSA has also partnered with the South African Local Government Association (SALGA) to build capacity and green buildings skills at local government level and anticipates



Brian Wilkinson.

extending this into the public sector as a whole.

In addition, it is now focusing on the performance of existing buildings in the commercial property sector, at portfolio level.

Wilkinson believes this is an ideal time to transition to new leadership that can provide continuity over this next exciting phase. He will remain CEO until the end of August 2016 to allow for a seamless transition process.

The Chairperson of the GBCSA has asked Rudolf Pienaar, deputy chairperson and Growthpoint Properties Office Division Director to drive the process for recruitment of a new CEO for the GBCSA. ❏

# SUSTAINABILITY HELP

AECOM is actively working with Growthpoint Properties on a range of solar rooftop projects and existing building performance ratings, where low-performance buildings are identified and corrective measures proposed.

Growthpoint Properties, the largest South African primary listed REIT (Real Estate Investment Trust), is now embarking on its largest rooftop solar installations yet, with the ultimate goal of generating an impressive 6 MWp. This translates into enough solar energy to power nearly 2 500 average South African homes.

AECOM's Buildings & Places, Power & Industries and Construction Services teams are supporting Growthpoint Properties in delivering this work by providing the following professional services: principle agent, electrical design reviews and structural integrity assessments.

Growthpoint Properties has already completed the installation of photovoltaic (PV) solar panels with the capacity to generate over 3,2 MWp at seven of its office, retail and industrial properties.

These rooftop solar installations are at its landmark assets across the country, including Cape Town's V&A Waterfront, The Constantia Village Mall, Bayside Mall and Airport Industria. In addition, the company has identified over 70 buildings across its portfolio for possible future solar PV installations.

AECOM has also been approached by Growthpoint Properties to provide a proposal to manage the certification process of 11 sites, including two office parks in its existing building portfolio. It will deploy the Green Star SA™ Existing Building Performance (EBP) v1 rating tool developed by the Green Building Council of South Africa.

"A Four Star rating acknowledging best practice is targeted for all buildings," Peet Pelser, practice area lead – mechanical, electrical, plumbing & sustainability, building engineering, explains.

"AECOM has considerable experience in the renewable energy sector, with a broad involvement in a range of other 'green' energy projects," Nico Kruger, business line leader energy – Africa, resources & industry, comments.

According to Werner Schneeberger, market sector leader, Renewable Energy, Africa, some of the rooftop solar installations AECOM is currently involved with include:

- Key West Mall, 1,2 MWp
- Airport Industria, 290 kWp
- 33 Bree & 30 Waterkant, 103 kWp
- Inanda Greens and Sunnyside Office park, 816 kWp

The 290 kWp Airport Industria project.



The 103 kWp 33 Bree Street project.

Airport Industria is a recent solar power project of AECOM.





# SKATEISTAN is here

“Skateistan’s not just about skating. It’s about giving people life skills and hope for their future,” says Tony Hawk, a professional skateboarder and global Skateistana Ambassador.

**>** Skateistan is an international non-governmental organisation that uniquely uses skateboarding as a tool for empowerment. It was launched in May 2007 in Kabul, Afghanistan, where girls are not allowed to ride bicycles but are allowed to ride skateboards.

This campaign assists vulnerable youth between the ages of five and 17 from a range of ethnicities and socioeconomic backgrounds by using skateboarding as a ‘hook’ to engage children in under-privileged areas and empower them through education programmes.

South African youth face many of the same challenges as young people in Afghanistan and Cambodia including social inequality, youth unemployment, gender discrimination, poverty, lack of quality

education, and social tensions, all of which are issues which Skateistan’s programmes aim to address.

Construction is already well on its way for Skateistan South Africa’s first Skate School in the Maboneng Precinct in Johannesburg, the first on the continent, after nearly two years of planning.

The Johannesburg Skate School, which is scheduled to open in August, consists of a building constructed using reclaimed shipping containers as classrooms and study areas, a world-class 500 m<sup>2</sup> skate park, an outdoor educational space and office space for the NGO to operate from.

Leading interior building solutions group, Saint-Gobain Gyproc, the world’s most innovative building materials, systems and solutions company, is sponsoring top quality walls and ceilings for the classrooms and offices.

Apart from attributes related to efficiency and sustainability, Saint-Gobain believes that its building materials can create an environment that is safer, more comfortable, healthier and generally more attractive than conventional building materials.

Improved and more comfortable learning spaces contribute to better learning environments, whereby learners and teachers can perform optimally. Saint-Gobain has created a better learning environment at Skateistan South Africa as follows:

- Thermal comfort: Comfortable



CEO of JHI, Nomzamo Radebe.

JHI, part of the Excellerate Property Services Group, has been appointed to manage Old Mutual Life Assurance Company SA’s entire property portfolio in South Africa and Namibia, from 1 April 2016.

temperature, warm in winter and cool in summer

- Acoustic comfort: Noise reduction and improved acoustics
- Visual comfort: Good light and reduced glare, improves visibility and looks good
- Health: Materials improve air quality, which means less illness and improved wellbeing

Through this pioneering project, Saint-Gobain aims to demonstrate to other schools and educational facilities the immense difference that can be made by using superior building materials, in conjunction with builders, designers and architects, and how this combination can create better functioning, more comfortable and more productive environments that allow learners and teachers to achieve their full potential.

This is Skateistan’s fourth international project with two Skate Schools already in Afghanistan and one in Cambodia. Skateistan South Africa has been made possible through a partnership with the City of Johannesburg and funding from the Danish Embassy in Pretoria, the Comic Relief Foundation, the Tony Hawk Foundation and The Sk8room.

Maboneng’s urban regeneration company, Propertuity, has provided the land for the Skate School via a 20-year rent-free lease. Big Box Containers, a company that customises shipping containers and converts them for various uses, is supplying the boxes, as well as various other donors involved including Saint-Gobain. ◀





# Managing ENTIRE property PORTFOLIO

> This new property management agreement is a cost-effective solution that allows Old Mutual to remain focused on the strategic asset management of its properties while experienced property manager JHI adds value to through the properties' day-to-day operations.

Commenting on the contract, CEO of JHI Nomzamo Radebe says: "The proposal process was rigorous. It considered key performance factors from experience and skills to compliance, cultural fit and the ability to deliver solutions that add value to the portfolio. We're thrilled that JHI was chosen as the most preferred service provider." The agreement adds some of South Africa's most prestigious property assets to JHI's portfolio.

The Old Mutual portfolio includes 46 properties and land parcels throughout South Africa and five properties in Namibia. It is diversified across commercial property sectors with a significant retail component as well as quality office and industrial properties and two hotels.

Among the property assets are some of South Africa's most recognised and sought-after real estate, including Gateway Theatre

of Shopping in KwaZulu-Natal, The Zone @ Rosebank in Gauteng and Cavendish Square in the Western Cape.

Radebe reports: "Our relationship with Old Mutual reinforces JHI position as a market leader, particularly in retail property management. This transaction boosts JHI's market share and supports our continued growth as a company."

With a track record of over 100 years in real estate, JHI is a leading property management services company that constantly finds innovated new ways to create value for its clients. JHI has grown from serving a single client to a multi-client services company with assets of R150-billion under management.

JHI is on a growth trajectory. It recently won massive contracts from performance-driven property investors including Liberty Group, Delta Property Fund and Investec Property Fund. It is also aggressively growing its business across Africa, with a footprint that now includes 11 African countries. Even with this growth, JHI's priority is giving high-quality service to clients.

Iconic retail properties in the 2 300 building JHI-managed portfolio include Sandton City, Eastgate, Greenstone Mall, and East Rand Mall in Gauteng. JHI also manages

Liberty Midlands Mall, Phoenix Plaza and The Workshop in KwaZulu-Natal.

It manages Bloem Plaza in the Free State and Liberty Promenade in the Western Cape. In the Eastern Cape, JHI manages Umtata Circus, Knysna Mall and Vincent Park Shopping Centre.

For Old Mutual, JHI's property management mandate includes leasing, operations, facilities, utilities and financial management, tenant liaison, and managing key metrics – an all-encompassing property management service.

JHI also adds consulting and advisory expertise to position each property through strategic refurbishments and extensions. It is also able to assist with services such as valuations, due diligence and development.

As a member of Excellerate Property Services group, JHI offers the flexibility to extend its service line with well-established, specialised providers.

Radebe says: "This five-year contract is a strong platform to perform and give Old Mutual the value they are looking for. We're excited about it." As part of the Old Mutual property management outsourcing arrangement, JHI has taken over the employment of over 100 people. <



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# Exposing **ENTREPRENEURS** to property sector

Property Point, the award-winning enterprise development initiative founded by Growthpoint Properties, has opened the door to limitless opportunities for two SMEs with a sponsorship to attend the 50<sup>th</sup> annual South African Property Owners Association (SAPOA) Convention and Property Exhibition in Sandton later this month.

FROM TOP TO BOTTOM:

**Thapelo Tlhapane** owner of TT Holdings.

**Rahab Mononyane** owner of Mapitsi Holdings.

**Shawn Theunissen**, head of Property Point and head of Corporate Social Responsibility for Growthpoint Properties.

> Property Point has seen almost 100 SMEs participate in its two-year incubation programme. Established in 2008, it provides entrepreneurs operating within South Africa's property sector with the necessary skills, training and personal development they need to grow their businesses and see them reach their full potential, compete in the open market and meet the industry's supply chain needs.

Generating over R451-million in procurement opportunities for these SMEs, Property Point's programme has assisted these enterprises in achieving a reported revenue growth of up to 54,5% and has also been instrumental in growing these small business to create over 1 100 jobs so far.

Shawn Theunissen, head of CSR at Growthpoint Properties and head of Property Point, says: "We pride ourselves in partnering with dynamic entrepreneurs, working with them to grow their SMEs into sustainable businesses that also have added benefits like job creation.

"We find the biggest challenge for SMEs is finding real procurement opportunities, and so by giving entrepreneurs unprecedented access to decision makers in the industry they serve at the SAPOA Convention, we're actually making a real impact in terms of growth for small businesses," he says.

Highlighting the passion for enterprise development of its partners, like Growthpoint and Attacq Limited, Property Point hopes to give these small businesses greater insight into the industry and its procurement opportunities at SAPOA's annual convention and property exhibition. And, if all goes well, they could even match these growing businesses with opportunities.

Qualified Quantity Surveyor, Thapelo Tlhapane will be representing his business – TT Holdings – at the convention. Established in 2012, the company specialises in Quantity Surveying, providing a range of services which include cost planning, advice and feasibility studies as well as contract administration and reporting.

Based in Johannesburg, TT Holdings aims to enhance its base of business skills while perfecting its craft through participation in the Property Point programme.

"We've just started on the programme, but I can already see positive changes in my company. With Property Point's expertise, my business has definitely been raised to the next level. I am looking forward to showing off some these newly learned skills at the convention," says Tlhapane.

Joining Tlhapane will be Rahab Mononyane who established her company, Mapitsi Holdings, in 2012. Mapitsi Holdings offers landscaping services and garden maintenance, also providing irrigation installation and maintenance, indoor plant supply and organic vegetable gardening services.

"We have been blessed with an opportunity to learn and grow and I'm holding on to it with both hands. I know for sure that the Property Point team truly care about my business, and I'm really looking forward to what the future has in store," Mononyane says.

SAPOA's Convention and Exhibition is set to bring together a host of significant national and international property professionals, all under one roof.

Showcasing contributions from world-class owners, developers and built environment professionals who have enhanced the industry with smarter and more beautiful buildings, the convention will undoubtedly provide both Tlhapane and Mononyane with new insights and opportunities.

"We are excited to be introducing these two businesses to other likeminded corporates. We have already proven that SMEs working through the Property Point programme are well equipped with the necessary skills to compete in any environment, from engaging effectively and identifying new opportunities for their already growing businesses, to delivering high quality products and services.

This is an exciting venture for both companies, and I look forward to watching them excel at the convention and after it," says Theunissen. <





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# DYNAMITE COMES in small packages

Impressive breakout force, generous bucket size for a compact machine, great fuel efficiency, and versatility: these are the qualities that have led Swaziland-based Canterbury Plant Hire to order a second Cat® 307E mini hydraulic excavator from Barloworld Equipment this year, according to plant operations manager, Lourens du Preez.

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**D**u Preez says Canterbury's first Cat 307E, delivered by Barloworld in 2015, has completed more than 1 374 hours in construction applications where it is in particularly high demand for digging foundations, and in irrigation including drainage installation, trenching and backfilling.

"Fuel efficiency for us and our customers is one of the best features," he notes.

The largest in the Cat mini hydraulic excavator range at 7 100 kg, the 307E is a strong contender in the 7 to 8 tonne machine class with 43 kW gross power, 6 340 mm reach, 4 070 mm dig depth, and 5 150 mm dump height. Stick and bucket digging forces on the Cat 307E productively perform at 37 kN and 50 kN respectively.

Its size to power ratio gives it excellent versatility across multiple industries from agriculture to construction, plant hire and mining.

## Surprisingly tough

Barloworld also offers three other mini hydraulic excavator models in Southern Africa. These start with the Cat 301.7D, the most compact at 1 735 kg with a canopy and extending undercarriage and well suited to internal building demolition tasks equipped with a Cat hammer.

Completing the range are the Cat 303.5E2

CR and Cat 305.5E2 CR, both popular choices for construction and plant hire.

Du Preez believes the breakout force of the Cat 307E easily matches that of a backhoe loader.

"To our amazement this machine has handled areas where we thought we would need a 20 tonne machine, and the 0,33 cubic metre, 850 mm bucket size adds to its appeal. One of my customers commented that the Cat 307E outperformed a backhoe loader on a project involving digging foundations and trenching in very rocky terrain." He adds that the dozer blade for backfilling has also earned the approval of Canterbury's customers.

Adding to its flexibility, Caterpillar's Cat 307E can also be configured as a 'front shovel' by turning the bucket around to perform tasks such as utility pipe services, backfilling along walls and cleaning material from inside truck beds.

"Barloworld Equipment goes out of its way to assist us to get the most out of our fleet, so we know what this machine is capable of and can in turn ensure that our customers get the best out of it."

## Smarter ways of working

Caterpillar started producing mini hydraulic excavators in 1998. While the Southern African market was sceptical at first, Hugo van der Walt, Building Construction Products'

product manager for Southern Africa at Barloworld Equipment, says this has changed.

"Cat mini hydraulic excavators have gained recognition in the construction sector as machines that provide new, smarter ways of doing jobs quickly and effectively in urban expansion and renewal projects where building takes place in increasingly smaller spaces," he points out.

"Other industries have also realised the cost efficiency inherent in the use of small, versatile machines to make light work of tedious and time consuming jobs. The Cat 307E has been particularly well received since we launched it locally in 2015."

## Improved features

The Cat 307E offers several improvements on the 307C, the previous model offered in the Southern African market. According to van der Walt the new Cat C2.6 DI turbo engine reduces fuel consumption and improves fuel efficiency, aided by a standard/power dual mode offering the choice of lower fuel consumption or superior productivity.

The auto idle function, which allows the engine speed to decrease to low idle automatically if not in use after several seconds, translates directly into fuel savings and results in reduced noise levels.

A new intuitive flow sharing 'high definition' hydraulic system provides superior control for any application from fine grading and dozing to backfilling. Powerful bucket and stick digging forces are combined with fast cycle times for world class productivity and performance.

The dozer blade float function facilitates ground levelling for landscaping and finish grade applications as well as efficient job site cleaning.

Caterpillar's attention to detail in the cab is evident in the 307E with a new spacious design incorporating ergonomic low effort 100% pilot controls which deliver lifetime 'as new' performance and eliminate linkage and cable maintenance, a suspension seat



**CLOCKWISE:**

The dozer function is pilot controlled from inside the cab to provide smooth, proportional operation. A dozer float function allows ground levelling for landscaping and finish grade applications as well as efficient job site cleaning.

Lourens du Preez, plant operations manager at Canterbury Plant Hire, says his customers are impressed with the ability of the compact Cat 307E to perform heavy work in tight urban spaces.

Fuel efficiency is one of the features that keeps Canterbury Plant Hire customers coming back to the Cat 307E.

The Cat 307E combines industry leading lift capacity with outstanding stability.

**INSET:**

Hugo van der Walt, Building Construction Products' product manager for Southern Africa at Barloworld Equipment.

– standard on all mini hydraulic excavator models, and air conditioning.

Maximum travel speed can be selected by an easily accessible foot switch on the cab floor allowing precise control by balancing travel speed with the torque needed for turning and travelling on inclines. Hydraulic lines are provided for various Cat work tool attachments such as hammers and augers.

The 307E has 450 mm triple grouser steel tracks for stability when lifting over the side and in demolition and heavy duty applications. Each track is driven by an independent two-speed motor.

Cat mini hydraulic excavators deliver the same quality as the biggest Cat machines and the 307E, like the others in the range, has durable steel body panels all around to resist impact damage and prolong life and resale value.

Stability is a major factor in a lighter machine expected to perform heavy work and the conventional tail swing design with an extended counterweight provides this while maximising lifting at the same time.



*“Fuel efficiency for us and our customers is one of the best features.”*



The Cat 307E matches industry leading lift capability with exceptional stability.

## Maintenance and support

The counterweight is positioned low at the back, making space for two big side doors that provide easy access to all maintenance points from ground level. Daily checks and regular service points including fuel and hydraulic oil fill are easily reached via these and the large steel rear door.

The main hydraulic valve and lines are accessed through a removable floor plate

and side panels. Convenient ‘one side maintenance’ has been purposely engineered for maintenance of the Cat C2.6 engine.

Barloworld Equipment offers customers investing in the Cat mini hydraulic excavator range the same sales and after sales support as any other Cat machine. An additional customer support package available for owners of the Cat 307E and its mini hydraulic excavator siblings is Equipment Protection Plan (EPP), offered at various age and hour coverage levels depending on customer requirements. Flexible financing packages are also offered. <



# Village Walk: a story of GREAT TEAMWORK

## Introduction

From a geotechnical perspective, the complete overhaul of the Village Walk site has been sufficiently challenging for Franki project manager Paulo Alves to say that this was one of the most incredible projects he has ever worked on. "It has been a complex, often difficult and unpredictable project with both logistical and technical challenges that, in combination, made this a unique task," says Alves.

## The project

At one time the 'Mecca' of Johannesburg fun-loving teenagers, the Village Walk complex is well known to the residents of Johannesburg. Of course – and central to this story – its fame was enhanced by its neighbour, the iconic Balalaika Hotel and more recently by other famous names like Nedbank, Protea Hotel, Holiday Inn, HSBC and others. With the centre struggling commercially, the savvy Eris Properties took the opportunity to develop and construct a totally new office/retail hub in the middle of the most valuable square mile in Africa.

The initial demolition of the above-basement part of the building to street level took place in 2013-2014. In October 2014 Franki was approached by SIP Project managers and AECOM Quantity Surveyors to provide a solution to demolish the basement section of the building and to provide a holistic lateral support solution for a new 'super-basement'. "In essence this is the short description of this project," Alves says, "however the challenges were complex and numerous."

The first thing that Franki had to do was to support the existing basement walls neighbouring the Balalaika and Protea Hotels. "This first phase was crucial, as these walls supported those buildings and any mistake in calculation would have been disastrous," Alves says.

The action on this first phase was to support the walls with 249 no. four-strand anchors and, simultaneously, 82 no. soldier piles

*"Moreover, the contaminated soil was hard up against the lateral support face; restricting the progress of this critical-path operation. However, with some creative lateral thinking we were able to make up the time lost and the building contractor was able to establish by the required date."*

were installed on the northern and eastern faces i.e. Maud Street and Rivonia Rd respectively. This took from 1 December 2014 to the middle of April 2015. Shortly before the end of this phase permission was given to proceed with Phase II, which was to demolish the existing four-basement parking garage, excavate according to the new plans and then laterally support the remainder of the site.

This description of the scope of works gives the impression that there was a neat chronology to the various activities on the site. The reality was that the three main disciplines – geotechnical, earthworks and demolition – were working together on a small site and this presented enormous challenges, which were overcome by Franki's (the principal contractor) strong leadership and the excellent co-operation between the contractors. "This job epitomised the excellent relationships that existed between all who were involved," says Alves. "From the client, Eris Properties, through to the project managers SIP, AECOM (quantity surveyors), Aurecon (engineers), Boogertman + Partners (architects) through to the contracting team of Franki, earthworks specialists Zero Azania, Phoenecian Demolition, Pro-Frag Drilling and Blasting and Diamond Cutting and Coring Company, there was a co-operation and understanding that made the success of this job possible."

In fact, one of the most important, and intricate, tasks – and one which happened almost 'behind the scenes' – was the separation of the basement from the existing structures of the Balalaika and Protea Hotels. Alves explains: "This was achieved through precision cutting and sawing by the Diamond Cutting and Coring team under the supervision of Aurecon who ensured that the cuts were made in exactly the correct positions. There was absolutely no extraneous damage in this critical operation."

Other works that involved the surrounding buildings were civils jobs that, although relatively minor, were critical in that they made it possible for these neighbours to continue their day-to-day business uninterrupted. These included: the regrading of the Holiday Inn Hotel entrance; the creation of emergency walkways for safe passage to and from all the surrounding hotels; erection of all the hoarding around the site and making safe the common areas with the surrounding buildings; and the relocation of stormwater and sewerage pipes.

Being cognisant of the needs of these surrounding buildings was integral to the overall challenge of this contract. In addition to all the ancillary civils work, Franki had to control the noise level and the dust. "This was exacerbated by very hard granitic rock that we encountered which required drilling and blasting. One can imagine just how controlled this operation had to be in order to do it not only safely,

LEFT: Anchor drilling along Maude Street face, below the contaminated material area. RIGHT: Lateral support walls in close proximity to the Holiday Inn Hotel.







**Lateral support being concluded on the western face below the Balalaika Hotel.**

but also as quietly as possible and with as little dust as possible. Once again the teamwork was exemplary," Alves says.

In a job of this nature, time is always one of the biggest considerations and there were lots in this regard working against Franki. Firstly, the work day was curtailed to strictly between 7:00 and 18:00. Secondly, time pressure came from the 'unbelievable' volume of ground water present on the site, which resulted in the constant collapsing of the soldier-piled side walls, which necessitated the temporary casing of all the piles. Thirdly, the 'maze' of underground services, which had to be avoided or moved and about which there was almost no information, slowed things down significantly. An anchor did in fact strike an underground sewerage pipe in a position that made it very difficult to repair.

A significant challenge as far as time was concerned was the 3 000 m<sup>3</sup> of contaminated soil that was discovered, which was detected by a strong petrol odour. "We believe this may have been caused by an old petrol station on the site which had leaked petrol over many years," Alves says. "We got Envirowaste to isolate the contaminated area and of course it had to be excavated with great care. This unforeseen challenge took its toll on time and delayed the programme somewhat along the Maude Street face."

Alves explains: "The contaminated area was situated precisely where the first handover portion was. The building contractor was scheduled to take over the Phase I of the site at the end of October 2015 and the full extent of the contaminated area could not be determined at the time.

"Moreover, the contaminated soil was hard up against the lateral support face hence restricting the progress of this critical-path operation. However, with some creative lateral thinking we were able to make up the time lost and the building contractor was able to establish by the required date."

Alves says this was technically the most challenging project he has ever been involved in. "It's difficult to tell the whole story in an article of this nature. This was truly an incredible, unforgettable contract, which, more than anything, displayed the power of teamwork," concluded Alves. <

- 185 no. 600 mm diameter soldier piles ranging in depth from 12 m – 28 m
- 13 no. 900 mm diameter cantilever piles to support 8m-high soil face and 29 no. 125 mm diameter cantilever micropiles to support a 3,5 m-high face with the emergency walkway immediately behind these.
- 249 no. four-strand anchors to support existing basement walls
- 954 no. strand anchors varying in capacity between 600 and 900 KN to regain the unique soil faces bordering the Maude Str., Balalaika, Protea and Holiday Inn Hotels
- 633 no. hollow bars/rock bolts
- 10 800 m<sup>2</sup> of gunite face
- 265 000 m<sup>3</sup> soil excavation
- About 60 000 m<sup>3</sup> of rock blasting (bulk and hand blasting)



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# COLD MIX TRANSFORMS

## SA's construction industry

National Cold Asphalt's expertise is being put to good use by helping to maintain and build better quality roads. Its labour intensive road construction activities empower previously disadvantaged and impoverished communities, while the use of its absorptive technologies and methodologies ensure sustainable job creation and upskilling of targeted groups like women, youth and the disabled.



All of this is aligned to the strategic objectives of national, provincial and local governments' infrastructure delivery programmes. A key Enterprise Development initiative currently being undertaken by National Cold Asphalt, part of National Asphalt, a division of Raumix Materials, involves developing small and medium sized producers of cold-mix asphalt in peri urban and outlying or rural areas in South Africa.

This local manufacturing B-BBEE development model, spear-headed by Strategic Business Development Consultant, Pascal Garrioch, is directly aligned with the newly amended B-BBEE Codes of Good Practice.

Garrioch says that National Asphalt is also working closely with various government funding agencies to help small companies access grants and finance to establish these local manufacturing plants.

Shane Mullins, National Cold Asphalt's operations manager, discloses that the company has already established a four to six ton pilot batching plant in Pretoria, Gauteng, where small, medium and micro enterprises (SMMEs) are being trained to produce cold-mix asphalt.

"This site is a prototype, and the aim of our Enterprise Development Programme is to eventually sell and roll out many small, cold-mix batching plants to qualified and trained SMMEs in all provinces within South Africa and beyond," he says.

### Quality

In addition to receiving technical training from National Cold Asphalt in the correct and comprehensive operation of the plant, the quality of

**National Cold Asphalt cold mix repairs being undertaken on the N1 highway.**



cold asphalt materials produced by these entrepreneurs will be certified by the company. Importantly, they will also receive the exclusive supply of the company's world class blended bitumen additive, the same one currently used by National Cold Asphalt in its own cold-mix asphalt production processes.

National Cold Asphalt imports its additives from a United Kingdom-based company, Macismo which has been operational for over 25 years and in over 20 countries. Commonly known as MacFix, this additive significantly extends the life of the cold-mix asphalt giving the locally established manufacturing plants a significant competitive edge in the market.

Mullins says the additives used by National Cold Asphalt have extended the shelf life of its cold-mix asphalt by up to two years in storeroom conditions and over 12 months if stored in bulk. Most other cold-mix asphalts have a shorter life because the volatile organic compounds escape when the packaging is opened. National Cold Asphalt's winter mix cold asphalt ensures that neither workability nor curing is compromised in the application process during the more extreme temperature variances.

"LT40 9,5 mm continuous grade warm-mix asphalt is the latest "hot mix in bag" asphalt material developed by us," Mullins says. The asphalt is transported in bags to site and then reheated using the company's mounted mobile oven trailer and is suitable for a host of hot mix road repair applications.

"For contractors, LT40 is extremely cost effective, productive and has zero wastage. It is used for pothole repairs, minor patchwork, trench reinstatements and edge breaks and is now being specified as an approved and effective alternative to conventional, bulk hot mix asphalt by consulting engineers for these applications.

### More opportunities

National Cold Asphalt has also identified more opportunities to use its reputable brand of cold-mix asphalt materials to grow SMMEs and co-operatives in the South African road construction and maintenance industry. This is especially on the many labour-based road construction projects under the Department of Public Works' Expanded Public Works Programme banner.

The company's hand operated chip spreader, known as Chippy, has been acknowledged by the Construction Industry Development Board as a very effective method of undertaking single and double seals using labour-based methods, informs Mullins.

National Cold Asphalt boasts ample experience in grooming and coaching emerging contractors, and this experience will be put to very good use on all these labour intensive road infrastructure development programmes.

In 2009, National Cold Asphalt participated in training and supplying seven local SMME/co-operative teams comprising 65 members including seven drivers and seven supervisors nominated from 29 Wards within the Ugu District Municipality. A local bagging plant was also established employing another 12 community members.

Over 5 250 potholes (patches) were repaired within three months over 200 municipal roads in the Ugu District, KZN.

The "Ugu" Model was developed, championed and lobbied in Parliament by the then Chairperson of the Policy Making Committee for Roads and Transport, Madam Ruth Bhengu. Under S'bu Ndebele what became known as the National Department of Transport's S'hamba Sonke Programme was launched in 2011/2012. Today this Provincial Road Maintenance Grant is in excess of 10 Billion ZAR per annum creating thousands of jobs amongst numerous communities throughout the provinces.

Garrioch says it will be key to integrate these locally established B-BBEE cold-mix asphalt manufacturing plants into supplying





The company's hand operated chip spreader, known as Chippy, has been acknowledged by the Construction Industry Development Board as a very effective method of undertaking single and double seals using labour-based methods.



Repairs being carried out using hot mix in a bag which is being specified as an approved and effective alternative to conventional, bulk hot mix asphalt by consulting engineers.

various asphalt materials to contractors engaged within the S'hamba Sonke Programme.

"Besides having access to world class asphalt materials, local production means significant cost savings regarding supply of finished materials as well as direct and indirect business growth for local businesses providing products and services to the asphalt manufacturing and road construction service delivery in the region," Garrioch says.

Mullins says that the company is also assisting an undisclosed municipality to produce its own cold-mix asphalt to National Cold Asphalt's exacting standards. "We will provide them with the advice they need to run an efficient and very productive cold-mix asphalt production plant.

"The roads authority will benefit by being able to roll out essential road construction projects quicker and more cost effectively by being able to produce its own high quality, bulk and bagged cold-mix asphalt," says Mullins.

He reports that National Cold Asphalt has had similar enquiries with other municipalities who have expressed a keen interest in the

company's asphalt manufacturing and sustainable job creation consultancy services.

This initiative is being complemented by another one of the company's ventures that will see National Cold Asphalt produce an asphalt mix from 100% recycled asphalt pavement that it will produce from milled pavement residues it collects from municipalities.

Mullins says National Cold Asphalt has been conducting tests with 10 kg samples of the material, and the results have been extremely positive. The material will be used to rejuvenate stressed pavements. It will be sprayed onto existing road surfaces that are starting to show signs of distress, increasing their flexibility and therefore, reducing stripping and cracking of brittle pavements.

While the quality of cold-mix asphalt materials produced by the company is well known, both locally and abroad, it is National Cold Asphalt's persistent efforts in using its high grade products to develop and empower productive small businesses in the South African construction sector that will have a visibly high impact and leave a lasting legacy. <

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# Significant **ROAD BUILDING** capabilities

Rehabilitation of sections of the strategic N3 corridor connecting Gauteng to the Port of Durban again highlight the significant road building capabilities housed within the Raubex Group.



Five member companies work simultaneously on the three works packages making up the contracts, which were awarded to Roadmac Surfacing by N3 Toll Concession (RF) Proprietary Limited (N3TC).

Roadmac Surfacing established on site in January 2015 to start tackling the rehabilitation of the stretch from Warden to Harrismith and the Harrismith bypass. The company started working on the third component of the project, namely Harrismith to Van Reenen's Pass, in August last year.

Andre Meissenheimer, contracts manager at Roadmac Surfacing, says the project involves a heavy rehabilitation of the existing road infrastructure.

One of the biggest challenges is the strict riding quality requirements of sections of

**Road Techniks is just one of a number of Raubex companies operating on this project.**



**One of the biggest challenges is the strict riding quality requirements of sections of the rehabilitated infrastructure.**

the rehabilitated infrastructure. It calls for a high performance asphalt mix which is being produced by National Asphalt, a member company of Raubex Group.

"There is limited margin for error on the programme. Both companies, Roadmac Surfacing and National Asphalt, have to be very proactive and monitor materials production every day," says Meissenheimer.

He says the asphalt being produced for this contract has a five year guarantee, and is being batched at two plants built by Comar. The plants were supplied by subsidiary B&E International, the contract crushing arm of the Group that also specialises in large processing plants. National Asphalt is batching 800 t of material a day to meet the production requirements.

## Harrismith to Warden

Roadmac Surfacing will place 40 000 t of bitumen treated base (BTB), 2 000 t of coarse graded asphalt mix as per TRH8 (TRH8) and 116 000 t of rubber bitumen asphalt (A-R1) for the Harrismith to Warden section. The Harrismith to Van Reenen section will consume 6 000 t of BTB, 17 000 t of TRH8, 24 000 t of ultra thin friction course (UTFC) and 13 500 t of A-R1, while the Harrismith bypass section requires 6 000 t of BTB and 12 500 t of A-R1.

The company has deployed three paving teams on this project. Equipment deployed by each team includes a paver and Shuttle Buggy, a special material transfer vehicle, a three drum roller, a double drum vibratory roller and two pneumatic rollers.

Roadmac Surfacing is joined on the project by Raubex Group's Milling Techniks, which has deployed two recycling and milling units on the projects.

Work on the 50 km long stretch from Harrismith to Warden includes the reconstruction of the truck lanes (slow lane) by recycling the existing pavement materials.

The in situ base and sub base layers are pulverised and pre-shaped, before receiving the lime and cement stabilising agents, which are spread by hand. The sub base layer is processed with a recycling unit to a depth of 300 mm to reinstate a C3 quality layer.

A 100 mm wide, 60 mm deep key is cut into the pavement of the existing fast lane and materials removed. This creates a keyed joint between the adjacent fast and slow lane pavement structures.

Meissenheimer says that a 60 mm bituminous base with modified binder is then placed to reinstate the pavement to the original level. The full width of the pavement is then finished off with a 40 mm A-R1 overlay.

On the Harrismith to Warden stretch and

*"There is limited margin for error on the programme. Both companies, Roadmac Surfacing and National Asphalt, have to be very proactive and monitor materials production every day."*







Roadmac Surfacing has deployed three paving teams on this project.

the Harrismith bypass, Meissenheimer says a 13,2 mm aggregate surfacing seal with rubber bitumen is placed on existing intersections and on the on- and off-ramps. Gravel shoulders will be built up over the full length of the section.

Three farm accesses and the intersection at 42<sup>nd</sup> Hill (Verkykerskop) will receive major upgrades to improve the level of service for road users.

On the Harrismith bypass section, sections of the southbound and northbound lanes are also rehabilitated implementing a similar strategy as on the Harrismith to Warden section described above.

On the Harrismith bypass section, a 40 mm thick A-R1 overlay is placed over the entire cross-section of the pavement, including the surfaced shoulders of the road.

Surfacing, base and sub base patching work is included in the rehabilitation measures for both sections described above.

The Harrismith to Van Reenen section also involves extensive road rehabilitation works, and sees the placement of a thicker overlay due to the impact of higher truck traffic volumes on the road infrastructure.

Meissenheimer says on the section just south of Harrismith, the existing gravel shoulders will be upgraded to surfaced shoulders.

The top 150 mm is removed and backfilled with imported virgin material and the recycling is undertaken to a depth of 300 mm and stabilised with cement.

A 50 mm thick A-R1 overlay is placed over the entire cross-section of the pavement, including the surfaced shoulders.

## Rehabilitation

Meanwhile, the rehabilitation of the

pavement layers involves milling out to a depth of 100 mm and recycling to reinstate a C3 layer to a depth of 250 mm. The 100 mm milled out sections are filled with BTB to original level.

Meissenheimer says pavement rehabilitation differs from the other two contracts. On the section closer to Van Reenen, the bituminous pavement layer is milled out to a depth of 120 mm and removed. The C3 layer is 300 mm thick, and the 120 mm milled out sections filled with 80 mm of BTB and 40 mm of TRH8 with modified binder.

Extensive repairs are undertaken on the slow lane and involve milling out 65 mm and filling with TRH8 with modified binder. Here, a geotextile is applied after the milling and again in the patch and repair activities, before asphalt is placed. The final surface treatment over the full width sees the placement of a 22 mm thick layer of UTFCC. Shoulders are also being reconstructed to tie into the raised final road level.

One of the other challenges facing the team has been working on this very busy corridor which cater for total light vehicle traffic of approximately 9 000 per day and approximately 5 600 heavy vehicles a day.

Closures on the corridor to accommodate traffic in a safe unimpeded manner are restricted and have to be carefully managed. Roadmac Surfacing has implemented a novel method of directing traffic in the fast lanes while working on the outer slow lanes allowing ample space for safe and productive construction activities.

The low incident and accident count on the three contracts since the start of the project is a testament to the success of the strategy.

Meissenheimer has reason to be proud of the performance of the team on yet another project that reinforces Raubex Group's 'blast to black-top' capabilities. ◀

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# MIDRAND TWIST

The horizon of Midrand, north of Johannesburg, is changing forever with the construction of the new PwC Tower, which will be widely visible and a focal point in the up and coming Waterfall City development.

It is set to become a structure of iconic proportion due to its distinctive twisted form designed by LYT Architecture for Attacq Waterfall Investment Company and their developer Atterbury, and realised through close collaboration with Arup – one of South Africa's leading design engineering consultancies.

## Parametric modelling

To achieve the building's twist, each floor of the 28-storey office tower rotates 1,2 degrees relative to the floor below. This posed a variety of design challenges for both the structure and façade, many of which Arup was able to solve creatively and efficiently using parametric modelling.

"We needed to ensure our design solutions met the architect's intent and that a creative concept could be successfully applied," Richard Lawson, buildings associate at Arup says. "At Arup we are fortunate to be able to share cutting edge research and technology within our global network. It enables us to tap into the latest scientific knowledge and creative thought, which when combined with the utilisation of software, allows us to push the boundaries of design.

"Our advanced parametric modelling software and systems enables us to explore many options in our search to establish the optimal solution for complex building

designs such as the PwC Tower project."

Arup façade engineer Rudolf le Roux describes parametric modelling as 'modelling a structure or object in an n-dimensional space, where certain chosen parameters of the structure are adjustable'. In other words it makes it possible to explore the impact of any of the input parameters on the design and cost of a structure.

## Building design

"The biggest structural challenge was that the twist causes the gravity loads to naturally create a clockwise torsional load on the building," explains Lawson. "The obvious solution to this would have been a very thick core wall, but because we were able to quickly assess a number of different structural geometries, we were able to optimise the solution. Our final scheme incorporated structural columns on the façade of the building that slope in a counter clockwise direction around the core, balancing the gravity loads on the corner columns and reducing the torsion on the core of the tower.

"This meant that the stresses on the core wall decreased by a factor of four; therefore we could use a 450 mm thick wall which is not much thicker than a typical straight tower of that height would have needed."

Le Roux continues, "We also utilised parametric modelling for the design of the façade for the PwC building. Various solutions were on the drawing board at the conceptual stage with factors such as glass utilisation, aesthetic integration with the structure and integration of blinds with a sloping, slanting façade. Building a concave, twisted façade out of straight aluminium profiles and flat glass was a challenge made possible through parametric modelling.

"What we really enjoyed was that we could sit down with the architect and make real-time adjustments to things like the column spacing and angles that they could see instantly in 3D. It makes collaboration easy, and results in far less exchange of correspondence back and forth," explains Le Roux.

Guy Steenekamp, director of LYT Architecture agrees, "The team at Arup brings international experience to the project, although they are all local professionals. The kind of systems and thinking that they were able to apply to the design really made that building possible, so it's as much their design as it is ours."

## Beyond the structure

Parametric modelling was even used in some more unusual aspects of the building's design. Given that the PwC façade is concave and twisting, and knowing the history of high profile cases of problems caused by concentrated solar reflections from buildings – notably those at 20 Fenchurch Street in London (the 'Walkie-Talkie') – the Arup team knew that this was something that would need careful study for the tower.

"At the time of design no software existed for the purpose of calculating the intensities of solar reflections," said Le Roux. "Since the exact geometry of the façade had already been created in the parametric software, we used it to calculate and add up reflections from the façade. We could then test the effect of different proposed counter measures by including additional parameters such as glass reflectance and installation tolerances. With this knowledge, we were able to provide feasible and practical solutions to mitigate the impact of the solar reflections."

Creating an elegant solution for the geometry made it easier to solve secondary problems like the cleaning and maintenance of the façade. Arup worked with the contractors to develop an integrated system where guide rails run along the mullions to guide a cleaning gondola over the height of the building. The same parametric model generated the geometry of the mullions.

## All projects can benefit

Lawson adds, "Many factors went into the parametric modelling equation for the PwC Tower to come to the final optimised



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solution. Our use of parametric modelling software on a project of this scale is unique within South Africa, and our clients, as well as ourselves, are reaping benefits from the optimised holistic design on projects where we are collaborating.

“The beauty of taking a parametric design approach is both in time and cost efficiencies and a better integrated and well considered design, with all architectural and construction factors in sync.

“Not all projects are as technically challenging as the PwC Tower, but we believe less complex developments can also benefit from being set up in a parametric way. It allows designers to review the impact of many more design considerations within a given timeframe. We also often use parametric modelling for specific pieces of a project. For example it was used to resolve the buildability of the glass ‘pillow’ façade on The Royal Portfolio’s The Silo luxury hotel at the V&A Waterfront in Cape Town.”

### Integration into BIM

“A further beneficial aspect to parametric modelling is the way it feeds into other

*“The biggest structural challenge was that the twist causes the gravity loads to naturally create a clockwise torsional load on the building.”*

software, particularly our Building Information Modelling (BIM). Arup uses BIM as our default method for producing and managing design work. When used to its full potential, BIM improves collaboration between all stakeholders on a project – from designers to contractor to operator – throughout the project lifespan. We are excited about the advancements happening in the industry and look forward to a time when the all players in the industry have full BIM capability.

“These technologies enable us to take a fresh look at projects and the range of different solutions offered, backed by a wealth of knowledge that can address any challenge effectively,” concludes Lawson.

The PwC Tower will form the content of Le Roux’s paper delivered at The Sixth International Conference on Structural Engineering, Mechanics and Computation (SEMC), in September. ◀



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> Leopard's Rest consists of 4 500 houses of which the first phase of 600 houses is now under construction. First occupations will be early in 2016.

Royal School Alberton is one of three schools managed by the Royal Schools Management Company, a partnership between Old Mutual's Schools and Education Investment Impact Fund South Africa (SEIIFSA) and educational specialist, Dr Bennie Fourie, and his team of experts. Their aim is to deliver quality education at independent, low fee paying schools, through the provision of accessible facilities.

Construction of Royal School Alberton is being undertaken by CDP, Cosmopolitan Projects' in-house contractor. Building commenced in May this year and is scheduled for completion by the end of September.

The school will open for pre-school to Grade 10 in January 2016. Grade 11 will be introduced in 2017 and Grade 12 in 2018. After-care facilities will also be provided. At full capacity the school will cater for 1655 learners with 65 staff members.

The choice of Corobrik Moroccan Red Travertine face bricks for the construction of the school was primarily for their robustness in a school environment, durability, and associated low maintenance attributes.

"With sustainability a key requirement in modern construction, clay face brick eliminates the need for material replacement, saving on costs throughout its lifetime of way beyond 100 years," said Corobrik's sales director, Ockert van Heerden.

"Clay face brick has many other advantages. It comes with a 'desirability factor' and provides a good balance between aesthetics

and practicality. All in all, face brick is rightly regarded as a material of choice for defining a school building's status as right and proper.

"Not many people give much thought to the contribution clay bricks quietly contribute to good air quality and healthy indoor environments. The inorganic qualities of fired clay assure mineral properties that guarantee a nearly pollution-free indoor air quality while a clay bricks natural propensity to absorb and release humidity from the atmosphere helps keep humidity at the desired 40 to 60% level for healthy living. Another important attribute of clay brick is its good thermal performance," Van Heerden said.

"Scientific research has demonstrated that clay brick walling provides the most thermally efficient day-time occupancy institutional buildings, such as schools, helping ensure classroom environments are warm in winter and cool in summer and conducive to better teaching and learning."

Other positive characteristics of face bricks are its structural strength, flexibility in design and application, natural sound proofing qualities, incombustibility, natural resistance to fire and security.

"At the new Alberton School, the combination of earthy face bricks with the turquoise roof coverings and brightly painted accent walls creates a striking image, reflecting the passion that Royal Schools has for education and a stimulating learning environment," he said.

This state-of-the-art development has 63 class rooms, two computer laboratories, three science laboratories, four pre-school classes with a well-equipped play area, a hall with a stage, tuck shop, administration block, several staff and meeting rooms, sports fields, a drop-off zone for learners and a staff parking area.

Each class will have a data projector, laptops and Wi-Fi access. A complete security system with alarms will be enhanced by an electric perimeter fence and cameras throughout the site.

While the catchment area for Royal Schools Albertsdal is mainly Katlehong, Thokoza and Vosloorus, it is only 20 km from the Johannesburg CBD and the major industrial areas of Alrode, Wadeville, Jetpark, Isando and City Deep, with direct access to highways.

The other two schools managed by Royal Schools Management Company are Princess Park College and Queens Private School. They are both situated in the Pretoria inner city and are well known for their academic excellence. All three schools are co-ed English medium schools that cater for children from pre-school to Grade 12. <



# JOINT TEAM FOR BETTER TRAFFIC SIGNALS IN SANDTON

**A task team comprising Sandton Central Management District, Eskom, Johannesburg Roads Agency (JRA), Johannesburg Metropolitan Police Department (JMPD) and Traffic Freeflow is putting its drive behind improving traffic signals and traffic flow in South Africa's financial hub.**

> The Sandton Central Traffic Signal Forum's goal is to keep traffic moving as smoothly as possible by ensuring all traffic signals work optimally. But, with the many road, pavement and infrastructure improvement projects underway in this thriving business district, this is no small task.

However, by working together, the task team has already made good progress and road users in Sandton Central can expect to see even more improvements in the future.

Elaine Jack, City Improvement District Manager of the Sandton Central Management District, which manages the public urban spaces of South Africa's cosmopolitan financial hub, says: "One of the most important benefits coming from this forum is improved communication and it goes a long way to addressing issues and putting solutions into action faster. It takes the cooperation of many partners for a bustling area like Sandton Central to operate with excellence. Bringing everyone around the same table to improve communication between all involved is a big step in the right direction."

The forum's ultimate objective is to have all traffic signals working and synchronised optimally. But, when this is impossible, the team has developed a system to ensure traffic management is put in place swiftly,

keeping intersections moving and ensuring traffic signals are reinstated as soon as it is feasible.

Importantly, all this needs to be done with the safety of all road users – pedestrians, cyclists, motorists, public transport users and pointsmen – as the priority.

Jack confirms: "We are tracking the traffic signals carefully. With the collaboration achieved at the Sandton Central Traffic Signal Forum, the operation of traffic signals in the Sandton Central Management District has improved markedly. This is encouraging and we hope to see continued improvement in future."

Contributing to the improvement are traffic signal upgrades as well as re-cabling undertaken by the JRA, which will noticeably reduce the frequency power of outages to traffic signals in the area.

In addition, the team is weighing up several options to ensure the power to traffic signals is always on. It is piloting a UPS project for traffic signals at six intersections around Sandton Central and is also exploring the feasibility of backup generators and the benefits of applying a proactive maintenance protocol.

Importantly, a new process will ensure the proactive communication between the forum's partners takes place each and every day to ensure action is taken and there is support on the ground when traffic signals are out of order. This will help shorten repair times and let Traffic Freeflow and the JMPD know where their support is needed at peak traffic times.

Jack says: "By working together to develop this system, we're able to improve response times to put solutions in place and, at the same time, track recurring problems to identify where larger scale remedial work is needed."

She adds: "This collaborative approach is typical of leading cities around the globe. Our joint initiative reinforces Sandton's position as South Africa's leading location for business, tourism, shopping, dining, entertainment, events and living." ■

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# EXTENDING EXPERTISE 30-year residential to the African market

It has been said many times that Africa is not a uniform place in which every country and every market conforms to the same rules and circumstances. Yet, how many South African professionals really take that to heart when venturing outside of SA's borders to do business?



Architecture is a profession which requires one to be particularly open to continual listening and learning, and the partners at Messaris

Wapenaar Cole Architects believe that the willingness of even a seasoned professional to do this, and to work collaboratively, makes a significant difference to doing successful business in other African countries.

The firm has seen particular evidence of this in some of its own projects. The Edge, a sizeable new upmarket residential development in Kampala, Uganda, is a good current example. This 160-unit complex in Naalya, Kampala, is being developed by Ascent Point Investments, a Ugandan property development company. Messaris Wapenaar Cole Architects (MWCA) secured the project based on its extensive experience in high density residential architecture, with the firm having been referred to Ascent Point Investments by one of its long-standing South African clients, Limestone Properties. Its track record of successfully completing projects in a variety of African countries was an additional contributing factor.

## A process of continual learning

Jeffrey Cole, the partner in charge of The Edge project at MWCA, comments that although the firm has approximately 30 years' experience in residential projects

**The executive director of HL Investments Henry Lubwama at the project launch of the EDGE Apartments in Naalya on 16 December 2015. (Photo by Abou Kisige)**



and over 10 years of experience in Africa, the success of every aspect of the design in this project has been as a result of willingness to learn about the cultural and lifestyle requirements of Ugandans, the business and operating environment in that country, and the overall social, environmental and infrastructural conditions which inform the process.

"Our design of the units at The Edge initially followed a fairly typical South African model, which is the one we know best and which therefore served as a point of departure for the design process," he explains. "We then spent a great deal of time with the our client discussing how aspects of the Ugandan culture and way of living needed to be accommodated in the design."

For example, Ugandans tend to be extremely private people and issues of privacy and visibility are of much greater concern than they are to the average South African. Aspects such as common walkways, lines of sight, the creation of multiple and discreet entry and exit points from units all had to be considered. The creation of public and private areas also had to be given additional thought.

In addition, most people in Uganda still do a great deal of cooking outside. Matoke – a variety of starchy banana – is a commonly eaten dish in East Africa and is generally cooked by steaming it over a charcoal or wood fire – an activity which most often takes place outside. Not only does this mean that every unit in The Edge requires a fair-sized courtyard space in which residents can cook, but since the process tends to generate a lot of waste material, it was necessary to provide a waste yard for every block in the complex rather than just one for the entire complex.

## Setting a new standard for Kampala

With there not being a great many precedents for attractive and upmarket residential complexes in Kampala at present, the professional team and the client devoted long hours to finding the best ways to design something that would stand out in the Ugandan market – that would raise the bar for residential development – but which

would also meet all the functional and aspirational needs of residents.

"Our client, Henry Lubwama, wanted to develop something special on this site. There is not much in the way of original development in Kampala at the moment – there is a great deal of replication, and residential complexes don't tend to be well planned or to accommodate Ugandan lifestyles well," comments Cole.

Accordingly, the client has spared no effort when it comes to making this development stand out from the rest. Located on a gently sloping site, the development consists principally of three residential blocks and a clubhouse. Amenities include a complete gym and saunas; a pool and a rentable entertainment area with kitchen; a jogging track and a children's playground. The residential blocks are between four and six storeys in height, and are served by elevators.

"It is so important for the development to present an attractive public face that our client has undertaken to improve every approach road to the complex at his own expense. This includes surfacing the roads (which are otherwise dirt roads), managing storm water runoff, and planting pavements. Unlike in South Africa, this is not expected of developers in Uganda – the client is doing it completely voluntarily," Cole adds.

The Edge is designed to appeal to wealthier Ugandans and to the young and rising middle-class who, although they may work or study overseas, still want to invest and secure property in their home country. In addition to considering the various cultural requirements important to Ugandans, the design of the units had to be stylish and contemporary – on a par with what well-educated and well-travelled people have been exposed to.

Furthermore, the complex is fully equipped to provide backup power and water

*"We are familiar with the process of generating functional and performance-based specification documents which are largely based on British or European standards. For example, rather than specifying a branded product, the specification needs to describe how the product must perform and what materials it must be made of."*





to all units. Since power supply can be unreliable, each unit has the ability to be fitted with an inverter. Water tanks installed around the complex are able to provide 1 200 litres of water a day to each household for three full days in the event of a water supply problem. Storm water runoff is being managed by means of a walled-off basketball court which functions as an attenuation pond after a downpour. The team even had to provide for proper sewage disposal from the site, which has been done by means of sharing a properly designed mini sewage treatment plant with a neighbouring development.

### Detailed co-ordination and planning required

Whilst MWCA has undertaken all the concep-

tual and design work on The Edge, the full professional team in Uganda also includes a Ugandan architect of record, as required by law. This architectural firm, SASA (headed up by Dr. Kenneth Ssemwogerere) is actively involved in daily site management. Cole reports that the working process as a team has been smooth, comfortable and collaborative.

“We have had many workshop sessions together to ensure that everyone is able to implement best practices and to work optimally as a team,” he says. One of the aspects of the job which has needed more attention than usual has been the development of generic specification documents for the contractor to work from. “Uganda doesn’t currently have legislated building codes, although the authorities are working on

implementing something in the near future. However, because of our experience in Africa, we are familiar with the process of generating functional and performance-based specification documents which are largely based on British or European standards.

For example, rather than specifying a branded product, the specification needs to describe how the product must perform and what materials it must be made of;” he elaborates.

While projects such as this may not afford architects from South Africa the comfort of the familiar systems and formulas, MWCA’s philosophy is that adaptability, flexibility and the willingness to learn ultimately make for a stronger practice all round. Old and accepted ideas in one’s familiar environment can be challenged, while everyone involved in a project which presents unfamiliar aspects, has the opportunity to broaden their knowledge. It is clear that this approach, combined with the firm’s long-established reputation in the residential market and its African exposure, have served it well.

While The Edge is progressing smoothly, the company has since been appointed by the same client to undertake another upmarket residential development near Lake Victoria. “We look forward to applying what we have learnt on The Edge on this new project, to improving on that knowledge, and to deepening our relationship with HL Investments as a client,” Cole concludes. ◀

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# AFRISAM-SAIA AWARD

## for Sustainable Architecture + Innovation: shortlist

Following a record number of entries, the final qualifying entries for the 2015/2016 AfriSam– SAIA Award for Sustainable Architecture + Innovation have been announced.



After an intensive inspection process at each location (in- loco), 22 projects out of 47 entries have been identified by the adjudication panel. Entries closed on 24 March this year to a record number of submissions.

The qualifying projects span all four categories of the Award – *Sustainable Architecture* and *Research in Sustainability*, as well as the two new categories, *Sustainable Products and Technology* and *Sustainable Social Programmes*. These reflect a growing national engagement with design, innovation and sustainability, with representation from many different regions of South and Southern Africa.

“Successful projects not only respond to these criteria but also use the criteria as design generating tools. Unsuccessful projects make tokenistic gestures to sustainability without demonstrating the understanding that the criteria of sustainability are as important as user function and aesthetic beauty. The building must have a clear function and be in use,” comments Richard Stretton, member of the adjudication team.

Stretton, a previous winner and eminent architect and furniture designer, conducted the site visits with other members of the six-person adjudicating team – Kevin Bingham (vice president of SAIA), Daniel Irurah (sustainable architecture academic), Llewellyn van Wyk (Principal Researcher at Building Science and Technology), Sebasti Badenhorst (AfriSam representative) and Eric Noir (Africa region director of the International Union of Architects’ work programme, Architecture for a Sustainable Future).

The bi-annual AfriSam-SAIA Award for Sustainable Architecture + Innovation is South Africa’s leading award dedicated to acknowledging best practice and innovation in sustainable architecture. Its aim is to promote and increase learning and understanding of sustainability within the context of the human built environment.

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### CATEGORY A: SUSTAINABLE ARCHITECTURE

#### 1 AFRICAN SCHOOL FOR EXCELLENCE – Local Studio

The design of the school borrows from industrial warehouse typologies in the East Rand. With the notion of ‘school as megastructure’ in mind, a series of 6 U-shaped classroom clusters are arranged around a vast central hall space. Each of these clusters (termed ‘learning communities’) are designed around the school’s education model which rotates learners between spaces for instructional learning, peer-based learning, and self-study throughout a school day.

#### 2 BARN HOUSE – Strey Architects

The Barn House is an experimental personal home project. The project’s creative, all-in-one father/architect/contractor plays with forms, materials, building methods, passive heating and cooling as well as sustainable concepts. Sustainability within the building incorporates elements which have a high initial cost in terms of energy use, financial implications and footprint-wise – but these also act to reduce the amount of energy used by the building in its lifetime.

#### 3 BMW HEAD OFFICE BUILDING – Boogertman+Partners Architects (Gauteng)

The design of the building conceptually focuses on the regeneration of an iconic structure – maintaining the spirit of the original building while infusing the envelope with the life of a new entity which is simple in aesthetic intent and energy efficiency. Minimum intervention to the outer façade of this circular building retains its elegant, modern and dark brick appeal. The only addition is the lightweight mechanical horizontal louvres which are strategically installed to reduce the glare of the direct western sun and optimises the internal building envelope with the notion of transparency, further complementing the design of the adaptive interior spaces. Green principles were imperative to address the building’s thermal comfort and energy efficiency and so achieve a holistic solution to the working environment. The result of these energy efficiency technologies saw the building awarded with a 5 Green Star rating.

#### 4 DEA BUILDING – Boogertman+Partners Architects (Gauteng)

The Department of Environmental Affairs (DEA) in the City of Tshwane, based on the importance of a structure which reflects the culture of the Department, the way it works. Its function and what it stands for in terms of purpose, beliefs and service to the country and the community. The project achieved a 6 star green office v1 design rating. The design responds to an environmentally sensitive and sustainable architecture that equally is respected by international dignitaries, visitors, and tourists but is, above all, a home for the DEA to be proud of and to remain memorable, beautiful and inspiring generations to come.

#### 5 GORGEOUS GREEN HOUSE – Sagnelli Associate Architects (KZN)

A client driven green research project, the Gorgeous Green House encapsulates all green and eco gadgetry there is within the market has to offer. This project shows just how strong the client’s voice was with decision-making on a sustainable level. Special thought, consideration and research by the client allowed the design of the house to incorporate a range of sustainable features, from roof top gardens, green walls, evaporative cooling ponds, water harvesting, storage and recycling, and solar energy to name a few. Gorgeous Green House is the ‘poster-child’ for a sustainable green living.

#### 6 GOVERNMENT HOUSE PIETERMARITZBURG – Robert JW Brusse Architect (KZN)

A heritage restoration project of the Government House from 1845 for UNISA Pietermaritzburg. Restoration of this beautiful Edwardian styled house began several years ago with special detail and consideration taken into making sure that the original materials and aesthetics of the building were maintained and restored to their former glory. Specialised craftsmen from around the country gave their expertise in meticulously piecing back together this historic building.

#### 7 ICAT ECO FACTORY – Earthworld Architects (Gauteng)

Sustainable design begins long before the first foundation is cast, or brick is laid. It begins in the symbiosis between the visions of the client and the architect. This was the case for the iCat Eco Factory. The project was focused on housing both the administrative and the production functions of the company, merging corporate headquarters with warehouse space and allowing for an environmentally sustainable structure. This served to further minimise travel distance, as well as prevent the duplication of costs, buildings, footprints, staff and other assets created through running multiple buildings simultaneously. 🍃





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*“The award assessed by the project responds to the criteria of harmonisation, people upliftment, evolutionary paradigm and placemaking performance.” – Richard Stretton*





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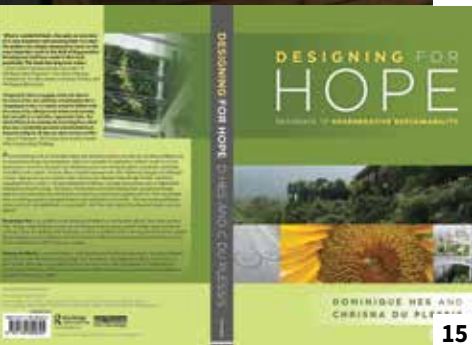
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### 8 LIV VILLAGE – Designworkshop

Liv Village exists to raise the next generation of leaders in South Africa. The village places orphaned and vulnerable children into a family environment with a trained foster mother to provide them with love as well as ensuring their education and physical needs are met. Liv Village accommodates a community clinic, open-air hall, educational facilities as well as accommodation with nurturing foster mothers who are the backbone to the discipline and caring of each child.

### 9 MABONENG PRECINCT – Daffonchio & Associate Architects (Gauteng)

The Maboneng Precinct is an open, mixed-use neighbourhood – and a unique case of vast urban regeneration produced by one Developer and one Architect. This historic district in Johannesburg is a complex of developments that collectively underpin the city centre’s exciting regeneration resulting from both global inspiration and local innovation. These include studios, art galleries and a range of shops, restaurants and coffee bars that are fueling an inner-city lifestyle, with entrepreneurship and creativity at its core.

### 10 NEW BUSINESS SCHOOL FOR NMMU – The Workplace Architects with GAPP

The Nelson Mandela Metropolitan University (NMMU) Business School, with the severe exterior, uses a minimalist simple brick while the interior and courtyard are spatially more diverse, with a variety of volumes with a multitude of light sources.

### 11 OUDEBOSCH CAMP KOGELBERG – Architecture Coop (Western Cape)

Kogelberg is tucked away above Betty’s Bay, within a protected wilderness area in the Kogelberg Biosphere, a UNESCO World Heritage Site. In creating the camp, a careful path to crafting a sustainable, environmentally responsive and low impact strategy for settlement evolved. The multi-disciplinary team mined and mapped, unravelled, uncovered and unpicked the secrets of the site ecology. Thus begun ‘hands on’ iterative journey to build a vision and grow the buildings from the seeds of understanding the site.

### 12 OUTREACH FOUNDATION COMMUNITY CENTRE – Local Studio (Gauteng)

The Outreach Foundation Community Centre is one of the first new inner-city social infrastructure projects to be built in Hillbrow since the 1970s. The building site is situated on the rooftop of the unfinished community hall of what was the 1970s German Consulate. The building houses three primary functions: a computer centre, dance studio, offices and meeting areas. These functions are collected within an angular volume draped over the two levels of the site.

### 13 WITS RURAL FACILITY – Kate Otten Architect (Gauteng)

The Wits Rural Campus is a 350 hectare environmentally protected and ecologically sensitive area of indigenous bush bordering the Kruger National Park. Originally used for botanical and animal research, it has now developed into a satellite campus for the university to use as a base for rural research and training programmes, acting as a worldclass rural knowledge hub.

### 14 WWF SA BRAAMFONTEIN – Alive Architecture (Gauteng)

The WWF building in Braamfontein, the first 6-Star GBCSA Design Rating on a brownfields site in South Africa, was a restorative project in a heritage building that dated back to 1905. The primary focus of the design of the building was centered on the maximisation of the site parameters whilst recycling most of the existing materials within the site and showcasing the raw aspects of the original building by leaving certain walls unfinished in the original brickwork.

## CATEGORY B: RESEARCH IN SUSTAINABILITY

### 15 DESIGNING HOPE FOR PATHWAYS TO REGENERATIVE SUSTAINABILITY – Dominique Hes & Chrisna Du Plessis (Gauteng)

*Designing for Hope* represents a timely, important and necessary contribution to the literature that provides a powerful characterisation of current and alternative world views. It also offers a comprehensive coverage of the scope and emphasis of regenerative sustainability. Maintaining both a measure of criticality toward the nature of an impending set of environmental difficulties that must be navigated, and yet offering a positive, hopeful message and perspective again is not an easy task.



## CATEGORY C: SUSTAINABLE PRODUCT/TECHNOLOGY

### 16 OTTO COTTAGE – Paul Marais (Botswana)

This is a small house in Maun Botswana, which is made of natural materials comprising rammed earth, timber and locally harvested reeds. Otto Cottage demonstrates what can be achieved with natural materials in harmony with the environment, while being beautifully seductive. By using forms similar to those prevalent in the area, the cottage draws a deliberate link to them; by reinventing traditional building materials, it points to a sustainable future building technology. The project minimised its impact, both in its construction with the extensive use of local and natural materials, and its ecological approach to its use (being energy, water and waste neutral).



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### 17 POD IDLADLA – Collaborate000

The POD module, and its incremental capacity, answers the mobility of people in a fast-evolving economy and the flexibility of the core family-unit or shared-living groups in our society. A good and compact design proves how liberating a small living space can be - spend less time cleaning, have more time to enjoy life, more time free to go out or away on holiday, meeting other fellow human beings.



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### 18 SOLAR TURTLE – Ugesi Gold

The SolarTurtle is an innovative community solar power plant and energy spaza shop in a box. The scale of the SolarTurtle allows the usually expensive solar panels to be stacked and stored within the container that it arrives in, keeping the plant and panels secure during the times it is not being utilised. The SolarTurtle promotes the empowerment of women to generate and sell clean power in rural communities where the need is most dire.



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### 19 VODAFONE SITE SOLUTION INNOVATION CENTRE – Grosskopff Lombard Huyberegts & Associates

The Vodafone SSIC is the first 6 Star Green Star accredited building in South Africa. The centre is a sustainable living building, envisaged as a functioning showcase for innovative techniques and design for construction, electrical, mechanical, and wet services.



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## CATEGORY D: SUSTAINABLE SOCIAL PROGRAMME

### 20 BRIDGINGMZAMBA – buildCollectiveNPO with Carinthia University of Applied Science (Eastern Cape)

The community driven project 'bridgingMzamba' originated in the urgent need for a safe crossing of the Mzamba River that was requested by surrounding inhabitants. It included design and implementation of a 140 metre long suspension bridge in a collaborative manner. Through an intensive collective approach with users, students and experts, the production of knowledge, cultural exchange, skills development and responsibility is achieved for all participants.

### 21 MALAWI SCHOOL – Architecture for a Change (Malawi)

The design explores the possibility of the school as a covered canopy. It offers a larger covered area that provides shade, open, well-lit and ventilated spaces and becomes a visual icon. Shade netting, lightweight steel, local masonry and corrugated iron form the architectural language of the building. Local masonry, handmade on site by local woman, was used to create vertical louvers on the exterior of the classrooms to act as shading devices and structural support for the roof.

### 22 ULTIMUM REFUGIUM – Ntsika Architects

This project aims to capture and document the stories of the refugee, through a narrative storytelling exhibition that captures the oral story. The exhibitional building becomes a catalyst for social change. The nameless, faceless people arriving on European shores daily are given agency to have their stories told, in their own voice. The dignity of the refugee is paramount to the success of the project. ◀

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# TOP SHOPPING

## for north KZN's permanent population



The permanent population of Ballito and its surrounds will soon have the choice of over 130 stores handpicked especially for them, when the Ballito Junction Regional Mall redevelopment opens in March 2017.

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The major redevelopment and expansion of Ballito Junction is increasing its current size by eight times, to 80 000 m<sup>2</sup> and its anchor tenants will grow in number to six: Checkers, Woolworths, Edgars and Game and its existing anchors Pick n Pay and Dis-Chem.

Owned and developed by the consortium of accomplished South African property companies, Menlyn Maine Investment Holdings and Flanagan & Gerard Property Development & Investment, Ballito Junction Regional Mall is the major expansion of an existing 10 000 m<sup>2</sup> shopping centre. To ensure the mall's success, prior to its development the owners undertook comprehensive market research.

Carl Jankowitz, director at Menlyn Maine explains: "We wanted to position Ballito Junction for local residents and our assessment supports this strategy. Of course, with the area's significant tourist appeal it will attract holiday-makers too.

"This will be a bonus for Ballito Junction

retailers, but the mall's success won't depend on tourist trade."

Ballito Junction is in Ballito, 40 km north of Durban on KwaZulu-Natal's North Coast, in the Kwadukuza Local Municipality – nestled between the two major ports of Durban and Richards Bay.

The municipal area itself is home to a quarter-of-a-million people with a highly diverse population, rich in Indian heritage and Zulu culture. Kwadukuza is the development engine of the ILembe district and contributes the highest percentage to the district's economy with industries like sugar, paper, packaging, logistics, and agriculture. It is near King Shaka International Airport and the Dube Trade Port, which have boosted employment, infrastructure, empowerment, development and housing in the area.

From its roots as a small holiday town, Ballito has grown exponentially to become a suburban paradise. It falls within the N2 and coastal development corridors, with growing business and industrial sectors and increasing residential development.

Its primary market comprises over 65 000 people in the 25 000 households in the immediate area. Here, around half of shoppers are high-end consumers. Its secondary market includes more than 510 000 people from around 140 000 permanent households. Some 40% are higher-end shoppers.

Responding to this, Ballito Junction has been positioned to serve the large cross-section of shoppers from the area's permanent population. Pat Flanagan, co-chairman of Flanagan & Gerard comments, "As a large, dominant shopping centre with a super-regional pull, Ballito Junction will have something for everyone.

Upmarket shoppers make up a smaller, but important, part of the Ballito Junction shopper

market. The mall will also benefit from the cash economy and regular spend from the largest portion of our shopper market. The mall's retail, restaurant, entertainment and services will cater for a diverse mix of shoppers."

Currently, there is nothing that compares to Ballito Junction in the area. It will introduce an unparalleled mix of leading retail and leisure choices.

The mall's 130-store shopping variety will also feature an appealing array of international brands, independent retailers and endless entertainment for the entire family, to complement its powerful line-up of popular national retailers.

This retail variety gives it the power to attract shoppers from all over the region, and its easily accessible location supports this. Superbly positioned just 1 km from the busy N2 highway, Ballito Junction enjoys excellent accessibility in its immediate vicinity as well as to its north and south, and inland.

The owners' research shows that, as a result of its location, Ballito Junction's primary area will span about a 10 km radius, from south of Tongaat to north of Sheffield and inland to areas like Shakaskraal, Sandfileds, Fairbreeze, Mitchell Village and Chelmsford Heights.

Its secondary trade area extends beyond Zinkwasi and Darnall in the north to La Mercy in the South.

Ballito Junction is itself located in the middle of an upper market residential area, in a high growth region. In recent years, there has been a population boom in the burgeoning Ballito, with various safe and gated estates built in and around the town. Indications are that this is set to continue.

The result: a massive large demand for retail and recreational facilities from the local permanent population that Ballito Junction is carefully designed to satisfy. ◀





## SAPOA INNOVATIVE EXCELLENCE AWARD

**Growthpoint Properties took top honours for commercial office development in the prestigious South African Property Owners Association (SAPOA) Awards 2016 for its Ridgeview office development in Umhlanga, Durban, KwaZulu-Natal.**

**Rudolf Pienaar, Growthpoint Properties divisional director: offices.**

corporate office buildings on a single four-level basement podium housing generous parking.

The multi-tenant offices enjoy stunning views of the Indian Ocean, enhanced by a striking glazed façade. The courtyard between the two towers provides another connection to nature, with indigenous plants and landscaping creating a fresh, urban look.

The development of the prime-grade offices began in June 2014 and was completed in December 2015. Ridgeview was developed with the expertise of Growthpoint's in-house team.

Greg de Klerk, KwaZulu-Natal regional head of Growthpoint Properties, "Our Ridgeview development furthers Growthpoint's leading market position for developing quality, green, sustainable offices. We're justifiably proud of what we have achieved with our Ridgeview office development and we are delighted it has been recognised by a leading organisation like SAPOA for its excellence."

Growthpoint, South Africa's largest primary listed REIT and an ALSI 40 company, is recognised as a leader in green building. It is a Platinum Founding Member of the GBCSA, and owns or co-owns the largest portfolio of Green Star SA certified buildings of any company in South Africa. ❏

➤ The awards, which recognise significant contributions made through innovation and excellence within the property sector, were announced at a gala event in Sandton Central, last week.

Growthpoint's landmark new Ridgeview office development achieved Durban's first 5-Star Green Star SA rating from the Green Building Council of South Africa (GBCSA), contributing to its ongoing leadership of green building in the country.

Rudolf Pienaar, Growthpoint Properties divisional director: offices, comments, "Growthpoint's Ridgeview development has created unique and leading-edge offices on an excellent site in a sought-after business precinct of Umhlanga. It has created an excellent asset for our portfolio, the greater Durban area and the environment.

"Receiving this award from SAPOA is testament to the work of all our people in making Growthpoint's offices amazing workplaces where businesses, and their staff, can really thrive."

Growthpoint's multi-million rand Ridgeview Office development in Umhlanga's Ridgeside business district comprises two five-storey



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**Rudolf Pienaar, Growthpoint Properties divisional director: offices.**

# Firestation Rosebank: the **HOTTEST ADDRESS**

There's no doubt that Rosebank is presently one of Johannesburg's most exciting suburbs. Massive investment and redevelopment make this the place to be – and Firestation Rosebank is set to become the central point of this growing business hub.

> As far back as 2006, property pundits were predicting the suburb's massive overhaul, which would be driven by the emergence of a bustling node around the Gautrain Rapid Rail station. Blue chips started setting up headquarters in the area and retailers followed suit. Restaurants and shops added to The Mall of Rosebank have furthered its appeal immensely, while the same can be said of the upgrades to The Zone and The Firs. The Mews, The Galleria and Baker Square are now set to receive the same treatment.

It's small wonder, then, that savvy developers are moving to take advantage of the hype surrounding this booming suburb. Firestation Rosebank is a case in point. The brain child of Justus van der Hoven, owner of ARC Properties, Firestation Rosebank is the latest project to be launched by the company in a joint venture with established commercial, industrial and residential property developers, Tricolour Investments. With a 1 300 m<sup>2</sup> floor plate, Firestation Rosebank presents seven storeys for sectional title offices; with 5,2 parking bays per 100 m<sup>2</sup>.

"Dating back from the 1930s, the fire station is the second oldest building in Rosebank. Only the post office, which now houses the Monarch Hotel, shares such an established heritage and historical significance. It is truly an honour and privilege to do this development which includes restoration of the fire station. We're cognisant of the duty this places on us; Firestation Rosebank isn't simply an office building. It is a city landmark and a heritage building, and our intention is to restore it with the respect it deserves," says Van der Hoven.

Tricolour's Rob Wilkie shares his enthusiasm, saying, "The fire station is a landmark site and the blend of modern architecture with a historic building makes this development unique. The design gives consideration to the pedestrian by providing an open and inviting entrance with a glass façade that offers a view into the fire station itself."

In line with current office trends, the design brings the outdoors inside, providing more natural light in order to foster greater employee engagement. Each office boasts floor to ceiling glass facades, and breath-taking cityscape views. The wraparound balconies on the south and western sides of the building are another singular feature.

Comments Justus van der Hoven Jnr of ARC Architects, "great attention to detail was given to the façade of the new building in order to ensure that the architecture complemented and respected the scale of the heritage building. Importantly, careful differentiation ensures that the new offices celebrate – and not imitate - the original building's beautiful art deco character. Balancing the relationship between old and new is key, as the new development will continue to house a working fire station, including City of Johannesburg Gautrain's response team."

The developers are planning an upgrade of the duty room and reception area for the fire station on behalf of the City of Johannesburg. The cost of these works, and of the upgrade of common areas, will be borne by the developers.

Firestation Rosebank's location is one of its greatest assets. Situated in Baker Street, it is directly across the road from The Mall of Rosebank, and within walking distance of the Rosebank Gautrain station – ideal for commuters. It is also in close proximity to several new residential developments which are adding to Rosebank's growing cachet, including Renprop's The Median Rosebank, and Redefine's Park Central apartment complex.

The addition of Firestation Rosebank will no doubt enhance Rosebank's reputation as a growing CBD, as it houses blue chip companies such as Fluxmans, HyProp, Sasol, Standard Bank, Times Media, and Total SA. With the developers scheduled to be completed in November 2017, 50% has already been sold.

Pricing of the offices has been set at R32 000 per square meter which includes four parking bays per 100 m<sup>2</sup>. Additional parking bays are available on request. Says Van der Hoven, "It's thrilling to be part of Rosebank's rebirth. We're immensely proud of this project, and hope that it comes to mean as much to those who use the city as it does to us." <



## SPRINGS MALL: UPDATE

**Springs Mall at Blue Crane Eco Park is already over 90% let, some eight months before it opens in 2017, when it will introduce a retail experience unlike anything on Gauteng's East Rand.**

> The 48 000 m<sup>2</sup> world-class new regional mall asset under development in Springs, Ekurhuleni, represents a substantial R950-million investment.

The mall project is the brainchild of the Springs-based D'Arrigo family and is a joint-venture between Blue Crane Eco Mall leading shopping centre developers and leasing specialists Flanagan & Gerard Property Development & Investment, JSE-listed retail focused REIT Vukile Property Fund and Murinda Investments, which is part of the Giuricich Bros Group.

Springs doesn't currently have a major mall, so it is no surprise that leading retail brands have set their sights on securing space at the iconic new Springs Mall.

"The response has been phenomenal," says Paul Gerard of Flanagan & Gerard Property Development & Investment. "Retailers have identified the great business opportunity the mall creates in the area. The strong take-up of space highlights retailer confidence in Springs Mall and the spending power of the region."

Anchor tenants at Springs Mall include Woolworths, Checkers, Pick n Pay and Edgars.

Springs Mall will offer something for everyone, with a wide shopping and leisure experience. Destined to become a dominant mall in the region, the new Springs Mall benefits from excellent access off the N17 highway and Wit and Jan Smuts Roads. The mall's owners have also invested in major improvements to the roads around the mall. ■





# CLOVERDENE SHOPPING CENTRE BREAKS GROUND

Work has just begun on the construction of a new convenience shopping centre in the Benoni suburb of Cloverdene. Located along the increasingly busy Cloverdene Road between Rynfield and Daveyton, this new 8 000 square metre centre will provide quick and convenient shopping to residents of Cloverdene, eastern Rynfield and parts of Daveyton.

➤ The shopping centre is being developed by the ONE Property Holdings Group. It will be easily accessible from Pretoria Road on the Rynfield side and Putfontein Road on the Daveyton side, increasing the shopping choices of those living and working in this area which is growing and densifying.

Although the greater Benoni area is well served in terms of shopping centres, there is currently nothing serving the defined catchment area in Cloverdene within an approximately 2,5 km radius. Given that the vast majority of these people fall into the lower income and LSM

brackets and have limited travel options, the location of the centre in this growing residential area makes it highly likely to be well patronised.

Cloverdene Shopping Centre will offer shoppers a variety of popular shops, with tenants including Shoprite and Cashbuild – both sure to draw shoppers from within and outside the catchment area, Shoprite Liquor, Pep, Ackermans, a hairdressing salon and several ATMs. The centre will incorporate a taxi rank, and the developers are in ongoing discussions with the local taxi association in order to ensure that the community is provided with a working transport hub in the area. They are also in the process of appointing a community liaison who will ensure that the community is kept informed and involved during the construction process.

A CLO (community liaison officer) has been appointed to facilitate the utilisation of local subcontractors, skilled labour and labour residing in the two wards adjacent to the shopping centre. At the time of the appointment, the main contractor was made aware of these intentions. They are being encouraged to employ people from the local areas and the process is being closely monitored by the developer.

Regular meetings are being held with the community to ensure that the process is fair to all parties involved, thus ensuring that the community's benefits are maximised. The developer will also engage with the prospective tenants to



further encourage the permanent employment of the local community, as far as possible.

"The aim of the project is to design a shopping centre that serves the needs of the community through a carefully selected tenant mix, ensuring that the requirements of the people in the area are met," comments Werner Franck of ONE Property Holdings. "We are also focusing on constructing a shopping centre that provides a safe and secure shopping environment with an aesthetically pleasing look and feel – encouraging the community to support the centre."

Cloverdene Shopping Centre is scheduled for completion towards the end of 2016 and is expected to open in December, in time for festive season shopping. ☑

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# TERRACED RETAINING WALL

## completes retail centre

The reason why concrete block retaining walls are used so widely is that they offer much more than the stabilisation of earthen embankments. They also give full reign to the creative talents of landscape architects and retaining wall builders.



The Grove Mall, an upmarket shopping precinct developed by Resilient Africa and situated off Lynwood Road in eastern Pretoria, illustrates this point in spectacular fashion. Its 420 m long multi-faceted retaining wall structure on its southern and western boundaries has transformed a six metre high erosion-prone earthen embankment into a terraced wall garden, comprising three, and in one section four layers, of retaining walls interspersed and overhung with abundant plant and flower life.

Despite their eye-catching attributes, public safety rather than aesthetics was the prime motivator for shoring the embankment with terraced walls which were designed, built and engineered by Engineered Interlock Solutions to provide many years of trouble-free service.

### Reasons for the choice

According to Engineered Interlock Solutions, owner, Manie Troskie, before the retaining wall option was considered, gabions were the

front-running reinforcement solution.

“We were approached by Axiom Consulting Engineers to provide an alternative terraced concrete block retaining wall design using a cut-and fill construction technique. We submitted our design, which was based on Aveng Infracast’s very attractive and natural looking split-face retaining block, the Infracast™ 350, to BJV Quantity Surveyors.

“This solution not only proved less expensive to build than the gabion-based alternative, but offered the opportunity of creating a wall garden. Over 46 000 block were supplied by Aveng Infracast to cover a total wall-face area of 2 570 m<sup>2</sup>.

“We incorporated terracing for two reasons. It was a far more attractive option than a single wall and it provided the parking basement with more natural light. The individual walls were built in S shapes with varying wall heights to lend further aesthetic appeal,” said Troskie.

Actual construction was complicated because it commenced while the centre was fully functional.

“This meant we had to work in a public space and this restricted our available working area. In addition, a section of the parking basement adjacent to the embankment had to be used for temporary storage of the excavated soil. Moreover, although the soil was sufficiently stable for backfill purposes, there was so much water in one section of the embankment that it ran continuously, and we had to pay particular attention to drainage” said Troskie.

### The project

The walls were completed at the end of 2014 and took six months to build. The bulk of the structure comprised three walls, apart from the south western corner where a fourth wall was added.

Detailed logistical planning was required to counter the restricted working space and a ramp, which provided access to the upper wall sections, had to be built. Besides excavating and stockpiling the soil, an existing precast concrete drainage channel, which ran along the bottom of the embankment, had to be temporarily filled in to provide adequate and unimpeded access for building the lower wall. Provisional alternative drainage was installed in this section during construction. Dust was another problem and the on-site water was used to damp down the soil.

In order to ensure that the walls were structurally sound and well drained, Engineered Interlock Solutions was obliged to use low-fines concrete as the backfill material for the first wall. This wall varied in height between one and three metres and in one three metre section the wall was built around a substantial quantity of rock. The upper walls ran between one and two metres in height.

All the walls were built with concrete foundations and the excavated soil was used as backfill material for the upper terraces. All the walls were built at an angle of 80° with Maccaferri WG4 geosynthetic reinforcement. In addition, a layer of bitem was installed under the second to last layer of blocks on all the walls for erosion protection.

Drainage was a very important facet of the project, given the large volume of water on site. Sub-soil pipes were placed at the bottom of the cut face and outlet pipes were run from the cut faces to the bottom of the

The lower wall under construction at The Grove.







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# ASSISTING THE VIVA FOUNDATION

The South African impoverished community faces many socially-ill related issues and not least of these is the increasing development of informal settlements and the related problems that create an environment of insecurity.

> The Viva Foundation, a non-profit organisation that strives to turn these informal settlements into stable and safe neighbourhoods, relies heavily on support from the industrial and business sectors for funding and donations of materials that assist in the establishment of these safe havens known as 'Viva Villages'.

Technicrete ISG, a subsidiary of the IS Group has donated 1 122 metres of concrete Palisade fencing that is being used to secure two Viva properties: 286 metres at the Mamelodi East Viva Village and 836 metres at the Refilwe, Cullinan Viva Sharehouse.

Group Marketing and communications manager of ISG, Guinevere Thomas said "Projects such as these Viva Villages provide so much hope for those living in these informal settlements, particularly the children, that we at Technicrete ISG, wanted to assist in the securing of the facilities and equipment that the Viva Foundation had worked so hard to acquire, hence our generous donation of concrete palisade fencing and installation.

Chief executive officer of the Viva Foundation, Meleney Berry-Kriel said, "Both of these Viva facilities offer crucial activities such as education, sport and recreation, employment, social awareness support and developmental programmes, accommodation, farming and fresh vegetable projects. Obviously at site we have valuable training and computer equipment as well as hardware and tools for the farming activities. The donation of the concrete fencing by Technicrete ISG has been most welcome, and affords our village community some security in this poverty stricken area".



"Having the perimeter concrete palisade fencing also ensures that we are able keep the children and other Viva employees safe while conducting our daily activities and classes, and we appreciate the interest and support from Technicrete ISG," Berry-Kriel concluded.

The Technicrete ISG steel reinforced concrete Palisade fencing is a high quality security system and its open slat configuration acts as deterrent to intruders due to their presence being clearly visible.

The Palisade fencing is also suited for airports, railway stations, hospitals, sports grounds, warehousing and other areas that require a strong and quality security fencing system. .

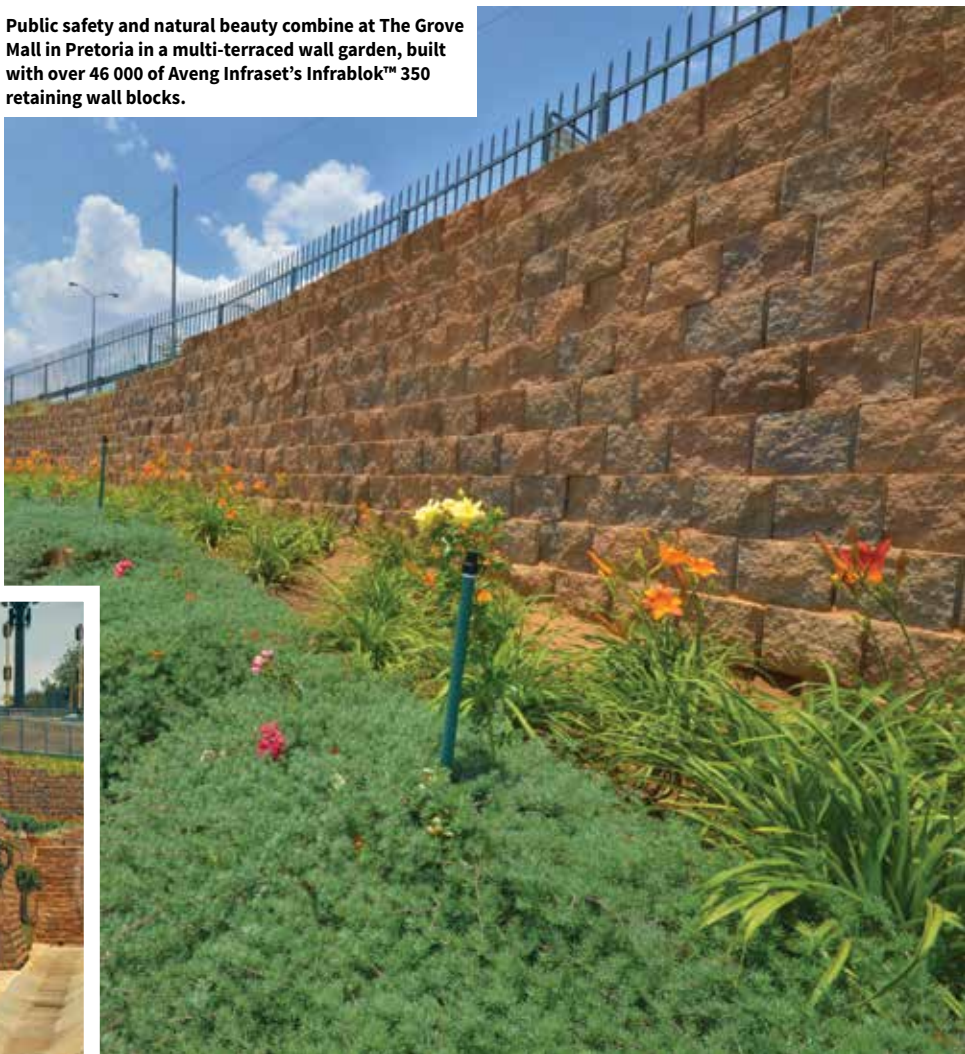
walls. Sausage drains were placed against the cut faces of the upper walls and the outlet pipes drained onto the flower beds of the lower terraces.

Kaytech's M100 Geopipe was used for drainage where the water flow was at its heaviest. Troskie said that one of the reasons why Aveng infraset's Infrablok™ 350 was specified is that it allows for the creation of concave and curves which were deployed at The Grove.

Aveng Infraset landscape products sales manager, Brennan Small, commented further, saying that the Infrablok™ 350 also allows the construction of staircases and two were built at The Grove to provide access to the gardens.

"Furthermore, the blocks can be filled with concrete for the placing of handrails, light posts and fences," advises Small.

**Public safety and natural beauty combine at The Grove Mall in Pretoria in a multi-terraced wall garden, built with over 46 000 of Aveng Infraset's Infrablok™ 350 retaining wall blocks.**



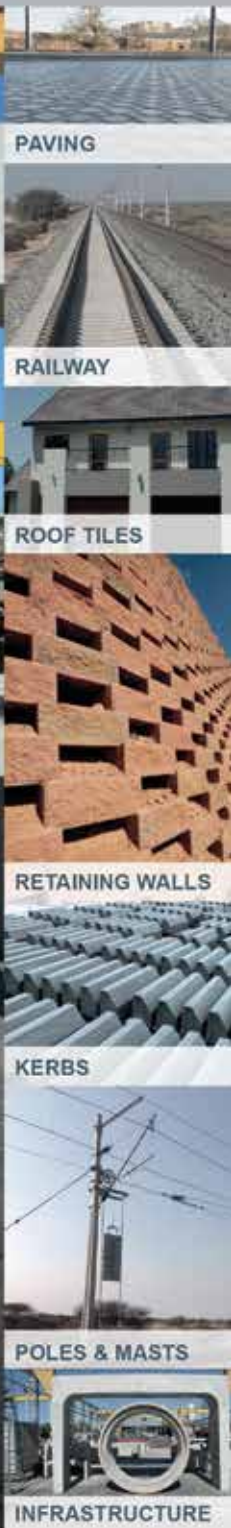


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## Gautrain platform extended with **PRECAST ELEMENTS**

By Chrissi Maria

The Gautrain Station at the OR Tambo International Airport (ORTIA) has recently been extended by 55 metres in order to accommodate a further two Gautrain carriages and bring the station capacity up to a full four-car train set.

46



Turner & Townsend, appointed by Bombela Concession Company (BCC) as project managers, adjudicated Stefanutti Stocks Civils as the preferred contractor, whereafter BCC awarded the construction contract to Stefanutti Stocks. Work on site started in July 2015, and the completed platform was handed over in May 2016.

The scope of work undertaken by Stefanutti Stocks Civils included the design and construction of the entire station extension and all associated works. This included the modification of existing infrastructure to accommodate the new installation; the installation of precast struts; the manufacture and installation of precast slabs and balustrade walls; the manufacture and installation of a new steel roof canopy with fire escape staircases; and all platform finishes on completion.

The precast concrete elements included 5 ton struts and 20 ton slabs and balustrade walls, which were manufactured off-site.

Prior to the installation of these precast

struts and slabs, the existing parapet walls were saw cut using a diamond rope-and-blade cutting system.

The project included a number of unique and interesting aspects, both in terms of constructability and the technology required to achieve the necessary construction.

Not only did the entire installation of the platform extension take place at a height of 18 metres above ground level, it was also the first time that an upgrade to the Gautrain station has been undertaken, while train operations continued as normal.

“Our collaborative brainstorming and feasibility studies resulted in innovative ways to execute temporary works,” says Glen Deyzel, Stefanutti Stocks Civils contracts manager for the project.

“We had to consider an installation methodology that would allow us to achieve our best production and address all safety, environmental and construction risks.”

Risk considerations included the project prerequisite that the trains were to remain operational at all times. Furthermore, the access road, directly above which construction took place, also needed to remain operational at all times, as it was an airport entry point.

The confined working area as well as the weight of the precast elements that were assembled to build the platform required the use of what is said to be the largest tower crane in Africa. This crane was utilised at the platform extension at a capacity of 26,1 tons at a radius of 40 metres. This crane has a maximum capacity of 10 tons at a radius of 82,6-metres.

“When planning this project we had to address multiple challenges including our proximity to people, airport traffic, live trains, the adjacent hotel – and of course we had to consider all these when planning access to do the work,” says Stefanutti Stocks Civils’ contracts director, Mike Stevenson.

“We considered erecting a gantry from which we could pick up the precasts and lower them into place, however we would have been snookered on the southern side, due to the hotel and the through road.”

### Interesting aspects of the project

- A protection deck, consisting of a girder system that spanned the 18-metre wide main access road into the airport, was designed and constructed prior to work being allowed to commence over vehicular traffic.
- The demolition activities had to be undertaken in a way that reduced environmental impact in terms of excessive noise and dust pollution. In particular noise levels, if not controlled, can prove very disruptive, to guest in the airport hotels and customers using the Gautrain.
- To accommodate the increased loading of the structure the struts were transversely post-tensioned and the existing viaduct was longitudinally tensioned.
- A new 68-ton steel roof canopy was manufactured and installed.
- The construction method had to take into consideration the mere 150 mm distance between the southern side and the adjacent multi-storey City Lodge carpark.

“The key to the success of this project included a professional team and good planning that started from the conception phase of the project,” concludes Deyzel. “Our site motto was to ‘do it right the first time’, and by setting ourselves realistic goals, we were successful in achieving them.”







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# Best possible concrete mixing SOLUTION

Scania South Africa's impressive stand at BAUMA CONEXPO AFRICA 2015, displayed mixers, tippers, a stemming truck, staff carriers, infrastructure support vehicles and a containerised genset.



It was during this event that Scania relaunched its range of construction vehicles to the Southern African market, taking the opportunity at the same time to illustrate its holistic view of the transport system in which different forms of transport, infrastructure, policy and business models are linked.

The two mixers on display illustrated this. One was a traditional mixer in which all the concrete components are mixed while en route to site and the other mixer that transports the dry components of the concrete (cement, aggregate and additives such as fly-ash) to site where they are then mixed with water.

This is what Alexander Taftman, general manager product & marketing of Scania South Africa means when he says that for Scania there is no typical solution. "Each customer is unique. Nothing in predefined – from Scania's comprehensive needs analysis, through finance or insurance to after sales service," he says.

## Both concrete mixers – but needs-specific

Both of the concrete mixers are typically used by construction contractors, but the applications they offer for mixing are very different with the traditional mixer being the more widely used method of mixing concrete for urban applications.

The specialised vehicle is suited for long distance travel to remote sites and is housed on an off-road 6x6 truck and chassis. Traditional concrete mixers use weight batching,

*"Each customer is unique. Nothing in predefined – from Scania's comprehensive needs analysis, through finance or insurance to after sales service."*



The Scania G410CB6x6EHZ, fitted with a Reimer concrete mixer.

whereas the specialised vehicle uses volume batching. The latter has a load capacity of 9,5 m<sup>3</sup> and can produce 60 m<sup>3</sup> an hour. A traditional mixer has an average load capacity of around 6 m<sup>3</sup>.

## The specialised concrete mixer

At the 2015 expo, Scania handed over a G410CB6x6EHZ off-road mixer truck to client Desert Fruit Namibia. The truck was fitted with a Reimer concrete mixer. The fitting of the mixer onto the Scania chassis took eight to 10 days.

"Scania was chosen for this project because of our great dealer network in Namibia and the rest of Southern Africa," says Theuns Naude, key account manager construction, public and special for Scania South Africa.

This specialised vehicle can achieve a high production rate when the components of the mix are available on site to replenish the load bins as needed. It is capable of mixing exact volumes of specific strength concrete through programmable computer software. The software enables the operator to print an analysis of the concrete mixed that indicates volume, specification and component mixtures for reference and quality control.

"The most important feature of the Reimer mixer is that it produces fresh concrete at the point of discharge. This on its own brings many advantages to the contractor: workability, finishing off the end product, and slump. Waste management is easier and pollution is minimised," says JJ Fivaz, projects manager for Reimer SA. The specialised mixer requires almost no water to clean – as opposed to traditional mixers that require a lot of water. It is therefore more environmentally friendly.

"The mixer provides concrete on demand, has almost no setting up costs, and when pre-loaded, can produce concrete within five minutes of arriving on site," says Fivaz. Concrete is produced and poured immediately and there is no danger of concrete potentially curing while being transported to site.

## The concrete mixer

Naude says that care had to be taken with the positioning of the Reimer mixer to ensure

that the maximum carrying capacity was spread across all the wheels. At the time the specialised mixer truck had to be produced Scania was the only OEM that had 6x6 trucks available for sale.

The discharge chute and the auger needed to turn freely from side to side and up and down, which required modifications to the sub frame. The Reimer technical staff spent most of the conversion period with Scania's engineers.

## Improvements in volumetric batching

Fivaz maintains that improvement in volumetric batching has required significant innovation over the past decade. "Accuracy is the most advanced feature on the Reimer – followed closely by its safety features. Its reliability and relatively low maintenance costs (versus a conventional batching plant) ensure competitive prices in the market," he explains.

"The versatility in producing various strengths of concrete from one load of material, outperforms drum mixing operations. Its ability to produce a constant product with minimal or no waste, makes it a leader in volumetric batching and is unmatched when competing against very sophisticated batching plants," Fivaz adds.

## Illustrating how Scania assists

Taftman says the truck that was handed over was chosen for its off-road capabilities. "This very same truck can be configured for an urban context. This emphasises the importance of a needs analysis beforehand. We try to minimise the customer's total operating cost," he adds.

"In the current climate where margins are getting tighter and tighter, it is imperative that we provide our customers with the best possible solution. The two mixers are examples of how this can be applied to the rest of Scania product range," says Taftman.

"Our construction customers are experts when it comes to their core business, but not necessarily experts when it comes to their equipment's mobility. That is why we analyse their needs, communicate with our body-build partners and then provide the customer with a comprehensive solution proposal," he concludes. ◀





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Payload is the next big thing. We have engineered our trucks to be the lightest yet strongest they can be. This is the key to offering the greatest payloads on the market.

And then there's the fluctuating cost of fuel. With Scania you can be confident that you are operating one of the most fuel efficient vehicles on the market. We can proudly say that this has been the case for decades.

Adding all this up, also taking the cost of R&M, finance, insurance and residual values into consideration, you will understand why we focus on total operating economy.

So if you're just buying trucks, we're probably not the supplier for you. But if you're buying a partnership, a commitment, a total construction solution, then we should talk.

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## STRATEGIC DEALERSHIP

Two companies with a 100-year history met on the stage of a brand-new, Pretoria-based Isuzu Truck franchise. Bidvest McCarthy has now invested in an Isuzu Truck dealership strategically sited just off the N4 at Gateway Industrial Park in Pretoria East.



Isuzu Truck's chief operating officer, Craig Uren.

➤ 2016 is Isuzu Truck celebration of 10 years independence as Isuzu Truck South Africa coupled with a proven track record of being the leading local brand for three successive years.

The Bidvest industrial conglomerate is extensively involved in freight management, logistics services, terminal operations, and marine and aviation services. The profile of the Isuzu truck range ideally suits the fleet requirements of Bidvest's freight operations. With both impressive profiles, Bidvest McCarthy and Isuzu Trucks is an excellent match.

Isuzu Truck's chief operating officer, Craig Uren, emphasises the importance of truck service and parts supply. "Isuzu Truck dealers are a service organisation that also sell trucks and this new dealer is a further development that flows out of a truck marketing study conducted in 2002. There are Isuzu truck dealers in Pretoria North, Pretoria West and Midrand. The Bidvest McCarthy Pretoria East investment now closes the service loop for this region in addition to a route presence on the N4," he added

At the helm of the new operation is Bidvest McCarthy dealer principal Liza-Marie Gibson, who has seven years of truck retail experience. Gibson comments, "We are a lean, mean team with a strong focus on the distribution sector where Bidvest industrial has a strong presence."

Steve Keys, group chief executive officer of Bidvest Automotive, concludes, "It's a service business and with Liza-Marie Gibson who is a high-energy person, which fits perfectly the Bidvest profile and benefits customers. While South Africa is experiencing economic hard times, we do not see the market segments that this new dealership will serve contracting as much as the economy. Business success comes from co-operation and collaboration, and this is what we have established with Isuzu Truck South Africa today."

Bidvest McCarthy Isuzu Truck is offering on-site, after hours and Saturday servicing. In addition, there is a drivers' lounge where drivers can relax comfortably while their trucks are being serviced. It matches Uren's vision of "being a service organisation that also sells trucks". ■



## ROUGH AND TOUGH OPERATION

Dust, dirt, loose sand and corrugated roads are 'all in a day's work' for the fleet of FAW 28.280FD 6x4 tippers operating on the andalusite operation of Imerys Refractories at the Rhino Mine site near Thabazimbi in Limpopo Province.

➤ Fleet operator and contractor on the project, Willie de Beer and his son, Michael, are themselves as rugged as they come when it comes to running the fleet with their staff of 24 people deployed as drivers, loader operators, technicians and administrative support.

Since being re-assigned the contract, Willie de Beer purchased the FAW 28.280 10 m<sup>3</sup> tippers early last year. These 'dirt monsters' are moving a massive quota of about 4 200 ton sand, grit and loose stone mixture a day; roughly between 108 000 to 110 000 ton a month.

Mining and moving andalusite, which is an extremely hard nesosilicate mineral, is highly abrasive on any equipment involved. This presents all the vehicles and heavy equipment with one of the toughest environments to work in. The residue sand and stone, after separating the core minerals, are no easier on the vehicle and equipment either.

What made Willie de Beer decide to buy the FAW 28.280FD was the brand's reputation for strength and durability. "These tippers have exceptionally good torque – 1 160 Nm between 1 400 and 1 700 rpm – they also have a strong chassis, great steel tipper bins and offer a solid payload at 28 t GVM.

The Weichai WDB615.50 engine has proven its capabilities over and over. We are very happy with the combination of this engine and the manual 9-speed FAW gearbox giving us a grade ability of 36%@V. We are able to move quickly and efficiently with these tippers across the hills and valleys of this terrain." Since changing to FAW tippers, de Beer reports a 22% drop in fuel consumption.

The site's major obstacles are heat, powdered dust and extreme gradients, with the FAW taking all of these obstacles in its stride.

"We enjoy the support of the FAW Pretoria West dealer and Pieter Gerber, the dealer principal, in particular, when it comes to keeping the tippers moving. The dealer is responsible for servicing our vehicles on site, the supply of parts and the training of our drivers. Invaluable service and support when we have these types of site challenges to deal with," says Willie de Beer.

"Another major selling point was affordability, as this is especially relevant when you run a relatively small fleet like ours. That's why I've been buying FAW since 2008 and certainly plan to continue with the brand that has not let me down to date." ■





# RELIABLE CONSTRUCTION PARTNERS

## Tippers and Mixers



### Tippers

8.140 FD  
4x2 3.5m<sup>3</sup>

15.180 FD  
4x2 6m<sup>3</sup>

16.240 FD  
4x2 6m<sup>3</sup>

28.280 FD  
6x4 10m<sup>3</sup>

35.340 FD  
8x4 15m<sup>3</sup>

### Mixers

33.330 FC  
6x4 6m<sup>3</sup>

35.340 FC  
8x4 8m<sup>3</sup>

All FAW vehicles are durable and tough, built locally in Coega to international standards. FAW tippers can handle the toughest of environments with ease - dust, stones and uneven terrain, challenging entry/exit slopes. Supporting FAW's uptime promise is a host of aftersales back-up services, and maintenance and parts supply through a wide dealer network.

FAW provides purpose-fit mixer trucks that can conquer the rigors of any building site. There are few mixers to match FAW strength and long-lasting working capability. FAW mixer models are easy to drive and offer exceptional durability because of a strong chassis frame, the robust materials and quality standards applied in the manufacture of the truck, the drivetrain and the mixer body.



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# IDEALLY EQUIPPED for future requirements

Wacker Neuson has a whole bouquet of innovations in the excavators segment. The new models work economically with a simultaneously higher performance and therefore do very well in terms of economic and profitable work.

> Last year, the first four excavator models were already presented. Now the series between six and 10 tons of operating weight is complete with a zero tail model without overhang (EZ80), two tracked excavators (ET65 and ET90) and two wheeled excavators (EW65 and EW100). The EZ80 is the latest model of this series that is setting standards for precise and efficient work with features such as the Load Sensing hydraulic system for a simple and precise operation, a revised machine and cabin design for an ideal all-around visibility of the entire working area as well as very high digging forces.

A good all-around visibility as well as a view of the track and attachment on both sides is indispensable for safe operation and quick working in the construction site sector. Due to the lateral offset of the boom as well as the strongly forward rounded valve hood, the new excavators meet these requirements perfectly.

A higher bucket torque and the enlarging of the bucket's angle of rotation to 200 degrees make the ET65 and ET90 the best in their class in terms of excavation performance. The result? More economical work.

The load sensing system ensures that the work speed of all movements always remains constant and – as the name suggests – independent of the load with the load-independent flow control (LUDV), even if multiple move-

ments are performed simultaneously. Unique in the six ton class: the optionally available articulated boom for more flexibility, extra reach, digging depth and dumping height.

Up to five auxiliary control circuits are available with the new models: the fast, continuous setting of the individual circuits takes place via a 'jog dial', an operating concept that is known from the automotive industry. Individual storage as well as settings of attachments can therefore be performed without any problems, even during operation.

With the EZ53, a zero tail excavator with about 5.2 tons of operating weight, Wacker Neuson presents the successor to the 50Z3. Despite its size, it can achieve an optimal excavation performance even in difficult to reach places, such as against house walls, because at no point does the rear of the EZ53 project over its undercarriage.

Optionally outfitted with the Vertical Digging System (VDS), the revolving superstructure of the EZ53 can be continuously tilted up to 15 degrees. This allows for vertical digging, even on sloped surfaces, and makes the machine even more flexible. The latest technologies ensure for a reduced fuel consumption with a simultaneous increase in engine and hydraulic performance.

The turbo diesel engine with an output of 36 kW as well as improved digging performance provide for higher materials handling. Thanks to the tilttable cabin and the

side engine hood, the EZ53 provides convenient service access. Up to five auxiliary control circuits with a separate pressure-free return line make it possible to use a variety of attachments.

The new mini-excavator ET16 with an operating weight of 1,5 tons, which will replace the 1404 in the fall of 2016, scores with new characteristics: In the future, it will be offered with a second driving speed and a redesigned cabin interior, which offers spacious legroom and headroom.

Due to its telescoping travel gear, which can be extended from 990 to 1 300 mm, the mini-excavator is ideal for narrow passages and at the same time can exhibit a high level of stability with extended telescopic travel gear.

## Maintaining an overview – always and everywhere

When is the next maintenance due? Where are the fleet's machines located? How many hours are they used per day? These are questions that are of crucial importance for fleet managers – and that can be answered quickly thanks to the Wacker Neuson telematics. Using GPS/GSM, the system automatically records the operating times of the machines, provides information about movement, the operating condition or the location.

This makes it possible to monitor the machine in real time – around the clock and at any site of application. All necessary information can be accessed by smartphone or computer. The user or owner is informed about an upcoming maintenance by text message or an e-mail.

The Wacker Neuson telematics is available for all excavator models ex work or as a retrofit kit. <

The Wheeled Excavator EW100 from Wacker Neuson.



The EZ53 Excavator from Wacker Neuson.





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# FIRST EXCAVATOR IMPRESSES

The first Kobelco excavator was delivered to Upfold Plant Hire in Port Shepstone since Toyota Tsusho Africa was appointed as distributor for South Africa. Delivery took place last year December.

> The owner of Upfold Plant Hire, Ryan Upfold, was so impressed with the Kobelco SK210LC-8 that he purchased a second unit in February this year.

What impressed Upfold most was the fuel consumption produced by the Hino power plant, far less than any of the other machines he has ever owned. The power of the machine was also a big motivator. The first unit was supplied with an intermediate dipper arm. Upfold was sceptical about the breakout forces, but to his surprise there was almost no difference compared to his older machines. He says that the speed and balance of the machine is impressive and made a difference in production cycles. ■

From left: Ryan Upfold (owner), Ken Shipley (ALS Cartage) and Corne Coetzee (GM Toyota Tsusho Africa).



# Excavator helps

In the UK, a new Doosan DX300SLR-5 crawler excavator that was part of a fleet of machines hired from Fraserburgh-based David Smith Contractors, has played a vital role in helping to save the historic Abergeldie Castle following huge storms in Scotland.

> Set right beside the River Dee, Abergeldie Castle, an A-listed 16<sup>th</sup>-century tower house, teetered on the brink of collapse when unprecedented heavy rainfall caused the river to burst its banks, sweeping away around 20 m of the banking and leaving the historic building in a precarious position.

## Teetering on the brink

Supplied by Balgownie, based at Inverurie in Aberdeenshire, the local Authorised Doosan and Bobcat dealer, the long-reach capability of the DX300SLR-5 excavator was pivotal in shoring up the banks of the river and saving the castle, before work was immediately commenced to further repair and strengthen the river bank to ensure the future survival of the property.

David Smith, managing director of David Smith Contractors, said: "We were pleased to be of help in the works to save Abergeldie Castle. As soon as it was delivered by Balgownie, the new Doosan machine was off to site to work on the river bank next to the castle. Long-reach excavators like the Doosan DX300SLR-5 model are a speciality of ours and are popular in Scotland."

In the face of the storms, the 76-year-old baron of Abergeldie, John Gordon, and his wife had to flee their castle and seek refuge with neighbours until the castle could be secured to prevent it from toppling into the raging river.

Having secured £100 000 funding and with support from Aberdeenshire Council, teams worked tirelessly through the night for five days to build up the banks by the castle using tonnes of rocks to effectively prop the castle up and prevent further erosion of the banks. Thankfully, the castle is now no longer deemed at risk.

The new Stage IV compliant Doosan DX300SLR-5 was deployed to place hundreds of tonnes of stone along the river bank adjacent to the castle to reclaim the river bank.



# SALES SUCCESS

According to Doosan Bobcat EMEA, the Bauma 2016 exhibition in Munich in Germany was a great success for the company, with over 150 machines sold on the stand during the show and a huge number of sales leads generated for follow-up after the event.

> Focusing on construction/building materials and construction and mining machines and equipment, bauma 2016 is the world's largest trade fair and this year the show attracted approximately 580 000 visitors from 200 countries, a rise of more than 9% on the previous show in 2013. A total of 3 423 exhibitors – 263 from Germany and 2 160 from abroad – from 58 countries, presented their products, developments and innovations on a record 605 000 m<sup>2</sup> of exhibition space.

Over 100 Bobcat compact loaders, compact excavators and telehandlers were sold on the stand during Bauma with the greatest interest shown in the E17, E19 and E20 1-2 tonne compact excavators as well as the prototype of the new E10 electrically powered 1 tonne micro-excavator presented for the first time at the exhibition.

The demonstration of the E10 Electric excavator proved to be a big draw on the stand which also included the first showing of the new Bobcat Stage IV engine for the company's rigid frame telehandlers and the new sand cleaner, one of a wide array of Bobcat attachments on the stand. The list of new products was even

more extensive in the display of Doosan Heavy machines, which included five new wheeled excavators, two new crawler excavators and two new wheel loaders.

The 40 Doosan machine sales from the stand covered all sizes of equipment and included both tracked and wheeled excavators, wheel loaders and articulated dump trucks.

There was also a significant number of sales and enquiries for compressors, generators and lighting systems in the Doosan Portable Power range, which included the first showing of the new Doosan G400-III A and G500-III A Stage III A compliant generators at bauma.

There was a lot of interest from the international trade press in the Doosan Bobcat stand with over 120 face-to-face interviews conducted on the stand. One leading German publication judged the Doosan Bobcat stand in the top 3 'must-sees' at the exhibition.

Ideally situated in the outside area and close to the East and North entrances of the show, the Doosan Bobcat stand proved to be a magnet for visitors also attracted by the spectacular demo show held several times a day. ■



# SAVE CASTLE

The placing of the stone was then followed by a large rock armour which should go some way to securing the future of this historic building.

## Greater power and torque

The new DX300SLR-5 is powered by the Scania DC9 5-cylinder diesel engine, with an output of 202 kW of power at 1 800 rpm, providing a huge 27% increase in engine power and a massive 30% boost in torque over the LC-3 model. The engine meets Stage IV emission regulations without the need of a diesel particulate filter (DPF), through the use of cooled exhaust gas recirculation (EGR) and selective catalyst reduction (SCR) after-treatment technologies.

To help meet Stage IV regulations, Doosan has added a mass airflow sensor and exhaust brake to the engine. The mass airflow sensor allows the electronic control unit to improve the management of airflow provided by the variable geometry turbocharger and to optimise fuel delivery to the combustion chamber based on air intake volume and rpm.

With the Scania engine, new innovative and exclusive features have been introduced, leading to fuel consumption reductions amounting to an average of 10% compared with the previous Stage IIIB machine. <



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EXCAVATORS

## COMPACT AND EFFICIENT

David Shelley, managing director of leading plant hire company, Mini Loaders Plant Hire says he is pleased with the performance of the Kubota mini excavators that he acquired from Smith Power Equipment (SPE).

Shelley has been in the excavation rental business since 1994 and his company concentrates on compact excavators in five different sizes and telescopic handlers – from compact to high-reach.

"I originally met with SPE and its Kubota representatives from Japan to discuss the specifications we required and they were co-operative. We were not interested in glass cabs as these tend to break in the harsh conditions we work in. The Kubota excavators that we were supplied with were ROPS approved: the operators work in a comfortable environment with better all-round visibility," says Shelley.

He adds that these machines are being used by major South African contractors on several JRA road and bridge upgrades and also on the development of the Rea Vaya bus rapid transit (BRT) infrastructure.

Shelley says that one of the advantages of the Kubota excavators is that he has been able to do some modifications, specifically attaching his own quick-hitch system, allowing him to quickly interchange buckets of various sizes with demolition hammers. "We do a lot of demolition work and the ability to change from bucket to hammer quickly is a major advantage for us in terms of productivity," he says.

He also praises the Kubota's boom-swing, which allows the mini excavator to operate without having to move while the zero tail-swing radius always keeps it within track-width when swivelling. "These features enable operation in tight and confined spaces," he says. The integration of the boom and zero tail swing radius was a game-changing technology for Kubota.

Tom Bloom, SPE general manager construction equipment division, says, in addition to Kubota's dominant position globally in the field of compact industrial diesel engines below 100HP, it has made its successes in the mini-excavator market unparalleled. "By the end of 2008, Kubota had sold more than 340 000 mini excavators and since then it has enjoyed the No.1 market share worldwide." ■





# EVOLUTION of well-known brand

One of Africa's well-known grader brands, Mitsubishi, has been acquired by new stakeholders. It has ambitious plans for the future. Under the new banner of Hidromek, the stalwart machines are set to become more popular due to ongoing improvements to make them more efficient and reliable than they already are.

While processes and procedures at the factory have remained largely unchanged, the new leadership, based in Europe, has brought about fresher, more modern thinking that is driving the machines to be in touch with modern requirements.

The machines have gained a strong following from users who need machines that work reliably for extended periods, in rough terrain, with minimal support.

## Tough for Africa

Peter Kaliszka of ELB Equipment, the long-standing distributor of Mitsubishi/Hidromek graders in Southern Africa, says Mitsubishi graders have made their mark in Africa for decades. Instead, the Hidromek has been cleverly designed to be near indestructible, using the best Japanese materials and designs to develop a machine with the least possible chance of failure. Instead of searching for efficiency through smaller high-tech engines, the Mitsubishi/Hidromek is equipped with a bigger engine that is hardly taxed when grading at low revs.

"The end result of this is a grader that is more economical than small engine competitors in hard working environments. Similarly, the engine is not strained and as a result is more reliable with less chance of breakdowns. That is why in the 25 years since the first machines went into operation in Southern Africa, we have only ever replaced two engines (one as a result of a flooded river, the other as a result of misuse)," says Kaliszka.

## Conquering Namibia

One of the toughest testing grounds on earth is in Namibia. Here the

machines have excelled. The country has some of the toughest terrain on earth with conditions varying from hot sandy deserts to rugged mountains.

Erich Bartsch of Barex Equipment, ELB Equipment's dealer in Namibia, has sold many new Hidromek graders to Namibia's road construction and maintenance crews over the past three years. Based on his own personal experience in the 1990s as a mechanic for previous dealers, Windhoek Hire and Services, he maintains that the graders are rock solid and worthy of staking one's reputation upon. Since taking over the dealership and forming his own business 10 years ago, he has sold many graders into the marketplace and is currently responsible for after-market support of the country's large fleet of Mitsubishi/Hidromek graders.

"Namibia boasts some of the best graded gravel roads in the world despite the rural nature of the country. It relies on our machines to maintain the toughest parts of the country's roads and has done so for the past two decades when the newly-formed Government received a gift of 14 Mitsubishi graders from the Japanese government. Those machines proved themselves and are still in operation across the country today," Bartsch says.

## Contractors' favourite

He adds that contractors responsible for road construction and maintenance also rely on Mitsubishi/Hidromek because of their low running costs and continuous availability. Fuel savings also play a major role with contractors who operate mixed fleets. He maintains that fuel savings of the Mitsubishi/Hidromek amounts to approximately NAD2-million over five years.

Contractors prefer the simplicity of the machines as fewer things can go wrong and there is no need for out-of-town technicians in the event of a fault. This applies to all models: from the Hidromek MG 460 18-ton to the Hidromek MG 431 16-ton and Hidromek MG 330 14-ton machines. Fuel savings also help to keep the machines out in the field for longer where the size of the diesel bowser may decide how far the grader may venture

In remote areas such as those in the north of Namibia – surrounding towns like Oshakati

– graders are essential for road building, but also for assistance with other infrastructural projects such as the delivery of water infrastructure and building schools and hospitals.

## Trusted machines

Michael Nghulondo, who owns Cango Construction in Ongwediva, recently insisted on buying a Hidromek MG 460 grader when his business expanded into site preparation for construction sites, local road maintenance and construction projects.

"I know and have worked with Mitsubishi graders in the past. As a result, when the requirement for a grader was warranted, insisted on purchasing a new Hidromek MG 460 to assist with the growing amount of projects we are undertaking for rural communities. I trust Hidromek and know it will be a good investment in years to come.

"My operators have built up a high level of respect for the machine and its ability and power compared with other brand-name graders that I have hired until now. It is more efficient in terms of fuel.

Owner of Northern Auto Repairs, Braam Ellis supports Nghulondo's views and adds that the northern region of Namibia is in the grip of a severe drought. Budgets have been cut, making efficiency a top priority for local contractors. "Payments can take some time to materialise out here, so as far as contractors are concerned, it pays to have machines that deliver the quickest return on investments."

## More to come

With the overall responsibility for grader sales across the entire sub-region, Kaliszka says that Namibia is just one example of the many countries in Africa, including South Africa, where the Hidromek grader brand is a trusted partner for road construction companies.

"In future, fleet owners who have become loyal to the brand will have more choices as newer and more sophisticated machines get added to the line-up to fill niches in urban and specialist applications. So watch this space." <



Grader specialist, Peter Kaliszka of ELB Equipment.

Michael Nghulondo runs Cango Construction in Ongwediva.



Cango Construction's new Hidromek MG 460 grader excels in tough conditions around Oshakati.



# SA FRENCH GIVES AFRICAN TOWER CRANE USERS A LIFT

**With the backing of its parent company, Torre Industries, SA French is growing the popularity of the Potain tower cranes in sub-Saharan African countries.**

> Quentin van Breda, managing director of SA French which is a division of Torre Lifting Solutions, says one of the company's major competitive edges in Africa is Potain's ongoing investment into research and development. This has facilitated access to the latest lifting solutions that are now being demanded by a rapidly changing crane market on the continent.

Firstly, he is seeing an increasing need for cranes that use less than half the electrical energy compared to earlier units; an African trend that is in line with international practices.

African contractors are also exploring the latest state-of-the-art technologies from tower crane original equipment manufacturers (OEMs) that assist in improving preventative

maintenance strategies and optimise the overall performance of the machines on site.

Van Breda says all Potain cranes leave the factory floor pre-equipped for the system that informs the project manager when they are due to be serviced and when adjustments need to be made to mechanical componentry.

There are also more onerous demands on tower crane OEMs and the distributor networks. Van Breda says the fast track nature, as well as complexities of modern buildings, mean that contractors have less time to prepare the site for the arrival of the tower cranes and as a result now rely more heavily on a full turnkey service from the OEM supplier.

The need to mobilise a tower crane as swiftly as possible on the site for work to start timeously has seen a growth in demand for tower crane rental services. Van Breda says SA French has a comprehensive fleet of quality tower cranes that can be quickly mobilised to and demobilised from site.

Optimum uptime also has to be ensured through high levels of tower crane reliability. Van Breda says it is not unusual for construction companies to demand a response rate of as little as three hours from their supply chain partners.

The growing distances between construction sites and their support points calls for very careful logistical planning by equipment suppliers to ensure that these critical contractual obligations can be met. Support often has to be undertaken on a weekly basis to keep to demanding construction schedules.

Van Breda believes that the market will become even more demanding, challenging conventional sales and after-market support roles of equipment distributors and their principals. However, under his leadership, SA French continues to adapt to keep Potain a common sight on the continent. ■

## PERFECT LANDSCAPING SOLUTION

**Wacker Neuson offers a wide range of equipment solutions.**

> Products are ideally suited for a vast variety of landscaping applications, such as horticulture and creating and maintaining parks and green spaces in public or private and residential developments.

The Wacker Neuson ET20 excavator offers the perfect solution for landscaping applications including, site clearing and demolition, ground levelling, trench digging for irrigation and material handling. This tracked machine is easy to manoeuvre in small confined spaces and offers a host of features including a quick-hitch system, a variety of attachments as well as a unique Vertical Digging System (VDS), allowing the operator to work comfortably on uneven ground.

Other solutions include soil compaction, paving plates, demolition machines, dumpers and compact wheel loaders. The products and services meet the demands of landscaping professional's requirements. ■

**Wacker Neuson ET20 excavator offers the perfect solution for landscaping applications.**



**ABOVE:** For many years SA French's Potain cranes have been a constant presence across African skylines. **BELOW:** Potain offers both a premium product for the global blue chip western companies that are constructing in Africa as well as a value product for the emerging contractors.





# Need for **DETAILED KNOWLEDGE** about concrete

South African engineers and contractors need detailed knowledge about the properties and construction requirements of concrete to prevent incorrect specifications for building projects, says John Roxburgh, lecturer at The Concrete Institute's School of Concrete Technology



**John Roxburgh, lecturer at The Concrete Institute's School of Concrete Technology.**

> Roxburgh says detailed specifications for structural concrete work and industrial floors on the ground are essential to prevent problems during the construction and lifespan of a concrete structure. In the design and construction of concrete structures, both the plastic and hardened state properties should be considered.

“A contractor is inclined to be more concerned about the plastic state of concrete which, if designed with construction methods in mind, will simplify the job and achieve better results when the shutters are removed. An engineer, on the other hand, often places more emphasis on the hardened properties of concrete: it must meet the strength requirements and be durable and free from defects.

“But the contractor, engineering consultant and clients can all win if the specifications – whether prescriptive or performance-based – are correct, detailed enough and, importantly, cover not only the performance of the finished product but also concrete mix design, transport, construction methods and the plastic state of the concrete. In the case of industrial floors, in particular, detailed specifications for joint types and

layout are essential, as is the specification for the concrete to ensure appropriate performance,” Roxburgh stated.

“Fundamental to obtaining the correct performance out of any concrete structure is the concrete mix design. However, even with the correct mix design, there are many things that can go wrong between batching and completion of the hardened product. The plastic properties of the concrete must suit both the transport and construction methods employed as well as the finish required when it comes to industrial floors. The construction process, in particular, should be carefully thought through to optimise the performance of the concrete. A large percentage of strength and durability problems start in the plastic phase of the concrete but with good specifications and site practice these can be avoided.

“Protection and curing are aspects that are often under-specified, especially in the case of industrial floors and pavements which have large surface areas relative to concrete volume and are therefore prone to drying, especially during finishing. Curing is important for concrete strength but can also prevent defects such as cracks, surface

wearing and quality. Durability is also greatly enhanced with proper curing. Sadly, too often curing and surface protection are inadequate because of a lack of suitable specifications. By far the greatest number of enquiries received, and consultations carried out, by The Concrete Institute deal with problems with industrial floors and pavements. These problems stem from a lack of knowledge about concrete design, detailing and construction.

“It is therefore essential for both engineers and contractors to fully understand the properties of concrete and construction requirements of different structures to produce appropriately detailed specifications for concrete works. These subjects are dealt with in the two one-day courses the School of Concrete Technology is offering. ‘SCT36 Properties of concrete for the structural designer and constructor’ and ‘SCT21 Concrete industrial floors on the ground’ are available on pre-set days according to the School of Concrete Technology’s annual training programme. Companies can arrange for the School to present the courses on specific dates and venues and use this option as a marketing tool by inviting clients and associates to attend,” Roxburgh stated. <

## FAST-CURING UNIVERSAL ANCHORING ADHESIVE

**Sika has extended its offering in the Anchoring range. This NEW two-part, general-purpose, anchoring adhesive is based on styrenated polyester and is intended for mechanical, electrical and plumbing works, as well as metal or structural work. Sika AnchorFix®-S covers the requirements for standard applications of low to medium loads.**

Advantages of Sika AnchorFix®-S:

- Chemical anchoring is much more effective than mechanical anchors:
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- Outstanding load bearing capacity
- Corrosion prevention
- Easy application: With an open time of three to four minutes, the applicator ensures a flexible working time. Due to the styrene in this product, a long application time is provided while fast curing speed is maintained - useful especially in high temperatures and tropical climates.

- Non-Sagging: Sika AnchorFix®-S displays non-sagging behavior for both horizontal and vertical applications. Thanks to the easy-to-handle and highly efficient packaging and mixing mechanism, unnecessary waste of product is avoided.
- Versatile: Sika AnchorFix®-S can be utilised for fixing of sanitary equipment and the installation of kitchen fittings, aerials and satellites. Among the common applications in metalwork are general supports, window and doorframes, window protection cages, blinds, sunshades and handrails. Used extensively for rebars/reinforcing steel, threaded rods, bolts and special fastening systems.
- Sika AnchorFix®-S is suitable for use in concrete, hollow and solid blockworks and bricks as well as in hard natural stone and solid rock. Both outdoor and indoor applications are possible. It can be used for fixing both structural elements (such as balcony extensions) and non-structural elements (e.g. stair and balcony railings or sun blinds).
- Sika AnchorFix®-S is the ideal solution for applications using hollow blocks. Where mechanical anchors are ineffective as they loosen, the Sika AnchorFix®-S system is combined with a perforated sleeve to ensure it stays fixed. ■



## DEAL TO BUILD SA'S NEXT INDUSTRIAL GIANT

**enX Group Limited (enX) and Eqstra Holdings Limited (EQS) recently announced that they have concluded an agreement whereby enX will acquire Eqstra's Industrial Equipment and Fleet Management divisions and recapitalise Eqstra's Contract Mining division for approximately R7,8-billion.**

> The transaction will see enX issue 52.7-million enX shares at R21-00 a share (post consolidation) to Eqstra to acquire the Industrial Equipment and Fleet Management divisions and raise R1,5-billion of which R1,4-billion will be used to recapitalise the Contract Mining business.

On completion of the transaction the enX businesses will be arranged and managed in three clusters:

- Industrial Equipment, which will comprise Eqstra's Industrial Equipment division and enX's existing power and wood businesses;
- Fleet Management, which will comprise Eqstra's Fleet Management division; and
- Fuel and Chemicals, which will comprise enX's oil lubricants business and the chemicals distribution business of the to-be acquired West Africa International Proprietary Limited.

The contract mining division currently known as MCC will have a new capital structure and remain a standalone public company. The R1,4-billion capital injection will be used to repay current bank debt.

The contract mining business presents Eqstra shareholders with a levered opportunity to unlock value through a focused entry point into a well-capitalised mining services business. The sector seems to be at or close to the bottom of the cycle and there are new opportunities to expand geographically and into new commodities and service offerings. The contract mining business will be well-positioned to take advantage of these opportunities and be a potential consolidator of the industry.

Paul Mansour, the current CEO of enX, will, with effect from the completion of the Eqstra transaction, assume the role of executive deputy chairman of enX and Jannie Serfontein, Eqstra's current CEO, will assume the role of enX's chief executive officer. The key executives of each of the underlying business will continue in their current roles.

The Board of Eqstra will be reconstituted and the Board of enX will be bolstered by the addition of certain existing Eqstra board members. Details of the proposed candidates will be included in the circulars to shareholders giving notice of a meeting to consider the resolutions necessary to give effect to the Eqstra transaction.

Paul Mansour said: "Our vision is to build the next industrial powerhouse. This transaction with Eqstra represents an opportunity to take a significant step towards achieving this goal. We also have the prospect of building a dedicated and focused mining services business."

"This transaction has been supported by constructive and supportive responses and input from banks and note holders who are pivotal to establishing a more sustainable capital structure. This capital structure will enable business units within the reorganised group to benefit more fully from the strong positions they hold in their respective markets.

Jannie Serfontein added: "Management of Eqstra has been engaged for some time in a strategy to adapt the company to changed business conditions. A key element of this strategy has been to address the cash flow pressure of the current debt structure. ❏

## ICAM HELPS PROTECT AND MONITOR FLEETS

**iCAM Video Telematics has launched iCAM 852 allowing fleet owners to stream live videos from multiple vehicles and from multiple cameras. It is a 4-camera mobile CCTV system and is manufactured locally.**

> The iCAM 852 is designed to provide video solutions with combined vehicle tracking and fleet management capabilities. It will not only ensure reduced time to settle insurance claims, but fleet owners can now increase driver productivity, reduce fuel theft and increase load frequency with reduced turnaround times.

It is a powerful video streaming and fleet management product designed for safety and driving analysis through video technology. The iCAM 852 was designed from ground up, with scalability in mind in order to support any sized fleet.

iCAM Video Telematics managing director Gary Wels says the scalability allows fleet owners to add vehicles and administer them without any increases to computers and hardware, because all files are viewable over the Web. "Fleet owners can set auto record, time record, event record and manual record. All of this is done on top of the live tracking offered by normal tracking systems," he says.

"It includes video and image verification, driver behaviour monitoring for risk reduction, goods monitoring for theft prevention and full fleet video telematics for monitoring and event management with traditional live tracking," Wels explains.

With up to four cameras including the option of infra-red, the iCAM 852 now offers live video streaming and continuous video recording while the vehicle ignition is turned on and for up to four hours after ignition is turned off. GPS is embedded into all recorded video data with GPS + Map trip playbacks. With video recording on all trips, speeding and idling



is tracked and owners can have event triggers on behaviours like harsh braking, acceleration or accidents. Other triggers could include cabin doors, CANBus or trailer doors.

Wels says the iCAM 852 offers peace of mind and provides factual evidence for insurance claims. "It has real-time live capability on 3G streaming and the GPS accuracy and G-force measurement provide highly reliable impact speeds and force – to prevent any challenges to the validity of data."

Fleet owners can choose to receive immediate email alerts upon exceptions or triggers and they have direct contact with the driver via auto answer mic and speaker. This innovative solution offers a fully integrated tracking system with trip playbacks and reports.

Web based software offers video clips, incident set up and management, maps, live location, speed, live tracking and trip playback. It is possible to manage geo fences and Points of Interest. Live reports include a trip report, log book and area reports.

Also offered is a video dashboard with live video streaming and it is possible to play events, incidents and triggered videos. ❏



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